BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 435

In the Matter of) INTERVENORS' OPENING
NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL,) TESTIMONY))
Request for a General Rate Revision.)))
)))

OPENING TESTIMONY

OF INTERVENORS

COALITION OF COMMUNITIES OF COLOR, CLIMATE SOLUTIONS, VERDE, COLUMBIA RIVERKEEPER, OREGON ENVIRONMENTAL COUNCIL, COMMUNITY ENERGY PROJECT, and SIERRA CLUB

April 22, 2022

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BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 435

In the Matter of) DIRECT TESTIMONY OF
) NORA APTER
NORTHWEST NATURAL GAS COMPANY,)
dba NW NATURAL,)
)
Request for a General Rate Revision.)
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1 2		I. <u>INTRODUCTION AND SUMMARY</u>
2	Q.	Please state your name and position.
4	A.	My name is Nora Apter. I am the Climate Program Director for the Oregon
5		Environmental Council (OEC). My responsibilities include directing OEC on policy
6		analysis and development of legislative proposals and administrative rules to advance
7		greenhouse gas emissions reductions and public health benefits for Oregon communities,
8		and managing a broad coalition of labor, business, youth, climate, public health, and
9		environmental justice partners with the mission of advancing emissions reductions and
10		equitable outcomes in Oregon. As part of my role, I maintain collaborative working
11		relationships with Oregon state legislators, congressional representatives, and state
12		agency officials, and serve as a formal member of various state agency Rulemaking
13		Advisory Committees.

14

1		I also serve as a Commissioner on the Oregon Global Warming Commission. In this role,
2		I help develop recommendations for statutory and administrative changes to be carried
3		out by state and local governments, businesses, and nonprofit organizations to achieve the
4		State's emissions reduction goals.
5	Q.	Please describe your education and employment background.
6	A.	Please see my witness statement attached as Exhibit Coalition/101.
7	Q.	What is the purpose of your testimony?
8	A.	I will address six main topics in my testimony: (1) the climate context, (2) trends
9		opposing fossil gas and moving toward building electrification, (3) background about
10		Renewable Natural Gas ("RNG") and the risks of meeting the SB 98 targets with
11		environmental credits associated with RNG, (4) the requirements of the Climate
12		Protection Program ("CPP"), and (5) NW Natural's imprudent investments in Lexington
13		and other offtake agreements that will not assist the company in complying with the law;
14		and (6) provide concluding recommendations.
15		
16		Each of these topics relates to a broader conversation regarding the future of the gas
17		system during our current climate emergency. In short, expansion of the gas system
18		(which cannot be offset by investing in RNG outside of Oregon) runs counter to Oregon's
19		goals to reduce greenhouse gas (GHG) emissions, and raises important questions about
20		gas usage into the future, the risk of stranded assets, and the impact of costly investments
21		in RNG that will not assist the company in reducing its GHG emissions or in complying
22		with state regulations, all to the detriment of its ratepayers.
23		

DIRECT TESTIMONY OF NORA APTER - 2 UG 435

1		While I acknowledge it is difficult to comprehensively discuss policy issues in rate cases,
2		it is similarly difficult to address utility spending proposals in broad policy dockets.
3		Accordingly, I provide policy recommendations for the Oregon Public Utility
4		Commission ("Commission") to consider here because the future of the fossil gas system
5		will be shaped by these incremental decisions. I also recommend that the Commission
6		reject NW Natural's proposal to recover the costs of the Lexington RNG project as set
7		forth in Schedule 198.
8	Q.	Have you previously testified before the Oregon Public Utility Commission or other
9		utility commissions?
10	A.	Yes. I have participated in and provided testimony on a number of PUC proceedings,
11		including those involving the PUC's proposed plans to implement Executive Order 20-
12		04, "Natural Gas Fact Finding" proceeding (UM 2178), and Community Solar Program
13		(UM 1930). I have also provided testimony in the legislature on several PUC-related
14		laws, including HB 2475, HB 2021 and HB 3141, all adopted last year.
15	Q.	To implement the state's climate policies, what rulemakings have you participated
16		in?
17	A.	In my role as Climate Program Director, I have represented OEC in a variety of state
18		rulemaking and other decision-making processes related to climate policy, including
19		Department of Environmental Quality rulemakings to expand the Clean Fuels Program
20		(CFP) to accelerate transportation electrification and strengthen the program's overall
21		carbon intensity reduction targets, and to cap and reduce pollution from fossil fuel
22		suppliers and large stationary sources in Oregon through the Climate Protection Program
23		(CPP).

1		
2		I served as a formal member of DEQ's CPP Rulemaking Advisory Committee (RAC). I
3		participated in each stage of DEQ's extensive CPP rulemaking process, including
4		attending and providing comment at six technical workshops, three "Town Hall"
5		meetings, and seven day-long RAC meetings. Over 80-plus hours of rulemaking-related
6		meetings, I provided extensive technical comments and feedback related to specific
7		program design elements, options, and implications to inform the CPP rules. In addition,
8		between October 2020 and October 2021, I met weekly with key DEQ staff to discuss
9		CPP program design considerations. In addition to weighing in orally at meetings, I led
10		and/or contributed to drafting and submitting at least 18 written comments to DEQ during
11		the rulemaking process.
12		
13		I also serve on the RAC for DEQ's current CFP rulemaking, which seeks to expand the
14		CFP's carbon intensity reduction targets to help achieve our state's science-based climate
15		pollution reduction targets. Through this rulemaking process, I have attended every DEQ-
16		hosted scoping meeting, technical workshop, and formal RAC meeting, and provided
17		input on the proposed carbon intensity targets, fuel pathway considerations to achieving
18		expanded targets, and the public health, economic, and climate benefits of an ambitious
19		Clean Fuels Program.
20	Q.	What materials did you review in preparing this testimony?
21	A.	I have reviewed NW Natural's general rate application, the Climate Protection Rules and
22		related materials, the April 2022 report from the United Nations' Intergovernmental
23		Panel on Climate Change, Oregon Public Utility Commission Natural Gas Fact Finding

- 1 (UM 2178) workshop submissions, SB 98 and the implementing rules, local government 2 climate action plans, as well as several reports cited below. 3 **Q**. Are you sponsoring any exhibits? 4 Yes. [See FN 37 and 53] A.. 5 **O**. How is your testimony organized? 6 A. In Section II, I provide context for our concern with NW Natural's decarbonization 7 strategy in light of the climate emergency and the State of Oregon's climate policies. 8 Section III focuses on trends against fossil gas and for building electrification and why 9 these trends are relevant to NW Natural's request for a general rate revision. Section IV provides a background about RNG to offer a more complete picture of its risks to 10 11 ratepayers. In Section V, I explain my concern that NW Natural's strategy to meet its SB 12 98 targets by buying environmental attributes associated with RNG is not consistent with 13 the language of SB 98. I also describe the CPP mandates and why the Lexington facility 14 will not assist NW Natural in complying with the CPP's enforceable and declining cap on 15 GHG emissions. Finally, in Section VI, I recommend the Commission reject NW Natural's proposal to recover the costs of the Lexington RNG project as set forth in 16 17 Schedule 198 as it is not a prudent investment.
- 18 19

II. <u>CLIMATE CONTEXT</u>

Q. Do you have any concerns about NW Natural's decarbonization strategy that
 includes continuing to encourage customer growth, in light of the warnings from the
 United Nations' Intergovernmental Panel on Climate Change, the world's leading
 authority on climate research?

1	A.	Yes. The newest IPCC report underscores the urgency and importance of the issues
2		presented in this rate case. The April 2022 report from the IPCC is clear: the planet has
3		already warmed by more than 1 degree C, and GHG emissions are still rising. To meet
4		the 1.5 degree C threshold, global emissions must fall by nearly half by the year 2030,
5		and reach net zero by 2050 or so. ¹ The report further states that "rapid and deep and in
6		most cases immediate GHG emission reductions in all sectors" are necessary to limit
7		warming to between 1.5 and 2 degrees C. ² Further, the IPCC report concludes that global
8		methane emissions must be reduced by at least 34% by 2030 to have any hope of limiting
9		warming to 1.5 degrees C. ³ Importantly, investment decisions, like those faced by the
10		Commission in this rate case, "are significant for mitigation because they lock in high- or
11		low- emissions trajectories over long periods."4
12		
13		The IPCC report includes a number of important recommendations for mitigation
14		strategies related to fossil gas in buildings. Because methane has a shorter lifetime, it has
15		an outsized impact on temperatures in the near-term. For that reason, methane reductions
16		are "particularly important in relation to near-and medium-term temperatures[.]" ⁵ The

¹ IPCC, 2022: Summary for Policymakers. In: *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi:

^{10.1017/9781009157926.001,} SPM 4, available at https://www.ipcc.ch/report/ar6/wg3/.

 $^{^{2}}$ Id. at SPM-32.

³ *Id.* at SPM-22.

⁴ Id. at TS-112 (Draft Technical Summary Subject to Final Edits).

⁵ IPCC, 2022: Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [P.R. Shukla, J. Skea, R. Slade, A. Al Khourdajie, R. van Diemen, D. McCollum, M. Pathak, S. Some, P. Vyas, R. Fradera, M. Belkacemi, A. Hasija, G. Lisboa, S. Luz, J. Malley, (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA. doi: 10.1017/9781009157926, at 221 (Draft Subject to Final Edits).

report noted that to achieve "stringent emissions reductions at the level required" for 1.5
 to 2 degrees C, "increased electrification of buildings, transport, and industry" will be
 required.⁶

4 How is this relevant to NW Natural's requested rate increase? **Q**. 5 A. Institutional and market responses to the climate emergency cannot be ignored in 6 evaluating least risk and least cost options. The Commission must realistically assess NW 7 Natural's forecasted five-year capital expenditures of \$1.1 billion, which it anticipates 8 from customer growth, increasing investments in RNG, as well as safety and reliability investments.⁷ Each additional customer added to NW Natural's system brings outsized 9 10 costs that harm existing customers. NW Natural's plans to purchase only the 11 environmental attributes associated with RNG without actually decarbonizing Oregon's 12 fossil gas is imprudent given the risks to the gas system from market forces and outside 13 regulatory pressures. The IPCC's report underscores, yet again, that we can no longer 14 continue with business as usual expenditures.

15 Q. What are the State of Oregon's climate policies?

A. EO 20-04 established targets for the State of Oregon to reduce greenhouse gas emissions
at least 45 percent below 1990 emissions levels by 2035 and at least 80 percent below
18 1990 emissions levels by 2050. The EO directs state agencies to "exercise any and all
authority and discretion vested in them by law to help facilitate Oregon's achievement of
the GHG emissions reduction goals" set forth in the EO, including by prioritizing and
expediting any processes and or agency dockets that could accelerate GHG emission
reductions and integrating climate change and emissions reduction goals into agency

⁶ Id. At TS-46 (Draft Technical Summary Subject to Final Edits).

⁷ NW Natural/300/Villadsen-Figueroa/Page 73.

1	planning and policymaking decisions. Section 5(A) of the EO directs the PUC to consider
2	the following Statement of Public Interest: "It is in the interest of utility customers and
3	the public generally for the utility sector to take actions that result in rapid reductions of
4	GHG emissions " ⁸ Section $5(A)(1)$ directs the PUC to "Determine whether utility
5	portfolios and customer programs reduce risks and costs to utility customers by making
6	rapid progress towards reducing GHG emissions consistent with Oregon's reduction
7	goals." ⁹
8	
9	The Department of Environmental Quality's Climate Protection Program (CPP)
10	establishes mandatory requirements for Oregon's gas utilities and other fossil fuel
11	suppliers to reduce regulated greenhouse gas emissions 50% below averaged 2017-2019
12	emissions by 2035, and 90% below averaged 2017-2019 emissions by 2050. The CPP
13	also includes an alternative compliance option for regulated fossil fuel suppliers that will
14	generate investments to help reduce emissions from transportation and buildings, and
15	support environmental justice communities in the transition. Through this Community
16	Climate Investment (CCI) program, a fuel supplier or fossil gas utility is allowed to
17	invest in projects to reduce emissions in Oregon communities-for example, replacing
18	fossil gas appliances with electric heat pumps in an apartment complex-instead of
19	directly reducing some of their own climate pollution. ¹⁰
20	

⁸ Office of the Governor, State of Oregon, Exec. Order 20-04, available at <u>https://www.oregon.gov/gov/Documents/executive_orders/eo_20-04.pdf</u>.
⁹ *Id.*¹⁰ OAR 240-271-0900.

1		Finally, SB 98, now codified at ORS 757.390 to 757.398, encourages natural gas utilities,
2		both large and small, to reduce emissions by procuring RNG for use in Oregon and
3		investing in related infrastructure. The legislature declared that "the development of
4		renewable natural gas resources should be encouraged to support a smooth transition to \mathbf{a}
5		low carbon energy economy in Oregon." ¹¹ Renewable natural gas infrastructure means
6		"all equipment and facilities for the production, processing, pipeline interconnection and
7		distribution of renewable natural gas to be furnished to Oregon customers." ¹² Large
8		utilities may make investments and procure RNG from third parties to meet targets-5%
9		by 2024 and 30% by 2050—for the percentage of gas purchased for distribution to
10		Oregon customers. ¹³ Regulations implementing the law require documentation to
11		demonstrate that the RNG purchased pursuant to SB 98 was delivered to an injection
12		point on a common carrier pipeline. ¹⁴ Note that it is not sufficient that the gas be merely
13		processed to meet standards for injection into a common carrier pipeline. It must actually
14		be delivered to an injection point on a common carrier pipeline.
15	Q.	Do you have any general concerns about NW Natural's strategy to decarbonize its
16		gas distribution system that includes continuing to encourage customer growth, in
17		light of state policy?
18	A.	Yes. Every new customer NW Natural adds merely increases fossil fuel sales, expands
19		our reliance on fossil gas, and delays the transition to cost-effective, zero-carbon

¹¹ ORS 757.390(1)(b)(emphasis added). ¹² ORS 757.392(8)(emphasis added).

¹³ ORS 757.396(1).

¹⁴ OAR 860-150-0050(7) ("Upon the Commission's request, each large natural gas utility . . . that participates in the RNG program must provide documentation to demonstrate that, for each RTC the natural gas utility purchased or otherwise acquired, one dekatherm of RNG was delivered to an injection point on a natural gas common carrier pipeline.").

1	alternatives. Every new gas hookup digs us deeper into a climate catastrophe hole.
2	Further, continuing to increase our reliance on fossil gas comes with an outsized
3	decarbonization cost and risk for ratepayers compared to lower-cost electrification and
4	deep energy efficiency solutions.
5	
6	If the state hopes to achieve its GHG emissions reduction goals and mitigate the climate
7	emergency, the use of fossil gas must significantly decline. After transportation,
8	residential and commercial buildings are Oregon's second largest source of greenhouse
9	gas emissions. ¹⁵ Methane used to heat homes and power appliances results in 86 times
10	the atmospheric warming effects of carbon dioxide over 20 years-the period during
11	which global emissions must be substantially decreased to keep warming to between 1.5
12	and 2 degrees C. In addition to CO2 emissions from the gas when it is combusted,
13	fugitive methane emissions from wells and pipelines (1% to 9% of throughput per Union
14	of Concerned Scientists) ¹⁶ also contribute to warming. At the same time, electric utilities
15	are rapidly phasing out coal power plants, and, in Oregon, are required to reduce GHG
16	emissions 100% by 2040. ¹⁷ New fossil fuel power plants, including fossil gas, can no
17	longer be permitted, nor are existing fossil fuel power plants allowed to substantially
18	expand in the state of Oregon. ¹⁸

19

¹⁵ Department of Environmental Quality, Oregon Greenhouse Gas Sector-Based Inventory Data, available at https://www.oregon.gov/deq/aq/programs/Pages/GHG-Inventory.aspx.

¹⁶ See UNION OF CONCERNED SCIENTISTS, ENVIRONMENTAL IMPACTS OF NATURAL GAS (June 2014), <u>https://www.ucsusa.org/resources/environmental-impacts-natural-gas</u>. ¹⁷ 100% Clean Energy for All, HB 2021 (Sept. 25, 2021).

¹⁸ *Id*.

1		Even if we assume the state achieves 100% emissions reductions in other sectors, the
2		state cannot meet its GHG emissions reduction goals without also reducing fossil gas
3		combustion from the direct use of fossil gas.
4		
5		I will address specific concerns with NW Natural's assertions that its strategy to
6		decarbonize complies with Oregon law below.
7 8 9		III. <u>TRENDS AGAINST FOSSIL GAS AND TOWARD BUILDING</u> <u>ELECTRIFICATION</u>
9 10	Q.	What is your knowledge about public opposition to fossil gas in Oregon?
11	A.	Increased public awareness of the harms of fossil gas has led to more robust public
12		opposition to its use, and stronger support for transitioning to zero-carbon alternatives.
13		For instance, a recent study from Oregon State University (OSU) found that, when
14		presented with proposed natural gas export operations in the state, Oregonians are more
15		likely to perceive the environmental and public health risks than the potential financial
16		gains. ¹⁹ A corresponding OSU press release notes further that "To date, six natural gas
17		export projects have been proposed along the Oregon coast but none have been built,
18		most recently the Jordan Cove LNG project slated for Coos Bay, which was first
19		proposed in 2004 and ultimately defeated last year." ²⁰
20		

¹⁹ Rachel Mooney, Hillary Schaffer Boudet & Shawn Olson Hazboun (2022) Risk-benefit perceptions of natural gas export in Oregon, Local Environment, 27:3, 342-356, available at https://www.tandfonline.com/doi/abs/10.1080/13549839.2022.2040470?journalCode=cloe20.

²⁰ Molly Rosbach, Oregonians perceive greater risk than benefit from natural gas export in state, OSU study finds (Apr. 7, 2022), available at <u>https://today.oregonstate.edu/news/oregonians-perceive-greater-risk-benefit-natural-gas-export-state-osu-study-finds</u>.

1		Public opposition to fossil gas was also made abundantly clear during DEQ's CPP
2		rulemaking process. Throughout the rulemaking process, including via public comments
3		provided at and following each of the seven RAC meetings, members of the public
4		consistently expressed strong support for regulating fossil gas power plants in Oregon in
5		addition to fossil gas utilities. Of the 7,620 comments that DEQ received during the
6		formal public comment period on the CPP rules, 75 percent expressed concern over
7		climate change impacts for current and future Oregonians and strong support for reducing
8		greenhouse gas emissions. ²¹ In addition, many commenters provided input expressing
9		concern with DEQ's proposal to exclude emissions from fossil gas power plants and
10		fossil gas utilities in Oregon. ²²
11	Q.	What is happening locally to encourage or require building electrification?
12	А.	At least 14 cities in Oregon ²³ have climate action plans, 12 of which are served by NW
13		Natural. ²⁴ Many of these cities are beginning to seriously consider phasing out or
14		restricting direct use of fossil gas in their communities. The cities of Portland, Milwaukie,
15		and Eugene have all initiated public processes to explore various approaches to building
16		decarbonization. ²⁵ Additionally, Multnomah County passed a resolution in April 2021 to
17		prohibit constructing new county buildings with gas and other fossil fuels. This new

 ²¹ EQC Staff Report, Attachment C: Response to Comments, Dec. 16, 2021, EQC special meeting at 6, available at <u>https://www.oregon.gov/deq/EQCdocs/121621_ItemA.pdf</u>.
 ²² Id., p. 322 - 325.

²⁵ See City of Portland Climate and Health Standards for Existing Buildings, available at <u>https://www.portland.gov/bps/climate-action/building-standards</u>; City of Eugene Council Agenda, Meeting of Apr. 13, 2022, available at <u>https://ompnetwork.s3-us-west-2.amazonaws.com/sites/134/documents/agenda_packet_04-13-</u>

²² *Id.*, p. 322 - 325.

²³ See <u>https://zeroenergyproject.org/all-cities-with-climate-action-plans/</u>.

²⁴ Albany, Beaverton, Corvallis, Eugene, Gladstone, Hood River, Milwaukie, Portland, Rockaway Beach, Salem, Tualatin, and West Linn.

²²_post.pdf?Dfrqjppwg0ySwqiI.hJ4wrBk5kmas4mc; Pamplin Media Group, *Milwaukie natural gas ban proposal regroups after 'scare tactics'* (Feb. 23, 2022), available at <u>https://pamplinmedia.com/pt/9-news/536840-429978-milwaukie-natural-gas-ban-proposal-regroups-after-scare-tactics</u>.

1		county policy also replaces existing gas and other fossil fuels in existing county buildings
2		during retrofits. ²⁶ Several months later, Portland Public Schools adopted goals to prohibit
3		the installation of fossil gas infrastructure in new construction of PPS buildings and to
4		phase out fossil gas in existing PPS buildings by 2050. ²⁷ And Lane County just passed a
5		greenhouse gas reduction plan that should lead to increased efficiency and electrification
6		of buildings. In short, electrification of buildings, particularly for space and water
7		heating, is on the rise and is all but inevitable. With the adoption of 100% Clean
8		Electricity for All (HB 2021), local governments, businesses, and residents will be
9		looking for ways to move away from direct use of fossil gas.
10	Q.	What is happening nationally/globally to reduce emissions from methane?
11	A.	At the November 2021 United Nations climate conference, President Biden unveiled the
11 12	A.	At the November 2021 United Nations climate conference, President Biden unveiled the U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage
	А.	
12	А.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage
12 13	А.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage all available tools to tackle methane emissions. Leaders of the world's 20 wealthiest
12 13 14	А.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage all available tools to tackle methane emissions. Leaders of the world's 20 wealthiest nations, the G20 Communique, met during the same U.N. climate conference and
12 13 14 15	A.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage all available tools to tackle methane emissions. Leaders of the world's 20 wealthiest nations, the G20 Communique, met during the same U.N. climate conference and emphasized methane reductions as a critical tool to slow the pace of global warming. The
12 13 14 15 16	A.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage all available tools to tackle methane emissions. Leaders of the world's 20 wealthiest nations, the G20 Communique, met during the same U.N. climate conference and emphasized methane reductions as a critical tool to slow the pace of global warming. The leaders identified methane reductions as "one of the quickest, most feasible and most
12 13 14 15 16 17	A.	U.S. Methane Emissions Reduction Plan, outlining how his administration will leverage all available tools to tackle methane emissions. Leaders of the world's 20 wealthiest nations, the G20 Communique, met during the same U.N. climate conference and emphasized methane reductions as a critical tool to slow the pace of global warming. The leaders identified methane reductions as "one of the quickest, most feasible and most cost-effective ways to limit climate change and its impacts," and called for greater

²⁶ Mult. Co. Resolution No. 2021-021 (Apr. 15, 2021), available at <u>https://multco-web7-psh-files-usw2.s3-us-west-2.amazonaws.com/s3fs-public/2021-021.pdf</u>.

²⁷ Portland Public School Board Policy, PPS Climate Crisis Response, Climate Justice and Sustainable Practices Policy, 3.30.079-P (Mar. 1, 2022), available at

https://www.pps.net/cms/lib/OR01913224/Centricity/Domain/4814/3.30.079-P.pdf. ²⁸ https://www.politico.eu/wp-content/uploads/2021/10/31/G20-leaders-declaration.pdf.

1		finance the pledge. Just days after joining the agreement, the Environmental Protection
2		Agency (EPA) announced a new proposed rule to cut methane pollution. The Biden
3		administration has taken additional actions since then to tackle methane emissions and
4		support a clean energy economy, including the Bipartisan Infrastructure Law, which
5		includes significant funding to support a Methane Reduction Infrastructure Initiative as
6		well as federal funding to support healthier buildings through energy efficiency,
7		weatherization, and electrification.
8 9		I also note increasing awareness about the health hazards associated with gas stoves.
10		Combusting gas from stoves and ovens produces nitrogen oxides, carbon monoxide,
11		formaldehyde, and particulate matter, all of which are harmful to health. ²⁹ Even when not
12		operating, gas stoves emit methane. ³⁰ Such research has received extensive media
13		attention on the dangers of fossil gas. ³¹
14	Q.	How are these trends related to NW Natural's requested rate increase?
15	A.	The trend toward building electrification, combined with the climate concerns, the
16		research on the health impacts of fossil gas, and policies I described above and discuss
17		further below, means that expanding the fossil gas system is no longer the lowest cost and

²⁹ B. Seals and A. Krasner, "Health Effects from Gas Stove Pollution," Rocky Mountain Institute, Mothers Out Front, Physicians for Social Responsibility, Sierra Club (2020), available at <u>https://rmi.org/insight/gas-stoves-pollution-health/;</u> Y. Zhu, et al., "Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California," UCLA Fielding School of Public Health Dep't of Env. Health Sciences (2020), available at <u>https://coeh.ph.ucla.edu/effects-of-residentialgas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/</u>.
³⁰ Eric Lebel, Colin Finnegan, et al., "Methane and NOx Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes," Environ. Sci. Technol. 2002, 64, 4, 2529-2539 (January 27, 2002),

https://pubs.acs.org/doi/10.1021/acs.est.1c04707.

³¹ See, e.g., Corryn Wetzel, Gas Stoves are Worse for Climate and Health than Previously Thought, Smithsonian Magazine (Feb. 1, 2022), available at <u>https://www.smithsonianmag.com/smart-news/gas-</u> stoves-are-worse-for-climate-and-health-than-previously-thought-180979494/; Jeff Brady, We need to talk about your gas stove, your health and climate change, NPR (Oct. 7, 2021), available at <u>https://www.npr.org/2021/10/07/1015460605/gas-stove-emissions-climate-change-health-effects</u>.

1		lowest risk option. Simply put, there is an inherent tension between making new and	
2		additional investments in gas infrastructure and having a climate-safe, decarbonized	
3		future that meets our necessary climate goals as a state, country and world. If the	
4		Commission does not manage the energy transition well in Oregon, vulnerable and	
5		lower-income customers are at risk of being stranded on an increasingly unaffordable gas	
6		system.	
7		IV. <u>BACKGROUND ON RNG</u>	
8 9	Q.	Please describe RNG.	
10	A.	RNG is chemically indistinguishable from fossil gas. Both are primarily methane (CH4).	
11		RNG emits as much CO2 and other pollutants when burned, and it leaks as much	
12		methane when transported as gas produced from non-biological sources.	
13	Q.	What are your concerns about NW Natural's reliance on RNG to decarbonize its	
14		energy system?	
15	A.	I have many concerns about NW Natural's strategy to supply its customers with RNG as	
16		a means of meeting its own climate goals and those of the State of Oregon. My concerns	
17		arise from the lack of supply, unintended consequences from accepting this strategy, the	
18		cost of RNG, and NW Natural's overly optimistic timeline.	
19			
20		As an initial matter, there is not enough RNG to decarbonize NW Natural's gas network-	
21		not even close. ICF reports that RNG sources could produce 4,667 billion cubic feet per	
22		year, reflecting only about 15 percent of current gas usage in the country. ³² Given the	

³² ICF, Energy Design Principles for Renewable Natural Gas, at 10, Ex. 5 (2017), available at <u>https://www.icf.com/-/media/files/icf/white-paper/2017/icf_whitepaper_design_principles.pdf</u> (relying on National Petroleum Council's high estimate of 4,667 billion cubic feet per year total potential national RNG).

competition for this resource, I question NW Natural's ability to meet the targets in SB
 98, and incentivizing this strategy will only prolong reliance on its GHG-emitting gas
 network.

4

5 Related to competition for this resource, I am concerned NW Natural will not secure 6 affordable RNG, resulting in the company deciding to intentionally produce a powerful 7 GHG that would not otherwise have existed but for its actions. For example, NW Natural 8 might invest in thermal gasification of energy crops and forest and agriculture residues, 9 and use methane from sources that would be better eliminated through alternative 10 resource and waste management processes. Incentivizing the generation of, and then 11 ultimately burning, RNG from such sources is not carbon neutral. In addition, methane leakage from production negates any potential climate benefit.³³ 12 13

Purchasing RNG, and investing in infrastructure to produce RNG, is expensive. In the modeling exercise conducted during the 2021 Natural Gas Fact Finding workshops, RNG costs ranged from at least double to more than double fossil gas in the early years, with prices decreasing at different rates after 2025.³⁴ Other investigations have revealed similar conclusions. An E3 report commissioned by the California Energy Commission in 2019 concluded that electrification of buildings using electric heat pumps for space and water heating "leads to lower energy bills for customers over the long-term than the use

³³ Emily Grubert, "At scale, renewable natural gas systems could be climate intensive: the influence of methane feedstock and leakage rates," 2020 Env. Res. Lett. 15 084041 (Aug. 11, 2020), available at https://iopscience.iop.org/article/10.1088/1748-9326/ab9335.

³⁴ Oregon Public Utility Commission, Natural Gas Fact Finding, UM 2178, NW Natural presentation, slide 34, available at <u>https://edocs.puc.state.or.us/efdocs/HAC/um2178hac10454.pdf</u>; *see also* Draft Staff Report at 13, available at <u>https://edocs.puc.state.or.us/efdocs/HAH/um2178hah155046.pdf</u>.

1		of renewable natural gas." ³⁵ Similarly, Washington found electricity is the lowest cost	
2		option to decarbonize its buildings. ³⁶	
3 4		Finally, as I describe below, as someone who participated in the CPP rulemaking, I do	
5		not believe NW Natural's investments in the environmental attributes of RNG alone is a	
6		legal method of complying with Oregon's climate policies.	
7	Q.	What will NW Natural's decarbonization strategy accomplish?	
8	A.	NW Natural's purported strategy to invest in RNG will accomplish three things. First, it	
9		will help to preserve a gas system funded by ratepayers, allowing it to continue operating	
10		in a business-as-usual manner for as long as possible. Second, it will help to polish its	
11		image for credit agencies, customers, regulatory agencies, and the wider public about its	
12		ability to deliver "renewable" energy that will, in fact, never offset the gas demand or	
13		result in the necessary GHG emissions reductions commensurate with what is demanded	
14		by the climate emergency and the state's climate policies. Finally, the strategy will enable	
15		the company to continue to invest billions of dollars to build and repair infrastructure-	
16		\$1.1 billion in the next five years alone-that will lock in decades of profits while leaving	
17		fewer and fewer ratepayers holding the bag.	
18			
19		As I explain below, NW Natural's actual strategy to invest in the environmental	
20		attributes of RNG alone means that the company is merely engaging in greenwashing	

DRAFT-2.pdf.

³⁵ Energy Research and Dev. Div. Final Project Report, "The Challenge of Retail Gas in California's Low-Carbon Future," at 4 (Apr. 2020), available at https://www.energy.ca.gov/publications/2019/challenge-retail-gas-californias-low-carbon-future-technology-options-customer.
³⁶ Washington State 2021 Energy Strategy, First Draft, at 63 (Nov. 2020), available at <a href="https://www.commerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-FIRST-technology-options-customerce.wa.gov/wp-content/uploads/2020/11/WA-2021-State-Energy-Strategy-State-Energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-energy-State-ener

and misleading the public. No environmental benefits are flowing to Oregon ratepayers,
 Oregon businesses, or Oregon residents, other than platitudes that "climate change is a
 global issue and greenhouse gas reductions that occur outside of Oregon still benefit
 Oregonians."³⁷

5 6

V. SB 98 AND THE CLIMATE PROTECTION PROGRAM

7 Q. Describe NW Natural's strategy to meet decarbonization targets.

8 A. NW Natural reports that it intends to become carbon neutral by 2050 by implementing 9 energy efficiency, decreasing consumption, reducing the carbon intensity of its fossil gas, 10 and "evolving [its] supply to include renewable natural gas ("RNG") and hydrogen in our pipelines."³⁸ It claims that its decarbonization strategy is aligned with the goals of 11 EO 20-04, and that it was actively involved in the CPP rulemaking,³⁹ even though it has 12 13 filed a Petition for Judicial Review of Administrative Rule at the Court of Appeals of State of Oregon challenging the CPP,⁴⁰ to avoid reducing its GHG emissions through the 14 15 CPP.

16 Q. Are NW Natural's investments resulting in RNG in its pipelines as promised?

A. No. What Anna Chittum describes functions as an offset scheme. Chittum explains that
the Lexington project will result in NW Natural retaining the environmental attributes
associated with the RNG produced by the facility. Specifically, NW Natural will retain
each renewable thermal credit (RTC) and retire it to demonstrate that NW Natural's

21

[&]quot;customers are receiving the environmental attributes of the RNG without necessarily

³⁷ Exhibit Coalition/103/Apter/1

³⁸ NW Natural/100/Anderson-Kravitz/Page 11-12 (emphasis added).

³⁹ NW Natural/100/Anderson-Kravitz/Page 14.

⁴⁰ NW Natural, Avista Corp., and Cascade Natural Gas Corp., Petition for Judicial Review of Administrative Rule, CA No. A178216 (Or. App. 2022).

1		delivering the energy content of that gas to its customers." ⁴¹ Chittum explains the gas
2		produced at the Lexington facility will be sold "to a local gas marketer" in Nebraska. ⁴²
3		Additionally, all of the offtake agreements the company has entered into are for RTCs
4		only, unbundled from the physical gas. ⁴³
5	Q.	Do you have concerns about NW Natural's strategy to meet SB 98 targets by
6		purchasing RTCs from RNG producers outside of Oregon, without also purchasing
7		physical gas?
8	A.	I have serious concerns that the statutory directives of SB 98 do not align with NW
9		Natural's strategy to purchase only the RTCs associated with RNG without also injecting
10		physical gas into a common carrier pipeline. The statute requires "the development of
11		renewable natural gas resources should be encouraged to support a smooth transition to \mathbf{a}
12		low carbon energy economy in Oregon." ⁴⁴ Renewable natural gas infrastructure means
13		"all equipment and facilities for the production, processing, pipeline interconnection and
14		distribution of renewable natural gas to be furnished to Oregon customers." ⁴⁵
15		
16		I understand that purchasing RTCs and injecting physical gas into a common carrier
17		pipeline could be considered providing a benefit to Oregon ratepayers, in that the RNG
18		would actually displace fossil gas in the pipeline. However, allowing NW Natural to
19		purchase only RTCs, without also purchasing the physical gas for injection into a
20		common carrier pipeline, is contrary to the statute, misleads ratepayers about the product

⁴¹ NW Natural/1100/Chittum/Page 5.
⁴² NW Natural/1100/Chittum/Page 22.
⁴³ NW Natural/1100/Chittum/Page 29.
⁴⁴ ORS 757.390(1)(b)(emphasis added).
⁴⁵ ORS 757.392(8)(emphasis added).

1		being purchased, implies that emissions reductions are happening in Oregon when they		
2		are not, and delays real climate action that will more quickly and legitimately put Oregon		
3		on a course to actually reduce GHG emissions.		
4	Q.	Describe how NW Natural thinks RTCs will provide a benefit to Oregon customers.		
5	А.	NW Natural asserts that "[a]quiring RNG will assist NW Natural in complying with the		
6		Climate Protection Program ('CPP') recently adopted by the Oregon Department of		
7		Environmental Quality ('ODEQ'). The CPP seeks to cap-and-reduce emissions of fossil		
8		gas utilities, certain large stationary sources, and transportation fuels. By making		
9		qualified investments in RNG projects, NW Natural can reduce emissions and help		
10		meet its compliance obligation under the CPP."46		
11	Q.	Will the RTCs generated by the Lexington project help NW Natural to comply with		
12		the CPP?		
12 13	A.	the CPP? No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that		
	A.			
13	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that		
13 14	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and		
13 14 15	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and therefore function much like a carbon offset rather than a physical emissions reduction in		
13 14 15 16	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and therefore function much like a carbon offset rather than a physical emissions reduction in		
13 14 15 16 17	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and therefore function much like a carbon offset rather than a physical emissions reduction in Oregon. This is not a permitted mechanism to comply with the CPP.		
 13 14 15 16 17 18 	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and therefore function much like a carbon offset rather than a physical emissions reduction in Oregon. This is not a permitted mechanism to comply with the CPP. Specifically, the CPP sets an overall limit on regulated GHG emissions each year. The		
 13 14 15 16 17 18 19 	A.	No. The RTCs generated by the Lexington project in Nebraska are unbundled credits that represent the environmental attributes of RNG consumed outside of Oregon, and therefore function much like a carbon offset rather than a physical emissions reduction in Oregon. This is not a permitted mechanism to comply with the CPP. Specifically, the CPP sets an overall limit on regulated GHG emissions each year. The cap is lowered each year to reach a 90% reduction in emissions from the use of fossil		

 ⁴⁶ NW Natural/1500/Kravitz/Page 3 (emphasis added).
 ⁴⁷ OAR 340-271-0010(4)(b)(B)(i).

1	allotment. However, stripping the RTC from the gas results in a product that is no longer
2	a biomass-derived fuel. I know this by referring to the Department of Environmental
3	Quality's ("DEQ's) GHG emissions reporting rules. ⁴⁸ Fuel suppliers, like NW Natural,
4	are required to report emissions pursuant to DEQ's GHG emissions reporting rules. ⁴⁹
5	Under those GHG emissions reporting rules, emissions from biomass-derived fuels, like
6	RNG, are reported as follows:
7	(d) CO2 emissions from biomass-derived fuel are based on the fuel the
8	natural gas supplier contractually purchased on behalf of and delivered
9	to end users. Emissions from biomethane are calculated using the methods
10	for natural gas required by this section, including the use of the emission
11	factor for natural gas in 40 C.F.R. 98.408, table NN-1. Natural gas suppliers
12	who report emissions from biomethane must provide supporting
	• • • • •
13	documentation as required under OAR 340-215-0044(5)[.] ⁵⁰
14	
15	In other words, CO2 emissions from biomass-derived fuel are those emissions from fuel
16	purchased on behalf of end users, and then delivered to end users in Oregon. Purchasing
17	RTCs alone, without also injecting biomethane into a common carrier pipeline network
18	that is physically connected to a distribution network in Oregon, means that NW Natural
19	cannot exclude emissions that are purportedly embodied in each RTC from its total
20	emissions allocation. ⁵¹ Under the CPP, an RTC alone, without the physical delivery of
21	RNG to an end user, is meaningless.

⁴⁸ NW Natural is required to report GHG emissions as outlined in OAR 340-215-0115 and biomethane as directed by OAR 340-215-0044(5).

⁴⁹ Id.

⁵⁰ OAR 340-215-0115(6)(d)(emphasis added).

⁵¹ More accurately (and more technically), each year DEQ distributes "compliance instruments" to each covered fuel supplier. The total number of compliance instruments distributed by DEQ for each year is equal to the cap. For every MT CO2e of covered emissions, a fuel supplier must submit a compliance instrument to DEQ. Gas utilities do not have to submit compliance instruments for their RNG emissions if those emissions are the result of contractually purchased and delivered RNG.

- 1 **O**. Was this discussed in the CPP rulemaking? 2 Yes. In answer to a comment urging recognition of a "book and claim" accounting A. system for biofuels, DEQ explained: 3 4 Emissions are determined using greenhouse gas emissions data reported to 5 DEQ's Greenhouse Gas Reporting Program (OAR chapter 340, division 6 215). Covered emissions do not include biomass-derived fuels. Biomass-7 derived fuels has the meaning given the term in OAR 340-215-0020. 8 Biomass-derived fuels include, without limitation, biomethane, biodiesel, 9 renewable diesel, renewable propane, woody biomass, and ethanol. 10 11 12 13
- For a covered fuel supplier that is a local distribution company (natural gas utility) reporting emissions associated with biomethane, also known as renewable natural gas, the natural gas utility can claim biomethane 14 delivered within Oregon provided the natural gas utility can show 15 sufficient documentation to prove ownership. The biomethane can be sourced from projects anywhere in North America, as long as the 16 17 biomethane is injected into a common carrier pipeline network. The 18 natural gas utility can claim the same volume of biomethane via 19 displacement, also known as book and claim, without tracking the gas to a specific end-user.52 20 21
- 22 In other words, NW Natural cannot comply with the CPP by purchasing RTCs alone,
- 23 without also injecting biomethane into a common carrier pipeline network that is
- 24 physically connected to a distribution network in Oregon.

⁵² EQC Staff Report, Attachment C: Response to Comments, Dec. 16, 2021, EQC special meeting, at 53-54. <u>https://www.oregon.gov/deq/EQCdocs/121621_ItemA.pdf</u> (emphasis added.)

1	Q.	Is the company injecting biomethane into a common carrier pipeline network that		
2		displaces fossil gas provided to end users in Oregon?		
3	A.	No. NW Natural is only decreasing its emissions on paper by buying RTCs from projects		
4		outside of Oregon (in Nebraska, New York, Wisconsin, and elsewhere). It is not also		
5		injecting biomethane into a common carrier pipeline.		
6	Q.	Do the offtake agreements described in the testimony of Anna Chittum represent a		
7		method by which NW Natural may demonstrate compliance with the CPP?		
8	A.	No. NW Natural has purchased only the RTCs as a result of the three offtake agreements		
9		described by Chittum. ⁵³ The same analysis I used above, with respect to the Lexington		
10		project, applies to the other projects as well.		
11	Q.	Besides reducing its emissions, is there another way for NW Natural to demonstrate		
12		compliance with the CPP?		
13	A.	Yes. Each fuel supplier may meet up to 10 percent of its compliance obligation with		
14		Community Climate Investment (CCI) credits, increasing to 15 percent for the second		
15		compliance period, and then to 20 percent for the third and remaining compliance		
16		periods. ⁵⁴ A fuel supplier may earn a CCI credit by disbursing funds to approved third-		
17		party entities to implement projects reducing GHG emissions in Oregon. Importantly,		
18		the CPP rules specify that CCI projects must occur in Oregon, and must reduce GHG		
19		emissions in Oregon by an average of at least one MT CO2e per CCI credit. The rules		
20		the energified by COL and interval of the WE have been to the transition of maid antich		
		also specify that CCIs are intended to "[a]ccelerate the transition of residential,		
21		commercial, industrial and transportation-related uses of fossil fuels in or near		

 ⁵³ Exhibit Coalition/104 (no brown gas sales from the Sustainable Energy Ventures deal)
 ⁵⁴ OAR 340-271-9000, Table 6.

1		emissions sources of energy in order to protect people, communities and businesses from
2		increases in the prices of fossil fuels."
3	Q.	Describe why the CPP limits the compliance methods to (1) reducing emissions and
4		(2) CCIs.
5	A.	The CPP carefully limits compliance methods for covered fuel suppliers, including NW
6		Natural, for several reasons, all of which are directed to improving the environment and
7		public welfare of the State of Oregon. Specifically, the CPP is intended to "reduce [GHG]
8		emissions from sources in Oregon, achieve co-benefits from reduced emissions of other
9		air contaminants, and enhance public welfare for Oregon communities[.]"55
10		VI. CONCLUSION
11 12	Q.	What are your recommendations to the Commission?
13	A.	I recommend the Commission reject NW Natural's proposal to recover the costs of the
14		Lexington RNG project as set forth in Schedule 198 as it is not a prudent investment. The
15		way the investment is structured will not assist NW Natural in complying with the CPP.
16		I recommend that the Commission carefully consider what I have presented regarding the
17		climate emergency, Oregon's climate policies, trends against fossil gas in Oregon, and
18		the risks of RNG investments in considering
19	Q.	Does this conclude your direct testimony?

20 A. Yes, it does. Thank you.

⁵⁵ OAR 340-271-0010(2) and (3).

Coalition/101 Apter/1

WITNESS QUALIFICATION STATEMENT

NAME:	Nora Apter
EMPLOYER:	Oregon Environmental Council
TITLE:	Climate Program Director
ADDRESS:	537 SE Ash Street, Suites 205 & 206 Portland, OR 97214
EDUCATION:	Bachelor of Arts, International Affairs Lewis & Clark College, Portland, OR
EXPERIENCE:	Provided testimony or comments in a variety of PUC dockets from 2020 to 2022, including Executive Order 20-04 implementation related- proceedings, UM 2178, and UM 1930, as well as a number of PUC-related laws, including HB 2475, HB 2021 and HB 3141. Participate(d) in regulatory proceedings and serve(d) as a formal member of various state agency Rulemaking Advisory Committees, including for DEQ's Climate Protection Program and Clean Fuels Program expansion rulemakings. Currently serve as a Commissioner on the Oregon Global Warming Commission and inform development of recommendations for statutory and administrative policies to achieve the State's emissions reduction goals.

Between 2012 and 2020, worked for U.S. Senator Ron Wyden and the Natural Resources Defense Council (NRDC) on a variety of public policy and environmental policy issues.

NORA APTER

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PROFILE

With a decade of experience in government and policy-serving as a legislative aide in the United States Senate, directing federal affairs for one of the nation's foremost environmental policy advocacy organizations, and advancing statewide legislative and administrative climate protections in Oregon-my dedication to advancing lasting policy solutions to pressing public interest issues can be seen at every phase of my career.

EXPERIENCE

OREGON ENVIRONMENTAL COUNCIL—Portland, OR

Climate Program Director

- Lead policy analysis and development and direct advocacy strategy on legislative proposals and administrative rules to advance greenhouse gas emissions reductions, family-wage jobs, and public health benefits for communities across Oregon.
- Manage a robust advocacy coalition of more than 50 climate, BIPOC, youth, faith, business, and clean energy organizations, with the mission of maximizing emissions reductions, equitable outcomes, and local economic vitality.
- Communicate rulemaking processes, policy positions, and public engagement opportunities to partners, legislators, the media, and OEC membership, translating complex policy issues into digestible forms appropriate to the target audience.
- Advocate to ensure the integration of equity and centering of vulnerable and impacted communities in policy design.
- Maintain collaborative working relationships with Oregon state legislators, federal congressional representatives, the Governor's office, and state agency officials.
- Influence regulatory proceedings and serve as a formal member of various state agency Rulemaking Advisory Committees, including the Climate Protection Program and Clean Fuels Program expansion.

OREGON GLOBAL WARMING COMMISSION—Salem, OR

Commissioner

• Develop statutory and administrative changes to be carried out by state and local governments, businesses, and nonprofit organizations to achieve Oregon State's carbon sequestration and emissions reduction goals.

NATURAL RESOURCES DEFENSE COUNCIL—Washington, D.C.

Deputy Director of Federal Affairs

- Directed development and implementation of legislative strategy and national campaigns to protect public lands, waters and wildlife from climate-change causing resource extraction.
- Managed broad coalitions, established lasting, strategic partnerships, engaged nontraditional allies, and elevated and centered environmental justice communities in developing and implementing federal environmental strategy.
- Collaborated across NRDC's legal, communications, and membership divisions to ensure alignment of policy work.
- Represented NRDC in the media, including extensive interviews and coverage in The New York Times, National Journal, Energy & Environment News, Inside Climate News, The Hill, Congressional Quarterly and NowThis News.
- Incorporated diversity and equity into my daily substantive work and helped develop and implement NRDC's Equity Tool. •

Federal Legislative Advocate

- Developed proactive and reactive strategies--leveraging grassroots mobilization, earned and paid media, grasstop engagement, polling and power-mapping to--to enhance advocacy in Congress and the federal administration.
- Established and maintained collaborative relationships with diverse partners and stakeholders to deliver on policy priorities.

UNITED STATES SENATOR RON WYDEN—Washington, DC

Legislative Aide

- Led policy development and strategy, developed talking points and vote recommendations, and represented Senator Wyden in meetings on a portfolio of issues including wildlife, energy, science, small business, foreign affairs, and defense.
- Collaborated with colleagues and stakeholders to create needs-based solutions and introduce effective policy.

Legislative Correspondent

• Established and maintained relationships with constituents, stakeholders, policy experts, and fellow congressional staffers and assisted policy advisors on a broad portfolio of federal policy issues.

EDUCATION

LEWIS & CLARK COLLEGE—Portland, OR

Bachelor of Arts - International Affairs

• Delivered qualitative thesis examining sustainable policymaking and the 'greening' of the major parties in Germany.

2012-2015

2015-2020

Present

Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 OPUC DR 311

311. Please see NW Natural / 1500 Kravitz / 3 regarding the reductions of emission as a benefit to Oregon customers of NW Natural:

a. Please describe what actual physically delivered reductions of greenhouse gases are delivered geographically in Oregon and what reductions of greenhouse gases are notional based on delivery to any interstate pipeline.

b. If there is no actual delivered – physical – geographically within Oregon reduction of greenhouse gases achieved with Lexington, please:

i. Clarify that; and

ii. Provide a narrative explaining how notional delivery and other material factors constitute sufficient benefit to Oregon customers of NW Natural under each of:

A. ORS 757.396, and

B. ODEQ Climate Protection Plan (CPP)

Response:

NW Natural does not see a distinction between "physically delivered" greenhouse gas reductions and greenhouse gas reductions that are "notional." The environmental attributes of RNG (i.e., the emissions reductions) are only "delivered" to customers by the Company possessing those attributes (the RTCs), and retiring those RTCs to meet ORS 757.396 sales targets and CPP requirements. In other words, the environmental attributes of RNG are distinct from the energy content of the gas. Stated another way, if NW Natural only delivered the energy content of the RNG to customers, but did not include the environmental attributes of that RNG, then it would not meet ORS 757.396 sales targets or the CPP. Further, climate change is a global issue and greenhouse gas reductions that occur outside of Oregon still benefit Oregonians.

Please see ORS 757.390, which states that simply acquiring RNG "provides benefits to natural gas utility customers and to the public." Please also see our response to DR 219, which explains why the energy content of RNG does not have to be delivered to customers to satisfy SB 98 (ORS 757.390-398). Finally please see the CPP rulemaking, specifically: "The biomethane [RNG] can be sourced from projects anywhere in North America, as long as the biomethane is injected into a common carrier pipeline network. The natural gas utility can claim the same volume of

UG 435 OPUC DR 311 NWN Response Page 2 of 2 biomethane via displacement, also known as book and claim, *without tracking the gas to a specific end-user*" (emphasis added).¹

¹ Oregon Environmental Quality Commission Special Meeting, Rulemaking, Action Item A Greenhouse Gas Emissions Program 2021 Rulemaking, Attachment C, Response to Comment, pages 53-54, available at https://www.oregon.gov/deg/EQCdocs/121621_ItemA.pdf,

Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 CUB DR 37

37. Please provide workpapers detailing actual brown gas sales from the Sustainable Energy Ventures deal between November 1st, 2021, to February 1st, 2022.

Response:

There are no brown gas sales associated with the Sustainable Energy Ventures deal. NW Natural purchases RTCs at a fixed price.

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 435

In the Matter of) OPENING TESTIMONY OF) ED BURGESS
NORTHWEST NATURAL GAS COMPANY, dba NW NATURAL,)))
Request for a General Rate Revision.))
))

Opening Testimony of Ed Burgess

On Behalf of

Intervenors Coalition of Communities of Color, Sierra Club, Verde, Climate Solutions, Oregon Environmental Council, Columbia Riverkeeper, and Community Energy Project

April 22, 2022

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1	1.	Summary Of Findings And Recommendations
2	Q.	Please provide an overview of your testimony.
3	A.	My testimony examines and critiques NW Natural's ongoing practice for granting line
4		extension allowances. I assess factors that should be considered in this case and going
5		forward and make specific recommendations regarding the Company's future level of
6		line extension allowances.
7	Q.	Please provide a summary of your findings.
8	A.	My findings can be summarized as follows:
9	1.	Oregon's rules regarding line extensions allowances were adopted over 20 years ago,
10		and NW Natural's allowance levels under Schedule X have not been updated in a
11		decade.
12	2.	Line extension allowances likely account for over 65% of NW Natural's distribution
13		system costs for new customer growth, and 6% of the Company's requested rate
14		increase in this case.
15	3.	Significant new concerns have emerged in recent years that suggest the rules and
16		practices for line extensions should be revisited. Some of these concerns include:
17		increased cost and volatility of gas prices, stranded cost risk, greenhouse gas emissions
18		and climate policy, availability and affordability of gas alternatives, indoor air quality,
19		and land use and sprawl.
20	4.	The core economic rationale for continued line extension allowances is largely
21		unsupported and likely results in windfall subsidies to new gas customers.
22	5.	Even if the core economic rationale were accepted, there are significant errors in NW
23		Natural's calculation of appropriate line extension allowances.

1	Q.	Please provide a summary of your recommendations.
2	A.	My recommendations to Commissioner are as follows:
3	1.	Require NW Natural to reduce line extension allowances under Schedule to \$0 going
4		forward.
5	2.	Require that the \$0 allowance be applied to both residential and non-residential
6		customers. At a minimum, some limitation on allowances for non-residential
7		customers should be established.
8	3.	In the alternative to a \$0 allowance, specific improvements to the allowance
9		calculation should be implemented, such as a reduced investment period (i.e., less than
10		15-30 years).
11	4.	A statewide investigation should be launched to examine how appropriate line
12		extension allowances should be set for all gas utilities.
13	2.	Introduction
14	Q.	Please state your name, title, and business address.
15	A.	My name is Ed Burgess. I am a Senior Director at Strategen Consulting. My business
16		address is 2150 Allston Way, Suite 400, Berkeley, California 94704.
17	Q.	Please summarize your professional and educational background.
18	A.	I am a leader on Strategen's consulting team and oversee much of the firm's utility-
19		focused practice for governmental clients, non-governmental organizations, and trade
20		associations. Strategen's team is globally recognized for its expertise in the electric and
21		gas utility sectors on issues relating to resource planning, transmission and distribution
22		planning, renewable energy, energy storage, rate design, cost of service, program design,
23		and utility business models and strategy. During my time at Strategen, I have managed or

1		supported projects for numerous client engagements related to these issues. Before
2		joining Strategen in 2015, I worked as an independent consultant in Arizona and
3		regularly appeared before the Arizona Corporation Commission. I also worked for
4		Arizona State University where I helped launch their Utility of the Future initiative as
5		well as the Energy Policy Innovation Council. I have a Professional Science Master's
6		degree in Solar Energy Engineering and Commercialization from Arizona State
7		University as well as a Master of Science in Sustainability, also from Arizona State. I
8		also have a Bachelor of Arts degree in Chemistry from Princeton University. A full
9		resume is attached as Exhibit Coalition/202.
10	Q.	On whose behalf are you testifying?
11	A.	I am testifying on behalf of the Coalition of Communities of Color, Sierra Club, Verde,
12		Climate Solutions, Oregon Environmental Council, Columbia Riverkeeper, and
13		Community Energy Project.
14	Q.	What is the purpose of your testimony?
15	A.	The purpose of my testimony is to examine NW Natural's current and ongoing practice
16		of providing service line extension allowances and including those allowance costs as a
17		component of its requested rate increase in this case. I explain factors that have
18		historically supported such policies as well as new factors that should be considered
19		going forward and make specific recommendations regarding the future level of line
20		extension allowances.
21	Q.	Have you ever testified before this Commission?
22	A.	Yes. I testified in UE 375, and UE 390 which were, respectively, PacifiCorp's 2021 TAM
23		proceeding and 2022 TAM proceeding.

1 Q. Have you ever testified before any other state regulatory body? 2 Yes. I have testified before the California Public Utilities Commission (Docket Nos. A. 3 A.19-08-002, A.20-08-002, R.20-11-003, A.21-08-004, A.21-10-010, and A.21-10-011), the Indiana Utility Regulatory Commission (Cause Nos. 38707 FAC 123 S1 and 38707 4 5 FAC 125), the Louisiana Public Service Commission (Docket No. U-36105), the 6 Massachusetts Department of Public Utilities (D.P.U. 18-150 and D.P.U. 17-140), the 7 Michigan Public Service Commission (Docket No. U-21090), the Nevada Public Utilities 8 Commission (Docket No. 20-07023), the South Carolina Public Service Commission 9 (Docket Nos. 2019-186-E, 2019-185-E, 2019-184-E, and 2021-88-E), and the 10 Washington Utilities and Transportation Commission (Docket No. UE-200900). 11 Additionally, I have represented numerous clients by drafting written comments, 12 presenting oral comments and participating in technical workshops on a wide range of 13 proceedings at utilities commissions in Arizona, California, District of Columbia, 14 Maryland, Minnesota, Nevada, New Hampshire, New York, North Carolina, Ohio, 15 Oregon, Pennsylvania, at the Federal Energy Regulatory Commission, and at the 16 California Independent System Operator. 17 **Q**. How is your testimony organized? 18 A. My testimony is organized into the following sections: 19 First, I provide an overview of NW Natural's line extension subsidies and their relevance • 20 to this case. 21 Second, I describe the factors in the evolving gas industry that warrant reconsideration of 22 ongoing line extension subsidies.

1	•	Third, I provide a critique of the core economic rationale underpinning these subsidies,
2		and make recommendations regarding how they should be treated going forward.
3	•	I conclude with a summary of my conclusions and recommendations.
4 5	3.	<u>Overview Of NW Natural's Line Extension Subsidies And Their Relevance To This</u> <u>Case</u>
6		A. Summary of current line extension policy for NW Natural and Schedule X
7	Q.	Can you please summarize NW Natural's current practice of subsidizing line
8		extensions for customers establishing new connections to its system?
9	A.	Yes. For customers newly connecting to NW Natural's system, the Company currently
10		offers "allowances" that substantially reduce or eliminate those customers' cost of
11		constructing a new gas service line. These allowances are defined in NWN's Schedule X,
12		which was last updated in 2014, and the current residential allowance levels were set as
13		part of a stipulation in NW Natural's 2011-2012 general rate case.
14	Q.	What are the current allowance levels for new residential service?

- 15 A. For new residential customers, allowances are set according to the following table
- 16 included in Schedule X:

Category	Description	Notes	Construction Allowance (per Premise)
A	Primary Natural Gas space heating (does not apply to centralized space heating that serves multiple units)	1	\$2,875
В	Primary Natural Gas water heat (does not apply to centralized water heating that serves multiple units) Natural Gas heating fireplace for primary space heating Natural Gas wall heat for primary space heating	2	\$2,100
С	Range, Cook top, Clothes dryer	3	\$ 850
D	Gas barbecue, log lighter, gas log, tiki torch, Bunsen burner, pool, spa, or hot tub water heaters, standby space heating equipment including but not limited to natural gas back-up to electric heat pumps; non-primary space or water heat equipment; equipment installed in a detached garage, shop, or outbuilding	4	\$0

Figure 1. Excerpt from NW Natural's Schedule X

1

2

Any construction costs for a service line extension that exceeds these amounts would be the customer's responsibility.

3 Q. What are the current allowance levels for new non-residential service?

4 Unlike residential allowances, non-residential allowances are not prescribed by Schedule A. 5 X. For non-residential customers, the schedule simply states that the utility will perform 6 an investment analysis to determine the allowance. Moreover, it states that this allowance 7 will "at a minimum" equal five times the annual margin revenue generated from the 8 customer. In contrast to the residential allowances, there does not appear to be any clear 9 limitation on non-residential allowances based on the language in the schedule. I believe this constitutes a highly inappropriate cross-subsidy that should be remedied in this 10 11 proceeding.

12

Q. Why does this constitute a cross-subsidy?

In both the residential and non-residential cases, the line extension allowances amount to 13 A. 14 a cross-subsidy whereby the benefit to new gas customers is ultimately being paid for by 15 other gas customers through base rates. As the Company explains in response to 16 Coalition DR 90: "For amounts not collected from the customer, installation costs are 17 capitalized and ... would be proposed for recovery by the Company in future general rate 18 case filing and if approved, recovered from all ratepayers in new base rates." (Exhibit 19 Coalition/207). In the case of residential customers, the amount of cross-subsidy per 20 customer is limited by the allowance values provided in Schedule X. However, in the 21 case of non-residential customers the amount of cross-subsidy appears to be unlimited, 22 which I believe is inappropriate and not reasonable.

1	Q.	In addition to the residential and non-residential allowances, are there other
2		subsidies provided to new customer connections through Schedule X?
3	A.	Yes. In addition to covering the cost of service line extensions, Schedule X also allows
4		customers to seek a refund of costs they incur associated with main extensions. The
5		amount of the refund is determined based on the number of additional customers that are
6		added to the same main extension within a 3-year period. If many new customers are
7		added in short succession (e.g., for a master planned housing development), then a
8		substantial portion of the main extension costs would likely be subsidized for the
9		developer.
10		B. Revenue impact of line extensions in this case and on an ongoing basis
11	Q.	Considering both the allowances for new service line extensions and the refunds for
11 12	Q.	Considering both the allowances for new service line extensions and the refunds for main extensions, who ultimately pays for these subsidies?
	Q. A.	
12		main extensions, who ultimately pays for these subsidies?
12 13		main extensions, who ultimately pays for these subsidies? Ultimately, the cost of these subsidies are borne by all NW Natural customers as they are
12 13 14		main extensions, who ultimately pays for these subsidies?Ultimately, the cost of these subsidies are borne by all NW Natural customers as they are incorporated into the retail rates charged by the Company to recover its capital
12 13 14 15		main extensions, who ultimately pays for these subsidies?Ultimately, the cost of these subsidies are borne by all NW Natural customers as they are incorporated into the retail rates charged by the Company to recover its capital expenditures for expanding the gas distribution system. Thus, a portion of the increase in
12 13 14 15 16		 main extensions, who ultimately pays for these subsidies? Ultimately, the cost of these subsidies are borne by all NW Natural customers as they are incorporated into the retail rates charged by the Company to recover its capital expenditures for expanding the gas distribution system. Thus, a portion of the increase in revenue that NW Natural is requesting in this case can be attributed to line extension
12 13 14 15 16 17		main extensions, who ultimately pays for these subsidies? Ultimately, the cost of these subsidies are borne by all NW Natural customers as they are incorporated into the retail rates charged by the Company to recover its capital expenditures for expanding the gas distribution system. Thus, a portion of the increase in revenue that NW Natural is requesting in this case can be attributed to line extension subsidies it has provided in the past. In the absence of Schedule X, these line extension

1	Q.	What is the total magnitude of costs NWN incurs each year to subsidize new service
2		line extensions?
3	A.	NW Natural's response to Coalition DR 100 (Exhibit Coalition/210) included the
4		following table summarizing the allowances provided to Oregon customers under
5		Schedule X in 2021.

Table 1. Summary of NW Natural line extension allowances provided through Schedule X in 2021

TYPE	COUNT	ALLOWANCE	ALLOWANCE/CUST
RESIDENTIAL	6,914	\$19,548,925	\$2,827
COMMERCIAL	255	\$5,448,340	\$21,366
INDUSTRIAL	5	\$792,005	\$158,401
TOTAL	7,174	\$25,789,270	\$3,595

6	As the table illustrates, NW Natural is providing nearly \$26 million per year in Schedule
7	X allowances, which constitutes a significant share of the Company's growth-related
8	distribution system capital investment in 2021. For comparison, NW Natural's response
9	to Coalition DR 91 (Exhibit Coalition/208) shows that the Company incurred \$39.4
10	million in customer growth related capital expenditures in 2021, meaning that the
11	allowances equated to 65% of this total. Meanwhile, new customer contributions
12	defrayed these costs, but only to a very small degree, accounting for about \$1.7 million of
13	the total construction costs in 2021. It is also worth noting that the total allowances
14	provided in 2021 (i.e., \$25.8 million) actually exceeds the growth-related capital
15	expenditures that NW Natural attributed to service lines in that same year (\$19.8 million,
16	according to Coalition DR 91). This means that the allowances provided in 2021 and
17	summarized in the table above may have been applied towards customer growth costs
18	other than service lines themselves, such as Main Extensions, Meters, or Permits.

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1	Q.	How do the average allowances provided in 2021 compare to the tiers included in
2		Schedule X?

3 The average residential allowance was \$2,827, which is extremely close to the highest A. 4 residential tier offered by NW Natural (i.e., \$2,875 for Category A). This means that the 5 vast majority of new residential customers participating in Schedule X are receiving the 6 maximum allowance and that the lower tier allowances (i.e., Categories B through D) are 7 seldom utilitized. Meanwhile, the allowances provided to new non-residential customers, 8 which are not subject to any limitations under Schedule X, are significantly higher, 9 averaging over \$21,000 per commercial customer and over \$158,000 per industrial 10 customer.

Q. What portion of NW Natural's proposed increase in revenue in this case is attributable to Schedule X related costs?

13 A. NW Natural was unable to directly answer this question with any specificity when asked

14 (see Coalition DR 102, Exhibit Coalition/211). However, assuming the 2021 costs

- 15 discussed above are representative of future years, NW Natural could incur \$51.6 million
- 16 in allowance costs in 2022 and 2023. I estimate that this could equate to \$4.1 million of
- 17 the requested \$73.5 million increase in revenue, or about 6% of the total request.¹ Thus,
- 18 if no allowances were provided going forward, I believe the Company's requested
- 19 increase could be reduced by approximately 6%. This does not account for any
- 20 allowances that were already granted in recent years.

¹ Assumes an 8% capital recovery factor applied to the \$51.6 million investment (based on a 6.9% rate of return and 30-year amortization period).

1	Q.	Did NW Natural propose any changes to Schedule X in this case?
2	A.	No. To my knowledge, changes to Schedule X are not addressed in the Company's
3		application.
4	Q.	Did the OPUC's final order in NW Natural's 2011-2012 rate case provide any
5		guidance on future changes to Schedule X?
6	A.	According to the stipulation approved in Order 12-408, "The Parties agree[d] to engage
7		in collaborative discussions regarding the appropriate design of charges for extensions of
8		service to residential customers."
9	Q.	Do you know if any subsequent "collaborative discussions" were held?
10	A.	I do not know one way or the other. However, if they did occur, it is not apparent from
11		NW Natural's application in this case since there is no discussion of what the appropriate
12		charges should be, and no change has been proposed.
13		C. History of line extension policies in Oregon
14	Q.	Does NW Natural's practice of granting allowances for new service line extensions
15		adhere to the ratemaking principle of cost causation?
16	A.	No. In the case of a newly connecting customer, under the principle of cost causation,
17		100% of the new service line costs incurred would be attributable to that customer as the
18		"cost causer." If gas system costs were assigned purely based on the principle of cost
19		causation or "beneficiary pays," there would be no need to provide any allowances, and
20		likely no need for a Schedule X. Under such a hypothetical scenario, 100% of the costs
21		would be assigned to that new customer. This direct assignment of costs is not
22		uncommon when performing cost allocation, especially when new distribution facilities
23		are built solely to serve a single customer.

1	Q.	Why does the practice of granting line extension allowances exist in the first place?
2	A.	Line extension allowances are a fairly common practice among utilities across many
3		jurisdictions. In fact, many utility commissions around the country (including OPUC)
4		have policies that were established in previous decades regarding the use of line
5		extension allowances. These policies were generally seen as an attempt to balance the
6		fundamental principle of cost causation with other important policy goals explained in
7		Section 4 of my testimony below. However, the landscape of policy goals has shifted
8		significantly since those initial line extension policies were adopted, and some
9		Commissions have recently begun to reexamine those line extension policies. For
10		example, in 2021 the Washington UTC concluded a statewide investigation that resulted
11		in a revised approach to calculating gas line extension allowances. ² This caused the
12		allowance value for one utility (Avista) to be reduced from \$4,678 to \$2,143. ³ In
13		California, the Public Utilities Commission recently released a Staff report
14		recommending an end to all new gas connection subsidies. ⁴
15	Q.	When did Oregon adopt its current rules regarding line extensions?
16	A.	In 2001, the OPUC issued Order No. 01-1024 which modified Oregon Administrative
17		Rule 860-021-0050, so that "Each gas utility shall develop, with the Commission's
18		approval, a uniform policy governing the amount of service extension that will be made
19		free to connect a new customer."

² WUTC Docket Number 210729

³ <u>https://apiproxy.utc.wa.gov/cases/GetDocument?docID=70&year=</u> 2021&docketNumber=210729

⁴ <u>https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M423/K516/423516230.PDF</u>

1	Q.	Was there significant debate around this policy change in 2001?
2	A.	No. According to the Order, "No written comments were filed and no request was made
3		for a public hearing as a result of the [N]otice [of Proposed Rulemaking]."
4	Q.	Do you think this rule change would have been similarly non-controversial if
5		proposed today?
6	A.	Not at all. A lot has changed since 2001, and I'm sure many stakeholders would now
7		have strong opinions on the pros and cons of subsidizing new customer growth on the gas
8		system. For example, in recent comments submitted to Oregon's "Future of Gas"
9		proceeding, several stakeholders proposed eliminating line extension allowances. ⁵
10	Q.	Did the OPUC Staff's recent Draft Report in the Future of Gas proceeding identify
11		line extension allowances as a potential area for near term reforms?
12	A.	Yes. The Draft Staff Report (Coalition/204/Burgess/28) issued on April 15, 2022,
13		included the following recommendation:
14 15 16 17 18 19		PUC Rates, Finance, and Audit (RFA) staff and Oregon Department of Justice are to explore with gas and electric utilities an interim, easily implemented approach to line extension allowance policy in future upcoming gas and electric rate case dockets that reflects the benefits, costs, and risks associated with system growth or improvements relative to the state's policies on decarbonization.
20	4.	Reconsidering Line Extension Allowances/Subsidies In An Evolving Gas Industry
21		A. Traditional rationales for line extension allowances/subsidies
22	Q.	Can you explain some of the typical rationales used to support line extension policies
23		in prior decades?
24	A.	Yes. There are a few potential reasons that I'm aware of, and I will describe each below.

⁵ UM 2178, the "Natural Gas Fact-finding Investigation."

1

i. Access to home heating

2	For a subset of customers, providing a free line extension allowance may be an important
3	step to ensure that those customers are able to access a fuel source for home heating that
4	has historically been relatively affordable. In recent years, this rationale has become less
5	applicable due to increasing gas prices as well as advances in the availability and
6	affordability of alternative home heating options such as air source heat pumps.
7	ii. Historical environmental benefits
8	In the past, gas has been viewed as having environmental benefits, especially when
9	compared to other sources of heating fuel such as oil or wood. In recent years, this
10	rationale has become less compelling due to advances in the availability and affordability
11	of alternative home heating options such as air source heat pumps and increased home
12	weatherization/insulation.
13	iii. Downward rate pressure
14	Encouraging customer growth and subsequently increasing sales can put downward
15	pressure on rates for all customers by spreading the fixed cost of the distribution system
16	over a larger customer base. However, this is only true once the initial investment in the
17	line extension has been recouped. Notably, in NW Natural's case, the estimated payback
18	period for most line extensions allowances is up to 30 years. ⁶ This means that any
19	potential financial benefits conferred to other customers would not materialize until 30
20	years after the line extension allowance is granted. In many ways, this is the core
21	economic rationale for providing line extension subsidies, and I will address it in much
22	greater detail in Section 5 below.

⁶ See Exhibit Coalition/213, NWN Response to CUB DR 52.

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1

iv. Redundancy of heating fuels

2		In the event of a large-scale winter power outage, gas fuel may be able to provide to
3		provide a secure source of heat when electricity is unavailable. However, it also must be
4		noted that many types of gas heating equipment have electric starters and would be
5		similarly unavailable should an electrical power outage occur.
6		B. Factors supporting a lower level of allowances/subsidies
7	Q.	Can you explain the countervailing factors that should limit allowances for line
8		extensions?
9		i. Cost to other customers
10	A.	Yes. The primary factor historically considered in determining allowance values is the
11		cost to other customers. Subsidizing line extensions shifts fixed costs to other customers
12		in violation of the cost causation principle. As mentioned, NW Natural estimates that the
13		margin sales needed to recoup the initial allowance costs are as long as 30 years in some
14		cases. This means that that existing customers could experience increased costs for 30
15		years after the line extension subsidies are provided until they "break even" relative to a
16		scenario where the allowance is not granted.
17	Q.	Are there other factors that have more recently come to light that might support a
18		reduction of NW Natural's current line extension allowances?
19	А.	Yes, there are several other factors to consider:
20		ii. Increased cost and volatility of gas prices
21		The supply of gas and associated commodity prices were low and relatively stable in the
22		2012 timeframe when NW Natural's line extensions allowances were last updated.
23		However, in the last few years, gas prices have both increased and experienced
24		substantial volatility. This means that the fuel is less affordable and that customers newly
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installing gas appliances may be exposed to more price risk than they have in the past.

- The chart below demonstrates this rise in gas commodity prices for the NW Sumas
- 3

2

1

trading hub, which is a benchmark for gas prices in the Pacific Northwest.

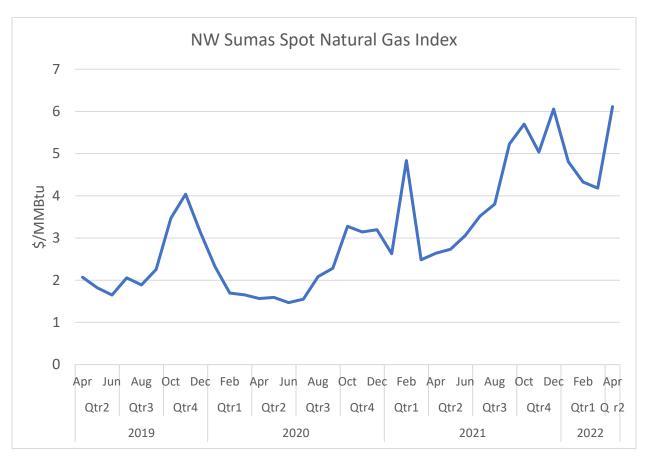


Figure 2. Natural Gas Commodity Prices in the Pacific Northwest (Data Source: S&P Global Market Intelligence)

4

iii. Stranded cost risk

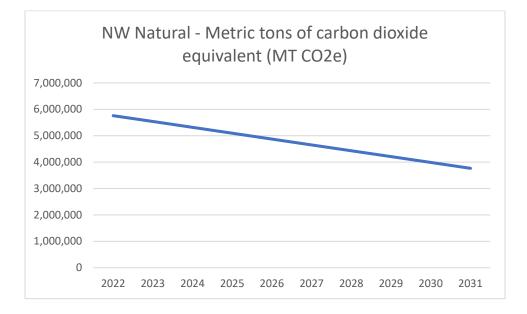
5 Many state PUC's, including Oregon's, have recently engaged in investigations to better 6 understand and plan for the future of the gas industry (see UM 2178, the "Natural Gas 7 Fact-finding Investigation"). Among the topics generally discussed in these forums is the potential for stranded cost risk in a future that includes widespread electrification. While 8 9 the future of the gas industry is uncertain, any incremental investment in the gas 10 distribution system carries this risk and could exacerbate stranded costs, including service 11 line extensions. **DIRECT TESTIMONY OF ED BURGESS - 15**

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iv. Greenhouse Gas Emissions and Climate Policy

1

Oregon has recently enacted ambitious policies to significantly reduce greenhouse gas emissions across many sectors of its economy, including use of gas. Chief among these is the Climate Protection Program being administered by Oregon DEQ, which sets a declining cap on greenhouse gas emissions for each of Oregon's gas distribution companies, including NW Natural, starting in 2022. The trajectory of this decline for the next decade is shown below:



8	In fact, NW Natural's assumed trajectory of customer growth and gas distribution system
9	expansion contrasts starkly with its obligations to reduce emissions under the Climate
10	Protection Program (CPP). For instance, the CPP compliance instruments distributed to
11	NW Natural are slated to <i>decline</i> at a rate of about 4% per year. Meanwhile, according to
12	NWN/Exhibit 1303, the company expects total gas sales to <i>increase</i> from 701 million
13	therms in 2021 to 735 million therms in 2023, which equates to approximately a 5% total
14	increase, or an increase of about 2.5% per year. NW Natural projects this increase,

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1		despite usage per customer declining in recent years. This suggests that the projected
2		increase in therms consumed is largely attributable to the projected growth in number of
3		customers. In fact, NW Natural projects a 3.8% increase in customer growth from
4		December 2021 to October 2023. ⁷ This corresponds to a >2% annual increase, which is
5		generally consistent with the annual increase in therms I just mentioned.
6	Q.	How does the contrast between Oregon's climate policies and NW Natural's
7		projected growth in customers (and corresponding gas consumption) relate to line
8		extensions allowances?
9	A.	To the extent that NW Natural's line extension allowances encourage new utility
10		customers to install gas appliances and therefore increase overall gas consumption, those
11		allowances are at cross purposes to Oregon's climate policy.
12		
13		I recognize that NW Natural has announced long-term plans to transition towards
14		renewable natural gas (RNG), which it alleges will help the Company meet its
15		compliance obligations under the CPP. I am somewhat skeptical of the feasibility of this
16		solution and refer the Commission to the Testimony of Nora Anter for a more detailed
17		analysis of the viability of RNG. However, even if this solution were to be successful at
18		some point in the future, any near-term growth in the gas distribution system that is
19		exacerbated by new customer additions may still cause the Company's near-term
20		emissions to increase. This could jeopardize NW Natural's ability to meet the
21		requirements of the CPP cap.

⁷ Based on NW Natural Response to Coalition DR 99, Exhibit Coalition/209.

1

v. Availability/affordability of alternatives

Recent studies have shown that electrification has become increasingly cost competitive when compared to gas. For example, a recent Rocky Mountain Institute report compared the net present costs of "a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating" in several major cities across the country, including the Pacific Northwest. The study found that all-electric homes were the cheaper option in every instance.⁸ Below is a summary of the study's findings for Seattle, which should be broadly applicable in the Pacific Northwest.

> RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Seattle, the all-electric home saves \$4,300 in net present costs and 28 tons of CO₂ emissions over a 15-year period.



Figure 3. Excerpt from "The New Economics of Electrifying Buildings: An Analysis of Seven Cities," Rocky Mountain Institute (RMI) (2020) showing analysis for Seattle, WA.

9

vi. Indoor air quality

10 While there are a variety of factors that influence indoor air quality, with ventilation

11 being a chief factor, there is a body of research suggesting that homes with gas appliances

⁸ Claire McKenna, Amar Shah, and Leah Louis-Prescott, "The New Economics of Electrifying Buildings: An Analysis of Seven Cities," Rocky Mountain Institute (RMI) (2020). Report for "All Cities" available at <u>https://rmi.org/insight/the-new-economics-of-electrifying-buildings</u>. Exhibit Coalition/203.

1		can experience elevated levels of nitrogen dioxide and carbon monoxide. ⁹ It is becoming
2		increasingly clear that there may be public health and safety benefits from encouraging
3		customers to adopt appliances that do not rely on gas combustion.
4		vii. Land use and sprawl
5		While it is likely a small consideration relative to other factors, granting free allowances
6		for a portion of line extension costs may encourage developers to favor designs for homes
7		and businesses that are spaced further apart with a greater number of individual line
8		extensions. This could contribute to inefficient land use and urban sprawl relative to
9		designs that rely more heavily on shared infrastructure and compact design. This could
10		ultimately lead to increases in car travel, impermeable surfaces, and removal of natural
11		habitats.
12	Q.	On balance, when considering all of these factors, do you think that NW Natural's
13		line extension allowance should be modified?
14	A.	Yes. On balance, I think these factors weigh toward a reduction in the allowances that
15		NW Natural offers. The table below provides a summary view of the factors that I
16		discussed above and demonstrates how a significant number of more recent concerns (in
17		<i>italics</i>) have emerged that shift this balance.

⁹ <u>https://coeh.ph.ucla.edu/effects-of-residential-gas-appliances-on-indoor-and-outdoor-air-quality-and-public-health-in-california/</u>.

Factors Supporting <u>Higher</u> Allowances/Refunds for Gas Service/Main Extensions	Factors Supporting <u>Lower</u> Allowances/Refunds for Gas Service/Main Extensions
Increases access to a heating fuel that was historically cheaper than some traditional alternatives (e.g., propane). Gas is less polluting than some traditional alternatives (e.g., wood, oil)	Subsidizing line extensions unfairly shifts costs to other customers (violates cost causation principle) Recent increases and volatility in gas commodity prices
Customer growth can put downward pressure on rates by spreading fixed costs over a larger customer base	Concerns regarding stranded cost risk of the gas system
Redundancy of heating fuels in event of an outage	Incentivizing installation of gas appliances increases near-term and long-term CO2 emissions
	Increased affordability and availability of viable alternatives (e.g., heat pumps)
	Concerns regarding inefficient land use and urban sprawl Concerns regarding indoor air quality

1 Q. Have other independent entities advocated for similar reforms of line extension

2 allowances?

- 3 A. Yes. A recent report by the Rocky Mountain Institute included a recommendation to "end
- 4 or reform gas line extension allowances."¹⁰

5 5. <u>The Core Economic Rationale Underpinning Gas Line Extension Subsidies Is</u>

- 6 Flawed
- 7 A. Scrutiny of the economic rationale for line extension subsidies

¹⁰ <u>https://rmi.org/insight/its-time-to-rethink-subsidized-gas-line-extensions/</u>. Exhibit Coalition/205.

1	Q.	What is the core rationale that NW Natural, and other gas utilities, generally rely
2		upon to justify gas line extension allowances?
3	A.	Of the reasons I listed above in Section 4-A, the core rationale which typically forms the
4		basis for computing the actual allowance values themselves is generally the economic
5		benefits delivered to other customers (i.e., "Downward Rate Pressure").
6	Q.	Do you think this core rationale holds up under closer scrutiny?
7	A.	No. The basic premise of this reasoning is that the initial investment made by NW
8		Natural (in the form of an allowance) unlocks incremental new revenues that provide
9		economic benefits to all customers since those incremental revenues contribute towards
10		the utility's fixed cost revenue requirements thus putting downward pressure on rates.
11		However, I believe this fundamental premise is largely incorrect.
12	Q.	Why do you think this fundamental premise is incorrect?
13	A.	It is incorrect because there is no evidence that new service line costs are a major
14		economic barrier to new customers connecting to the gas system. Setting aside low-
15		income customers for now, it is unclear to me that most new customers would simply
16		choose not to connect if it weren't for the line extension subsidy. For example, according
17		to NW Natural's response to Coalition DRs 24 and 100, (Exhibits Coalition/206 and
18		Coalition/210) there were 9,589 residential customers who newly connected to NW
19		Natural's system in 2021, but only 6,914 who received a Schedule X allowance. This
20		means that at least 27% of new customers had no problem covering the service line
21		extension costs, even though they did not receive a subsidy under Schedule X. Moreover,
22		as Coalition DR 24 shows, some residential service line extension costs in 2021 were as
23		high as \$40,517. Even if this customer received the maximum allowance of \$2,875, they

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still would have had to pay a customer contribution of over \$37,000 and yet decided to
connect anyways. In such instances, it is not clear that the existence of a relatively small
allowance is a determining factor for unlocking new customer revenue. It is more likely
there are much more significant factors that go into the new customer's decision-making
process. In fact, the presence of an allowance in this case more likely represents a form of
"free ridership."

7 **Q.** 8

Can you elaborate on what you mean by free ridership in this context and why it is problematic?

9 A. Yes. By free ridership, I mean that a large share of newly interconnecting customers are 10 likely receiving a windfall benefit from the line extension allowance even though it has 11 little to no influence on the customers' decision to connect or the purported economic 12 benefits this would bring to the system. Since the allowance has no bearing on the 13 customer's decision, all it accomplishes is to shift a portion of the line extension costs 14 from the new customer to the utility's rate base and its existing customers. From a basic 15 fairness standpoint, if a customer is sufficiently motivated to install new gas appliances, it 16 is only fair that the customer should pay the cost for the new line extension, rather than 17 passing those costs onto other customers.

18

B. NW Natural's Line Extension Calculations

19 Q. Can you illustrate how the core economic rationale is also flawed in the context of

- 20 NW Natural's analysis underpinning its Schedule X allowance values?
- A. Yes. NW Natural's analysis underpinning the allowance values was included as a
- 22 workbook attached in response to CUB DR 52 (Exhibit Coalition/213). The workbook
- appears to demonstrate that an allowance of approximately \$2,900 will produce a 6.9%

1		rate of return (a target rate NW Natural selected) as an economic benefit to the utility and
2		in turn its customers, assuming a 30-year investment period. ¹¹ This is due to the
3		incremental customer revenues shown on Line 1 of the "Financials" tab, which provide a
4		revenue stream that recoups the initial cost of the allowance plus a return. However, as I
5		explained above, this incremental new revenue stream could very well materialize even
6		with a much lower allowance value. That is, the customer may decide to connect due to a
7		variety of other factors regardless of the allowance being offered. If this were the case,
8		then a lower allowance value would provide an even greater benefit to NW Natural
9		customers. As an example, using that same workbook from the CUB DR 52 Response, I
10		lowered the allowance value from \$2,900 to \$290, which increased the rate of return (i.e.,
11		the economic benefit to NW Natural customers) from 6.9% to 68.7%. ¹² Extending this
12		analysis to its logical conclusion, the greatest benefit to NW Natural customers would
13		occur with an allowance value of \$0.
14	Q.	Even if the core economic rational were correct (i.e., that line extension subsidies
15		meaningfully increase revenues), do you think there are other problems with NW
16		Natural's analysis?
17	A.	Yes. In particular I am concerned with NW Natural's assumptions regarding the

18 investment period.

¹¹ This is roughly consistent with NW Natural's current approach for its Category A allowance (i.e., space heating) in Schedule X, which offers an allowance of \$2875. As NW Natural explained, the final allowances are slightly lower than those initially filed based on this workbook.

¹² For clarification, this is not to suggest that NW Natural should be authorized a 68.7% return on investment in general, but is simply meant to illustrate the increased financial return it would obtain relative to the initial allowance "investment." This higher return could in theory be used to offset a greater share of future revenue requirement increases.

1	Q.	Do you think a 30-year or 15-year investment period is appropriate for the line			
2		extension costs NW Natural is incurring on behalf of its Oregon customers?			
3	A.	No. I think both are excessively long. For comparison, Washington's recent revision to its			
4		line extension policy reduced the investment period to 7 years. Another utility in			
5		Minnesota (CenterPoint) uses a 6-year time horizon. As mentioned earlier, a lengthy 30-			
6		year investment period means that NW Natural customers effectively see no financial			
7		upside from their collective "investment" in line extension subsidies for at least 30 years			
8		(when compared to an alternative investment with the same target rate of return). Exhibit			
9		Coalition/213, NWN Response to CUB DR 52. Additionally, as I noted earlier, virtually			
10		all of the allowances provided to residential customers under Schedule X correspond to			
11		Category A, which relies upon a 30-year investment period.			
12	Q.	What are the implications of NW Natural's assumptions for customer revenue in its			
13		analysis for the line extension allowances?			
14	A.	If the customer revenue assumption is inflated relative to what is likely to occur, then			
15		NW Natural's analysis would lead to an inappropriately high allowance value. This is			
16		because it would take much longer to recoup the costs of the investment and also provide			
17		a sufficient return to exceed the 6.9% target rate.			
18	Q.	Do you have concerns that lead you to believe the revenue assumption could be			
19		inflated?			
20	A.	Yes. First, it is not clear to me if the revenues presented in NW Natural's analysis reflect			
21		total revenues or just margin revenues. Presumably the commodity sales are excluded			
22		since they are irrelevant in this context and the analysis just includes margin revenues.			
23		Additionally, it is worth noting that this analysis was conducted about decade ago and			

1		does not factor in important changes that have occurred since then that could influence			
2		future estimates of margin sales. For instance, this analysis would not factor in the			
3		reduced consumption that is likely occurring due to higher gas commodity prices.			
4		Additionally, it would not factor in any potential increase in commodity costs due to			
5		Oregon's Climate Protection Program which was launched last year. Furthermore, it does			
6		not account for increased efficiency of gas appliances over time, or conversion to electric			
7		appliances, both of which would likely have some effect within a 30-year timeframe. All			
8		of these factors would tend to decrease revenues per customer over time and could			
9		ultimately lead to an allowance value closer to \$0.			
10	Q.	Do you think there are some customers that might find the line extension costs to be			
11		a hardship if the allowance value were set at \$0?			
11 12	A.	a hardship if the allowance value were set at \$0? Possibly, although non-gas options are increasingly affordable for low-income customers			
	A.	-			
12	A.	Possibly, although non-gas options are increasingly affordable for low-income customers			
12 13	A.	Possibly, although non-gas options are increasingly affordable for low-income customers and non-gas options avoid the risk of leaving low-income customers on a system with			
12 13 14	A.	Possibly, although non-gas options are increasingly affordable for low-income customers and non-gas options avoid the risk of leaving low-income customers on a system with declining use and increasing rates. Even if a non-zero allowance for eligible low-income			
12 13 14 15	A.	Possibly, although non-gas options are increasingly affordable for low-income customers and non-gas options avoid the risk of leaving low-income customers on a system with declining use and increasing rates. Even if a non-zero allowance for eligible low-income customers were considered, I think such allowances would be rarely used since low-			
12 13 14 15 16	A.	Possibly, although non-gas options are increasingly affordable for low-income customers and non-gas options avoid the risk of leaving low-income customers on a system with declining use and increasing rates. Even if a non-zero allowance for eligible low-income customers were considered, I think such allowances would be rarely used since low- income customers are much more likely to be renters and would not be making			
12 13 14 15 16 17	A.	Possibly, although non-gas options are increasingly affordable for low-income customers and non-gas options avoid the risk of leaving low-income customers on a system with declining use and increasing rates. Even if a non-zero allowance for eligible low-income customers were considered, I think such allowances would be rarely used since low- income customers are much more likely to be renters and would not be making investment decisions for a newly constructed home (e.g., service line extensions).			

Q. Aside from low-income customers, could there be other new customers who seek
 alternatives to new gas connections, at least in part due to higher service line costs
 under a \$0 allowance scenario?

4 Possibly. I could envision a \$0 allowance being a contributing factor towards some new A. 5 customers opting for electric appliances instead of gas. In fact, this outcome may also be 6 desirable since it would be highly consistent with the state's overall climate and 7 greenhouse gas policy goals, as well as the other benefits I articulated in the previous 8 section. I acknowledge that these benefits might come with a tradeoff. However, I am not 9 convinced that a modest -- and frankly uncertain -- reduction in rates 30 years from now is sufficient justification to forego the other benefits I describe here. Finally, it is worth 10 11 noting that a continuation of allowances presumes that gas commodity prices will 12 stabilize to a more affordable level than they are today. If that stabilization does not 13 occur, then it may actually be in new customers' best interest to further reduce this 14 allowance as a means to steer customers towards more affordable heating alternatives 15 such as air source heat pumps and increased building envelope efficiency (e.g., through 16 insulation and weatherization).

17 Q. Do gas utilities like NW Natural have a financial incentive to provide an allowance?

A. Yes. Utilities have a financial incentive to provide an allowance because it effectively
expands their ownership of the gas distribution system, by adding a greater share of the
service line costs to the utility's rate base. As mentioned earlier, for 2021 this amounted
to over \$25 million per year in new capital investment upon which NW Natural can earn
a rate of return.

23

1		C. Recommendations			
2	Q.	Based on the discussion in this section of your testimony, do you have any			
3		recommendations for the Commission?			
4	A.	Yes. My primary recommendation in this case is for the Commission to order NW			
5		Natural to reduce its line extension allowances to \$0, following the example of other			
6		states like California. This should apply to both residential and non-residential customers.			
7		Removing incentives for gas appliance additions would also be consistent with Oregon's			
8		climate policies and NW Natural's compliance obligations under the Climate Protection			
9		Plan.			
10	Q.	Do you have any alternative recommendations?			
11	A.	If the Commission is not inclined to reduce the allowance value to \$0 as I have			
12		recommended, then at a bare minimum the allowance calculation should be modified to			
13		reflect more reasonable assumptions (i.e., payback period of less than 30 years;			
14		Washington set its investment period at 7 years, for example). I would be happy to			
15		elaborate on these improvements if desired.			
16	6.	Summary Of Conclusions/Recommendations To The Commission In This Case			
17	Q.	Can you please summarize the key findings of your testimony?			
18	A.	Yes, my findings are summarized below.			
19		A. Findings			
20	1.	Oregon's rules regarding line extensions allowances were adopted over 20 years ago,			
21		and NW Natural's allowances have not been updated in a decade.			
22	2.	Line extension allowances likely account for over 65% of NW Natural's distribution			
23 24		system investments for new customer growth, and 6% of the Company's requested rate increase in this case.			
∠ - †					

1	3.	Significant new concerns have emerged in recent years that suggest the rules and			
2		practices for line extensions be revisited. Some of these concerns include the following:			
3		a. Increased cost and volatility of gas prices			
4		b. Stranded cost risk			
5		c. Greenhouse gas emissions and climate policy			
6		d. Availability and affordability of gas alternatives			
7		e. Indoor air quality			
8		f. Land use and sprawl			
9	4.	The core economic rationale for continued line extension allowances is largely			
10		unsupported and likely results in windfall subsidies to new gas customers.			
11	5.	Even if the core economic rationale were accepted, there are significant errors in NW			
12		Natural's calculation of appropriate line extension allowances.			
13	Q.	Can you please summarize your recommendations to the Commission?			
14	A.	Yes, my recommendations are summarized below.			
15		B. Recommendations			
16	1.	Reduce line extension allowances to \$0 going forward.			
17	2.	Apply this limitation to both residential and non-residential customers. At a minimum,			
18		a limitation on allowances for non-residential customers should be established.			
19	3.	In the alternative to a \$0 allowance, specific improvements to the allowance calculation			
20		should be implemented, such as a reduced investment period (i.e., less than 15-30			
21		years).			
22	4.	A statewide investigation should be launched to examine how appropriate line			
23		extension allowances should be set for all gas utilities.			
24	Q.	Does this conclude your testimony?			
25	A.	It does, thank you.			

WITNESS QUALIFICATION STATEMENT

NAME: Ed Burgess

EMPLOYER: Strategen Consulting

TITLE: Senior Director

ADDRESS: 2150 Allston Way, Suite 400, Berkeley, California 94704

EDUCATION: MS, Solar Energy Engineering and Commercialization MS, Sustainability, Arizona State University

BA, Chemistry, Princeton University

EXPERIENCE: Leader on Strategen's consulting team who oversees much of the firm's utility-focused practice for governmental clients, non-governmental organizations, and trade associations. Managed or supported projects for numerous client engagements related to these issues. Worked as an independent consultant in Arizona and regularly appeared before the Arizona Corporation Commission. Worked for Arizona State University where helped launch their Utility of the Future initiative as well as the Energy Policy Innovation Council. Testified before the California Public Utilities Commission (Docket Nos. A.19-08-002, A.20-08-002, R.20-11-003, A.21-08-004, A.21-10-010, and A.21-10-011), the Indiana Utility Regulatory Commission (Cause Nos. 38707 FAC 123 S1 and 38707 FAC 125), the Louisiana Public Service Commission (Docket No. U-36105), the Massachusetts Department of Public Utilities (D.P.U. 18-150 and D.P.U. 17-140), the Michigan Public Service Commission (Docket No. U-21090), the Nevada Public Utilities Commission (Docket No. 20-07023), the South Carolina Public Service Commission (Docket Nos. 2019-186-E, 2019-185-E, 2019-184-E, and 2021-88-E), and the Washington Utilities and Transportation Commission (Docket No. UE-200900). Represented numerous clients by drafting written comments, presenting oral comments

and participating in technical workshops on a wide range of proceedings at utilities commissions in Arizona, California, District of Columbia, Maryland, Minnesota, Nevada, New Hampshire, New York, North Carolina, Ohio, Oregon, Pennsylvania, at the Federal Energy Regulatory Commission, and at the California Independent System Operator. This witness has testified in the following Oregon Public Utility Commission dockets: UE 375, and UE 390.

Edward Burgess



Senior Director



Ed leads the integrated resource planning practice at Strategen. Ed has served clients including consumer advocates, public interest organizations, Fortune 500 companies, energy project developers, trade associations, utilities, government agencies, universities, and foundations. He has led or contributed to expert testimony, formal comments, technical analyses, and strategic grid planning efforts for clients in over 25 states. These have focused on a range of topics including resource planning and procurement, utility system operations, transmission planning, energy storage, electric vehicles, utility rates and rate design, demand-side management, and distributed energy resources.

Contact



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Education

PSM Solar Energy Engineering and Commercialization Arizona State University 2012

MS Sustainability Arizona State University 2011

BA Chemistry Princeton 2007

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Work Experience

Senior Director

Strategen / Berkeley, CA / 2015 - Present

- + Focuses on energy system planning via economic analysis, technical regulatory support, integrated resource planning and procurement, utility rates, and policy & program design.
- + Supports clients such as trade associations, project developers, public interest nonprofits, government agencies, consumer advocates, utilities commissions and more.

Senior Policy Director

Vehicle-Grid Integration Council / Berkeley, CA / 2019 - Present

- + Leads advocacy and regulatory policy for a group representing major auto OEMs and EVSEs
- + Advances state level policies and programs to ensure the value from EV deployments and flexible EV charging and discharging is recognized and compensated
- Leads all policy development, education, outreach, and research efforts

Consultant

Kris Mayes Law Firm / Phoenix, AZ / 2012 - 2015

+ Consulted on policy and regulatory issues related to the electricity sector in the Western U.S.

Consultant

Schlegel & Associates / Phoenix, AZ / 2012 - 2015

+ Conducted analysis and helping draft legal testimony in support of energy efficiency for a utility rate case.

Edward Burgess



Senior Director

Selected Recent Publications

- + New York BEST, 2020. Long Island Fossil Peaker Replacement Study.
- + Ceres, 2020. Arizona Renewable Energy Standard and Tariff: 2020 Progress Report.
- + Virginia Department of Mines and Minerals, 2020. "Commonwealth of Virginia Energy Storage Study.
- + Sierra Club, 2019. Arizona Coal Plant Valuation Study.
- + Strategen, 2018. Evolving the RPS: Implementing a Clean Peak Standard."
- + SunSpec Alliance for California Energy Commission.,2018. Analysis Report of Wholesale Energy Market Participation by Distributed Energy Resources (DERs) in California.

Domain Expertise

Vehicle Grid Integration

Distributed Energy Resources

Electric Vehicle Rates, Programs and Policies

Energy Resource Planning

Benefit Cost Analysis

Electricity Expert Testimony

Stakeholder Engagement

Energy Policy & Regulatory Strategy

Energy Product Development & Market Strategy

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Relevant Project Experience

Arizona Residential Utility Consumer Office (RUCO)

IRP Analysis and Impact Assessment / 2015 - 2018

- + Supported drafting of expert witness testimony on multiple rate cases regarding utility rate design, distributed solar PV, and energy efficiency.
- + Performed analytical assessments to advance consumer-oriented policy including rate design, resource procurement/planning, and distributed generation consumer protection.
- + Ed was the lead author on the white paper published by RUCO introducing the concept of a Clean Peak Standard.

Western Resource Advocates

Nevada Energy IRP Analysis / 2018 - 2019

- + Conducted a thorough technical analysis and report on the NV Energy IRP (Docket No. 18-06003)
- + Investigated resource mixes that included higher levels of demand side management, renewable energy, battery storage, and decreased reliance on existing and/or planned fossil fuel plants.

Massachusetts Office of the Attorney General

SMART Program / 2016 - 2017

 Appeared as an expert witness and supported drafting of testimony on the implementation of the MA SMART program (D.P.U. 17-140), which is expected to deploy 1600 MW of solar PV (and PV + storage) resources over the next several years. Ed served as an expert consultant on multiple rate cases regarding utility rate design and implications for ratepayers and distributed energy resource deployment.

New Hampshire Office of Consumer Advocate

NEM Successor Tariff Design / 2016

 Worked with the state's consumer advocate to develop expert testimony on a case reforming the state's market for distributed energy resources, developing a new methodology for designing retail electricity rates that is intended to support greater deployment of energy storage.

Edward Burgess



Senior Director

Relevant Project Experience (con't)

Southwest Energy Efficiency Project

IRP Technical Analysis and Modeling / 2018 - 2020

- + Provided critical analysis and alternatives to the 2020 integrated resource plans (IRPs) of the state's major utilities, Arizona Public Service (APS) and Tucson Electric Power (TEP).
- + Provided analysis on Salt River Project's resource plan as part of its 2035 planning process.
- + Evaluated different levels of renewable energy and energy efficiency and identify any changes to the resources needed to meet these requirements and ensure reliability.
- + Worked with Strategen technical team on utilizing a sophisticated capacity expansion model to optimize the clean energy portfolio used in the analysis of the IRPs.

California Energy Storage Alliance

California Hybridization Assessment / 2018 - 2019

+ Managed a special initiative of this leading industry trade group to conduct technical analysis and stakeholder outreach on the value of hybridizing existing gas peaker plants with energy storage

Portland General Electric

Energy Storage Strategy / 2016

- + Provided education and strategic guidance to a major investor-owned utility on the potential role of energy storage in their planning process in response to state legislation (HB 2193).
- + Participated in public workshop before the Oregon Public Utilities Commission on behalf of PGE.
- + Supported development of a competitive solicitation process for storage technology solution providers.

Xcel Energy

Time-of-use Rates / 2017 - 2018

+ Conducted analysis supporting the design of a new residential time-of-use rate for Northern States Power (Xcel Energy) in Minnesota.

Sierra Club

PacifiCorp 2021 IRP Technical Support / 2020 - 2021

- + Provided technical support for Sierra Club in analyzing issues of interest during Pacificorp's IRP stakeholder input process.
- + Prepared analysis, technical comments, discovery requests in advance of drafting formal comments to be submitted before the Oregon Public Utility Commission.

North Carolina, Office of the Attorney General

Duke Energy 2020 IRP Technical Support / 2020 - 2021

- + Provided technical support and analysis to the state's consumer advocate on utility integrated resource plans and their implications for customers and public policy goals.
- + Presented original analysis at multiple IRP-related technical workshops hosted by the NCUC

University of Minnesota

Energy Storage Stakeholder Workshops / 2016 - 2017

- + Facilitated multiple stakeholder workshops to understand and advance the appropriate role of energy storage as part of Minnesota's energy resource portfolio.
- + Conducted study on the use of storage as an alternative to natural gas peaker.
- + Presented workshop and study findings before the Minnesota Public Utilities Commission.

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Edward Burgess Senior Director



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Expert Testimony

California Public Utilities Commission

- Pacific Power 2020 Energy Cost Adjustment Clause (Docket No. A.19-08-002)
- Pacific Power 2021 Energy Cost Adjustment Clause (Docket No. A.20-08-002)
- CPUC Rulemaking on Emergency Summer Reliability (Docket No. R.20-11-003)

Indiana Utility Regulatory Commission

- Duke Energy Fuel Adjustment Clause (Cause No. 38707 FAC 125)
- Duke Energy Fuel Adjustment Clause Sub-docket Investigation (Cause No. 38707 FAC 123 S1)

Louisiana Public Service Commission

• Entergy Certification to Deploy Natural Gas Distributed Generation (Docket No. U-36105)

Massachusetts Department of Public Utilities

- National Grid General Rate Case (D.P.U. 18-150)
- Eversource, National Grid, and Until SMART Tariff (D.P.U. 17-140)

Michigan Public Service Commission

Consumers Energy 2021 Integrated Resource Plan (Docket No. U-21090)

Nevada Public Utilities Commission

• NV Energy's Integrated Resource Plan in (Docket No 20-07023)

Oregon Public Utilities Commission

- Pacific Power 2021 Transition Adjustment Mechanism (Docket No. UE-375)
- Pacific Power 2022 Transition Adjustment Mechanism (Docket No. UE-390)

South Carolina Public Service Commission

- Dominion Energy South Carolina 2019 Avoided Cost Methodologies (Docket No. 2019-184-E)
- Duke Energy Carolinas 2019 Avoided Cost Methodologies (Docket No. 2019-185-E)
- Dominion Energy Progress 2019 Avoided Cost Methodologies (Docket No. 2019-186-E)
- Dominion Energy South Carolina 2021 Avoided Cost Methodologies (Docket No. 2021-88-E)

Washington Utilities and Transportation Commission

Avista Utilities General Rate Case (Docket No. UE-200900)

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AUSTIN: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Austin, the all-electric home saves \$4,400 in net present costs and 15 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, presenting **savings on both up-front costs and utility bills**.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has **7% lower** annual utility costs. There are significant energy savings with a heat pump space and water heater over corresponding gas appliances, even though electricity is significantly more expensive than gas per unit energy in Austin.
- Carbon emissions from heating, water heating, and cooking are 65% lower over the appliance lifetime in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

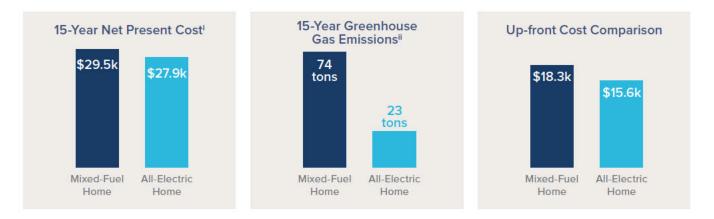
	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$ 2,070	\$1,920	-\$150 (-7%)
Electricity Usage (kWh)	15,460	17,210	1,750 (+11%)
Gas Usage (kWh equiv.)	7,750 (260 therms)	n/a	-7,750 (-100%)

- iii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

RESIDENTAL NEW CONSTRUCTION

BOSTON: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Boston, the all-electric home saves nearly \$1,600 in costs and 51 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, with savings on up-front costs and nearly equivalent annual energy bills.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has **3% higher** annual utility costs. There are significant energy savings with heat pump space and water heater over corresponding gas appliances, which outweigh the high cost of electricity in Boston.
- Carbon emissions over the 15-year period from heating, water heating, and cooking are **69% lower** in the allelectric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

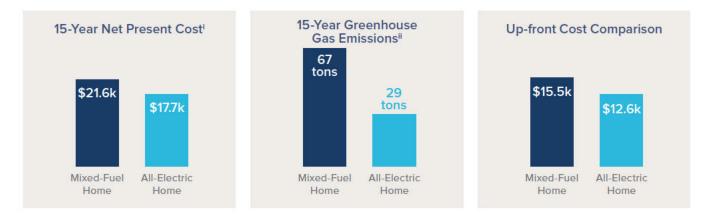
	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$3,700	\$3,820	\$120 (+3%)
Electricity Usage (kWh)	10,640	17,410	6,770 (+64%)
Gas Usage (kWh equiv.)	24,650 (840 therms)	n/a	-24,650 (-100%)

- iii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

RESIDENTAL NEW CONSTRUCTION

COLUMBUS: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Columbus, the all-electric home saves \$3,900 in net present costs and 38 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, presenting **savings on both up-front costs and utility bills**.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has **6% lower** annual utility costs. There are significant energy savings with a heat pump space and water heater over corresponding gas appliances, even though electricity is significantly more expensive than gas per unit energy in Columbus.
- Carbon emissions from heating, water heating, and cooking are **57% lower** over the appliance lifetime in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

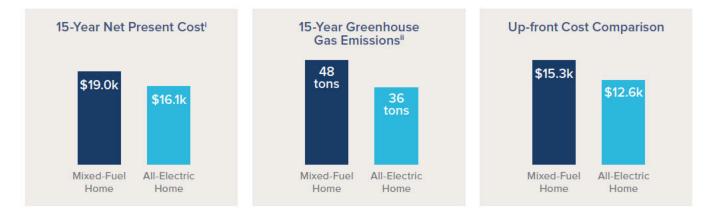
	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$1,940	\$1,830	-\$110 (-6%)
Electricity Usage (kWh)	10,930	16,420	5,490 (+50%)
Gas Usage (kWh equiv.)	22,360 (760 therms)	n/a	-22,360 (-100%)

- CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

Coalition/203 Burgess/4

DENVER: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Denver, the all-electric home saves \$2,900 in net present costs and 12 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, presenting **savings on both up-front costs and utility bills**.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has 2% lower annual utility costs. There are significant energy savings with a heat pump space and water heater over corresponding gas appliances, even though electricity is significantly more expensive than gas per unit energy in Denver.
- Carbon emissions from heating, water heating, and cooking are 25% lower over the appliance lifetime in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$1,590	\$1,560	- \$30 (-2%)
Electricity Usage (kWh)	11,350	15,900	4,550 (+40%)
Gas Usage (kWh equiv.)	16,160 (550 therms)	n/a	-16,160 (-100%)

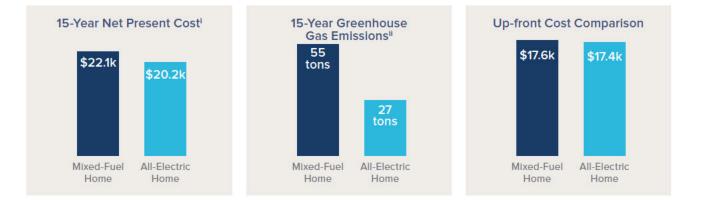
- iii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

Coalition/203 Burgess/5



RESIDENTAL NEW CONSTRUCTION MINNEAPOLIS: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Minneapolis, the all-electric home saves \$1,900 in net present costs and 28 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, with **roughly equivalent up-front costs and substantial annual bill savings**.

- Up-front costs for the all-electric and mixed-fuel homes are roughly equivalent. The Minneapolis climate requires a higher capacity heat pump than other cities in the study. This requirement comes at a higher cost, outweighing the equipment and labor cost savings seen with heat pump systems in milder climates.
- The all-electric home has **9% lower** annual utility costs. There are significant energy savings with heat pump space and water heaters over corresponding gas appliances, even though electricity costs more per unit energy than gas in Minneapolis. The all-electric home also benefits from a lower electricity rate during winter months.
- Carbon emissions from space heating, water heating, and cooking are 51% lower in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts[™]

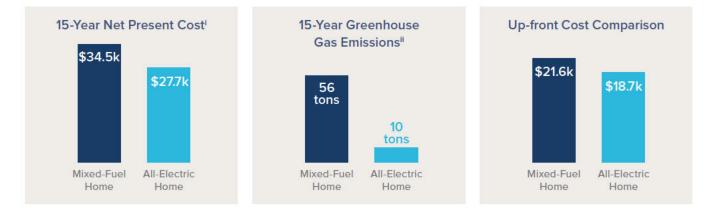
	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$2,020	\$1,840	-\$180 (-9%)
Electricity Usage (kWh)	10,620	14,780	4,160 (+39%)
Gas Usage (kWh equiv.)	18,250 (620 therms)	n/a	-18,250 (-100%)

- ii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.



NEW YORK CITY: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In New York City, the all-electric home saves \$6,800 in net present costs and 46 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, presenting **savings on both up-front costs and utility bills**.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has 10% lower annual utility costs. There are significant energy savings with a heat pump space and water heater over corresponding gas appliances, which outweigh the high cost of electricity in New York City.
- Carbon emissions from heating, water heating, and cooking are 82% lower over the appliance lifetime in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$4,310	\$3,880	-\$430 (-10%)
Electricity Usage (kWh)	12,210	16,800	4,590 (+38%)
Gas Usage (kWh equiv.)	18,780 (640 therms)	n/a	18,780 (-100%)

 Net present cost calculation incorporates up-front costs and bill impacts, discount rate of 7%, and 15-year assumed equipment lifetime.

- iii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology.</u>
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

RESIDENTAL NEW CONSTRUCTION SEATTLE: SINGLE-FAMILY HOMES

RMI analyzed the costs of a new all-electric home versus a new mixed-fuel home that relies on gas for cooking, space heating, and water heating. In Seattle, the all-electric home saves \$4,300 in net present costs and 28 tons of CO₂ emissions over a 15-year period.



Key Findings

The new all-electric home has a lower net present cost than the new mixed-fuel home, presenting **savings on up-front costs and nearly equivalent annual energy bills**.

- A mixed-fuel home (with gas furnace, water heater, air conditioning, and new gas connection costs) has a higher up-front cost than the all-electric home, which uses the heat pump system for both heating and cooling.
- The all-electric home has **2% higher** annual utility costs. There are significant energy savings with a heat pump space and water heater over corresponding gas appliances, even though electricity is significantly more expensive than gas per unit energy in Seattle.
- Carbon emissions from heating, water heating, and cooking are **93% lower** over the appliance lifetime in the all-electric home, due to more efficient appliances and increasingly low-carbon electricity.

Annual Energy Usage and Utility Bill Impacts^{III}

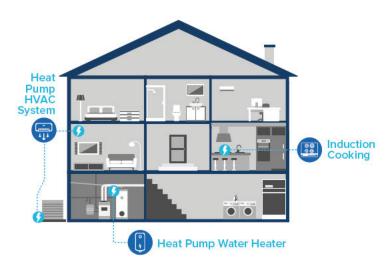
	Mixed-Fuel	All- Electric	Difference
Annual Electricity & Gas Costs ^{iv}	\$1,630	\$1,660	\$30 (+2%)
Electricity Usage (kWh)	9,360	12,850	3,490 (+37%)
Gas Usage (kWh equiv.)	9,860 (340 therms)	n/a	-9,860 (-100%)

 Net present cost calculation incorporates up-front costs and bill impacts, discount rate of 7%, and 15-year assumed equipment lifetime.

- iii. CO₂ emissions are equipment lifetime projections and are conservative because these numbers do not include methane leakage. See <u>calculation methodology</u>.
- iii. Results are rounded.
- iv. Annual utility cost includes electricity and gas costs, where present. Standard 2020 residential tariffs were used.

METHODOLOGY DETAILS

RMI analyzed the economics of a new all-electric single-family home versus a mixed-fuel home that relies on gas for cooking, space heating, and water heating. The following summarizes key home equipment and appliance characteristics for the study.



Annual Operating Cost Energy Modeling Methodology

Annual hourly energy modeling in EnergyPlus was conducted for each city using the following references:

- Department of Energy Residential Prototype Building Model for a single-family detached house (2,400 sq ft) used for building massing.¹
- ASHRAE Standard 90.2-2019 used as reference HVAC system performance." Local building codes used as reference for thermal envelope performance.
- Energy modeling results for each scenario calibrated to end-use breakdown, EUI, and gas/electricity fuel split with the latest available Residential Energy Consumption Survey data by climate region.[™]



ABOUT ROCKY MOUNTAIN INSTITUTE

Rocky Mountain Institute (RMI)—an independent nonprofit founded in 1982 transforms global energy use to create a clean, prosperous, and secure low-carbon future. It engages businesses, communities, institutions, and entrepreneurs to accelerate the adoption of marketbased solutions that cost-effectively shift from fossil fuels to efficiency and renewables. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and Beijing.

Electrification Scenario Equipment Comparison[™]

Equipment	Mixed-Fuel	All-Electric		
Heating	Ducted central gas furnace (AFUE 95)	Ducted multi-zone air source heat pump (11 HSPF, SEER 19)		
Cooling	Central air conditioner (SEER 14)			
Water Heating	Gas water heater 80 gallon storage (EF 0.68)	Hybrid electric heat pump water heater 80 gal storage (EF 1.6)		
Cooking	Gas cooktop Gas oven	Induction cooktop Electric oven		

New Customer Gas Connection

We assume an out-of-pocket cost of \$2,100 for the gas connection of a new home, with scaling by a local construction cost factor. This estimate is conservative, as our research shows that the out-of-pocket cost range for a new customer gas connection per lot is \$0 to \$15k+. This cost varies widely depending on the extent of infrastructure upgrade required and the ratepayer-funded customer allowance from the utility in each location.

Appliance Costs

RMI compiled appliance cost data from cost studies reflecting invoice analyses, contractor surveys, and professional estimates. Costs were then scaled by city using RSMeans Construction Cost Indices. HVAC equipment costs were scaled on a per-ton basis depending on the capacity requirements of each climate.

- i. DOE Residential Prototype
- Gas furnace and water heater equipment was specified at higher performance ratings than outlined in ASHRAE; efficiencies for that equipment were based on <u>Energy Star</u> specification to reflect consumer choice.
- iii. EIA RECs Residential Energy Consumption Survey
- iv. AFUE—Annual Fuel Utilization Efficiency; SEER—Seasonal Energy Efficiency Ratio; EF—Energy Factor; HSPF—Heating Seasonal Performance Factor

GET INVOLVED

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Natural Gas Fact Finding Draft Report

Oregon Public Utility Commission staff is pleased to present the <u>UM 2178 - Natural Gas Fact Finding</u> <u>Draft Report</u> (NGFF Draft Report). The NGFF Draft Report is informed by the docket's extensive stakeholder dialogue, expert consulting, and Integrated Resource Plan-based modeling from the utilities. It includes discussion of the docket findings and suggested next steps. As part of the NGFF Draft Report, staff recommended 25 near-term actions.

Stakeholders are invited to provide written comments on the NGFF Draft Report by June 3, 2022. Comments can be emailed to staff or directly to <u>PUC.PUBLICCOMMENTS@puc.oregon.gov</u>. Comments will be posted in the UM 2178 docket. Staff is particularly interested in stakeholder feedback on the draft report's recommendations.

Following receipt of written comments, the Commission plans to hold a Special Public Meeting in early July 2022 to discuss the NGFF Draft Report and inform the development of the NGFF Final Report. The NGFF Final Report is expected to be posted on August 12, 2022. The Commission will then hold a Special Public Meeting at the end of August to accept the report conclusions and discuss next steps. An outline of the schedule is included below:

Activity	Date
NGFF Draft Report posted; Schedule for publication and consideration of NGFF Final Report posted	April 15, 2022
Stakeholder Comments due on the NGFF Draft Report	June 3, 2022
Special Public Meeting to discuss NGFF Draft Report	Early July
NGFF Final Report posted	August 12, 2022
SPM to accept report conclusions and discuss next steps	Late August

Any questions regarding the NGFF Draft Report and the schedule can be sent to Kim Herb – <u>Kim.Herb@puc.oregon.gov</u>.

Coalition/204 Burgess/2

DOCKET: UM 2178

PUBLIC UTILITY COMMISSION OF OREGON

NATURAL GAS FACT FINDING

Draft Report

April 15, 2022

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1 NATURAL GAS FACT FINDING EXECUTIVE SUMMARY

Oregon has taken explicit steps to reshape the state's energy market by introducing Greenhouse Gas (GHG) emission reduction targets reflecting national trends to actively address climate change through state policy. Policies like the Oregon Department of Environmental Quality's (DEQ) Climate Protection Program (CPP) and HB 2021 set ambitious GHG emission reduction targets that will have a permanent impact on regulated utility investments and operations. In addition, trends related to climate change and climate adaptation are driving consideration of deep decarbonization pathways. These trends include the evolution of regional and national policies that cap or price GHG emissions, and the rapid development and deployment of solutions designed to reduce energy related GHG emissions.

For the natural gas utilities overseen by the Oregon Public Utility Commission (OPUC or PUC), the DEQ's Environmental Quality Commission's 2021 adoption of CPP rules represented a first step in reorienting these utilities' near-term planning and future operations. By complying with the CPP, Oregon's fossil fuel suppliers – including the regulated gas utilities – must collectively achieve emission reductions of 50 percent by 2035 and 90 percent by 2050. Such significant emission reductions position these companies well for future climate policy changes at the regional or national level.

To assess the impact of the CPP on gas utilities, their customers, and other potential decarbonization activities, the PUC staff engaged in a dynamic, six-month public process of fact finding (UM 2178). The purpose of this Natural Gas Fact Finding (Fact Finding or NGFF) was twofold. The first was to analyze the potential bill impacts from the limiting of natural gas utilities' GHG emissions under the DEQ's CPP. The second was to identify appropriate regulatory tools to mitigate potential customer impacts and accommodate utility action.

To achieve these purposes, stakeholders, utilities, expert consultants, and staff collaborated to identify CPP compliance pathways, associated costs, implementation issues, and potential regulatory tools capable of mitigating customer impacts, increasing intergenerational equity, and incentivizing actions to meet CPP targets.

Informed by the docket's extensive stakeholder dialogue, expert consulting, and Integrated Resource Plan-based modeling from the utilities, staff offers this report on the docket findings and suggested next steps.

Broadly, our findings are that:

- Momentum for both limiting gas expansion and for gas supply innovations is accelerating.
- CPP compliance costs and risks to gas customers from gas utilities' compliance actions range from manageable to rather substantial by 2029, depending on the customer and their existing level of energy burden.
- CPP **compliance and decarbonization issues** that PUC activities will need to address are much better understood.
- A host of regulatory tools organized into the categories of Planning, Programs, and Rate Making – are available to shape and manage the policy risks of various compliance pathways for gas utility decarbonization, and the PUC most likely has sufficient authority to implement them.

 A number of potential regulatory tools identified in this Fact Finding would require an optimization across the energy system, rather than a focus on a single fuel (i.e. natural gas or electricity). Implementing such tools would require work across a variety of dockets and utilities over the next decade. For these reasons, these tools would require an unprecedented degree of internal and external coordination and additional resources.

With regards to these findings, the report also includes staff's consideration of the suite of regulatory tools. Based on staff analysis, stakeholder feedback, and workshop discussions, staff developed a set of regulatory tool recommendations that should be best suited to address the identified issues given various constraints. The table below functions as a high-level summary of the near-term regulatory tools staff recommends.

				Regulatory Tool		
Section 5 Analysis	Recommendation	Issue from Section 3.3	Planning	Programs	Ratemaking	
	Estimated Bill impact	Protection	Х			
	Direct ETO to target programs to LI and EJ	Protection		X		
Protecting	EE measures that allow for customer hook-ups	Protection		X		
Customers	EE programs to include transport	Protection	5 S	X		
	Continue development of HB 2475	Protection			Х	
	Align near-term investments with CPP compliance	Protection			Х	
Full Cost	Develop marginal abatement cost curve	Full Cost of Reducing Demand	X			
Full Cost	Transport customer cost of compliance in rate cases	Full Cost of Reducing Demand		18	X	
Access and Info	Quarterly stakeholder updates in UM 2178	Access	X	3x		
	Maps in next IRPs	Access	X			
	RFA docket outreach through DEI Director	Access			X	
	Utilities articulate electrification assumption in IRPs	Systems Approach	X			
	Electrification info and data from DSP	Systems Approach	X			
Decarb Planning &	Independent 3rd party analysis of key tech and market assumptions used by all 3 utilities	Systems Approach	х	383		
Cost-Recovery	CPP as an acknowledgeable item in IRPs	Systems Approach	Х			
	Exploring IRP guidance from UM 2178	Systems Approach	X			
	Line extension policy exploration	Systems Approach			X	
	Annual PUC report based on DEQ compliance filings	Systems Approach	Х			
Monitoring,	Annual utility report on CPP compliance costs	Access	X			
Tracking, and Reporting	Enhance tracking of alternative supply of actual costs and report to planning	Access	5 - 3 ³	0 <u>,</u> 0	X	
, ,	Explore linking CPP amortization to CPP performance	Protection		2X	X	
Incentivize	Encourage use of SB 844 for Pilots	Urgent Action	X			
GHG	Compliance costs into EE AC	Urgent Action			X	
reduction	Joint pilot for Green Hydrogen by 2025	Urgent Action			Х	
pathways	ETO Expand vendor training for <u>all</u> heat pump tech	Urgent Action			Х	

Table 1: Roadmap of Staff Regulatory Tools for Oregon (See Section 5.7 for more details)

2 BACKGROUND

2.1 PUC'S NATURAL GAS FACT FINDING

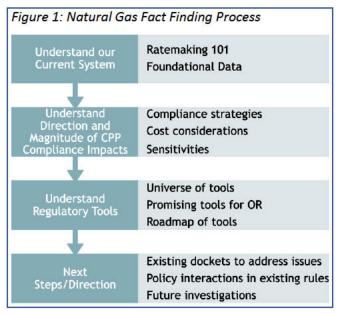
In December 2020, the PUC finalized its GHG work plan after five months of development and stakeholder input. The overall goal of the proposed work plan was to, "establish new analyses and actions within existing dockets and investigations, and consistent with the PUC's authorities and duties, so as to place the regulated utilities on sustainable pathways toward achieving the Governor's 2035 GHG reduction goals."¹ Specifically for gas ratepayers, the work plan proposed a study of the impact of the proposed DEQ CPP rulemaking to, "understand the customer dimensions and impacts of different decarbonization scenarios and thus help inform future decision making."²

In June 2021, staff officially opened the Natural Gas Fact Finding under Docket No. UM 2178. The purpose of this Fact Finding was to analyze the potential natural gas utility bill impacts that may result from limiting GHG emissions of regulated natural gas utilities under the CPP and to identify appropriate regulatory tools to mitigate potential customer impacts. It was crafted to produce two primary outcomes: 1) An understanding of potential natural gas customer bill impacts associated with the CPP GHG emission target compliance; and 2) the identification of strategies and regulatory tools that equitably mitigate potential harm to natural gas customers while accommodating action that supports compliance.³ The ultimate goal of the Fact Finding was to inform future policy decisions and other key analyses to be considered in 2022, once the CPP is in place.

The work plan (as outlined in Figure 1) was designed to:

- Help staff and stakeholders understand current natural gas and cost recovery systems;
- Understand the potential impacts of CPP compliance;
- Explore applicable regulatory tools; and
- Identify actions the Commission could take to protect customers.

Staff utilized a process that mixed facilitated workshops, public comments, and external analysis to develop an extensive set of documents.



¹ Oregon Public Utility Commission EO 20-04 Work Plans. Page 2.

https://www.oregon.gov/puc/utilities/Documents/EO-20-04-Work plans-Final.pdf.

² Oregon Public Utility Commission EO 20-04 Work Plans. Page 10.

https://www.oregon.gov/puc/utilities/Documents/EO-20-04-Work plans-Final.pdf.

³ See UM 2178, Staff's Initial Application, June 8, 2021. Page 16 of pdf.

https://edocs.puc.state.or.us/efdocs/HAA/um2178haa11959.pdf.

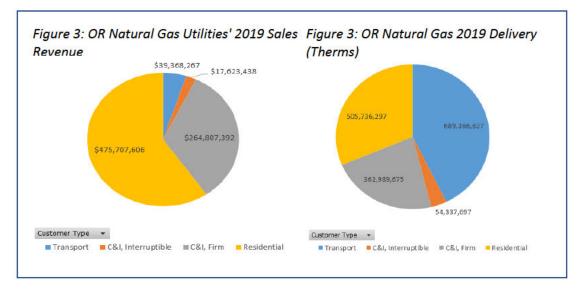
Staff held five workshops, each of which was generally attended by over 90 people. In addition, the UM 2178 docket schedule offered multiple opportunities for public comment and access to utility compliance modeling workbooks. Staff also engaged the Regulatory Assistance Project (RAP) to assist staff and explore regulatory tools.

2.2 NATURAL GAS USE IN OREGON

Oregon is served by three natural gas Investor-Owned Utilities. All are standalone gas companies in Oregon with no electricity sales. Annual sales revenues for Oregon's three natural gas utilities were over \$810 million in 2019.⁴ In 2019, Oregon's natural gas customers consumed about 1.6 billion therms, or about 4.4 million therms per day.⁵ NW Natural (NWN) is the largest of Oregon's three gas utilities, providing about 80 percent of total natural gas retail sales, with Avista representing 12 percent of retail sales, and Cascade representing 8 percent.

Oregon's customers are divided into four categories: residential, Firm commercial & industrial (Firm C&I), Interruptible C&I, and Transport. Firm C&I customers are generally small businesses, while Interruptible C&I customers are generally larger businesses. Transport customers are large, non-residential utility customers that have purchased their gas from another natural gas supplier (e.g., gas marketer) but who continue to use the regulated utility's distribution system to deliver their gas.

As can be seen in Figures 2 and 3,⁶ while most natural gas utilities' revenues come from residential customers, much of gas delivered annually by these utilities is for transport customers. The revenues from transport customers to the regulated utilities is relatively small because these customers purchase their gas from gas marketers, not the utilities, and only use the utility's distribution system to deliver the gas to their location.



⁴ 2019 Oregon PUC Statistics Book. Page 42. <u>https://www.oregon.gov/puc/forms/Forms%20and%20Reports/2019-</u> Oregon-Utility-Statistics-Book.pdf.

⁵ Descriptive Statistics Excel Workbook, May 27, 2021. Available on Oregon PUC's Natural Gas Fact Finding webpage - <u>https://www.oregon.gov/puc/utilities/Pages/EO-20-04-UP-FactFinding.aspx</u>.

⁶ See Descriptive Statistics Excel Workbook, May 27, 2021. Available on Oregon PUC's Natural Gas Fact Finding webpage - <u>https://www.oregon.gov/puc/utilities/Pages/EO-20-04-UP-FactFinding.aspx</u>.

2.3 THE CLIMATE PROTECTION PROGRAM

The CPP, effective in January 2022 (OAR 340-271), is designed to substantially reduce greenhouse gas emissions in Oregon over the next thirty years. The CPP establishes a declining limit, or cap, on greenhouse gas emissions from fossil fuels used throughout Oregon, including diesel, gasoline, natural gas, and propane. This includes emissions from fossil fuels used in transportation, residential, commercial, and industrial settings. It also uses a best available emissions reductions approach for other site-specific emissions at facilities, such as emissions from industrial processes.

Companies regulated under the declining cap, known as covered fuel suppliers, include the three natural gas utilities and other suppliers of liquid and gaseous fossil fuels. The aggregate emissions covered under the CPP represent about half of the state's greenhouse gas emissions, with natural gas utilities making up 26 percent of total CPP covered emissions (NW Natural 21 percent and Avista and Cascade 3 percent each).⁷ The 2022 cap is based on average emissions from 2017 to 2019 for the covered fuel suppliers. The CPP requires greenhouse gas reductions of 50 percent by 2035 and 90 percent by 2050.⁸

Covered fuel suppliers must demonstrate compliance every three years along a steady trajectory towards the two milestones in 2035 and 2050. The first compliance period is 2022-2024, with covered fuel suppliers first demonstrating compliance in November 2025. Companies demonstrate compliance by submitting one compliance instrument or community climate investment (CCI) credit (discussed in more detail below) for each ton of covered emissions reported in their annual greenhouse gas emissions reports to DEQ during the compliance period. Under the CPP, each natural gas utility receives a free annual distribution of compliance instruments based on their share of the overall declining emissions cap.

While DEQ prescribes exactly the number of compliance instruments that will be supplied to each natural gas utility in years 2022-2050, there are additional flexibility mechanisms. Covered fossil fuel suppliers can trade unused compliance instruments or bank them for future use. These companies can also optionally contribute funds to DEQ-approved third parties in order to receive CCIs that work similarly to the compliance instruments DEQ distributes (e.g., each CCI credit allowing supply of fossil fuels that when combusted emit 1 metric ton CO2 equivalent).

Covered fuel suppliers can earn CCI credits by contributing funds to third-party entities to implement projects that reduce greenhouse gas emissions in Oregon. The contribution amount for a CCI credit is established by DEQ. The contribution amount starts at \$107 (2021) per CCI credit and increases over time.⁹ CCIs are designed to reduce emissions by at least one MT CO2e on average, prioritize benefits in or near environmental justice communities, and reduce co-pollutants. CCI credits can be banked for two compliance periods and cannot be traded. Covered fuel suppliers can only use a limited number of CCIs to meet compliance obligations. The limit begins at 10 percent of total compliance obligations for the first compliance period and eventually grows to 20 percent by the third compliance period.¹⁰

In short, DEQ's CPP lays out a regulatory framework that prohibits supply of natural gas by the three utilities above the amounts prescribed by the rules. From the outset in 2022, these amounts decline by

⁷ See Supplemental Cap Information Excel Workbook. Available on Oregon DEQ's Climate Protection Program website = <u>https://www.oregon.gov/deq/ghgp/pages/climate-protection.aspx.</u>

⁸ See OAR 340-271-9000, Table 4.

⁹ See OAR 340-271-9000, Table 7.

¹⁰ See OAR 340-271-9000, Table 6.

50 percent by 2035, and by 90 percent by 2050. While there are some flexibilities such as trading and CCIs, these requirements represent a significant, rapid, and mandatory requirement in the reduction of the utilities' supply of natural gas. Figure 4 provides a sense of the magnitude of the reductions required by the CPP.

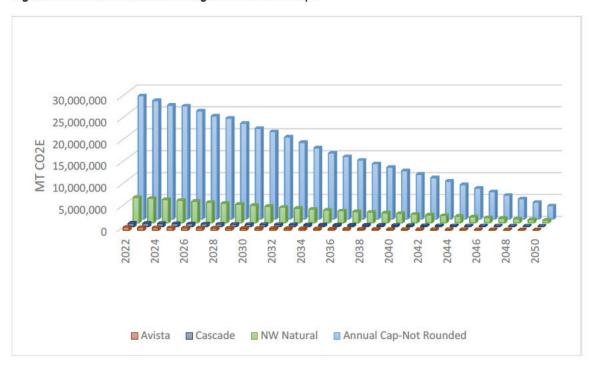


Figure 4: Climate Protection Program Emission Caps¹¹

3 Key Findings, Issues, and Staff Analysis

The compliance modeling, stakeholder dialogue, and discussion around regulatory tools in the Fact Finding led to several findings:

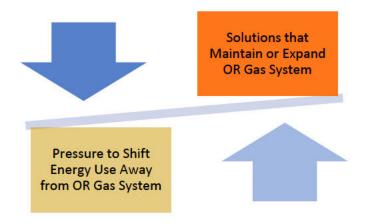
- Momentum for both limiting gas expansion and for gas supply innovations is accelerating.
- CPP compliance costs and risks to gas customers from gas utilities' compliance actions range from manageable to rather substantial by 2029, depending on the customer and their existing level of energy burden.
- CPP compliance and decarbonization issues that PUC activities will need to address are much better understood.
- A host of **regulatory tools** organized into the categories of Planning, Programs, and Rate Making – are available to shape and manage the policy risks of various compliance pathways for gas utility decarbonization, and the PUC most likely has sufficient authority to implement them.
- A number of potential regulatory tools identified in this Fact Finding would require an optimization across the energy system, rather than a focus on a single fuel (i.e. natural gas or

¹¹ See OAR 340-271-9000, Tables 2 and 4.

electricity). Implementing such tools would require work across a variety of dockets and utilities over the next decade. For these reasons, these tools would require an unprecedented degree of internal and external coordination and additional resources.

3.1 MOMENTUM

The regulation of the gas industry appears to stand at a crossroad. Given the desire by most of the public to address global warming due to fossil fuel use, momentum exists for limiting gas expansion and reducing or shifting energy use away from the Oregon gas system, as well as for accelerating and deploying gas supply decarbonization innovations that maintain or expand the gas system.



The gas industry, and federal and state governments, have committed to exploring and investing in unprecedented levels of low-to-zero carbon natural gas technology solutions. These range from investments in supply solutions like Renewable Natural Gas (RNG), synthetic natural gas, and hydrogen to demand solutions like gas heat pump water heaters and furnaces.

In the opposite direction, dozens of local authorities across the U.S. – including California and Massachusetts – have adopted ordinances and building codes to advance building electrification and ban new hook-ups.¹² The purpose of these policy changes is to transition away from natural gas use so as to reduce GHG emissions and avoid costly investments in the near-term that may not be fully utilized in the future.

These two futures for the gas industry are often described as being in opposition to each other. Staff finds that it may also be the case that some combination of choices – between encouraging low-to-zero carbon gas technologic advances and regulatory actions that limit future gas customer and infrastructure growth – may best balance the various technology, cost, and regulatory risks associated with meeting the state's GHG emission targets.

¹² See Appendix C - RMI Building Electrification Policy Pressures. See also California Public Utility Commission rulemaking R.20-01-007 (2020) and Massachusetts Department of Public Utilities Order 20-80.

3.2 MODELING COSTS & RISK

The structure of the NGFF allowed utilities and stakeholders to explore a wide range of possible compliance scenarios. As a result, participants were able to glean an understanding of the impact of various pathways, explore sensitivities, and begin the process of stress testing the reasonableness of underlying assumptions put forth by both utilities and various stakeholders.

As a foundation for all other analytic inquiries, staff asked the gas utilities to model how they would comply with DEQ's CPP. Each utility modeled three overall CPP compliance scenarios (base case, high innovation, and accelerated electrification) with multiple sensitivities. The purpose of the modeling was to understand more about the cost and timing of the strategies the companies were contemplating to meet CPP GHG emission targets. By broadly understanding how utilities might comply and the associated costs and timelines for different strategies, the Commission, staff, and stakeholders might better understand where, when, and which regulatory tools might be used to mitigate costs and risks.

There were two general points of agreement:

- 1. Gas utilities will need to take significant near-term action to decarbonize: "Business As Usual" growth and operations of the system result in emissions exceeding the 2035 compliance targets.
- 2. Any compliance pathway will very likely increase the costs of energy service for all categories of customers over the next decade.¹³

3.2.1 Scenarios as Compliance Pathways

The gas companies were asked first to model how they might envision complying with the CPP, and then to consider a set of sensitivities, which were intended to stress test the company's proposed pathway. These sensitivities tested decarbonized gas availability, decreases in the number of customers, a more aggressive policy environment, and a reduction in availability of alternative compliance mechanisms. The gas companies were further asked to model scenarios with high electrification and high levels of support for innovation as different scenarios. A summary of the sensitivities and scenarios are in Table2. Full descriptions can be found in Appendix A.

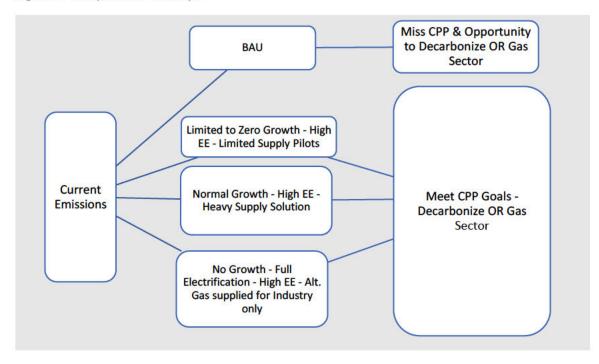
¹³ As the only outlier, NW Natural's base case modeling actually projected slightly lower residential customer bills in 2050.

rubic 2. Section 105 and Sensitivities	Table	2: Sce	narios	and	Sensitivities
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	Base Case Scenario	Utilities model what they see as most optimal compliance pathways	
arios	Alt. Scenario 1 – Innovation / Electrification / SCC	Modeled a PTC for green hydrogen and syngas before 2026, use of higher Social Cost of Carbon, and high electrification of buildings	
Scenarios	Alt. Scenario 2 – Delayed innovation / Accelerated Electrification	Lower energy efficiency (EE) technology adoption curves, limited availability of RNG, and very rapid electrification of existing customers	
S	Declining Customer Counts	Modeled sensitivities that consider zero and negative customer growth	
Sensitivities	Aggressive Timeline	CPP targets are advanced to align more closely with HB 2021: CPP targets 45% below baseline by 2030, 80% below baseline by 2040	
	No CCIs	Modeled impacts of removing CCI compliance options	
Š	Restricted RNG	Applied constraints on assumptions about the availability of RNG to meet emission reduction goals	

The scenarios represent factors that are outside utility control, such as market and policy assumption variations. Scenarios combined with sensitivities test how well compliance pathways respond when market and policy factors differ from what was thought to be most likely as represented in the base case. The various scenarios modeled produced different compliance pathways. The uncertainty in costs, performance risks, and availability of resource options for each pathway to decarbonize has raised many more questions to be addressed to ensure the planning and decision-making process supports the identification of the least-cost and least-risk approaches to future GHG emission compliance. While the gas companies, stakeholders, policy makers, and regulators must chart a pathway to meet the CPP requirements, technology costs and performance remain highly speculative. The analysis from the NGFF, while informative, made it clear that more robust modeling and rigorous vetting of resource assumptions within Integrated Resource Plans (IRPs) will be required to make informed assessments about least cost, least risk paths for compliance.

Figure 5: Compliance Pathways



3.2.2 Summary of Costs and Risks from Scenarios

All parties agreed that the rigor and analysis that comes with a full IRP¹⁴ would be needed for more definitive modeling conclusions. While the compliance modeling often provided a wide range of results from which trends were difficult to detect, there were still many important learnings gleaned from the Fact Finding. Perhaps more than anything, this exercise helped all parties understand what information should be modeled more rigorously in IRPs and what new information should be brought into IRPs to help assess least-cost/least-risk compliance strategies.¹⁵ In addition to a general trend of increased customer bills attributable to CPP compliance, this new information includes:

- Cost, feasibility, and ratepayer impacts of CPP specific compliance strategies.
- A need to understand the interdependency of the gas and electric systems in terms of costs and emissions that result from policies that shift load away from gas.
- The necessity to include transport customers in CPP compliance activities.
- Costs of non-compliance, while not modeled, drives understanding of risk in future planning.

(Suggested changes to the IRPs are more fully detailed in Appendix B.)

Base Case

¹⁴ The IRP presents a utility's current plan to meet the future energy and capacity needs of its customers through a "least-cost, least-risk" combination of energy generation and demand reduction. The plan includes estimates of those future energy needs, analysis of the resources available to meet those needs, and the activities required to secure those resources. *See* <u>https://www.oregon.gov/puc/utilities/Pages/Energy-Planning.aspx</u>.

¹⁵ See Appendix B on Suggested changes to IRPs.

The Fact Finding's base case scenario was presented by each utility in September 2021 and represents the starting point for analysis.¹⁶ The base cases reflect the gas utilities' preferred compliance strategies for residential, commercial, and industrial customers, given their most recent planning and what was understood about the CPP rules prior to adoption.

In the base case scenarios, annual bills increased in the near term and showed a range of outcomes. The estimated bill increases varied across companies and customer types. Additionally, the rate and direction of bill increase changed in later years of the model. CPP compliance costs to gas customers range from single digit percentages to rather substantial by 2025, depending on the customer and utility modeling. Figure 6 and Table 3 illustrate the estimated bill impacts over time.¹⁷

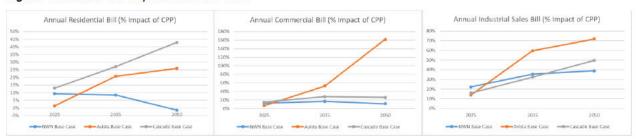


Figure 6: Annual Bill Impacts in Base Case

Table 3: Trends in Estimated Bill Impacts over Time

		2025			2035			2050*	
Util.	Res.	Com.	Ind.	Res.	Com.	Ind.	Res.	Com.	Ind.
AVA	1%	7%	14%	21%	53%	60%	26%	162%	72%
CNG	13%	15%	16%	27%	28%	32%	43%	26%	50%
NWN	9 %	17%	22%	9%	17%	35%	-2%	12%	39%

*AVA and CNG only go to 2040 so those values were used in place of 2050

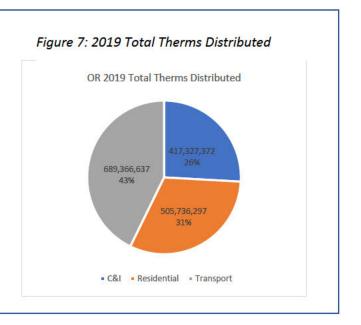
 ¹⁶ See NGFF Workshop 3 presentations and link to modeling materials available on Oregon PUC's Natural Gas Fact
 Finding website – <u>https://www.oregon.gov/puc/utilities/Pages/EO-20-04-UP-FactFinding.aspx</u>.
 ¹⁷ Ibid.

Transport Customers

Transport customers are customers that pay Oregon's gas utilities to transport gas to their location, but

that pay a gas marketer, not the gas utility, for the actual gas. However, it is the gas utility that is a regulated entity under CPP and is the entity through which transport gas emissions are regulated.

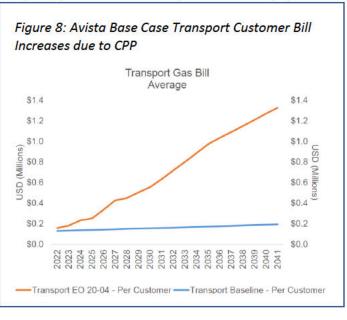
As can be seen in Figure 7, which simplifies customers into three categories, Transport customers accounted for over 40 percent of total therms distributed in 2019. With the adoption of CPP rules, the gas utility is now accountable for this large portion of emissions. This creates a situation in which the regulated gas utilities will need to consider developing more programs and activities aimed directly at reducing transport customers' GHG emissions and ways for those customers to pay for those programs.



The bills transport customers receive from a gas utility represent only a portion of their total gas costs.¹⁸ The additional cost to transport customers from their regulated utility for CPP compliance, on a \$/therm basis, appears large on a relative basis, as it is only compared to what transport customers pay now to

the regulated gas utilities, which is the cost of moving their gas. It is important to note that rate spread determinations have not yet been established, and how compliance costs would be spread across all customers has not been determined.

However, as an imperfect way to try to understand CPP compliance for transport customers, staff pulled from the utility modeling how an evenly spread \$/therm could manifest. As an example, Avista modeled price impacts to transport customers in its base case as seen in Figure 8. Transport customers see an increase in the average bills they receive from the gas company, which reflects the increased cost of compliance per therm



¹⁸ When representing the CPP compliance bill impacts to these customers as a percent of the bill impact, one only captures the increase to what transport customers pay to regulated gas utilities. It would not accurately represent the percent increase because it would not include the cost of the gas itself and the percent increase would appear very high, as compared to the total bill paid to the regulated gas utilities.

over the time horizon. Understanding how compliance costs could be spread is an open and unresolved issue that will need to be further explored in future cost recovery dockets. Additionally, Transport load, as well as associated emissions and compliance costs, have not previously been addressed in IRPs and will need to be captured in future gas IRPs.

Renewable Natural Gas

Assumptions about RNG (biogenic, hydrogen, and synthetic methane) costs and availability was also a topic of interest. Utilities modeled RNG use for compliance in all scenarios. Given the nascent market for RNG of various types, the use of RNG as a compliance strategy creates uncertainty and will require additional analysis of RNG costs and availability in future IRPs.¹⁹ By 2025, the utility models projected RNG costs ranging from about \$6/dekatherm to \$12/dekatherm and these costs are assumed to decrease at different rates after 2025. For comparison purposes, natural gas is currently trading in a range of \$3 to \$5 per dekatherm.

Each of the three utilities came up with different assumptions about how much RNG they would be able to secure over time. These varying assumptions made it difficult to generalize about the costs and availability of RNG, as well as the impacts on future customer bills. However, the use of neutral thirdparty market information about the RNG market and other nascent compliance solutions and technologies should provide a way to reduce uncertainty around compliance costs and risks in future IRP analyses.

Declining Customer Counts

Finally, modeling scenarios with declining customer counts provided limited insights. This may be due to inconsistencies in how each company modeled assumptions about how to handle the relatively fixed costs of existing infrastructure given a shrinking customer base. For example, Cascade's modeling showed the bill impact from declining customer counts to be virtually unchanged when compared with its base case. Avista's model showed customer costs decreasing significantly in its declining customer count scenario when compared with its base case. Meanwhile, NWN's model showed a substantial increase in customer costs under its declining customer scenario. This reinforces the need to refine and standardize how such scenarios of declining customer counts should be modeled in future IRPs. The table below, summarizes the modeling results by scenario and sensitivity. More information on the modeling results can be found in Appendix A.

Table 4: Scenario Modeling Summary

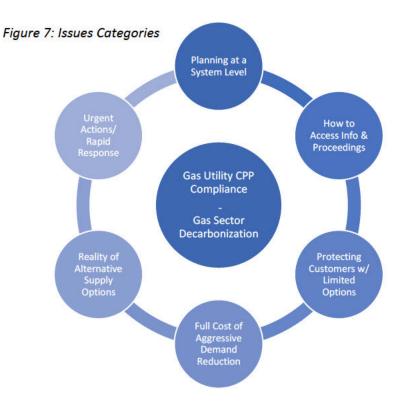
Scenario	Results – high level summary
Base Case	Generally, compliance with GHG emission regulations resulted in a range of both increased and decreased customer bill impacts. The source of those bill changes varied by company and compliance strategy. There is a lot of variation in the models, which reinforces the need to look at these issues more closely in the context of a planning document such as an IRP.
Restricted RNG	Restricting RNG had mixed results – NWN modeled increased RNG prices with the restriction, resulting in higher compliance costs compared to base case. Avista and Cascade reduced how much RNG was used for compliance, which reduced their overall cost of compliance compared to their base case scenarios.

¹⁹ See RNG modeling recommendations for IRP in Appendix B.

Declining Customer Counts	NWN modeling showed customer declines result in increased compliance costs above those of its base case as the years progressed. Avista compliance costs decreased with declining customers and Cascade saw costs remain almost identical to its base case.
Aggressive Timeline	NWN costs increased in the middle years of the model run but the difference between this scenario and the base case shrank as they approached 2050. Avista and Cascade's aggressive timeline model runs showed compliance costs consistently higher than in their base cases for all customer types.
No CCIs	All companies showed that the inability to use CCI's would result in higher compliance cost than in their base cases in the early years; But by 2050, the three utilities' modeling runs arrived at different conclusions, with NWN's annual compliance costs continuing to outpace compliance costs in its base case, while Avista's cost differential was shrinking, and Cascade's annual compliance costs were the same as in its base case.
Alt. Scenario 1 - Innovation	Cascade's model resulted in bill impacts that were lower than in their base case. Avista's modeling summary showed zero change in bill impacts, but the workbooks showed negative bill impacts for all customers except transport, and then compliance cost increases similar to those found in their base case. NWN's bill impacts for the scenario increased significantly due to high electrification- related customer declines, which resulted in costs not tied to energy use being spread over many fewer customers (a 318% increase in non-energy charges in 2050). There was no increase in hydrogen usage on NWN's or Avista's system because the high electrification rates reduced or eliminated the need for fuel 'innovation.' Hydrogen usage was significantly decreased as a solution for Cascade when compared to its base case. For Avista, this scenario saw its transport customers pay an increasing share of the utility's compliance costs as the utility's retail customer count declined.
Alt. Scenario 2 – Accelerated Electrification	Like Scenario 1, Cascade modeled bill impacts that were lower than their base case. Avista's summary showed zero bill impacts, but the workbooks showed negative impacts in 2025 and then similar increases to the base case by 2035. NWN modeled the most aggressive electrification assumptions, resulting in a scenario that showed a significant drop in customers on the system and a 405% increase in residential bills by 2050. NWN also showed a moderate amount of industrial EE around 2035 and the use of banked allowance credits collected before 2042 for CPP compliance in the 2040s.

3.3 ISSUES TO BE ADDRESSED BY PUC CPP COMPLIANCE AND DECARBONIZATION ACTIVITIES

The analysis of costs and risks led to the identification of several near- and long- term issues that the PUC will need to address as utilities undertake CPP compliance activities. Broadly, they can be broken into six overarching categories shown in the figure below.



3.3.1 Gas and Electric Energy System Planning

Stakeholders identified the interconnected nature of Oregon's gas and electric systems. The attempts to model those interactions as part of this investigation proved to be beyond the limitations of the modeling and showed how difficult it would be to analyze the costs and benefits of strategies that contemplate shifting heating loads from gas to electric in Oregon as part of a single fuel utility's IRP. To meet the state's GHG reduction targets and avoid unnecessary costs and reliability risks, the planning of both gas and electric utilities will require the sharing of key data in the near-term and the explicit recognition of planning interdependencies.

3.3.2 How to Access Information and Proceedings

Stakeholders continually raised concerns about the complexity and resource commitment necessary to acquire key regulatory information and meaningfully engage in planning processes. Environmental justice and low-income advocates, as well as business and industry advocates, noted that to advance their perspective on gas utility decarbonization holistically and effectively, they would have to involve themselves over the next two years in many gas-related dockets. In short, the volume of information that must be analyzed <u>and</u> the necessity to carry a consistent message across many different dockets presents a barrier to participation for many stakeholders.

3.3.3 Protecting Customers with Limited Options

In terms of customer protection, stakeholders identified two types of customers especially at risk from higher costs because they lacked the ability to easily substitute away from the natural gas system. Those two groups were low-income residential customers and many types of businesses, large and small, reliant upon gas for specific end-use processes. For low-income customers, higher cost most likely translated to greater unavoidable energy burden.²⁰ For some Oregon businesses, there are limited-tono-economic substitutes currently for certain gas end-uses. This includes emissions control technologies, outdoor heating for nurseries, and process heat to meet food safety standards. **Tools that provide targeted mitigation of certain customer bill increases, without hindering progress toward compliance, would be of high value to the process of gas system decarbonization.**

3.3.4 Full Cost of Aggressive Demand Reduction

Many stakeholders put forth ideas to rapidly reduce customer demand to meet CPP targets. Beneficial Electrification (BE) emerged as a key concept. The Regulatory Assistance Project offers this description of beneficial electrification:

For electrification to be considered beneficial, it must meet one or more of the following conditions without adversely affecting the other two: 1.S. Saves consumers money over the long run; 2.E. Enables better grid management; and 3.R. Reduces negative environmental impacts.²¹

For residential customers, this may include replacing gas fired furnaces, stoves, and water-heaters with those powered by electric heat pump and induction technology. For commercial customers, this may include swapping an existing gas-fired boiler for an electric boiler. However, much is unknown about how to deploy BE in Oregon and what the resulting emissions and cost impacts might be to the electric system. Without careful analysis, planning, and execution, BE has the potential to shift greater energy demand, peak risk, distribution costs, and reliability concerns to electric ratepayers. Most stakeholders acknowledged that more must be learned to understand the costs and risks from BE. Conversely, with good planning, beneficial electrification could create system benefits. Other states are attempting BE pilots, and the electric utilities' IRPs and Distribution System Plans could be crafted to provide valuable insights into the tradeoffs around aggressive demand reduction actions for both gas and electric ratepayers. **Tools that facilitate a coordination between gas IRPs, electric IRPs, and Distribution System Plans may enable analysis of customer costs, grid management, and emission impacts of load reduction associated with load shifts.**

3.3.5 Alternative Supply Options and Availability

Each utilities' base case CPP compliance modeling relied on decarbonizing the fuel they provide through large amounts of RNG, green hydrogen, and/or synthetic gas. These supply-side alternatives to natural gas currently represent a significant part of each companies' compliance strategy. Notably, large-scale hydrogen availability at a reasonable price is necessary in less than 15 years.

²⁰ See Oregon Department of Energy, Legislative Report 2021, pg. 18. Defines Energy Burden as "...the percentage of household income spent on energy and transportation costs." It's used as an indication of energy affordability, and anyone paying more than 6 percent of their household income on energy is considered energy burdened. According to the 2020 Biennial Energy Report's Energy 101: Equity and Energy Burden, about "25 percent of Oregon households are energy burdened – and that's based on numbers from before the COVID-19 pandemic." ²¹ Farnsworth, D., Shipley, J., Lazar, J., and Seidman, N. (2018, June). Beneficial electrification: Ensuring electrification in the public interest. Montpelier, VT: Regulatory Assistance Project.

Utility	RNG Supply Pene	tration by 2025	RNG Supply Penetration by 2035			
	Volume (Dth/year)	% of Deliveries	Volume (Dth/year)	% of Deliveries		
Avista	317,875	2%	2,932,134	40%		
Cascade Natural Gas	1,544,229	10%	6,673,003	26%		
NW Natural	4,842,842	4%	8,399,503 (bio) 13,551,224 (H2)	23%		

Table 5: Alternative Supply Projections

Many stakeholders believed the quantities and the timeline of availability put forth by the companies were not realistic. Further, they made the case that relying on these natural gas alternatives placed a tremendous amount of compliance and financial risk on the companies, and thus ratepayers, in later years, as it allows for the continued expansion of the gas system with the promise of future low-to-zero GHG fuel supplies. Further work is needed to understand how speculative or certain such projections of alternative fuels might be, and who might carry the risks of relying on developing decarbonized gas to meet CPP goals. To inform risk assessments, it will be important for the Commission and stakeholders to monitor, track, validate, and report market trends and forecasts for alternative gas availability and costs in planning dockets and rate cases.

3.3.6 Need for Urgent Action/Rapid Response

Gas utilities face an immediate, urgent need to develop and deploy strategies to meet near-term CPP compliance obligations. We heard interest in exploring how the PUC could facilitate the deployment and cost recovery of nascent technologies to decarbonize fuels and improve energy efficiency, as well as exercising new policy direction to promote fuel switching to reduce natural gas use.

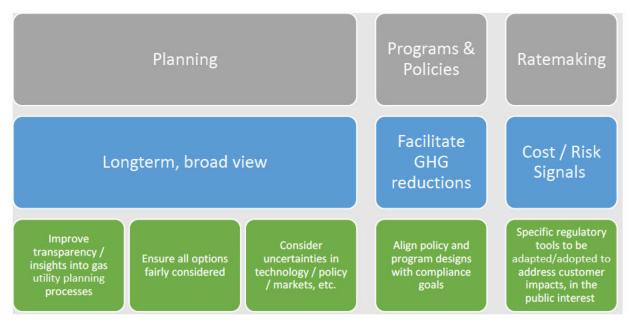
Because of the high levels of uncertainty inherent in developing new policy and installing new technologies, deploying regulatory tools that both open the doors for novel solutions and reduce customer risk exposure will be a challenge. While the Commission has some existing tools at its disposal, some will need to be used successfully for the first time (e.g., SB 844, which allows gas companies to receive financial incentives for GHG emission reductions activity costs that are outside their normal course of business) and others may need to be revisited to explore the boundaries of what is possible within them (e.g., ETO energy efficiency programs). **Regulatory tools that provide incentives for action while managing risk, and risk expectations, may help facilitate the rapid response needed to meet CPP targets while protecting customers.**

4 **REGULATORY TOOLS**

In this proceeding, staff, stakeholders, and utilities, led by the Regulatory Assistance Project (RAP), explored regulatory tools that could be used to address the customer impacts while meeting CPP targets.

Staff relied on a framework provided by RAP (summarized in Figure 10) to organize categories of tools and explore the benefits and tradeoffs associated with the different tools. These categories include three types of tools: planning, programs, and ratemaking. They provide signals to customers about system costs and goals. This section gives a high-level overview of each of these categories (additional information is included in the workshop materials).





4.1 PLANNING TOOLS

Oregon has robust Integrated Resource Planning (IRP) processes for both its gas and electric utilities.²² Nevertheless, as the energy system is evolving in response to price signals and targets as set forth in the CPP and HB 2021, planning requirements can also evolve to ensure that they are responsive to changing circumstances. Several options for amending current planning requirements were discussed over the course of the investigation. This included both changes that could be made within current guidelines and ideas for adding new requirements. A promising example of a new planning tool that falls within current guidelines includes explicitly requesting gas and electric utility planning processes to analyze scenarios that cut across their service areas. This would include requiring the use of common assumptions to model the cost and emission impacts of high electrification scenarios.

4.2 PROGRAMS

Utility programs, like energy efficiency or green hydrogen pilots, offer opportunities to address challenges within an evolving system. The Fact Finding workshops provided an opportunity to consider ways in which the Commission could revisit current programs while ensuring alignment with customer and system needs to comply with CPP requirements. The importance of prioritizing solutions that addressed considerations of equity was emphasized by stakeholders, as was the possibility of exploring pilots to test key uncertainties around new technology (e.g., gas powered heat pumps; green hydrogen production; etc.).

²² See Order No. 07-002 and Errata Order No. 07-047 for a list of the IRP guidelines that drive the IRP process.

4.3 RATEMAKING TOOLS

The final category of tools are reforms to gas ratemaking that can direct how investments are incentivized and socialized, limit cost-shifting across rate classes, or protect certain customers from increased energy burden. Several approaches were discussed, including:

- Updating when, where, and the extent to which customer contributions to line extensions are shared or targeted. Many stakeholders noted future uncertainty about the extent of network utilization and how much and what type of gaseous fuel will flow through that network.
- Aligning asset depreciation timelines with anticipated use over a decarbonization timeline. Depreciation expenses are normally spread over an asset's projected lifetime. Changes to depreciation timelines thus affect the revenue requirement and send a signal about the usefulness of specific assets over a longer timeframe. For example, accelerating depreciation expenses to front-load cost recovery leads to rate increases in the near-term, but avoids the future problem of recovering fixed costs from fewer and fewer customers if customers leave the system.
- Rate design that induces reductions at periods of peak demand, including peak season or peak day prices or inclining block structures, can encourage energy efficiency or align usage with GHG emission reduction targets.
- HB 2475 allows the Commission to consider rate structures for separate classes or sub-classes of customers based on energy burden in rate cases. Such rate structures could provide discounts to mitigate effects of higher bills due to the CPP. To this end, NW Natural's and Avista's general rate revision proposals, currently being reviewed by the PUC, include differential rate proposals.²³
- Changing the utility's business model motivations can also help align utility behavior with transition targets. For example, future rate adjustments could shift from being deferrals related to the cost of CPP compliance to being associated with achieving CPP targets.
- Performance-based regulation, in addition to currently utilized decoupling, could allow the Commission to consider desired goals and outcomes and then to design metrics to meet those goals.

Staff finds current PUC authority likely sufficient to apply all of the regulatory tools found in the categories of planning, programs, and ratemaking to support and shape any number of CPP compliance pathways. However, some of the tools require new resources and a coordinated, strategic focus to both develop and implement across dockets and utilities, as they call for optimization across Oregon's entire energy system, not just a single fuel.

²³ See Docket No. UG 433 (Avista) and Docket No. UG 435 (NW Natural).

5 STAFF ANALYSIS AND RECOMMENDATIONS

The compliance modeling, workshops, and stakeholder input gave staff an excellent set of raw materials from which to analyze costs, risks, and implementation options. The analysis and considerations below are meant to serve as an initial guide into the application of the identified regulatory tools.

5.1 REALITY OF RATE PRESSURE RISK

Staff believes compliance with the CPP will very likely increase costs to all customers in the near-term, and the modeling suggests it may have differing impacts. The extent of rate impacts depends upon the type of customer, compliance strategies deployed, and gas company characteristics.

While utility modeling showed a range of customer impacts from CPP compliance, in the absence of some form of intervention, the greatest burden from any increased bills will likely fall to those already experiencing high energy burdens. All stakeholders involved in the workshops expressed concern about the potential impacts that will result from further burdening low-income and other at-risk customers. Further, the risk is not limited to gas customers. Initial analysis and research point to electrification costs, for either new or existing gas customers, spilling over into ratepayer impacts on electricity customers as well.²⁴

The rate pressure risk grows beyond just the cost of compliance. Two other risks stand out in staff's analysis. The first is the rate pressure risk from penalties due to non-compliance (discussed below). The second is the risk of customer migration to the electric system. If customers leave the gas system, the cost of gas infrastructure must be spread over a smaller customer base. The potential for a feedback loop emerges, where increasing cost due to a shrinking customer count potentially accelerates more motivated and affluent customers to leave the gas system.

To this end, staff conducted its own investigation of residential customers' propensity to connect or disconnect from the natural gas grid.²⁵ Our research into the elasticity of residential demand confirmed two things: 1) Decisions to depart the system happen only after sustained price increases and generally lag those increases by two to three years, and 2) Cost increases will be felt more acutely by energy burdened customers because their options to respond to price signals are limited. Communications about the permanency of CPP compliance costs and Oregon's commitment to decarbonization may have an impact on the lag in gas consumer decisions.

Finally, regarding declining customer counts, staff would note that Oregon's current regulatory structure, and recent experience in the telecom industry, creates some level of institutional bias toward recommendations that maintain customer counts. This is due to how rate spread and rate design is conducted. Staff analysis shows that activities that decrease customer counts force fixed costs to be spread across fewer customers, exacerbating energy burden for those customers that cannot transition. Oregon's telecom experience over the past 25 years may serve as an example of regulatory problems when a subset of customers cannot transition away from a monopoly experiencing negative growth.

²⁴ Gridworks Central California Pilot of CPUC. <u>https://gridworks.org/2021/09/lessons-learned-so-far-in-targeted-building-electrification/</u>.

²⁵ See Appendix D – Elasticity.

Utility modeling suggested that there could be significant cost impacts to commercial, industrial, and transport customers, not just residential customers. For some commercial and industrial gas customers, slight increases in fuel prices are difficult to pass along to their customers without significantly risking their place in the market and as such, need to be absorbed by the company. Potential increases in costs to industrial and commercial customers could have negative externalities for which policy interventions may be justified.

CPP compliance creates rate pressure risks that could exacerbate energy burden issues – for many types of customers. It will largely fall to the PUC, all utilities, and well-informed stakeholders to strike the proper balance of investments to achieve CPP compliance and decarbonize the Oregon gas sector.

In light of this analysis, staff recommends regulatory tools that mitigate near-term price increases, limit long-term risks, and fairly manage any transition to new technologies. Potential solutions are discussed below.

5.1.1 **Protecting Customers With Limited Options**

Staff identified the following near-term actions that could help protect customers from bill increases.

Planning

• Include estimated customer bill impact analysis in IRPs to ensure transparency of trends and implications of compliance pathways as represented in portfolios.

Programs

- Direct Energy Trust of Oregon (ETO or Energy Trust) and Community Action agencies to work
 with utilities to expand and target energy efficiency programs to low income and environmental
 justice communities to reduce energy burden and minimize anticipated bill impacts. This would
 include conducting outreach with targeted customers to receive input on program designs to
 maximize effectiveness.
- Prioritization of incremental energy efficiency for CPP compliance that lowers natural gas usage but allows for customer count growth to continue at some level so as to avoid near-term outcomes that place upward rate pressures on those customers unable to exit the gas system and would therefore be forced to cover an increasing proportion of fixed costs.
- Ensure the gas utilities either fold transport gas customer into existing efficiency programs or into new programs, paying their fair share relative to what other ratepayers pay for energy efficiency programs.

<u>Rates</u>

- Develop and adopt a HB 2475 bill discount and implementation regime that will mitigate rate increases for energy burdened customers.
- Align near-term investment levels with annual progress in CPP compliance in order to limit uncertainty around accumulation of long-term capital assets.

5.1.2 Full Cost of Aggressive Demand Reduction

Staff believes the following tools could be used to facilitate coordination between gas and electric utilities to enable analysis of customer costs, grid management, and emission impacts of load reduction associated with aggressive gas demand reduction.

Planning

• Develop marginal abatement cost curves for IRPs that identify all resources potentially used by utilities in CPP compliance.

Rate making

• Explore rate spread and rate design issues for transport customers in general rate cases.

5.2 COORDINATED COMMUNICATION AND STAKEHOLDER ACCESS

Much like the outcome of the PUC's 2018 SB 978 report,²⁶ community-based and business organizations interested in impacting PUC and utility CPP decisions noted the difficulty in achieving procedural inclusion across the spectrum of gas dockets. Staff agrees that these participants have a point. The nature of Oregon's utilities (single fuel utilities) and existing planning processes (single company Integrated Resource Plans) make it difficult to evaluate risk, outcomes, and impacts of compliance strategies, and make it challenging for some impacted stakeholders to engage in the process.

For example, to effectively drive their policy perspective and engage with each gas utility, these groups would have to dedicate additional resources to participate in some mix of the following over the next three years alone:

Three IRP dockets	Three IRP updates	Three depreciation dockets	Three purchased gas adjustment dockets
Every filed gas rate case	Deferrals for RNG, hydrogen, and synthetic gas projects or pilots	Deferrals for design and implementation of low-income gas differential rates	Energy Trust's annual budget and goal setting process.

As noted in Section 3.3.2, the sheer volume of information moving through so many dockets simultaneously creates a barrier to effective participation by stakeholders.

In light of this analysis, staff recommends solutions be evaluated by their ability to involve, communicate with, and enable the participation of new or resource-limited stakeholders.

5.2.1 Access Info and Proceedings

The following activities will improve stakeholder's access and awareness of gas utility's information and proceedings.

Planning

• Staff should post quarterly updates and any annual CPP compliance reports in UM 2178 and on the PUC website for stakeholders that track gas docket activities and note how and when stakeholders could get involved.

²⁶ Oregon PUC. SB 978 – Actively Adapting to the Changing Electricity Sector. September 2018.

• Require the gas utilities to develop in their next IRPs, publicly available maps of their system overlaying depreciation data and including lists of infrastructure and associated depreciation schedules.

<u>Ratemaking</u>

• Ensure full stakeholder engagement in dockets considering rate basing of RNG, Automatic Adjustment Clauses, and Affiliate Interest applications through outreach led by the DEI Director.

5.3 DECARBONIZATION POLICIES AS KEY DETERMINANTS TO PLANNING AND COST-RECOVERY

The GHG emission reduction targets with the passage of HB 2021 and the adoption of the CPP rules reshaped Oregon's energy policy landscape, especially for utility resource planning. Three immediate impacts emerged in staff's analysis.

First, for resource plans to be consistent with the long-run public interest and Oregon energy policy, a "least-cost, least-risk" IRP must now also demonstrate how a utility will achieve state-set, utility-specific emission reduction targets and at what cost. From staff's perspecitve, utility GHG emissions and the risk of non-compliance with the CPP, will be critical performance metrics in determining the efficacy of utility investments and the prudency of operational decisions.

Second, resource planning will increasingly require systems thinking.²⁷ Oregon's carbon reduction goals cement the interrelatedness of gas and electric utility operations decisions more than ever before. Increasingly, utilities, stakeholders, and the PUC will need to consider the energy system and ratepayers on the whole. Key policy decisions can easily have consequential, systemwide feedback loops that span beyond an individual gas or electric utility's IRP or operations. For example, a policy to electrify existing gas customers could have knock-on effects to electric utility winter reliability, HB 2021 compliance, and electric ratepayer costs. However, understanding cost and emission impacts across utilities proves challenging in Oregon's resource planning environment as interplaying impacts are not readily apparent or captured by the current planning processes.

To meet the state's GHG reduction targets and avoid unnecessary costs and reliability risks, the integrated resource planning of both gas and electric utilities will require the sharing of key data and the explicit recognition of planning interdependencies. To address this issue, staff identified the following applicable near-term actions.

<u>Planning</u>

- Request gas and electric utilities to develop and articulate individual electrification assumptions in future gas and electric IRPs that others can reference.
- Given that electrification, as a potential compliance pathway, involves costs at the distribution level of the electric system, staff will work with electric utilities to include in either their August 2022 Phase 2 DSP filings or other future DSP filings, the cost elements, costing methodology, and estimated average distribution cost to electrify existing gas customers.
- The PUC should contract with an independent third party (e.g., consulting firm or regional nonprofit like NEEA) to evaluate market trends around alternative fuel and low-carbon technology

²⁷ Systems thinking is defined as a way of making sense of the complexity of a situation by looking at it in terms of wholes and relationships rather than by splitting it down into its parts.

cost and availability and to analyze Pacific Northwest market adoption of decarbonization technologies that are central to any utilities' CPP compliance pathway on a regular basis to inform utility planning.

- Staff to treat CPP compliance as an acknowledgeable element of any future gas IRP or IRP update.
- Staff recommends exploring in the future the use of the IRP guidance found in Appendix B. Staff will seek a waiver to adopt this new guidance where it conflicts with existing IRP guidance in Order Nos. 07-002 and 07-047 or existing GHG planning guidance in Order No. 08-339.

<u>Rates</u>

• PUC Rates, Finance, and Audit (RFA) staff and Oregon Department of Justice are to explore with gas and electric utilities an interim, easily implemented approach to line extension allowance policy in future upcoming gas and electric rate case dockets that reflects the benefits, costs, and risks associated with system growth or improvements relative to the state's policies on decarbonization.

5.4 RISK AND UNCERTAINTY WARRANT ROBUST MONITORING, TRACKING, AND REPORTING OF UTILITY COMPLIANCE AND BROADER MARKET TRENDS

As noted in Section 3.1, there is considerable pressure for natural gas utilities to initiate robust decarbonization plans while there remains numerous uncertainties around the form, cost, and pace of change that is needed. Amidst this backdrop of uncertainty is a constant: the near-term risk of non-compliance with the CPP.

This is not an abstract concern. The compliance regime for the CPP has already begun. In just over three years, the DEQ will close the first compliance period and assess fuel supplier performance, including the gas utilities, over the preceding three-year period. During this first compliance window, there is a 10 percent limit on the use of the alternative compliance mechanisms (a.k.a., CCIs), no weather-adjustment, and no roll-over of unmet reductions to the next three-year compliance period.

Further, the CPP rules grant the DEQ broad discretion to impose penalties.²⁸ While the DEQ has not yet announced how it will apply penalties, the PUC staff's operating assumption is that the floor of any non-compliance penalty should be at least the cost of a CCI on a per metric ton basis. For the current three-year compliance period, the average cost of a CCI as an alternative compliance mechanism will be approximately \$108/metric ton, unadjusted for inflation.²⁹

Imposing a penalty at the CCI price on a per metric ton basis poses a potentially sizeable, near-term, financial risk to the gas utilities. The table below attempts to characterize this financial impact.

²⁸ OAR 340-271-0010.

²⁹ See OAR 340-271-9000. Table 7.

Utility	3-Year, CPP Emissions Allowance ³⁰ (Metric Tons)	1.5% CPP Exceedance (Metric Tons)	1.5% Exceedance in Gas Sales (Therms)	Potential 2025 Fine @ Avg. CCI \$/Metric Ton	Comparator: 2020 Operating Expenses
AVA	2,028,960	30,434	5,636,000	\$3,286,915	\$96,658,000
CNG	2,145,309	32,180	5,959,192	\$3,475,401	\$48,930,000
NWN	16,615,303	249,230	46,153,619	\$26,916,791	\$402,484,000

Table 6: Potential Impact of Missed Compliance

Table 6 shows the emission allowances for each utility in the first three-year compliance window and what a seemingly small amount of non-allowed emissions might cost. If gas companies emitted 1.5 percent more emissions than they were allowed, and the penalty for each metric ton of emission overage was set at the average price of using a CCI for compliance, gas companies could be looking at a fine at the end of the first compliance period that is between three and seven percent of their operating expenses in a given year.

The resulting uncertainty and possible financial risk highlight the need for robust monitoring, tracking, and reporting of both the efficacy of compliance strategies and market developments informing the selected compliance strategy. For reference purposes, each gas utility put forth their preferred strategy to achieve compliance by 2025 in this docket. The table below summarizes each utility's preferred 2022 through 2024 compliance strategy by element.

Utility	Aggregate 3-Year, CPP Emissions Reduction Goal	Additional EE/DR			RNG		CCI		Other		Total		
	(Tons Reduced From Baseline)	%	Dth	Tons	%	Dth	Tons	%	Tons*	%	Dth	Tons	Tons ^{*1}
AVA	188,282	7%	251,710	13,985	12%	8 83	23,095	81%	153,521	2%	75,148	3,973	190,601
CNG	249,567	14%	655,882	34,801	9%	403,350	21,402	77%	193,364	0 - 0			249,567
NWN	759,354	14%	2,007,951	106,542	51%	3,657,331	386,279	35%	264,718				757,539
00	Totals		2 915 542			4 060 681			611 603		75 148		

Table 7: Total Aggregate Reduction for 2022 through 2024 Period by Strategy

* - ton equivalent for CCIs

*1 - Modeled totals may not equal the Aggregate 3-Year CPP Emission Reduction Goal.

The emissions levels set for the first compliance window (2022 through 2024) require that the gas utilities accomplish what appear to be achievable emission reductions with all three companies making use of allowed CCIs to aid overall company compliance. Perhaps the two biggest near-term challenges will be their reliance on RNG and building the compliance-related infrastructure for the 2025-2027 time period. To this end, NWN is actively pursuing RNG projects, and both Cascade and Avista have indicated in their most recent IRPs that RNG is a resource they have begun pursuing and that the Commission should expect to see it in their forthcoming IRPs.

By comparison, the GHG emission reducing resources required by the end of the second compliance window (2025 through 2027) are substantially larger than the first compliance window. As shown in Table 8, collectively, Oregon's gas utilities will have had to have discovered and captured:

- 61.6 million Dekatherms of additional avoided demand with energy efficiency and demand reduction,

³⁰ Calculated using the numbers in OAR 340-271-9000. Table 4.

- 30 million Dekatherms of biogenic RNG,
- 1.7 million CCI credits,
- 920,000 Dekatherms of hydrogen, and
- 300,000 Dekatherms of avoided demand with other programs.

Aggregate 6-Year, CPP Additional EE/DR RNG Hydrogen CCI Other Total Utility Emissions Reduction Goal (Tons Reduced From Baseline) Dth Tons % Dth Tons % Dth Tons % Tons* % Dth Tons Tons 630,153 835,252 44,156 19% 2,780,979 119,785 8% 919,771 48,624 64% 410.229 3% 377,496 19,956 642,751 AVA 7% 812,939 1.816.124 96.364 43% 6,600,449 350,220 0% 45% 366.356 0% CNG 12% 812,939 WW 3 537 123 2004 79.987.893 701.017 38% 25,264,527 1.340.536 0% 42% 1,483,624 0% 3,525,177 2.639.26 17 348 dditional from first compliance 61,639,346 30,148,407 919.771 1.648.606

Table 8: Total Aggregate Reduction for 2022 through 2027 by Strategy

With under six years before such solutions need to be in place, and recognizing the effort involved in deploying new solutions, the gas utilities will need to move at an unprecedented scale and speed to meet these emission reduction goals. To manage and mitigate ratepayer risk, the Commission will need to regularly assess and validate performance of the utilities' preferred compliance strategies so course corrections can be made quickly, if necessary.

While each utility is unique and must be afforded the space to choose how they meet CPP compliance, they all function within the same set of market and regulatory constraints. Staff found the divergent forecasts of technology progress and the market availability of alternatives in the utilities' compliance strategies somewhat perplexing and unhelpful overall given the market they share. This highlights the uncertainty that remains around utility compliance strategies and the associated risks of entirely independent planning processes. Given the time constraints of the CPP goals, staff believes the IRP process of each utility individually assessing technology progress and forecasting alternative fuel availability may be inefficient and lead to counterproductive outcomes in planning to meet compliance needs.

To inform risk assessments, staff believes the following tools would help the Commission and stakeholders monitor, track, and incorporate market trends and forecasts for alternative gas availability and costs.

Planning

 Develop an annual PUC report to Commissioners, linked to the DEQ's annual GHG reporting used for CPP compliance, that monitors, tracks, and reports on gas utility CPP performance comparing forecasted versus actual emission reductions and CPP costs.

Rates

- Utilities submit annual report on full CPP compliance costs, including alternative supply options such as RNG for all customers, including transport customers, as part of purchased gas adjustment or some other annual filing for tracking and planning activities.
- Explore linking the amortization of CPP compliance costs from deferrals to actual CPP performance.

5.5 ACTIVELY INCENTIVIZE OR FACILITATE GHG EMISSION REDUCTION PATHWAYS

The base case long-term compliance strategies of the utilities all rely on growing amounts of RNG, green hydrogen, synthetic biofuels, and new energy efficient gas equipment technologies. By doing so, these strategies mitigate the need for electrification and placing limits on new customer hook-ups. However, stakeholders noted that aggressive electrification strategies and placing limits on new customer hook-ups should be considered as actions to reduce gas system emissions as an alternative to putting effort into reducing the carbon content of gas service. In either approach, the potential variance around the future cost, availability, and market adoption of new technology makes the efficacy of these compliance strategies highly uncertain. Further, nearly every pathway – from renewable hydrogen to aggressive electrification – will require thoughtful but rapid piloting and implementation. And in many cases, pilot projects may require significant coordination across gas and electric utilities.

Staff feels it is important for the Commission to place a near-term premium on flexibility in exploring a range of strategies, regardless of the implementing party. Feedback from these projects – and from DEQ annual compliance reporting – will help inform planning and prudency determinations.

In short, current levels of uncertainty do not preclude exploration, but rather rapid experimentation and evaluation paired with market research.

Staff believes the following tools can help provide incentives for action while managing risk and risk expectations to facilitate the rapid response needed to meet CPP GHG emission reduction requirements while protecting customers.

Planning

• Encourage and support the use of SB 844 to encourage actions to reduce GHGs that may not currently be cost-effective, but that advance the piloting and deployment of new technologies.

Programs

- Adopt a compliance cost of carbon into gas energy efficiency avoided costs that reflects CPP-related risks in order to accurately value and support energy efficiency opportunities and investments.
- Request the gas and electric utilities explore studying the development of a joint pilot for Green Hydrogen production and present their findings to the Commission before January 2025.
- Direct Energy Trust:
 - To expand training vendors on electric and gas heat pump technology through education and pilots and increase the marketing of heat pump technology on its website. This includes dual-fuel and gas-powered heat pump technology.

5.6 MATCH PUC COMMITMENTS TO AVAILABLE AND DEDICATED RESOURCES

Analysis:

Many of the proposed regulatory solutions to key issues require a commitment of resources. Currently, the PUC lacks staffing to implement such regulatory tools as: joint-utility planning, or initiating substantial new investigations, or studies for such important things as beneficial electrification, fuel switching, or a more comprehensive and holistic approach to infrastructure investments (e.g., line extension allowances) in an era of rapid decarbonization.

Competing priorities from the implementation of new work under HB 2021, HB 2165, HB 2475, and HB 3141 make it difficult to pursue any large-scale, cross-cutting regulatory tool development or new gas decarbonization dockets at current PUC staffing levels. The near-term application of many of the farreaching regulatory tools identified here can only be accomplished within existing dockets at this time. The PUC must match its commitments to available and dedicated resources in order to ensure its chosen investigations and regulatory decisions deliver productive, timely results.

5.7 ROADMAP SUMMARIZING STAFF'S NEAR-TERM RECOMMENDATIONS

Staff's recommended next steps are informed by a combination of many things and represent near-term activities to undertake in 2022 and 2023 to address the issues identified earlier in this report. The regulatory actions were identified through our Fact Finding effort.

			Regulatory Tool			
Section 5 Analysis	Recommendation	Issue from Section 3.3	Planning	Programs	Ratemaking	
	Estimated Bill impact	Protection	X			
	Direct ETO to target programs to LI and EJ	Protection		X		
Protecting	EE measures that allow for customer hook-ups	Protection		X		
Customers	EE programs to include transport	Protection		X		
	Continue development of HB 2475	Protection			X	
	Align near-term investments with CPP compliance	Protection			Х	
Full Cost	Develop marginal abatement cost curve	Full Cost of Reducing Demand	X			
Full COSt	Transport customer cost of compliance in rate cases	Full Cost of Reducing Demand			Х	
Access and	Quarterly stakeholder updates in UM 2178	Access	X			
Info	Maps in next IRPs	Access	X			
mo	RFA docket outreach through DEI Director	Access			X	
	Utilities articulate electrification assumption in IRPs	Systems Approach	X			
	Electrification info and data from DSP	Systems Approach	X			
Decarb Planning &	Independent 3rd party analysis of key tech and market assumptions used by all 3 utilities	Systems Approach	x			
Cost-Recovery	CPP as an acknowledgeable item in IRPs	Systems Approach	X			
	Exploring IRP guidance from UM 2178	Systems Approach	Х			
	Line extension policy exploration	Systems Approach			X	
	Annual PUC report based on DEQ compliance filings	Systems Approach	X			
Monitoring,	Annual utility report on CPP compliance costs	Access	X			
Tracking, and Reporting	Enhance tracking of alternative supply of actual costs and report to planning	Access			X	
	Explore linking CPP amortization to CPP performance	Protection			Х	
Incentivize	Encourage use of SB 844 for Pilots	Urgent Action	Х			
GHG	Compliance costs into EE AC	Urgent Action	College College		Х	
reduction	Joint pilot for Green Hydrogen by 2025	Urgent Action			Х	
pathways	ETO Expand vendor training for all heat pump tech	Urgent Action			Х	

Table 9: Roadmap of Near-Term Actions to Address Issues

6 CONCLUSION

This investigation focused on establishing an initial understanding of the impact of the CPP on the gas utilities and their customers and which mix of regulatory tools should be considered to achieve compliance while mitigating certain cost impacts. The timely modeling completed by each gas utility and the constructive engagement by dozens of stakeholders resulted in an initial analytic foundation from which to guide and assess compliance strategies and initial long-term plans.

Meeting the emissions targets in the CPP is an imperative and will ultimately bring benefits from a climate perspective. It may also bring benefits at the individual level that have not yet been closely analyzed by the PUC but may be analyzed in future investigations. However, modeling done by the gas utilities provided understanding both about the nature of the impacts of compliance with the CPP and existing barriers to assessing and mitigating energy decarbonization risk in planning more broadly. It is highly likely that most if not all CPP compliance strategies will come with increased costs and risks that must be monitored and tracked, and when appropriate, mitigated. If correctly done, the transition to a decarbonized gas sector can create benefits and long-term cost savings for customers and the Oregon economy.

The issues identified by stakeholders and staff and the suggested next steps are driven by the urgent need for action. Collectively, Oregon's three gas utilities must find and secure approximately 1.2 million metric tons of GHG emission reductions by 2025. Further, the pressure for near-term emissions reductions increases greatly after 2025. By 2028, in less than six years, an additional 3.8 million metric tons of new GHG emission reductions must be secured. Solutions – be they supply oriented or demand reducing – must scale quickly in the near-term. Despite uncertainty around the efficacy and long-term cost trends of compliance tools, the pace of necessary emission reductions will likely require utilities and customers to assume increased levels of risk over the next ten years.

Feedback from both the utilities and other stakeholders throughout the process made it clear that this urgency is understood. Stakeholders agreed that regulatory tools should facilitate strategies that result in real reductions in GHG emissions and that they should do so in ways that seek to minimize costs and risks. All stakeholders supported compliance strategies and associated regulatory tools that reduced gas use per customer. Staff believes that customers, especially low-income customers, are best protected with compliance strategies and regulatory tools that reduce compliance uncertainty at relatively low-cost in the near-term and maintain compliance flexibility.

Further strategy-specific regulatory tools that attempt to address uncertainty, costs, and risks associated with compliance also bring their own risks. As the utilities, stakeholders, and the PUC gain experience from implementation of tools and strategies for compliance in individual utility dockets over the next few years, it will also be important for staff and/or the Commission to identify a future docket where a comprehensive dialogue can occur among all stakeholders around the collective efficacy of CPP compliance as a group. A notable juncture to bring all stakeholders and utilities together for such a group conversation – like what has happened in UM 2178 – would be in late 2024, which will be toward the end of the CPP's first, three-year compliance period.

Finally, staff believes the state's new emission reduction targets for fossil fuel suppliers via DEQ's CPP, and for electric utilities via HB 2021, are of paramount importance to the state while being indicative of future climate policies regionally and federally. Within the bounds of the PUC's current resources and utility regulatory structure, staff recommends regulatory tools that build on lessons learned and seek to address many of the issues identified through this Fact Finding. These recommendations include actions

that mitigate ratepayer impacts by looking holistically at energy system planning in Oregon; are effective, efficient, and equitable; and that generally strike a balance between managing risk and encouraging action.

Coalition/204 Burgess/35

Appendices

7 APPENDIX A: SCENARIO DESCRIPTIONS

7.1 MODELING DIRECTION: DELIVERABLES, SENSITIVITIES, AND ALTERNATIVE SCENARIOS

A key component of the PUC's Natural Gas Fact Finding (NGFF, Fact Finding, or <u>UM 2178</u>) was the development of Compliance Models to establish a range of potential costs associated with achieving the goals of DEQ's Climate Protection Program (CPP). The development of this data served as the foundation for identifying and assessing which regulatory tools may be needed in the future by the utilities and the PUC to support the CPP and natural gas utility decarbonization.

The launch and completion of the utility Fact Finding modeling occurred before two key events: each utility's Integrated Resource Plan (IRP) and the finalization of DEQ's CPP in rules. Because of this, the utilities lacked the latest IRP information, the time and resources to run full IRP models, and complete certainty of important operational details. Thus, staff informed all Fact Finding participants that while the accuracy of any modeling cost estimates would be limited, the information would be valuable going into 2022. In that year, CPP compliance would begin, and each utility would begin development – and for NW Natural, completion – of their next IRPs. The information from the Fact Finding would serve to foreshadow utility compliance strategy and the direction and magnitude of compliance potential costs, in addition to starting an important dialogue among all stakeholders about the application and efficacy of regulatory tools needed to achieve the state's GHG reduction goals.

Prior to any utility modeling, staff created a summary of key utility data that could help stakeholders with their analysis of utility compliance modeling. Titled "Foundational Data," these documents comprise two Excel workbooks using data from multiple public sources and can be found online at this <u>link</u>.

The utilities were asked to deliver two large sets of deliverables in a very short time. The first was a presentation and underlying data to their initial NGFF model runs with selected sensitivities. The second was a presentation using alternative scenarios, which were shaped by participant input in the form of written and verbal comments. The table below captures the major milestones in the NGFF compliance modeling activities, with links to key documents.

Date	Deliverable/Item	Additional information
July 8, 2021	Staff's initial compliance modeling proposal	Initial expectations for data to be used (inputs) by utilities in their analysis, the key deliverables to be shared (outputs). Modeling sensitivity selection occurs after input from stakeholders.
July 26 -30, 2021	Stakeholder comments on modeling proposal and suggestions for potential sensitivities	See docket for more information.
Aug. 4, 2021	Modeling sensitivities to inform initial model	Four sensitives selected by staff after stakeholder input.

Table A1: Major Milestones in NGFF Modeling Activities

Date	Deliverable/Item	Additional information
Sept. 7-24, 2021	Utilities' initial modeling results	Initial modeling results provided on Sept. 7 with some supplemental and revised filings through Sept. 24. <u>See docket for more information.</u>
Sept. 24-27, 2021	Stakeholder comments on utility modeling results	Alliance of Western Energy Consumers Sierra Club Joint Parties, including Climate Solutions Citizens' Utility Board NW Natural Wendy Woods RNG Coalition Metro Climate Action #1 & #2
Oct. 1, 2021	<u>Staff's alternative</u> modeling scenarios	Alternative scenarios differ from sensitivities in that the scenarios alter the underlying assumptions, and in some cases, the data used by the initial model. Two alternate scenarios were selected based on participant feedback in NGFF workshops and from comments.
Nov. 17, 2021	Utilities' alternative modeling scenario runs	Avista's presentation of results CNG's presentation of results NW Natural's presentation of results

Given the timing and short turnaround time for the initial model runs, the natural gas companies were asked to use past IRP data, the most current version of CPP rules, and to model a base case of CPP compliance strategies they envisioned worked best for their company. They were also asked to consider a set of sensitivities, which were intended to stress test the company's proposed pathway. The selected alternative modeling scenarios attempted to show the impact of CPP compliance in two possible futures, combining multiple sensitivities within the initial model: one in which there was aggressive electrification of gas loads, and one in which efforts were directed to accelerate innovation in decarbonizing gas. Figure A1 provides a graphic representation of the scenarios and sensitivities the utilities modeled.

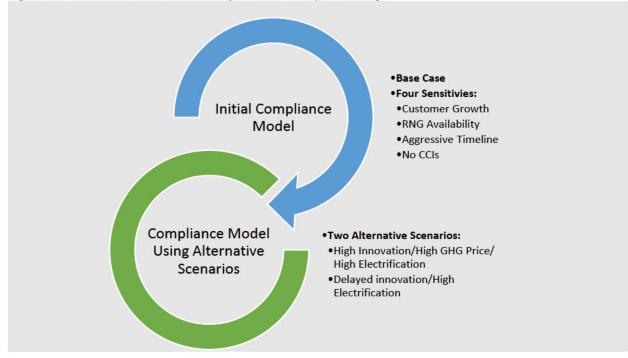


Figure A1: Scenarios and Sensitivities for NGFF Utility Modeling

7.1.1 Key Deliverables from Initial Modeling

Each utility delivered a presentation and underlying data as part of the model runs. Specified outputs to be shared included the following:

- 1. Forecast of emissions (weather adjusted)
 - a. Graphic of million metric tons CO2e per year
 - i. Stacked Area chart
 - ii. Estimates of avoided emissions by compliance strategy and technology
 - b. Supporting table capturing underlying data used in graphic by year
 - c. Annual emissions reduction by compliance strategy, technology, and portfolio of technologies
 - d. Annual emissions reduction in metric tons by technology by year
 - e. Annual emissions above or below annual DEQ CPP threshold
- 2. Data supporting the development of emissions forecasts, including but not limited to:
 - a. Load forecast and growth assumptions
 - b. Use per customer estimates
 - c. Compliance strategy assumptions
 - i. Demand, supply, and capture assumptions
 - ii. Sector/customer class reduction assumptions
 - iii. Technology assumptions
 - 1. Cost trajectory curves over time for each technology
 - 2. Tons of emissions avoided per therm for each technology
 - 3. Variable costs per therm for each technology

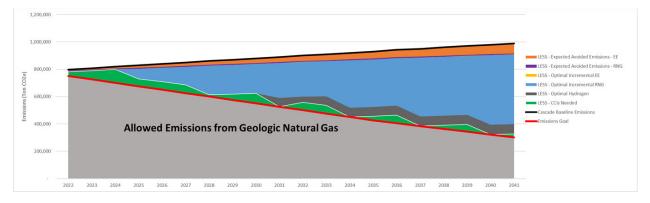
- d. Any major distribution or transmission system upgrades or changes
- e. In addition to the above data, all model inputs, outputs, and workpapers provided in electronic format with all references and formulae intact.
- 3. Description of approach and/or assumptions, including but not limited to:
 - a. Values and terms selected for DEQ key assumptions
 - b. Model methodology
 - c. Description of weather pattern forecasts impacting load forecast
 - d. Avoided costs assumptions, such as peak day usage and savings ratios
- 4. Estimated Net Present Revenue Requirement of Compliance Model and Comparison Across Selected Sensitivities
 - a. Twenty year time horizon minimum
 - b. Annual and total Revenue Requirement difference between Compliance Model and most recent IRP's preferred portfolio
 - c. Annual and total Revenue Requirement difference between Compliance Model and selected sensitivities.

7.1.2 Results of Base Case Compliance Strategies

The base case strategies for CPP compliance varied across utilities. Figures A2-A4 below summarize the compliance strategies each utility presented in UM 2178 workshops.

Cascade relied on CCIs in the near term and then heavily on incremental RNG (blue sliver in Figure A2) beyond what it planned for with SB 98 RNG (purple sliver in Figure A2).

Figure A2: Cascade CPP Base Case Compliance Strategies



Avista also relied on CCIs in the near term and biofuel RNG throughout, but brings in hydrogen in 2026.

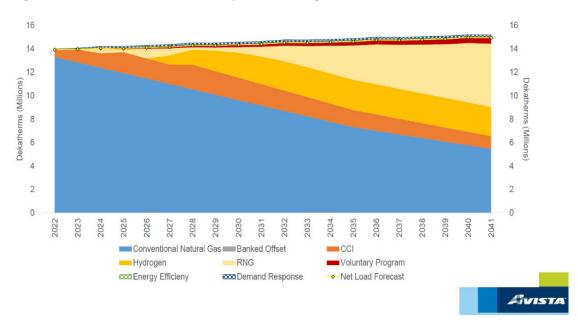
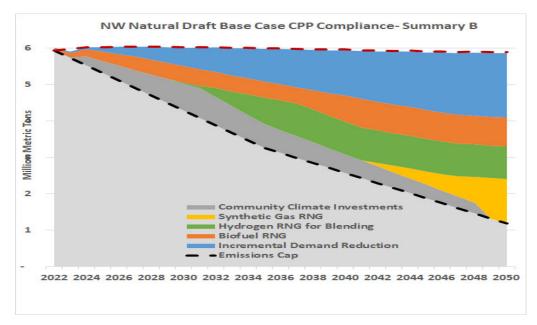


Figure A3: Avista Base Case CPP Compliance Strategies

NW Natural increasingly relies on demand reduction/EE over the course of the compliance timeframe. Its use of biofuel RNG and CCIs start in the near term and play a moderate role throughout, with CCI's decreasing and RNG increasing. By 2031 it introduces hydrogen and by about 2040, begins to envision the inclusion of synthetic gas RNG.

Figure A4: NW Natural Base Case CPP Compliance Strategies



7.1.3 Sensitivities

Below is a description of each of the four sensitivities to accompany the initial model run's base case. Each sensitivity was run in isolation from the other. A comparison of the results for each sensitivity are included in Figures A5-A8.

7.1.3.1 Customer Decline

Issue: How might policies limiting customer growth and associated GHG emissions inform regulatory tools to consider.

Approach: Model sensitivities that consider zero and negative customer growth.

Sensitivity: Current IRP forecasted load growth through 2025; no new customers beginning from 2025 through 2030; -0.75 percent customer growth beginning in 2031 through the end of model's time horizon.

Results: NWN modeling showed customer declines result in increased compliance costs above those of its base case as the years progressed. Avista compliance costs decreased with declining customers and Cascade saw costs remain almost identical to its base case.

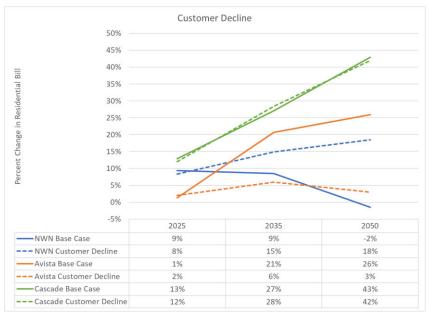


Figure A5: Customer Decline Sensitivity Comparison

7.1.3.2 RNG Availability

Issue: Uncertainty about availability of RNG.

Approach: Apply constraints on assumptions about the availability of RNG to meet emission reduction goals.

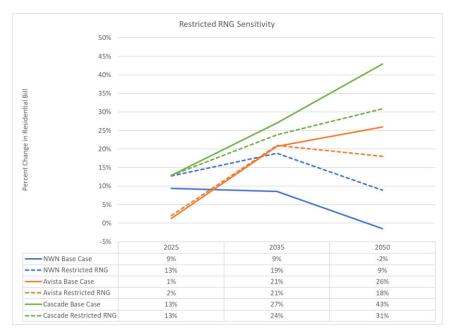
Sensitivity: Limit RNG availability to the annual percentages set by SB 98 and found in ORS 757.396(1).

(a) In each of the calendar years 2020 through 2024, five percent may be renewable natural gas;

- (b) In each of the calendar years 2025 through 2029, 10 percent may be renewable natural gas;
- (c) In each of the calendar years 2030 through 2034, 15 percent may be renewable natural gas;
- (d) In each of the calendar years 2035 through 2039, 20 percent may be renewable natural gas;
- (e) In each of the calendar years 2040 through 2044, 25 percent may be renewable natural gas; and
- (f) In each of the calendar years 2045 through 2050, 30 percent may be renewable natural gas.

Results: Restricting RNG had mixed results – NWN modeled increased RNG prices with the restriction, resulting in higher costs compared to base case. Avista and Cascade reduced how much RNG was used for compliance, which reduced the overall cost of compliance compared to their base case scenarios. This generally increased cost of compliance for NWN, but Cascade and Avista saw decreased compliance costs in the later years of the model run when compared to their base cases.





7.1.3.3 More Aggressive Timeline on Climate Policy

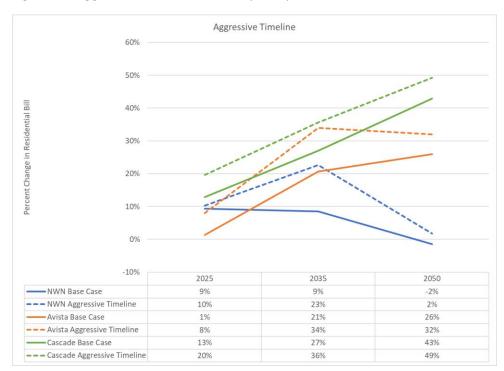
Issue: The Governor's Executive Order set state emission reduction targets of at least 45 percent below 1990 levels by 2035 and at least 80 percent below 1990 levels by 2050. The DEQ Climate Protection Program is poised to make progress towards these state emission reduction targets. However, there is the potential for future policy to have more aggressive targets.

Approach: Using the same target reduction emissions currently contemplated by DEQ for 2035 and 2050, advance the dates to align with the date bookends (2030 and 2040) of the recently passed OR legislation for electric utilities (HB 2021).

Sensitivity: CPP targets of 45 percent below baseline by 2030, 80 percent below baseline by 2040.

Results: NWN costs increased in the middle years of the model run but the difference between this sensitivity and the base case shrank as they approached 2050. Avista and Cascade's aggressive timeline model runs showed compliance costs consistently higher than in their base cases for all customer types.

Figure A7: Aggressive Timeline Sensitivity Comparison



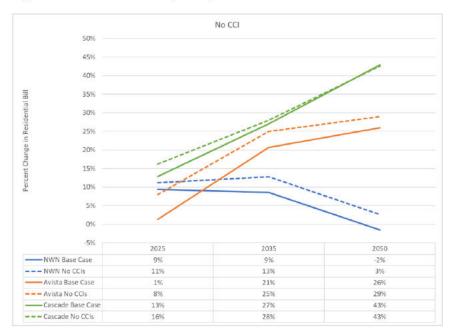
7.1.3.4 No CCI

Issue: Community Climate Investments (CCI) are a CPP compliance instrument. However, it is not currently clear to PUC how the emissions associated with these projects will be quantified and verified. PUC staff would like to understand the role CCIs play in accomplishing compliance with emission reductions and what emission reduction options become more viable if they are not part of a solution set.

Approach: Remove the availability of CCIs.

Results: All companies showed that the inability to use CCI's would result in higher compliance cost than in their base cases in the early years; But by 2050, the three utilities' modeling runs arrived at different conclusions with NWN's annual compliance costs continuing to outpace compliance costs in its base case, while Avista's cost differential was shrinking, and Cascade's annual compliance costs were the same as in its base case.

Figure A8: No CCI Sensitivity Comparison



7.1.4 Alternative Scenarios

The alternative scenarios were run after the initial compliance models were completed and shared. They were greatly shaped by participant feedback. They combined multiple sensitivities from the previous model run, in some cases with new data. These two scenarios were designed to characterize possible futures that explored potential impacts, suggesting different policy and planning approaches.

7.1.4.1 Alt. Scenario 1: Accelerated Innovation / Electrification / High Social Cost of Greenhouse Gas

Approach:

- <u>Accelerated Innovation</u>: Assume a 30 percent six-year production tax credit for the production of green hydrogen and syngas for which construction begins before 2026.³¹ It is anticipated that projects may be outside the ordinary course of business and would result in near-term and aggressive emission reductions.
- <u>Higher Cost of GHG</u>: Assume updates to the social cost of carbon. Beginning in 2026, adjust the CCI price to align with the Social Cost of Carbon's 95th percentile with a three percent discount.³² For example, starting in 2026 use the starting value of \$173.

³² See Social Cost of Carbon table A-1 in Appendix – Annual SC-CO2, SC-CH4, and SC-N2O Values, in 2020-2050. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide – Interim Estimates under Executive Order 13990. Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. <u>https://www.whitehouse.gov/wp-</u>

content/uploads/2021/02/TechnicalSupportDocument SocialCostofCarbonMethaneNitrousOxide.pdf.

³¹ See page 49 of the Department of the Treasury, General Explanations of the Administration's Fiscal Year 2022 Revenue Proposals <u>https://home.treasury.gov/system/files/131/General-Explanations-FY2022.pdf</u>.

• <u>Electrification</u>:

- Fraction of new buildings (residential and commercial) using gas goes from its present share to zero in 2030 and stays zero thereafter.
- Existing buildings converting to electricity goes from its present share to 90 percent in 2050.
- Light industry converts to 90 percent electricity by 2050.

Results: Cascade's model resulted in bill impacts that were lower than in their base case. Avista's modeling summary showed zero change in bill impacts, but the workbooks showed negative bill impacts for all customers except transport, and then compliance cost increases similar to those found in their base case. NWN's bill impacts for the scenario increased significantly due to high electrification-related customer declines, which resulted in costs not tied to energy use being spread over many fewer customers (a 318 percent increase in non-energy charges in 2050). There was no increase in hydrogen usage on NWN's or Avista's system because the high electrification rates reduced or eliminated the need for fuel 'innovation.' Hydrogen usage was significantly decreased as a solution for Cascade when compared to its base case. For Avista, this scenario saw its transport customers pay an increasing share of the utility's compliance costs as the utility's retail customer count declined.

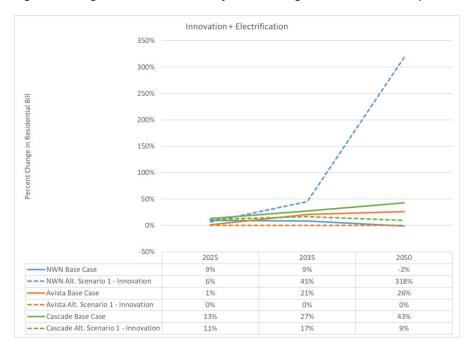


Figure A9: High Innovation + Electrification + High SCC Scenario Comparison

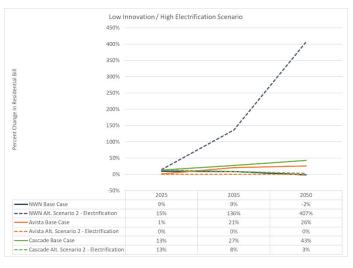
7.1.4.2 Alt. Scenario 2: Delayed Innovation / Accelerated Electrification

Approach:

- <u>Delayed Innovation</u>: Use a slower energy efficiency technology adoption curve. Gas heat pump water heaters come to market, but there are no gas heat pumps until after 2030 and they assume a traditional s-curve adoption pattern.³³
- <u>Supply Competition</u>: RNG availability is limited to the percentage of the national RNG resource equal to the company's throughput share of total gas use in the U.S., including power sector use. National RNG resource is ICF's Low Resource Potential for RNG in 2040, namely 1,660 trillion Btu (tBtu) of RNG produced annually for pipeline injection by 2040.³⁴
- Very Rapid Electrification:
 - The fraction of new buildings (residential and commercial) using gas goes from its present share to zero in 2025 and stays zero thereafter.
 - Fraction of existing buildings converting to electricity goes from its present share to 90 percent by 2040.

Results: Like the Accelerated Innovation and Electrification w/High SCC Scenario, Cascade modeled bill impacts that were lower than their base case. Avista's summary showed zero bill impacts, but the workbooks showed negative impacts in 2025 and then similar increases to the base case by 2035. NWN modeled the most aggressive electrification assumptions, resulting in a scenario that showed a significant drop in customers on the system and a 405 percent increase in residential bills by 2050. NWN also showed a moderate amount of industrial EE around 2035 and the use of banked allowance credits collected before 2042 for CPP compliance in the 2040s.

Figure A10: Delayed Innovation/High Electrification Scenario Comparison



³³ See Comments of the Oregon Citizens' Utility Board on Modeling and Alternative Scenarios. Filed September 24, 2021. <u>https://edocs.puc.state.or.us/efdocs/HAH/um2178hah163235.pdf</u>.

³⁴ See American Gas Foundation Study Prepared by ICF. Renewable Sources of Natural Gas: Supply and Emissions Reduction Assessment. December 2019. <u>https://gasfoundation.org/wp-content/uploads/2019/12/AGF-2019-RNG-</u> <u>Study-Full-Report-FINAL-12-18-19.pdf</u>.

7.1.4.3 Modeling Parameters for Alternative Scenarios

Companies were instructed to use existing models and data to create the alterative scenarios with the following deliverables:

- Updated graphics and tables comparable in format to those submitted for the base case and associated sensitivities.
- To the extent possible and applicable, staff asked that Avista and Cascade replicate the Scenario Comparison table created and shared by NW Natural, and that all companies use this format to include the alternative scenarios described above.
- Data for Electrification:
 - Where a load currently served by gas is not eliminated, but rather served by another resource, total annual MMBtu transferred to the alternative source must be identified for each year.
 - Staff will calculate estimated costs of the transferred load and associated emissions, taking into consideration the electrification cost elements proposed by stakeholders in comments.
- Low and Moderate Income Customers: Indicate the assumed or known percentage of low and moderate income residential customers.
- **Bill Impacts:** Report bill impacts in terms of \$/therm

s	ensitivities/ Scenarios	Renewable Supply Penetration (% of Deliveries)		Biofuel RNG Penetration (% of Current Deliveries)		Renewable Supply Portfolio Cost (2020\$/Dth)		Total Incremental Cost of CPP Program (Million 2020\$/Year) ³⁵		Community Climate Investments (% of Emissions)		Annual Residential Bill Impact (% Impact of CPP)		Annual Industrial Sales Bill Impact (% Impact of CPP)								
		2025	2035	2050	2025	2035	2050	2025	2035	2050	2025	2035	2050	2025	2035	2050	2025	2035	2050	2025	2035	2050
	Base Case	4%	23%	72%	4%	8%	14%	\$12.25	\$11.85	\$11.77	\$142	\$256	\$242	6%	20%	0%	<i>9</i> %	9%	-2%	22%	35%	39%
	Restricted RNG	4%	23%	72%	4%	9%	11%	\$18.75	\$18.26	\$16.90	\$142	\$317	\$324	6%	20%	0%	13%	19%	9%	30%	59%	68%
Iral	Customer Decline	4%	17%	65%	4%	9%	15%	\$12.25	\$11.93	\$11.59	\$118	\$181	\$186	6%	20%	0%	8%	15%	18%	18%	27%	37%
t Natura	Aggressive Timeline	4%	47%	65%	4%	16%	20%	\$12.25	\$13.15	\$11.74	\$168	\$493	\$360	13%	20%	20%	10%	23%	2%	27%	73%	58%
wes	No CCIs	10%	36%	72%	10%	15%	18%	\$12.25	\$12.64	\$12.89	\$167	\$313	\$296	0%	0%	0%	11%	13%	3%	26%	45%	51%
Ę	Fed RNG Support	4%	23%	72%	4%	8%	14%	\$8.58	\$8.76	\$8.80	\$142	\$239	\$160	6%	20%	0%	7%	4%	-9%	18%	26%	17%
N	Vol Comm Support	4%	16%	48%	4%	8%	9%	\$12.25	\$11.85	\$11.25	\$124	\$214	\$160	2%	20%	20%	8%	6%	-6%	19%	30%	25%
	Alt. Scn. #1	4%	12%	23%	4%	6%	6%	\$12.25	\$12.13	\$12.13	\$0	\$0	\$0	0%	0%	0%	6%	45%	318%		Unknown	
	Alt. Scn. #2	4%	9%	14%	4%	5%	5%	\$12.25	\$12.25	\$12.25	\$0	\$6	\$13	0%	0%	0%	15%	136%	407%	02	UTIKITUWI	
	Base Case	2%	40%	54%	2%	20%	34%	\$12.23	\$9.71	\$8.95	\$2	\$19	\$26	13%	17%	17%	1%	21%	26%	14%	60%	72%
	Restricted RNG	2%	40%	49%	2%	20%	27%	\$12.23	\$9.69	\$8.54	\$2	\$19	\$24	13%	17%	17%	2%	21%	18%	16%	62%	54%
	Customer Decline	2%	35%	47%	2%	15%	27%	\$12.23	\$9.31	\$8.64	\$2	\$13	\$15	13%	17%	17%	2%	6%	3%	16%	52%	59%
Avista	Aggressive Timeline	9%	59%	76%	9%	39%	54%	\$12.23	\$10.55	\$9.40	\$6	\$38	\$46	13%	17%	17%	8%	34%	32%	33%	99%	93%
	No CCIs	15%	50%	61%	15%	30%	41%	\$12.23	\$10.23	\$9.22	\$7	\$28	\$35	0%	0%	0%	8%	25%	29%	34%	72%	80%
	Alt. Scn. #1	0%	26%	32%	0%	0%	0%	\$0.00	\$7.08	\$5.44	\$0	\$0	\$0	7%	0%	0%	0%	0%	0%	0%	0%	0%
	Alt. Scn. #2	0%	28%	49%	0%	0%	0%	\$0.00	\$7.08	\$5.44	\$0	\$0	\$0	5%	0%	0%	0%	0%	0%	0%	0%	0%
	Base Case	10%	26%	65%	10%	26%	57%	\$5.86	\$4.94	\$3.01	\$12	\$25	\$33	6%	8%	0%	13%	27%	43%	16%	32%	50%
	Restricted RNG	10%	25%	54%	10%	25%	46%	\$5.86	\$4.91	\$2.75	\$12	\$21	\$20	6%	6%	0%	13%	24%	31%	16%	29%	37%
e	Customer Decline	6%	17%	28%	6%	15%	27%	\$5.86	\$4.91	\$3.05	\$11	\$27	\$32	10%	9%	10%	12%	28%	42%	15%	34%	49%
Cascade	Aggressive Timeline	17%	43%	83%	17%	37%	75%	\$5.86	\$4.78	\$2.97	\$20	\$37	\$43	6%	6%	0%	20%	36%	49%	24%	42%	56%
	No CCIs	16%	35%	65%	16%	27%	57%	\$5.86	\$4.59	\$2.91	\$16	\$26	\$33	0%	0%	0%	16%	28%	43%	20%	33%	49%
	Alt. Scn. #1	11%	33%	45%	11%	33%	44%	\$5.86	\$4.81	\$2.39	\$13	\$24	\$12	6%	0%	0%	11%	17%	9%	14%	21%	12%
	Alt. Scn. #2	6%	8%	13%	2%	3%	5%	\$11.76	\$4.66	\$1.70	\$16	\$9	\$2	9%	9%	3%	13%	8%	3%	16%	11%	4%

TABLE A2. SUMMARY OF COMPLIANCE BASE CASE, SENSITIVITIES, AND SCENARIOS IMPACTS

³⁵ Red figures indicate that the cost of compliance to NW Natural is offset by assumed electrification, where the cost of this electrification needs to be assessed on the electric rather than gas grid.

8 APPENDIX B: IRP GUIDANCE

Throughout the Fact Finding workshops and comments, staff heard feedback from stakeholders about ways to leverage and improve upon the existing gas utility integrated resource planning process. Staff, with support from the Regulatory Assistance Project, attempted to capture and categorize this feedback in Table B1 to help inform future IRPs. This table serves as a reference and compendium for ideas received as part of UM 2178 and to be considered potentially in the future when the Commission embarks on revising IRP guidance.

Category	Addition to IRP				
Expand Public Access & Equity	Expand communications about IRP - basics, process and outcomes/implications, start to expand customer understanding of impacts of new policies (CPP)				
	Utilities should record and post workshops on website				
	Capture additional customer information, create a baseline of customer statistics (energy burden, participation in programs - e.g., EE and LI) by location (e.g., zip code)				
Load Forecast – Improvements	Consider and reflect potential impacts of local policies to limit gas in new construction.				
	Provide data on customer trend gas and electric usage assumed for space and water heating, (gas furnaces/electric heat pumps/gas domestic hot water heaters/heat pump water heaters) across service territory population, by county or zip code, # customers and share of electric utility overlap (<i>recent history and current state</i>)				
	Provide transparent assumptions and data about customer technology adoption and behavior, including end use fuel splits between electric and gas over time and justification for technology adoption assumptions (e.g., relying on technology adoption modeling? Does modeling approach assess/compare all customer options?) (<i>forward looking</i>)				
	Identify transportation load - industry types/end uses and explore H2 potential for these customers. Characterize how this load is currently served to understand new liability for compliance – include seasonality and daily nature of emissions				
	Conduct sensitivities to load forecast around customer adoption of emerging EE technologies				
RNG	Quantify the near- and long-term geographic availability of RNG potential, updated regularly. Provide detailed discussion/description with supporting workpapers for assumptions used to model RNG resources and market. Develop Base/Low/High cases of resource costs. Base/accelerated/delayed cases for availability and base/low/high volumes. Essentially creating a resource potential assessment for RNG. Be explicit about total RNG resource potential and justify assumptions about what will be available to Oregon gas utilities.				
	Provide Bundled vs unbundled RNG assumptions				
	Discussion of RNG affiliate plans				

TABLE B1: IRP-RELATED FEEDBACK

H2	Provide detailed discussion/description with supporting workpapers for assumptions used to model H2 resources. Develop Base/Low/High cases of resource costs. Base/accelerated/delayed cases for availability and base/low/high volumes. Essentially creating a resource potential assessment for H2 designed around end uses that can feasibly use H2. Be explicit about total H2 resource potential and justify assumptions about what will be available to Oregon gas utilities. Assumptions should include whether sited with energy user or if transport from production to end user required and costs/risks of new pipeline delivery infrastructure or storage needed.				
EE and Beneficial	Review cost effective EE potential				
Electrification	Develop Beneficial Electrification assumptions in coordination with electric utility				
System Mapping / Infrastructure	Include planned infrastructure costs identified as new customer vs. maintenance of existing system. Identify high priority projects and 5 year planned investments with non-pipeline alternatives considered.				
	Identify areas of new development / system expansion- with as much granularity as possible				
	Scenarios of load decline should include assessment of stranded asset risk				
	Include current rate base depreciation assumptions, list of assets and amortization schedules				
Scenarios	H2 and RNG delayed growth vs. base case assumptions				
	CPP compliance requirements more stringent than current (as modeled in UM 2178 scenario)				
	Decline in load starting in 2030, after 2025-2030 no growth (as modeled in UM 2178)				
Transparency	Provide input data and results in a clear and transparent manner. Including such				
and Clarity	things as units, methodologies, assumptions, sources, and application.				
Emissions	All portfolios should be designed to meet CPP, include discussion around risk of noncompliance costs				
Cost and Risks	Account for biogenic CO ₂ from RNG				

9 APPENDIX C: RMI BUILDING ELECTRIFICATION POLICY PRESSURES

This table is an excerpt from materials provided by the Rocky Mountain Institute to PUC staff via email on November 2, 2022.

- It is an informal landscape scan of the future of gas proceedings across the country.

- While RMI intends to keep it updated, it is a work in progress and not intended to be comprehensive or up-to-the-minute. Some states may have more details than others.

- For the most accurate information, refer to the state PUC dockets, many of which are linked in the "proceedings" tab.

- If you have questions, corrections, or additions, please contact Sherri Billimoria (sbillimoria@rmi.org) or Abby Alter (aalter@rmi.org).

State	Docket #	Title/link	Key filings to date	State-wide energy strategies, plans, or studies	Any state commitments / indications around electrification?
		Order Instituting Rulemaking to Establish a Framework and Processes for Assessing the Affordability of Utility Service Order Instituting Rulemaking Regarding	Fourth Amended Scoping Memo and Ruling from 9.15.21		SB 1477 (2018) funded and required CPUC to develop BUILD and TECH programs to reduce GHG from buildings AB 3232 (2018) required CEC to release an assessment of "the feasibility of reducing
California	R2001007	Policies, Processes, and Rules to Ensure Safe and Reliable Gas Systems in California and Perform Long-Term Gas System Planning	10/14/21 Amended scoping memo outlines tracks 2a, 2b, and 2c scope and timeline. https://docs.cpuc.ca.gov/PublishedDocs/ Efile/G000/M415/K275/415275138.PDF		[GHG] emissions of California's buildings 40 percent below 1990 levels by 2030" <u>link</u>
	R1202008	Order Instituting Rulemaking To Adopt Biomethane Standards And Requirements, Pipeline Open Access Rules, And Related Enforcement Provisions.	Staff published proposal.		
	CEC 21-IEPR-05	Natural Gas Outlook and Assessments IEPR (Integrated Energy Policy Report)			

12					- • •
				<u>Colorado</u>	Roadmap shows
		<u>Gas Utilities</u>		Greenhouse Gas	significant electrification is
			procedural/leg background)	Pollution Reduction	needed
				Roadmap (Jan. 2021)	
			NOPR filed 10/1/2021		AQCC says building
		Commission's Rules Regulating Gas			reductions will be 100%
0		Utilities, 4 Code of Colorado Regulations			reductions will be 100%
ad		723-4, Relating to Gas Utility Planning and			
Colorado		Implementing SB 21-264 Regarding Clean			
S		Heat Plans and HB 21-1238 Regarding			
		Demand Side Management			
	20M-0439G	Investigation Into Retail Natural Gas for			
		GHG Emissions			
	20.00			N	
		Investigation by the DPU on its own		Massachusetts 2050	2050 Roadmap ID's high-
		Motion into the role of gas local		Decarbonization	electrification as the least-
		distribution companies as the		Roadmap (Dec 2020)	cost pathway
		Commonwealth achieves its target 2050			
2		<u>climate goals</u>		2030 Clean Energy	2030 CECP states that
Massachusetts				and Climate Plan	Mass Save will work to
a p				(Dec 2020)	phase out incentives for
ac				(Dec 2020)	fossil fuel appliances by
ase					
Σ					2025

Minnesota		to Compare Lifecycle Greenhouse Gas Emissions Intensities of Various Resources, and to Measure Cost-Effectiveness of Individual Resources and of Overall Innovative Plans In The Matter Of A Commission Evaluation Of Changes To Natural Gas Utility Regulatory And Policy Structures To Meet State Greenhouse Gas Reduction Goals		Decarbonizing Minnesota's Natural Gas End Uses: Stakeholder Process Summary and Consensus Recommendations (July 2021)	
Nevada	21-05002	<u>Investigation Regarding Long-Term</u> <u>Planning For Natural Gas Utility Service In</u> <u>Nevada.</u>	Procedural order filed 9/24/21	Pathways and Policies to Achieve <u>Nevada's Climate</u> Goals: An Emissions, Equity, and Economic Analysis (Oct 2020)	

New Jersey	GO20010033	In the Matter of New Jersey Natural Gas Commodity and Delivery Capacities in the State of New Jersey - Investigation of the Current and Mid-Term Future Supply and Demand	Opening order/notice of hearing filed April 20, 2021		
New York	20-G-0131	Proceeding on Motion of the Commission in Regard to Gas Planning Procedures	3.19.20 Opening order 8.10.20 Preliminary comments of Renewable Heat Now 2.12.21 Staff proposals on gas system planning and moratorium management 5.4.21 RHN Gas Planning Comments		No sector-specific ghg target; significant heat pump targets within efficiency programs
Philadelphia		PGW Diversification Study			
Washington	UG-210729		Notice of item to be considered filed 9/21/21	2021 State Energy Strategy	

Washington, D.C.	FC1167	<u>the Climate Business Plan</u>		Carbon Free DC has identified the need to eliminate fossil fuel use in buildings, primarily via electrification (<u>link</u>)
Wisconsin		<u>Focus on Energy Quadrennial Planning</u> <u>Process IV</u>	EE Potential Study filed 9.10.21	

10 APPENDIX D: ELASTICITY

The Fact Finding modeling suggests that under most scenarios all customers (residential, commercial, and industrial) will see cost increases in the near term. NWN modeling suggests that by 2040, under some scenarios, some customers would see a cost <u>decline</u>. However, given how far out in the future those cost declines are projected and the disagreement between NWN and the other gas utilities' models, staff believes it is appropriate to plan for cost increases to customers under all scenarios proposed by utilities.

Part of what initiated the Fact Finding was the concern that as the energy system decarbonizes, low income customers would not only experience increases in fuel costs, but also be saddled with increasing costs associated infrastructure costs being spread over a smaller customer base. This, it was assumed, could be the result of decarbonization efforts that motivated more affluent customers to leave the gas system entirely and to switch to all electric homes. Staff conducted its own analysis of customer bill impacts of natural gas decarbonization to better understand the extent to which this might warrant the use of policy intervention. That analysis follows.

10.1 STAFF'S ELASTICITY ANALYSIS

Staff notes that if a natural gas utility raises its rates, natural gas customers are likely to change their behavior accordingly. These behavior changes can come in two possible forms:

- Changes in natural gas consumption, or
- Deciding whether to remain on the natural gas grid or seek alternative energy sources.

The elasticity of natural gas consumption has been well studied in academic literature, particularly in the last few years. Using data from over 300 million household natural gas bills in California and rigorous econometrics, <u>Auffhammer and Rubin 2018</u> estimate that the residential natural gas consumption elasticity is between -0.17 and -0.23. Staff created its own econometric model using data aggregated to the state-year level and found an elasticity that is also near this range.

Aufhammer and Rubin break down the elasticity by season and by income and notes that low income households exhibit higher elasticity than high income households, and households in the winter exhibit higher elasticity than in the summer. These elasticity estimates vary from -.05 for high-income households in summer to -.52 for low-income households in the winter. This implies that should natural gas prices rise in response to decarbonization, low-income households in the winter are most likely to change their consumption patterns.

Staff conducted preliminary empirical modeling to investigate residential customers' propensity to connect or disconnect from the natural gas grid. Staff created an econometric model using annual data on state-level natural gas connections, residential natural prices, population and economic activity and various sets of controls. The econometric model assumes that residential consumers would not immediately change their equipment in response to a change in natural gas price, but instead do so after observing sustained price changes for multiple years. While Staff's results are preliminary and not corroborated by any known literature, they are suggestive of the following things:

- At an aggregate level, residential customers' natural gas connection decisions only react to a price change after at least 2-3 years. Absent outside pressures to connect or disconnect, it is unclear whether this reaction comes through existing customers switching natural gas connections to electric connections or new residential structures selecting non-gas heat sources.
- Regardless of the time lag, residential natural gas connection or disconnection appears to be highly price inelastic. Staff's preliminary model suggests that the price elasticity is approximately -.10. However, staff reiterates that this value is preliminary and does not account for endogeneity of variables that likely biases the estimate in an indeterminant manner.

Due to data limitations, staff's estimates do not account for any changes in technology or financial incentives that may reduce the costs to switch from natural gas to electricity. However, staff's estimated negative elasticity implies that there will be some, albeit small, natural attrition from the natural gas system or slowdown in new connections if the push to decarbonize results in higher prices even without added incentives.

There is unfortunately also a gap in the academic literature regarding the elasticity of natural gas connections and disconnections, which makes it difficult to precisely determine the rate at which customers defect from the natural gas system. However, there has been recent research investigating the effects of the switch away from natural gas. Lucas and Hausman 2021 investigates who bears the cost of a declining utility and notes that a ten percent decrease in residential utility customers leads to only a five percent decrease in revenues, implying that the remaining utility residential customers bear a higher burden in costs. This is to say that should there be a large defection from natural gas utilities due to decarbonization, the remaining infrastructure costs will not scale down and will be paid by those remaining on the system.

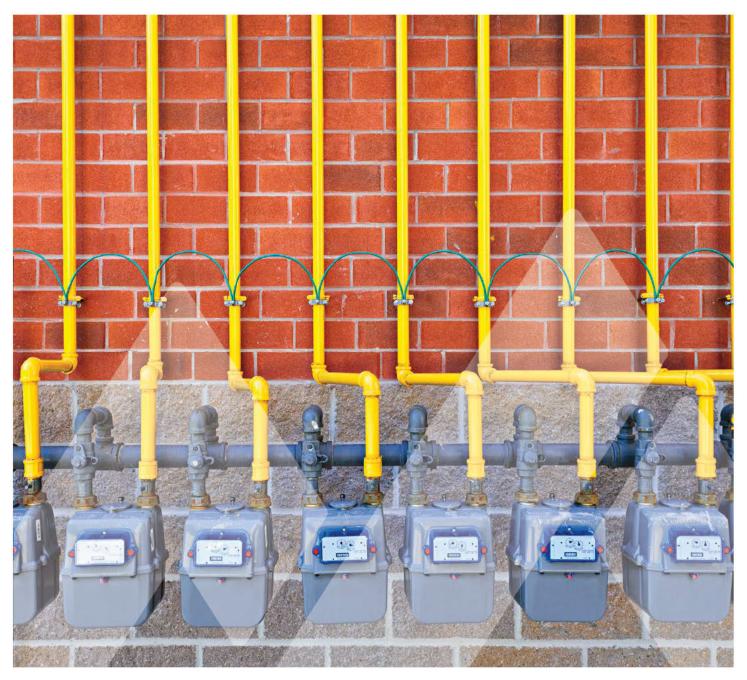
What this suggests is that any cost increase is felt more acutely by customers that are already facing energy burden. Energy burdened customers' ability to respond to price signals appears to be limited to reduction in use, which in the case of gas used for heating, may result in a decrease in home comfort felt more by these customers than those who can maintain home heating expectations by either absorbing the cost increase, or ultimately changing heating sources.

Coalition/205 Burgess/1



Overextended

It's Time to Rethink Subsidized Gas Line Extensions



December 2021



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RMI is an independent nonprofit founded in 1982 that transforms global energy systems through marketdriven solutions to align with a 1.5°C future and secure a clean, prosperous, zero-carbon future for all. We work in the world's most critical geographies and engage businesses, policymakers, communities, and NGOs to identify and scale energy system interventions that will cut greenhouse gas emissions at least 50 percent by 2030. RMI has offices in Basalt and Boulder, Colorado; New York City; Oakland, California; Washington, D.C.; and Beijing.



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Highlights

- Utilities typically subsidize the cost of extending service to new customers, in a practice known as line extension allowances. Subsidized extensions of natural gas service pass hundreds of millions of dollars in costs to existing customers while expanding the fossil fuel system.
- While these policies made sense in the past, their climate and economic rationale is increasingly challenged by expected reductions in future gas use, the growing costs of maintaining the existing distribution system, and the imperative to phase out fossil fuels.
- Utility regulators should reform line extension allowances to eliminate subsidies for gas, support state climate policies, and reduce the financial burden on existing gas customers.

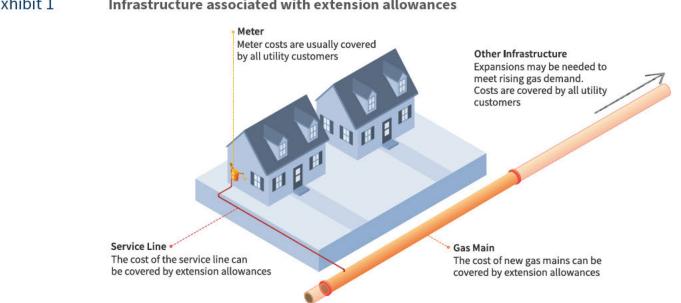


Exhibit 1 Infrastructure associated with extension allowances

Background

America's local gas distribution systems serve 77 million homes and businesses, delivering 8 trillion cubic feet of natural gas each year, and with it more than 400 million tons of carbon dioxide emissions, plus further climate-warming emissions from methane leakage.¹ These systems are growing—with more than 600,000 new customers added each year—but that trend is completely at odds with state and federal decarbonization goals that require a shift away from gas. Thus, the operational lifetime of new gas infrastructure is increasingly uncertain.²

For decades, new customers who want the gas system extended to their building have enjoyed a policy by which their utility covers some or all of the construction costs associated with this gas infrastructure. These policies, generally known as line extension allowances, are common for both electric and gas utilities. They effectively result in existing and future utility customers paying for new customers to join the system, based partly on the expectation that there will be network benefits to adding customers to the system.¹ Utilities do not typically provide clear reports on the total amount spent on gas line extension allowances, making it extremely difficult to track and quantify these costs. Absent central reporting, best-guess estimates by advocates have found numbers in the range of \$100 million annually in California and \$200 million annually in New York.³

The underlying rationale for this practice varies and is described in greater detail later in this report. Typically, it relies on an economic argument either that (a) the new customer will eventually contribute net positive revenue for the utility through their future bills, or (b) individual customers' share of total system costs should remain constant, and accordingly, the allowance amount is set to ensure this fairness. In some cases, other considerations factor in—the presumption that expanded use of gas continues to provide a broader public benefit, for instance.

Several states are actively reconsidering gas line allowances through open proceedings—Washington State recently adjusted its allowances, and Public Utilities Commission staff in California have proposed eliminating gas line allowances entirely. Yet on the whole, these allowance policies have remained despite a series of changes that challenge the wisdom of expanding the gas system and increasing gas usage.

First, as the existing gas distribution system has gotten older, and as high-profile gas leaks and explosions have called attention to safety risks, gas utilities have dramatically ramped up spending on the system, driving up customer costs. This trend can be seen in Exhibit 2.

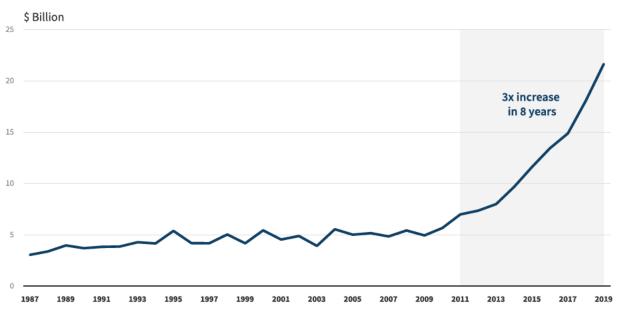
i. For a given project, the amount funded by the utility (that is, by all customers) is called the "line extension allowance" or "construction allowance," and the amount funded by the new customers is called the "customer contribution" or sometimes "contribution in aid of construction" (CIAC).

Second, even as the impacts of climate change have become clearer and more severe, the expansion of the US gas system means that greenhouse gas emissions from the buildings sector have remained flat or increased. That is, while buildings have become more efficient, the growing number of buildings burning gas—due to oil-to-gas conversions as well as population growth—counteracts these benefits.⁴

And third, new policies have emerged to cut these emissions and encourage fuel switching away from gas to the electricity system for residential and commercial buildings, leading to projections of dramatically reduced gas use in the future. This trend could make it more difficult for utilities to cover the fixed costs of the gas system, especially if those costs are rising and the system is expanding while the customer base shrinks.⁵

Taken together, this shifting context upends the rationale for the widespread practice of utilities bearing the costs of constructing gas lines to new buildings and new customers, and then passing these costs on to ratepayers for decades to come. Gas line extensions, as they exist today, are no longer supported by a sound economic justification and are ripe for reform, both to protect customers from financial risk and to support climate and public health goals. In the remainder of this report, we will expand on the typical rationale for gas line extension allowances, describe how a changing context undermines this rationale, and offer recommendations for reform.

Exhibit 2 Utility spending on the gas distribution system has grown rapidly in recent years US gas utility distribution system construction expenditures, 1987-2019



Source: American Gas Association, https://www.aga.org/research/data/construction-expenditures/



Why Gas Line Extension Allowances Exist

Gas line extension allowances have historically been justified by economic arguments that sharing systemexpansion costs between existing and new customers is fair, along with the presumption that expanded gas service provides a public benefit. There is no single standard for determining fair cost sharing between existing and new customers, but we highlight two examples below. Detailed examples of how these policies work in practice can be found in the Appendix.

Economic Rationale: Revenue-Based

Construction allowances are often calculated via a revenue-based rationale, based on the expectation that new customers' bill payments will eventually cover and then exceed the cost of the line extension that brings them onto the system. The formulas determining these allowance amounts can incorporate the expected volume of gas the new customer will use over many years, and therefore the expected revenue via the customer's bills. Part of the logic is that the revenues collected by new customers will put downward pressure on the rates for all customers. That is, the fixed costs of maintaining the system will be spread across more customers, thereby lowering rates. Utilities that have used a revenue based approach include Avista Utilities in Washington State and Pacific Gas and Electric in California.⁶

Determining an allowance based on expected revenue involves some combination of variables tied to the expected gas consumption of the new building, such as:

- Years of expected life: once gas service is established, the customer is expected to use gas at the same volume for decades. In some cases, the customer is expected to use gas in perpetuity.
- Square footage: the size of the building will dictate the heating load.
- Number and type of appliances: some utilities allocate a specific allowance for each appliance, with different amounts based on the expected usage of a furnace, water heater, clothes dryer, and stove.
- Adjustment factors: these factors are designed to reflect the portion of revenues that supports infrastructure investment, as opposed to gas commodity costs, utility administration, maintenance costs, etc.

Economic Rationale: Embedded Cost

In some cases, the primary objective of a line extension allowance is to ensure fairness, such that no customer subsidizes another customer. As a proxy metric for fairness, some utilities seek to hold constant the existing infrastructure investment on behalf of each customer, such that no new customer subsidizes an existing customer. In practice, this can mean calculating the average amount of existing investment in the rate base per customer and providing that same amount to the new customer. Although not

explicitly based on future revenue calculations, these allowances commonly still rely on the expectation of permanent gas service, in which the new customer will contribute to the costs of the gas system through their bills. Examples of utilities taking this approach include Xcel Energy Colorado and gas utilities in Wisconsin, where embedded cost is detailed in statute.⁷

Public Benefits Rationale

Gas line allowances make it easier to expand access to gas, with the implicit and often explicit belief that gas use itself serves a public good. Historically, line extension allowances, combined with the obligation to serve customers, have supported universal access to gas and ensured that gas utilities do not restrict service to more profitable customers or those in White or upper-class neighborhoods. Over the past decade, state governments and utilities have frequently justified generous line extension policies on the basis that gas has lower emissions and/or lower cost than the alternatives. These assumptions no longer hold, given the emergence of lower-emissions electric heating solutions, greater awareness of methane leakage, and recent volatility in gas prices.⁸

Yet many states have clearly stated their goal to expand gas, often through oil-to-gas conversions. In 2013, Connecticut's Public Utilities Regulatory Authority approved a gas expansion program for nearly 300,000 new customers,⁹ in accordance with the state's Energy Strategy, noting "the emerging opportunity provided by shale gas for a lower-cost, less-polluting, and domestically available (and thus more reliable) foundation for society's energy needs."¹⁰ In 2012, the New York Public Service Commission (PSC) opened a proceeding focused on gas expansion, asserting benefits of natural gas in terms of price, emissions, low-income household access, economic development, and reliability. In that proceeding, National Grid stated that it is "good public policy to provide entitlements even though some of the costs may be socialized because all customers benefit from the expansion of gas."¹¹ In August 2021, Illinois Governor JB Pritzker signed a bill intended to extend gas service to a rural community by allowing the gas utility to provide up to 250% of its normal gas line extension allowance.¹²

At a nationwide level, in 2017, the National Association of Regulatory Utility Commissions convened a task force focused on education to "bring the benefits of natural gas as an energy source to more consumers," detailing the many gas expansion programs in states across the country.¹³ Over the past decade, dozens of states have approved gas expansion plans for utilities, sometimes even offering incentives to utilities for system expansion or approving incentives to customers switching to gas service. The American Gas Association (AGA) boasts that a new gas customer is added every minute of every day.¹⁴

Other Approaches

Another method, though less common, provides a set number of feet of gas pipeline, regardless of the expected usage of that building. For example, New York's statute provides a "100-foot rule," requiring utilities to pay for 100 feet of pipeline per new customer. This approach can result in under-recovery of costs, as the cost of construction may—and often does—outweigh the expected revenue from that customer.¹⁵ Additionally, this kind of policy often requires the utility to pay for the footage no matter the per-foot installed cost; some installations may be vastly more expensive and less economic than others.

In all cases, when the cost of constructing the main and service extensions exceeds the allowance (or the length of extension exceeds the utility's obligation to provide free footage), customers are required to

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pay the difference. Depending on the utility, this amount might be paid up front or applied as a monthly surcharge on the new customer's bill. Some utilities also allow for some or all of a customer's contribution to the cost of the main extension to be refunded if additional customers hook up to the extension within a given period of time (typically between 5 and 10 years).^{III} Other costs that new customers may cause, such as the cost of their gas meters or new pipelines and capacity infrastructure built to match rising demand, are usually covered by the utility and excluded from these calculations.¹⁶

Water Utility Extension Policies

While both gas and electric utilities tend to apply a similar rationale to their line extension allowance policies, water utilities have quite different approaches to allocating extension costs, offering an informative comparison of alternate philosophies for cost allocation.

As regulated monopoly utilities, water and gas systems have some economic similarities. Both utilities share principles of fair rate design and have high fixed capital costs for infrastructure with variable operating costs. Both water and gas have generally been considered public goods and necessities. However, unlike water or electricity, gas exclusively serves uses in buildings that could be met through other technologies or resources. Still, gas utilities incentivize system expansion by lowering the up-front costs of gas service to new customers (via line extension allowances, utility advance programs, and refund structures), whereas water utilities typically place much of the capital burden of system expansion on new customers.

Water utilities do not typically provide construction allowances, and many also charge system development charges (SDCs, also known as system development fees, or SDFs) for new hookups. For many water utilities, the economic rationale for new customer fees is a goal of keeping rates constant across new and old customers (i.e., using these fees to keep certain capital expenditures out of the rate base), and this parity across existing and new customers is valued more highly than lowering the up-front costs to new customers. These charges are meant to account for the benefits new customers receive from the capital investment that has already occurred in the water system. While this helps keep rates stable, it creates a positive feedback loop for smaller utilities with small rate bases that must therefore continue to charge SDCs in order to keep rates flat.

Both approaches to allocating the costs of system expansion—construction allowances and SDCs—involve trade-offs in what regulators and utilities consider to be fair and in the public interest.



For example, Xcel's refund policy for gas main extensions in Colorado allows for refunds up to the full amount of the customer's contribution based on the number of additional customers that connect to that main extension within 10 years of its construction. Specifically, the tariff sheet states: "For each additional Permanent Service customer connected directly to a gas Distribution Main Extension under an Extension Agreement upon which there is unrefunded Construction Payment remaining, Company will recalculate the extension considering the costs of any additional facilities and considering the Construction Allowance provided by such additional customer or customers, as well as appropriate sharing of Construction Payment requirements among all customers to be served by the gas Distribution Main Extension." (See p. 191 at https://www.xcelenergy.com/staticfiles/xe/PDF/Regulatory/psco_gas_entire_tariff.pdf.)

Changing Context Challenges the Rationale

Both the economic and public benefits rationales for gas line extension allowances assume permanent gas use at today's volumes—but this is at odds with climate policies, improved electric heating technologies, and shifting market trends. Furthermore, gas construction allowances pose a direct barrier to electrification, which is a critical climate strategy. Additionally, there is growing recognition that widespread gas combustion poses major risks to the global climate and to public health.^{III}

Context and Expectations for Future Gas Use Have Changed

Gas line extension policies are based on outdated and risky assumptions of a future with consistent or growing gas usage. Climate plans in states across the country clearly demonstrate that a shift away from gas use in buildings is a key component of the most cost-effective decarbonization pathways. Several states have already enacted policies that call for a substantial decline in gas consumption, such as:

- Colorado's Greenhouse Gas Roadmap shows a 94% reduction in gas usage in residential and commercial sectors by 2050.¹⁷
- Massachusetts states that "electrification of space and water heating is a low-risk, cost-effective strategy for decarbonizing the majority of buildings," and "the use of gas for building heat must start to decline in the near term."¹⁸
- Maryland's Greenhouse Gas Reduction Act Plan shows the residential building sector dominated by electric heat pumps by 2050.¹⁹
- New Jersey's Energy Master Plan requires a transition plan for a fully electrified building sector.²⁰
- New York's Climate Action Council found that all mitigation scenarios that meet the requirements of the Community Protection and Climate Leadership Act rely on "more rapid and widespread end-use electrification and efficiency."²¹

These policies and plans, and others like them across the country, make clear that meeting climate goals will require vast changes to the way gas is used in buildings today.

iii. For more on the air quality and health impacts of gas use, see the report *Gas Stoves: Health and Air Quality Impacts and Solutions*.

While hydrogen and other alternative fuels may be used in specific applications, overall gas use is likely to decline dramatically through both expanded energy efficiency and electrification. The supply of alternative fuels such as renewable natural gas (RNG), or methane-rich gas captured from decomposing organic matter, simply cannot meet the needs of the end uses currently served by gas at anywhere near today's volumes. The optimistic scenario from the American Gas Foundation (AGF) and ICF International finds that potential RNG supply would meet only 12% of current US gas demand by 2040. This limited supply would come with high costs of \$7–\$20 per MMBtu for RNG, compared with \$2–\$4 for fossil gas in 2020 and \$5–\$6 during the late 2021 gas price spike at the time of this report's writing.²²

Natural Resources Defense Council's assessment of the ecologically sound supply of RNG is about half the AGF's estimate, just 3%–7% of current US gas demand.²³ Given these constraints—in addition to questions about life-cycle carbon emissions from alternative fuels—it is clear that a decarbonized future will require major declines in gas consumption, through both efficiency and electrification.

Instead of reflecting this declining trajectory of gas consumption, line extension calculations implicitly assume new buildings will use gas far into the future. For most of its gas utilities, Washington State has used a "perpetual net present value" calculation, assuming new gas customers will provide revenue forever.^{iv} Xcel Energy in Colorado requires "permanent service … where sufficient revenue to support the necessary investment is assured."²⁴

In addition to a decline in the number of gas customers, the average customer's annual gas consumption is also likely to decrease over time, but extension policy assumes consumption will remain constant. In fact, gas use per household is already declining due to higher-efficiency gas appliances, better envelope sealing and insulation, and other efficiency measures.²⁵ Some gas utilities are initiating strategies for partial electrification,²⁶ in which customers would maintain gas service but consume much less gas. These strategies would undermine many of the calculations of future revenues from new gas customers.

Existing gas line extension policies across the country result in significant expenditure to expand the system. Yet given the expected changes in gas demand, utilities may not recover this expense through new revenues, which would require additional rate increases and pose financial risk to utility customers. Basing capital expenditures on the flawed assumption that households will continue to use a constant amount of gas every year, for decades to come, is a risky fantasy.

Line Extension Allowances Distort the True Costs of the System

By shifting costs onto existing ratepayers, developers of new buildings are not responsible for the true cost of construction. If developers were faced with the full cost of gas service—including several thousand dollars that are usually subsidized—they would be more likely to build all-electric. Line extension allowances create a situation in which developers do not have incentive to guard against the risks that gas customers may face down the line. That is, the decision makers in building design (e.g., developers, builders, and engineers) choose the option cheapest for them, while other gas system customers bear the up-front costs and the risk of escalating future costs on a transitioning gas system.



iv.

On October 29, 2021, the Washington Utilities and Transportation Commission issued a decision in Proceeding No. UG-210729 directing Avista, Cascade, and Puget Sound Energy to file revised line extension allowances. The new allowances will be calculated using a modified perpetual net present value calculation with an updated discount timeframe of seven years.

Current line extension policies create an uneven playing field for end-use technologies that don't use gas, such as ground-source and air-source heat pumps and induction stoves. The money currently spent on gas lines could instead be spent on cleaner alternatives that do not run the risk of burdening future customers with the cost of underutilized assets.

Line extension allowances can also encourage developers to make inefficient decisions. Consider a new commercial building, where all-electric construction would require additional infrastructure, such as a larger transformer. Currently, that additional cost, especially compared to a gas line offered for free or at low cost, could incent a developer to instead build with both gas and electricity. An expanded electric allowance that covered more costly electric service infrastructure, or otherwise offset the cost of all-electric buildings, would put the technologies on more even footing.

Expanding Gas Service No Longer Provides Public Benefit

Fundamentally, gas usage must decline to meet targets for zero or net-zero emissions across the US economy. Continuing to burn gas in homes and businesses is in direct opposition to this goal, because of its contribution to greenhouse gas emissions and the viability of electrification as an alternative.

Expanded gas use also contributes to direct emissions of methane via leaks. Given the extremely high global warming potential of methane, the UN Environment Programme clearly states that "reducing human-caused methane emissions is one of the most cost-effective strategies to rapidly reduce the rate of warming and contribute significantly to global efforts to limit temperature rise to 1.5°C."²⁷ Additionally, the alternatives to gas equipment, from heat pumps to electric and induction cooking, reduce human health harms caused by indoor air pollution from gas combustion.²⁸

As discussed in the previous section, many states have highlighted that gas demand will need to fall dramatically in coming years to meet climate goals. Some utilities are beginning to clearly state that gas use will decline. In New York, Rochester Gas & Electric and National Grid's upstate business have agreed in joint proposals to stop further increases in gas sales, and to stop promoting oil-to-gas conversions.²⁹ Central Hudson has committed to reducing its gas sales.³⁰ ConEdison recently released a request for proposals for non-pipe alternatives to replacing leak-prone pipes. Alternatives to continued gas infrastructure investment (for example, electrification and demand flexibility) would allow for strategic pipe abandonment.³¹

Further, expanding gas service poses several important equity risks. As electrification becomes more prominent, there is a real risk of a utility "death spiral" where wealthier customers leave the gas system, leaving lower-income and renting populations responsible for paying for existing gas infrastructure.

Recommendations

Given the changing economic landscape and shifting societal priorities, the rationale for utility gas line extension allowances is no longer justified. In response, we offer three key recommendations:

- 1. End or reform gas line extension allowances: Given the economic risks that declining gas consumption will undermine new customer revenues over time, states have a strong basis for reforming line extension allowances. Additionally, the increased risk of stranded costs associated with expanding gas infrastructure and the growing recognition of the climate and health hazards posed by expanded gas use provide further reason to move away from these policies. At minimum, this necessitates a recalculation of allowance values with a diminished view of future gas sales and revenues. A stronger and more straightforward solution would be to eliminate the practice altogether. Leading states may also consider a model inspired by water utilities, in which new customers pay a system access fee that directly supports energy affordability for existing customers during gas system decarbonization.
- 2. Expand electric line extension allowances for carbon-free buildings: While the changing context challenges the rationale for gas line extension allowances, electricity service continues to be a necessity for all customers. A shift from new construction with gas to all-electric buildings is emerging as both a necessary climate strategy and an opportunity to eliminate the human health impacts of indoor fossil fuel combustion.³² All-electric buildings will consume more electricity than their mixed-fuel counterparts and deliver greater revenue to electric utilities over time, but they are usually not eligible for any greater electric line extension allowances. Regulators can reform electric line extension policies to offer a higher allowance for all-electric buildings, in recognition both of their greater revenue contribution and their role in supporting climate policies. Such a policy was recently introduced for Portland General Electric when the Oregon Public Utility Commission approved a higher allowance for all-electric customers.³³

Notably, solely eliminating gas allowances creates the specific risk of increasing costs of construction for new affordable housing or other socially desirable construction and reducing the number of new units built. Expanding electric allowances and other all-electric incentives can support affordability and level the playing field. Pilot data suggests that there is minimal to no additional cost for all-electric multifamily buildings for affordable housing.³⁴

3. Evaluate the potential for line extension allowances to support new carbon-free energy services: In some contexts, gas utilities might build and operate shared geothermal heating loops. This strategy is being piloted in Massachusetts by Eversource Energy and HEET, through the GeoMicroDistrict model, where utilities' district geothermal infrastructure delivers heating and cooling to multiple customers.³⁵ If regulators find it in the public interest to expand this model, it will need its own category of line extension policy and enabling regulation.

The Path Forward

The changes needed to align line extension policies with climate goals and customer interests could be initiated through different channels, and the best path forward will likely vary by state. Avenues for reform may be led by legislatures or regulators. Lawmakers may pass new laws to alter gas line extension policy or direct their state utility commissions to take action. In states like New York or Wisconsin, where gas line extension is written into statute, legislative change will be required. Or public utility commissions (PUCs)— who are tasked with ensuring safe, reliable, and affordable energy services—can amend their rules or instruct utilities to change their line extension policies. Because state utility commissions are increasingly tasked with addressing climate issues as part of their decision-making, eliminating or changing gas line extension allowances often fits within the existing mandate of PUCs.

Changing gas line extension policies represents a clear near-term action; while the transition to a clean, affordable building sector will require funding as well as many other policy and program changes, utilities and PUCs can act now. Gas line policies as they stand today pose significant financial risk to utility customers and exacerbate the challenge of decarbonizing the built environment. In practice, they act as an obscure fossil fuel subsidy and perpetuate a system that contributes significantly to climate change. Both climate urgency and financial prudence require reform of this niche but important policy.

Additional strategies for building decarbonization can be found in our 2020 report, *Regulatory Solutions* for Building Decarbonization: Tools for Commissions and Other Government Agencies, as well as our 2021 report, Decarbonizing Homes: Improving Health in Low-Income Communities through Beneficial Electrification.³⁶

Appendix: Case Studies

Line extension policies vary broadly from state to state. Some states, like New York, have specific and broad statutory requirements that determine how gas line extension policy is implemented. Other states, like California, require utilities to use a specific equation when calculating their allowances. Still others, like Colorado, have a universal framework that requires utilities to balance cost allocation between new and existing customers, but each utility applies to the Public Utilities Commission (PUC) for approval of its own method of calculation. In order to demonstrate a variety of approaches, we examine gas line extension policies in four states.

California

Current structure/practice: Revenue-based rationale

- Utilities are required by statute to provide access to service at reasonable cost.
- The California Public Utilities Commissions (CPUC) requires gas line extension allowances to be calculated based on the additional revenue the utility expects to receive as a result of each gas appliance installed by the new customer.
- Under current policies, allowances range from \$1,700 to \$2,700 for residential customers.
- For nonresidential customers, utilities calculate allowances on a case-by-case basis, using the same formula used to derive the standardized residential allowances.
- A recent staff proposal in the CPUC's Building Decarbonization Rulemaking docket (R.19-01-011) recommended eliminating allowances and other incentives for gas line extensions to encourage allelectric new construction.³⁷

What can key actors do to modify current practice?

Legislature: State lawmakers could pass a bill requiring the CPUC to act (e.g., via a rulemaking) to align gas line extension policies with California's climate goals.

Public Utilities Commission: The CPUC could act in line with the staff proposal to eliminate gas line allowances and reform electric line extension policies to lower the up-front costs of building electrification. In addition to docket R.19-01-011, the ongoing gas planning proceeding (R.20-01-007) focuses on gas policy and planning and also implicates gas line extensions.

Utilities: In the absence of state action, utilities could propose eliminating gas line allowances of their own accord based on an argument that providing line extension allowances is no longer a reasonable use of ratepayer dollars.

Washington State

Current structure/practice: Revenue-based rationale

- Until recently, the Washington Utilities and Transportation Commission (UTC) has allowed three out of four gas utilities to calculate line extension allowances using a method that assumes new customers will remain on the gas system indefinitely, called the perpetual net present value (PNPV) method. (The other gas utility uses a formula based on expected usage.)
- Under existing policies, allowances for these three utilities range from \$3,500 to \$4,600 for new residential customers.
- Allowances for nonresidential rate classes vary from utility to utility; some calculate allowances on a dollars-per-therm (estimated annual usage) basis, whereas others use a simple cost cap.^v
- The UTC issued a decision in October 2021 directing gas utilities to file revised line extension allowances based on a modified PNPV with an updated discount timeframe of seven years, which will result in allowances of roughly \$2,000. ^{38, vi}

What can key actors do to modify current practice?

Legislature: State lawmakers could pass a bill to eliminate gas line extension allowances.

Utilities and Transportation Commission: The UTC could unilaterally eliminate gas line extension allowances by determining, among other things, that facilitating expansion of the gas system is no longer a reasonable use of ratepayer dollars. In September 2021, the UTC chair opened a docket to "consider whether natural gas utilities should continue to use the perpetual net present value methodology to calculate natural gas line extension allowances" (UTC Docket UG-210729). While commissioners have thus far declined to completely eliminate allowances for gas line extensions, they indicated that this issue would likely be discussed at greater length in the UTC's broader decarbonization docket, U-210553.

Utilities: Gas utilities could apply to the UTC for approval to reduce or eliminate their gas line extension allowances.



v. Cascade's tariff has a \$14,746 cost cap for commercial allowances: https://www.cngc.com/wp-content/uploads/PDFs/Rates-Tariffs/Washington/2021_tariffs/8-Extension-of-Distribution-Facilities-Rule.pdf.

vi. \$2,000 is approximately how high allowances were prior to the implementation of the original PNPV method in the 2010s.

New York

Current structure/practice: Revenue-based rationale

- Utilities are statutorily required by Public Service Law, Section 31, to provide at least 100 feet of pipeline to new residential customers, free of charge.^{vii}
- The New York Public Service Commission (PSC) has allowed utilities to expand this entitlement to provide new gas heating customers up to 100 feet of main plus 100 feet of service line extension for free.
- Utilities have testified in prior proceedings that these extensions are typically not revenue-justified.
- Policies for nonresidential customers vary but generally provide up to 100 feet of pipeline for free (some utilities do not provide free footage for dual-fuel nonresidential customers).^{viii}

What can key actors do to modify current practice?

Legislature: Lawmakers would need to modify Public Service Law. Both the obligation to serve and the requirement to provide up to 100 feet of pipe for free require legislative amendment in order for other actors to align line extension policies with the state's climate laws.

Public Service Commission: Absent legislative action, the PSC could roll back its expansion of Public Service Law language to allow at most 100 feet of free pipeline. The PSC could also increase electric allowances to incentivize (and increase universal access to) efficient electric heating.

Utilities: Gas utilities can limit their gas line extension policies to the exact statutory language (i.e., providing exactly 100 feet for free). Utilities could also report the costs of the line extensions to support their assertions that these extensions are not revenue-justified, and they could argue for the modification of both gas and electric allowances to support electrification.

vii. New York's Public Service Law, Section 31, specifically states: "In the case of any application for service to a building which is not supplied with electricity or gas, a utility corporation or municipality shall be obligated to provide service to such a building, provided however, that the commission may require applicants for service to buildings located in excess of one hundred feet from gas or electric transmission lines to pay or agree in writing to pay material and installation costs relating to the applicant's proportion of the pipe, conduit, duct or wire, or other facilities to be installed." See https://codes.findlaw.com/ny/public-service-law/pbs-sect-31.html.

viii. For example, Brooklyn Union Gas (d/b/a National Grid) does not have an explicit policy for dual-fuel nonresidential customers. Note that "dual-fuel" in this context refers to customers whose gas end uses (typically generators) can be operated using a fuel other than gas (such as fuel oil).

Colorado

Current structure/practice: Embedded-cost rationale^{ix}

- Utilities are required by statute to publish their line extension policies, including "provisions addressing steps to ameliorate the rate and service impact upon existing customers."³⁹
- Utilities' allowances are based on an "average embedded cost" formula that approximates a new customer's contribution to sharing the fixed costs of the existing gas system.
- Allowances for new residential customers typically range from \$550 to \$1,400.*
- Policies for new commercial customers vary, but utilities tend to provide roughly \$1,500 allowances for service lines and calculate allowances for main extensions on a case-by-case basis.^{xi}

What can key actors do to modify current practice?

Legislature: Lawmakers could either eliminate gas line extension allowances outright or direct the PUC to modify its rules.

Public Utilities Commission: The Colorado PUC could eliminate gas line extension allowances or amend its rules governing line extension policies. Of note, the PUC recently listed gas line extension policies among the gas rules that may need to be modified in alignment with recent legislation and Colorado's climate goals.^{xii}

Utilities: Modifications to utilities' methods of calculating line extension allowances are subject to PUC approval, which is based on the Commission's assessment of whether the allowances allocate costs fairly between existing and new customers. Utilities could apply to eliminate line extension allowances based on an argument that any amount of allowance does not allocate costs fairly among existing and new customers.

ix. Colorado's largest gas utility (Public Service Company of Colorado, d/b/a Xcel Energy) uses an embedded-cost rationale; other gas utilities in the state use different methods of calculating line extension allowances.

x. The Mountain Division of Colorado Natural Gas provides allowances of up to \$7,335.

xi. Xcel's policy can be found on page 236 (Tariff Sheet No. R87) of its tariff sheets: https://www.xcelenergy.com/staticfiles/xe/PDF/Regulatory/psco_gas_entire_tariff.pdf.

xii. See Decision No. C21-0516 in Proceeding No. 21M-0395G and Decision No. C21-0610 in Proceeding No. 21R-0449G. Decision C21-0610 proposes to amend Colorado's gas rules for line extensions by requiring that line extension policies adhere to the "principle that the full incremental cost associated with new development and growth shall be borne generally by the customers that cause those incremental costs" and that such policies must align with the state's greenhouse gas emissions reduction goals.

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Request No.: UG 435 Coalition DR 24

24. What is the range in total costs that NW Natural incurs to build a new service line to connect a new residence to gas utility service?

Response:

The first table below provides the range in total costs that NW Natural incurred to build a new service line to connect a new residence to gas utility service in 2021. The second table shows a 2021 histogram of residential service line extensions categorized by number of service line extensions in \$500 increments.

Residential Service Line Ave/Min/Max										
Segment	Service Line Average	Min	Max							
Total Residential	\$1,631	\$108	\$40,517							

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Residential Service Line Histogram

Dollars	Total Residential 2021
0 - \$500	107
\$500 - \$1,000	5,498
\$1,000 - \$1,500	1,863
\$1,500 - \$2,000	441
\$2,000 - \$2,500	289
\$2,500 - \$3,000	171
\$3,000 - \$3,500	186
\$3,500 - \$4,000	193
\$4,000 - \$4,500	207
\$4,500 - \$5,000	167
\$5,000 - \$5,500	109
\$5,500 - \$6,000	60
\$6,000 - \$6,500	50
\$6,500 - \$7,000	38
\$7,000 - \$7,500	36
\$7,500 - \$8,000	23
\$8,000 - \$8,500	27
\$8,500 - \$9,000	9
\$9,000 - \$9,500	9
\$9,500 - \$10,000	11
\$10,000 - \$10,500	6
\$10,500 - \$11,000	5
\$11,000 - \$11,500	7
\$11,500 - \$12,000	6
\$12,000 - \$12,500	4
\$12,500 - \$13,000	6
\$13,000 - \$13,500	5
\$13,500 - \$14,000	2
\$14,000 - \$14,500	2
\$14,500 - \$15,000	2
Greater than 15K	50
Total	9,589

Request No.: UG 435 Coalition DR 90

90. Please describe how NW Natural calculates the cost charged to ratepayers for each new service line installed. Of this total cost, please explain how much is paid by ratepayers, and how much is paid by the new customer.

Response:

The Company's distribution facilities extension policy is described in the Company's Tariff Schedule X. Please see the response to UG 435 Coalition DR 28, which provides Tariff Schedule X as an attachment. For residential customers, a set construction allowance per dwelling is defined in Schedule X. This construction allowance is compared to the estimated construction cost of connecting a customer. When the applicable construction allowances are less than the estimated construction costs, a contribution is required from the customer.

For non-residential customers and planned developments, the Company performs an analysis for each installation and provides a minimum construction allowance equal to 5.0 times the annual margin revenues estimated to be generated from the new connection. In instances where a contribution is required, customers are required to contribute to the cost of construction through a customer contribution.

For amounts not collected from the customer, installation costs are capitalized and result in cost of service amounts on an annual basis. While the timing of rate cases is unpredictable, these annual cost of service amounts would be proposed for recovery by the Company in future general rate case filing and if approved, recovered from all ratepayers in new base rates.

Request No.: UG 435 Coalition DR 91

91. Please describe how much money per year NW Natural has expended on customer growth related capital expenditures in the last two decades. Please answer this question in the form of total customer growth related capital expenditures per year.

Response:

NW Natural objects to DR 91 as overly broad and unduly burdensome in that it requests 20 years of data. Without waiving that objection, NW Natural provides the information in the table below, which shows growth related capital expenditures over the last five years.

Line Items	2017	2018	2019	2020	2021
Main Extensions	\$8,777,367	\$9,688,455	\$9,763,204	\$8,402,386	\$9,003,073
Service Lines	\$17,051,844	\$16,773,524	\$17,673,737	\$18,733,865	\$19,764,260
Meters	\$6,377,519	\$7,583,172	\$11,040,743	\$13,066,305	\$11,139,188
Permits	\$1,128,901	\$1,208,757	\$1,267,864	\$1,695,366	\$1,208,981
Retained Contributions (CIAC)	(\$698,765)	(\$781,558)	(\$693,866)	(\$590,715)	(\$1,713,723)
Total	\$32,636,866	\$34,472,350	\$39,051,682	\$41,307,206	\$39,401,779

Request No.: UG 435 Coalition DR 99

99. What is the projected increase in the number of Northwest Natural customers served between the Base Year and the Test Year?

Response:

The table below is the projected increase in the number of Oregon Northwest Natural customers from December 31, 2021 (end of Base Year) through October 31, 2023 (end of Test Year.

Time Period	Customers
December 2021	689,074
October 31, 2023	715,573
Delta	26,499

Request No.: UG 435 Coalition DR 100

100. For each of Northwest Natural's customer classes, how many customers have participated in Northwest Natural's Schedule X in each of the last 5 years? And what was the average allowance per customer?

Response:

The table below indicates the number of customers, total allowance, and allowance per customer for Oregon customers in 2021. Data limitations prevent Northwest Natural from providing allowance data prior to 2021.

Туре	Count	Allowance	Allowance/Cust
Residential	6,914	\$19,548,925	\$2,827
Commercial	255	\$5,448,340	\$21,366
Industrial	5	\$792,005	\$158,401
Total	7,174	\$25,789,270	\$3,595

Request No.: UG 435 Coalition DR 102

102. For the Test Year, has Northwest Natural estimated the portion of revenue requirement attributable to customer allowances under Schedule X? If so, how much is this portion?

Response:

NW Natural interprets this data request to be asking whether we estimated the portion of the revenue requirement attributable to the capital costs associated with new customers connected to our system pursuant to Schedule X in the Test Year. No, the Company has not estimated the portion of revenue requirement attributable to customer allowances under Schedule X for the Test Year.

NW Natural Determination of Cost of Service

Cost of Capital	% of Capital	Cost	Weighted Cost
Debt	50.00%	6.33%	3.179
Preferred Equity	0.00%	0.00%	0.009
Common Equity	50.00%	10.00%	5.009
	100.00%	=	8.179
State Tax Rate			7.609
Federal Tax Rate			35.00
Revenue Sensitive Rate (held to franchise r	ate)		2.30
Depreciation Rate			2.50
Property Tax Rate			1.509
Incremental O&M			0.
Bonus Tax Depreciation toggled (1 = yes, 2	r = no		

Indicated Multiplier (Year 1)

5.9 Using distribution margin

	_	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21
1 Depreciation		73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
2 O&M		40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
3 Property Taxes		43	42	41	40	39	38	37	36	34	33	32	31	30	29	28	27	26	25	24	23	21
Taxes on Equity Return																						
4 State		18	17	16	15	15	14	13	12	12	11	10	10	9	8	7	7	6	6	6	6	5
5 Federal 6 Total Taxes		77 95	73 90	69 86	66 81	62 77	59 73	56 69	53 65	50 62	47 58	44 54	41 50	38 47	35 43	32 39	29 36	28 34	26 33	25 31	24 30	23
Return on Rate Base																						
7 Debt		90	86	81	77	73	69	66	62	59	55	51	48	44	41	37	34	32	31	30	28	27
8 Preferred Equity		90 0	0	0	0	/3	0	0	02	0	0	0	48	44	41	0	0	32 0	0	30	28	0
9 Common Equity		142	136	129	122	115	109	104	98	93	87	81	76	70	65	59	54	51	49	47	45	42
10 Total Return		233	222	210	199	188	179	169	160	151	142	133	124	115	105	96	89	84	80	76	73	69
11 Subtotal Cost of Service		483	467	449	432	416	402	387	374	360	346	332	318	304	290	276	264	256	250	244	238	231
12 Revenue Sensitive Items	_	11	11	11	10	10	9	9	9	8	8	8	7	7	7	6	6	6	6	6	6	5
13 Total Cost of Service	\$4,264.95	\$494	\$478	\$460	\$442	\$426	\$411	\$397	\$382	\$368	\$354	\$339	\$325	\$311	\$297	\$282	\$270	\$262	\$256	\$249	\$243	\$237
	\$4,393.46	372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372
14 Annual Cost of Service as % of Investment		17.05%	16.49%	15.85%	15.26%	14.70%	14.18%	13.68%	13.18%	12.69%	12.20%	11.71%	11.21%	10.72%	10.23%	9.74%	9.31%	9.03%	8.82%	8.60%	8.39%	8.17%
Rate Base - net of deprec. & def. tax Income Taxes		\$2,849	\$2,722	\$2,574	\$2,436	\$2,308	\$2,188	\$2,074	\$1,962	\$1,850	\$1,738	\$1,627	\$1,515	\$1,403	\$1,291	\$1,179	\$1,084	\$1,023	\$980	\$936	\$893	\$849
Gross up of Equity Return		237	227	214	203	192	182	173	163	154	145	135	126	117	107	98	90	85	82	78	74	71
Less: State tax		18	17	16	15	15	14	13	12	12	11	10	10	9	8	7	7	6	6	6	6	5
Federal Taxable Income		219	209	198	187	178	168	160	151	142	134	125	117	108	99	91	83	79	75	72	69	65
Less: Federal Tax		77	73	69	66	62	59	56	53	50	47	44	41	38	35	32	29	28	26	25	24	23
Return		142	136	129	122	115	109	104	98	93	87	81	76	70	65	59	54	51	49	47	45	42
Deferred Taxes																						
Book Depreciation Tax Depreciation		73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73
Book-Tax Difference		145 73	276 203	248 175	223 151	201 128	181 108	171 99	86 13	0 (73)	0 (73)	(73)	0 (73)	0 (73)								
Tax Effect		29	81	70	60	51	43	39	39	39	39	39	39	39	39	39	5	(73)	(29)	(29)	(73)	(29)
MACRS Depreciation - 15		5.00%	9.50%	8.55%	7.70%	6.93%	6.23%	5.90%	5.90%	5.91%	5.90%	5.91%	5.90%	5.91%	5.90%	5.91%	2.95%	0.00%	0.00%	0.00%	0.00%	0.00%
MACKS Depreciation - 15		3.00 %	9.30 %	0.0076	1.10%	0.93 %	0.2376	5.50 %	3.30 %	3.91%	3.90 %	3.9170	0.90 %	3.3170	3.90 %	5.9170	2.9370	0.00%	0.00 %	0.00%	0.00%	0.00%
Property Tax Base		2,878	2,806	2,733	2,661	2,588	2,516	2,443	2,371	2,298	2,226	2,153	2,081	2,008	1,936	1,863	1,791	1,718	1,646	1,573	1,501	1,428
Tax Calculation Check		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MACRS Depreciation - 15		5.00%	9.50%	8.55%	7.70%	6.93%	6.23%	5.90%	5.90%	5.91%	5.90%	5.91%	5.90%	5.91%	5.90%	5.91%	2.95%					
MACRS Depreciation - 15 - Bonus		52.50%	4.75%	4.28%	3.85%	3.47%	3.12%	2.95%	2.95%	2.96%	2.95%	2.96%	2.95%	2.96%	2.95%	2.96%	1.48%	0	0	0	0	0
		0.3994																				

0.3994 0.6006

Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Year 37	
73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	2,683
40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	,
20	19	18	17	16	15	14	13	12	11	9	8	7	6	5	4	
5	5	5	4	4	4	3	3	3	3	2	2	2	2	1	1	
22	21	19	18	17	16	15	13	12	11	10	9	8	6	5	4	
27	25	24	22	21	20	18	17	15	14	12	11	9	8	7	5	
25	24	23	21	20	19	17	16	14	13	12	10	9	8	6	5	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	38	36	34	32	29	27	25	23	21	19	16	14	12	10	8	
66	62	59	55	52	48	44	41	37	34	30	27	23	20	16	12	
225	219	213	207	201	195	189	183	177	171	164	158	152	146	140	134	
5	5	5	5	5	5	4	4	4	4	4	4	4	3	3	3	
\$231	\$224	\$218	\$212	\$206	\$200	\$193	\$187	\$181	\$175	\$168	\$162	\$156	\$150	\$143	\$137	
\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372	\$372								
7.96%	7.74%	7.53%	7.31%	7.10%	6.88%	6.67%	6.45%	6.24%	6.02%	5.81%	5.59%	5.38%	5.16%	4.95%	4.73%	
4005	4760	4740	4675	4524	4500	4	4504	A		4070	4007	4000	4222	4405	4450	
\$806	\$762	\$718	\$675	\$631	\$588	\$544	\$501	\$457	\$414	\$370	\$327	\$283	\$239	\$196	\$152	
67	63	60	56	53	49	45	42	38	34	31	27	24	20	16	13	
5	5	5	4	4	4	3	3	3	3	2	2	2	2	1	1	
62	59	55	52	49	45	42	39	35	32	28	25	22	18	15	12	
<u> </u>	21 38	19 36	18 34	17 32	16 29	15 27	13 25	12 23	<u>11</u> 21	10 19	9 16	8	6 12	5 10	4 8	
40	38	50	54	52	25	27	23	25	21	19	10	14	12	10	8	
73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	73	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	(73)	
(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	87
0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	
1,356	1,283	1,211	1,138	1,066	993	921	848	776	703	631	558	486	413	341	268	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	

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NW Natural

Income Statement		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
1 Revenue - Original		371	371	371	371	371	371	371	371	371	371	371	371	371	371
2 Operations & Maintenance 3 Depreciation 4 Franchise Tax 4 Property Tax 5 Interest Expense	\$40.00 2.50% 2.30% 1.50% 6.33%	(40) (73) (9) (44) (92)	(40) (73) (9) (42) (86)	(40) (73) (9) (41) (81)	(40) (73) (9) (40) (77)	(40) (73) (9) (39) (73)	(40) (73) (9) (38) (69)	(40) (73) (9) (37) (66)	(40) (73) (9) (36) (62)	(40) (73) (9) (35) (59)	(40) (73) (9) (34) (55)	(40) (73) (9) (33) (51)	(40) (73) (9) (32) (48)	(40) (73) (9) (30) (44)	(40) (73) (9) (29) (41)
6 Net Income Before Tax	_	115	121	127	133	138	143	147	152	157	161	166	170	175	180
7 Income Tax	39.94%	46	48	51	53	55	57	59	61	63	64	66	68	70	72
8 Net Available to Common	-	69	73	76	80	83	86	88	91	94	97	100	102	105	108
Balance Sheet		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
Assets 9 Gross Plant 10 Accumulated Depreciation 11 Net Plant	-	2,900 73 2,828	2,900 <u>145</u> 2,755	2,900 <u>218</u> 2,683	2,900 290 2,610	2,900 363 2,538	2,900 435 2,465	2,900 508 2,393	2,900 580 2,320	2,900 653 2,248	2,900 725 2,175	2,900 798 2,103	2,900 870 2,030	2,900 943 1,958	2,900 1,015 1,885
12 Total Assets	=	2,828	2,755	2,683	2,610	2,538	2,465	2,393	2,320	2,248	2,175	2,103	2,030	1,958	1,885
Liabilities and Equity 13 Common Equity 14 Long Term Debt 15 Deferred Taxes	_	1,399 1,399 29	1,322 1,322 110	1,251 1,251 180	1,185 1,185 240	1,123 1,123 292	1,065 1,065 335	1,009 1,009 374	953 953 414	897 897 453	841 841 492	785 785 532	729 729 571	673 673 611	617 617 650
16 Total Liabilities and Equity	-	2,828	2,755	2,683	2,610	2,538	2,465	2,393	2,320	2,248	2,175	2,103	2,030	1,958	1,885
Cash Flow Statement		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
Operating Activities 1 Net Income 2 Depreciation 3 Deferred Taxes 4 Cash Provided by Operating	Activities	69 73 29 170	73 73 81 226	76 73 70 219	80 73 60 212	83 73 51 207	86 73 43 201	88 73 39 200	91 73 39 203	94 73 39 206	97 73 39 209	100 73 39 212	102 73 39 214	105 73 39 217	108 73 39 220
Investing Activities 5 Project 6 Cash Used in Investing Activ	vities	(2,900) (2,900)	0 0	0	0	0	0	0	0 0	0 0	0	0	0	0	0
Financing Activities 7 Common Stock Issued 8 Long Term Debt Issued 9 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing	Activities -	1,450 1,450 (51) (120) 2,730	0 0 (77) (150) (226)	0 0 (71) (148) (219)	0 (66) (146) (212)	0 0 (62) (145) (207)	0 (58) (144) (201)	0 (56) (144) (200)	0 (56) (147) (203)	0 (56) (150) (206)	0 (56) (153) (209)	0 (56) (156) (212)	0 (56) (158) (214)	0 (56) (161) (217)	0 (56) (164) (220)
12 Net Cash Flow	-	0	(0)	0	0	0	0	0	0	0	0	0	(0)	0	0
Financial Ratios	_	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
13 ROI (Net Op Inc/Avg Rate Base 14 Return on Average Equity	e)	5.64% 4.83%	5.84% 5.36%	6.13% 5.94%	6.43% 6.54%	6.75% 7.17%	7.08% 7.83%	7.43% 8.53%	7.82% 9.30%	8.25% 10.17%	8.74% 11.14%	9.29% 12.25%	9.93% 13.52%	10.66% 15.00%	11.53% 16.73%
14 Return on Average Equity 15 Total Debt to Total Capital (Ye 16 Interest Coverage (EBIT/Intere 17 FFO to Total Debt 18 FFO Interest Coverage		4.83% 50.0% 2.25 2.86	50.0% 2.41 16.64% 3.63	50.0% 2.56 17.02% 3.69	50.0% 2.72 17.44% 3.75	50.0% 2.89 17.90% 3.83	50.0% 3.06 18.41% 3.91	50.0% 3.24 19.32% 4.05	50.0% 3.45 20.71% 4.27	50.0% 3.67 22.27% 4.52 70.00%	50.0% 3.93 24.01% 4.79	50.0% 4.22 26.02% 5.11	50.0% 4.56 28.30% 5.47	50.0% 4.94 30.97% 5.89	50.0% 5.40 34.07% 6.38
19 IRR 20 IRR 21 IRR 23 IRR 23 IRR 24 IRR	5 year 10 year 15 year 20 year 25 year 30 year	-22.2% -2.7% 3.3% 5.3% 6.3% 6.9%	872 1,582 2,145 2,490 2,725 2,900	times margin 2.35 4.26 5.78 6.71 7.35 7.82	2,900 <mark></mark> In	put Investment ca	ilibrate at 6.9 R(DR		70.00% 60.00% 50.00% 40.00% 30.00% 20.00% 10.00%					eries1
IRR Calculation	(\$2,900)	225	278	268	259	250	243	240	240	241	242	243	243	244	244
	_	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
1 Revenue 2 Operations & Maintenance 3 Franchise Tax	2.30%	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)	371 (40) (9)
4 Property Tax	1.50%	(44)	(42)	(41)	(40)	(39)	(38)	(37)	(36)	(35)	(34)	(33)	(32)	(30)	(29)

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6	Income Tax	39.94%	111	112	112	113	113	114	114	114	115	115	116	116	117	117
7	Net After Tax		168	168	169	170	170	171	171	172	173	173	174	175	175	176
8 9	Tax Benefit on Interest Tax Benefit on Investment	_	58	110	99	89	80	72	68	68	68	68	68	68	68	68
10	Total Operating Cash (ROR	Analysis)	225	278	268	259	250	243	240	240	241	242	243	243	244	244
			170													
			115													
Plan	t Additions	Rate	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14
	Plant Depreciation	2.50%	2,900 (73)	2,900 (145)	2,900 (218)	2,900 (290)	2,900 (363)	2,900 (435)	2,900 (508)	2,900 (580)	2,900 (653)	2,900 (725)	2,900 (798)	2,900 (870)	2,900 (943)	2,900 (1,015)
3 4	Net Plant Deferred Taxes		2,828 29	2,755 110	2,683 180	2,610 240	2,538 292	2,465 335	2,393 374	2,320 414	2,248 453	2,175 492	2,103 532	2,030 571	1,958 611	1,885 650
	Net Rate Base Average Rate Base		2,799 2,849	2,645 2,722	2,502 2,574	2,370 2,436	2,246 2,308	2,130 2,188	2,018 2,074	1,906 1,962	1,794 1,850	1,683 1,738	1,571 1,627	1,459 1,515	1,347 1,403	1,235 1,291
8 9	DEBT New Debt Beginning Debt Principal Payment Ending Debt	Rate	1,450 0 (51) 1,399	0 1,399 (77) 1,322	0 1,322 (71) 1,251	0 1,251 (66) 1,185	0 1,185 (62) 1,123	0 1,123 (58) 1,065	0 1,065 (56) 1,009	0 1,009 (56) 953	0 953 (56) 897	0 897 (56) 841	0 841 (56) 785	0 785 (56) 729	0 729 (56) 673	0 673 (56) 617
	Total Payment Interest	6.330%	(41) 92	9 86	10 81	11 77	11 73	11 69	10 66	6 62	3 59	(1) 55	(5) 51	(8) 48	(12) 44	(15) 41
13	EQUITY Paid in		1 150	<u>^</u>	0	0	0		0	0	0	0	0		0	0
15 16 17	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity	(Net Inc)	1,450 0 (120) 69 1,399 1,425	0 1,399 (150) 73 1,322 1,361	1,322 (148) 76 1,251 1,287	1,251 (146) 80 1,185 1,218	1,185 (145) 83 1,123 1,154	0 1,123 (144) 86 1,065 1,094	0 1,065 (144) 88 1,009 1,037	1,009 (147) 91 953 981	953 (150) 94 897 925	897 (153) 97 841 869	841 (156) 100 785 813	0 785 (158) 102 729 757	729 (161) 105 673 701	0 673 (164) 108 617 645
15 16 17 18	Beginning Equity Excess Dividend Net Income Ending Equity	(Net Inc)	0 (120) 69 1,399	1,399 (150) 73 1,322	1,322 (148) 76 1,251	1,251 (146) 80 1,185	1,185 (145) 83 1,123	1,123 (144) 86 1,065	1,065 (144) 88 1,009	1,009 (147) 91 953	953 (150) 94 897	897 (153) 97 841	841 (156) 100 785	785 (158) 102 729	729 (161) 105 673	673 (164) 108 617
15 16 17 18 Tax	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity	(Net Inc)	0 (120) 69 1,399 1,425	1,399 (150) 73 1,322 1,361	1,322 (148) 76 1,251 1,287	1,251 (146) 80 1,185 1,218	1,185 (145) 83 1,123 1,154	1,123 (144) 86 1,065 1,094	1,065 (144) 88 1,009 1,037	1,009 (147) 91 953 981	953 (150) 94 897 925	897 (153) 97 841 869	841 (156) 100 785 813	785 (158) 102 729 757	729 (161) 105 673 701	673 (164) 108 617 645
15 16 17 18 Tax 1 2	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate	(Net Inc)	0 (120) 69 1,399 1,425 Year 1 5.00%	1,399 (150) 73 1,322 1,361 Year 2	1,322 (148) 76 1,251 1,287 Year 3	1,251 (146) 80 1,185 1,218 Year 4	1,185 (145) 83 1,123 1,154 Year 5	1,123 (144) 86 1,065 1,094 Year 6	1,065 (144) 88 1,009 1,037 Year 7	1,009 (147) 91 953 981 Year 8	953 (150) 94 897 925 Year 9	897 (153) 97 841 869 Year 10	841 (156) 100 785 813 Year 11	785 (158) 102 729 757 Year 12	729 (161) 105 673 701 Year 13	673 (164) 108 617 645 Year 14
15 16 17 18 Tax 1 2 3	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions	(Net Inc) 	0 (120) 69 1,399 1,425 Year 1 5.00% 2,900	1,399 (150) 73 1,322 1,361 Year 2 9.50%	1,322 (148) 76 1,251 1,287 Year 3 8.55%	1,251 (146) 80 1,185 1,218 Year 4 7.70%	1,185 (145) 83 1,123 1,154 Year 5 6.93%	1,123 (144) 86 1,065 1,094 Year 6 6.23%	1,065 (144) 88 1,009 1,037 Year 7 5.90%	1,009 (147) 91 953 981 Year 8 5.90%	953 (150) 94 897 925 Year 9 5.91%	897 (153) 97 841 869 Year 10 5.90%	841 (156) 100 785 813 Year 11 5.91%	785 (158) 102 729 757 Year 12 5.90%	729 (161) 105 673 701 Year 13 5.91%	673 (164) 108 617 645 Year 14 5.90%
15 16 17 18 Tax 1 2 3 4	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions Total Tax Depreciation	_	0 (120) 69 1,399 1,425 Year 1 5.00% 2,900 145	1,399 (150) 73 1,322 1,361 Year 2 9.50% 276	1,322 (148) 76 1,251 1,287 Year 3 8.55% 248	1,25 (146) 80 1,185 1,218 Year 4 7.70% 223	1,185 (145) 83 1,123 1,154 Year 5 6.93% 201	1,123 (144) 86 1,065 1,094 Year 6 6.23% 181	1,065 (144) 88 1,009 1,037 Year 7 5.90% 171	1,009 (147) 91 953 981 Year 8 5.90%	953 (150) 94 897 925 Year 9 5.91% 171	897 (153) 97 841 869 Year 10 5.90% 171	841 (156) 100 785 813 Year 11 5.91%	785 (158) 102 729 757 Year 12 5.90% 171	729 (161) 105 673 701 Year 13 5.91% 171	673 (164) 108 617 645 Year 14 5.90% 171
15 16 17 18 Tax 1 2 3 4 Bool 5	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions Total Tax Depreciation Tax Benefit @	_	0 (120) 69 1,399 1,425 Year 1 5.00% 2,900 145	1,399 (150) 73 1,322 1,361 Year 2 9.50% 276	1,322 (148) 76 1,251 1,287 Year 3 8.55% 248	1,25 (146) 80 1,185 1,218 Year 4 7.70% 223	1,185 (145) 83 1,123 1,154 Year 5 6.93% 201	1,123 (144) 86 1,065 1,094 Year 6 6.23% 181	1,065 (144) 88 1,009 1,037 Year 7 5.90% 171	1,009 (147) 91 953 981 Year 8 5.90%	953 (150) 94 897 925 Year 9 5.91% 171	897 (153) 97 841 869 Year 10 5.90% 171	841 (156) 100 785 813 Year 11 5.91%	785 (158) 102 729 757 Year 12 5.90% 171	729 (161) 105 673 701 Year 13 5.91% 171	673 (164) 108 617 645 Year 14 5.90% 171
15 16 17 18 Tax 1 2 3 4 Bool 5 6	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions Total Tax Depreciation Tax Benefit @ k Depreciation Book Depreciation Rate	_	0 (120) (9 1,399 1,425 Year 1 5.00% 2,900 145 58 2.50%	1,399 (150) 73 1,322 1,361 Year 2 9.50% 276 110	1,322 (148) 76 1,251 1,287 Year 3 8,55% 248 99	1,251 (146) 80 1,185 1,218 Year 4 7.70% 223 89	1,185 (145) 83 1,123 1,154 Year 5 6,93% 201 80	1,123 (144) 86 1,065 1,094 Year 6 6.23% 181 72	1,065 (144) 88 1,009 1,037 Year 7 5.90% 171 68	1,009 (147) 91 953 981 Year 8 5.90% 171 68	953 (150) 94 897 925 Year 9 5.91% 171 68	897 (153) 97 841 869 Year 10 5.90% 171 68	841 (156) 100 785 813 Year 11 5.91% 171 68	785 (158) 102 729 757 Year 12 5.90% 171 68	729 (161) 105 673 701 Year 13 5.91% 171 68	673 (164) 108 617 645 Year 14 5.90% 171 68
15 16 17 18 Tax 1 2 3 4 Bool 5 6 7	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions Total Tax Depreciation Tax Benefit @ k Depreciation Book Depreciation Rate Plant Additions Book Depreciation Total Book Depreciation Total Book Depreciation	_	0 (120) (9 1,399 1,425 Year 1 5.00% 2,900 145 58 2.50% 2,900	1,399 (150) 73 1,322 1,361 Year 2 9,50% 276 110 2,50%	1,322 (148) 76 1,251 1,287 Year 3 8.55% 248 99 2.50%	1,251 (146) 80 1,185 1,218 Year 4 7.70% 223 89 2.50%	1,185 (145) 83 1,123 1,154 Year 5 6,93% 201 80 2.50%	1,123 (144) 86 1,065 1,094 Year 6 6.23% 181 72 2.50%	1,065 (144) 88 1,009 1,037 Year 7 5.90% 171 68 2.50%	1,009 (147) 91 953 981 <u>Year 8</u> 5,90% 171 68 2,50%	953 (150) 94 897 925 Year 9 5.91% 171 68 2.50%	897 (153) 97 841 869 Year 10 5.90% 171 68 2.50%	841 (156) 100 785 813 Year 11 5.91% 171 68 2.50%	785 (158) 102 729 757 Year 12 5.90% 171 68 2.50%	729 (161) 105 673 701 Year 13 5.91% 171 68 2.50%	673 (164) 108 617 645 <u>Year 14</u> 5.90% 171 68 2.50%
15 16 17 18 Tax 1 2 3 4 Bool 5 6 7 8 9 10	Beginning Equity Excess Dividend Net Income Ending Equity Average Equity Depreciation Tax Depreciation Rate Plant Additions Total Tax Depreciation Tax Benefit @ k Depreciation Book Depreciation Rate Plant Additions Book Depreciation Total Book Depreciation Total Book Depreciation	_	0 (120) 69 1,399 1,425 Year 1 5,00% 2,900 145 58 2,50% 2,900 73 73 145	1,399 (150) 73 1,322 1,361 Year 2 9,50% 276 110 2,50% 73 73 276	1,322 (148) 76 1,251 1,287 Year 3 8,55% 248 99 2,50% 73 73 248	1.251 (146) 80 1.185 1.218 Year 4 7.70% 223 89 2.50% 73 73 223	1,185 (145) 83 1,123 1,154 Year 5 6,93% 201 80 2,50% 73 73 201	1,123 (144) (86 1,065 1,094 Year 6 6.23% 181 72 2.50% 73 73 181	1,065 (144) 98 1,009 1,037 Year 7 5.90% 171 68 2.50% 73 73 73	1,009 (147) 91 953 981 Year 8 5,90% 171 68 2,50% 73 73 171	953 (150) 947 925 Year 9 5.91% 171 68 2.50% 73 73 171	897 (153) 97 841 869 Year 10 5.90% 171 68 2.50% 73 73 171	841 (156) 100 785 813 5.91% 171 68 2.50% 73 73 171	785 (158) 102 729 757 Year 12 5.90% 171 68 2.50% 73 73 171	729 (161) 105 673 701 Year 13 5.91% 171 68 2.50% 73 73 171	673 (164) 108 617 645 <u>Year 14</u> 5.90% 171 68 2.50% 73 73 73 171

NW Natural

Income Statement		Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
1 Revenue - Original		371	371	371	371	371	371	371	371	371	371	371	371	371	371
2 Operations & Maintenance 3 Depreciation 4 Franchise Tax 4 Property Tax 5 Interest Expense	\$40.00 2.50% 1.50% 6.33%	(40) (73) (9) (28) (37)	(40) (73) (9) (27) (34)	(40) (73) (9) (26) (32)	(40) (73) (9) (25) (31)	(40) (73) (9) (24) (30)	(40) (73) (9) (23) (28)	(40) (73) (9) (22) (27)	(40) (73) (9) (21) (25)	(40) (73) (9) (20) (24)	(40) (73) (9) (18) (23)	(40) (73) (9) (17) (21)	(40) (73) (9) (16) (20)	(40) (73) (9) (15) (19)	(40) (73) (9) (14) (17)
6 Net Income Before Tax		184	188	191	194	196	199	201	204	206	209	211	214	216	219
7 Income Tax	39.94%	74	75	76	77	78	79	80	81	82	83	84	85	86	87
8 Net Available to Common		111	113	115	116	118	119	121	122	124	125	127	128	130	131
Balance Sheet	_	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
Assets 9 Gross Plant 10 Accumulated Depreciation 11 Net Plant		2,900 1,088 1,813	2,900 <u>1,160</u> 1,740	2,900 1,233 1,668	2,900 <u>1,305</u> 1,595	2,900 <u>1,378</u> 1,523	2,900 <u>1,450</u> 1,450	2,900 <u>1,523</u> 1,378	2,900 <u>1,595</u> 1,305	2,900 <u>1,668</u> 1,233	2,900 <u>1,740</u> 1,160	2,900 <u>1,813</u> 1,088	2,900 1,885 1,015	2,900 <u>1,958</u> 943	2,900 2,030 870
12 Total Assets		1,813	1,740	1,668	1,595	1,523	1,450	1,378	1,305	1,233	1,160	1,088	1,015	943	870
Liabilities and Equity 13 Common Equity 14 Long Term Debt 15 Deferred Taxes		561 561 690	523 523 695	501 501 666	479 479 637	457 457 608	435 435 579	414 414 550	392 392 521	370 370 492	348 348 463	327 327 434	305 305 405	283 283 376	261 261 347
16 Total Liabilities and Equity		1,813	1,740	1,668	1,595	1,523	1,450	1,378	1,305	1,233	1,160	1,088	1,015	943	870
Cash Flow Statement	_	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
Operating Activities 1 Net Income 2 Depreciation 3 Deferred Taxes 4 Cash Provided by Operating	Activities	111 73 39 223	113 73 5 191	115 73 (29) 159	116 73 (29) 160	118 73 (29) 162	119 73 (29) 163	121 73 (29) 164	122 73 (29) 166	124 73 (29) 167	125 73 (29) 169	127 73 (29) 170	128 73 (29) 172	130 73 (29) 173	131 73 (29) 175
Investing Activities 5 Project 6 Cash Used in Investing Activ	vities	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financing Activities 7 Common Stock Issued 8 Long Term Debt Issued 9 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing	Activities	0 (56) (167) (223)	0 (39) (152) (191)	0 (22) (137) (159)	0 (22) (138) (160)	0 (22) (140) (162)	0 (22) (141) (163)	0 (22) (143) (164)	0 (22) (144) (166)	0 (22) (146) (167)	0 (22) (147) (169)	0 (22) (149) (170)	0 (22) (150) (172)	0 (22) (152) (173)	0 (22) (153) (175)
7 Common Stock Issued 8 Long Term Debt Issued 9 Long Term Debt Retired 10 Common Stock Dividends	Activities	0 (56) (167)	0 (39) (152)	0 (22) (137)	0 (22) (138)	0 (22) (140)	0 (22) (141)	0 (22) (143)	0 (22) (144)	0 (22) (146)	0 (22) (147)	0 (22) (149)	0 (22) (150)	0 (22) (152)	0 (22)
Common Stock Issued Long Term Debt Issued Long Term Debt Retired Common Stock Dividends Cash Provided by Financing Net Cash Flow	Activities	0 (56) (167) (223)	0 (39) (152) (191)	0 (22) (137) (159)	0 (22) (138) (160)	0 (22) (140) (162)	0 (22) (141) (163)	0 (22) (143) (164)	0 (22) (144) (166)	0 (22) (146) (167)	0 (22) (147) (169)	0 (22) (149) (170)	0 (22) (150) (172)	0 (22) (152) (173)	0 (22) (153) (175)
7 Common Stock Issued 8 Long Term Debt Issued 9 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Flow Financial Ratios 13 ROI (Net Op Inc/Avg Rate Base		0 (56) (167) (223) 0 Year 15 12.56%	0 (39) (152) (191) (0) Year 16 13.61%	0 (22) (137) (159) 0 Year 17 14.40%	0 (22) (138) (160) 0 Year 18 15.05%	0 (22) (140) (162) 0 Year 19 15.77%	0 (22) (141) (163) 0 Year 20	0 (22) (143) (164) 0 Year 21 17.41%	0 (22) (144) (166) 0 Year 22 18.36%	0 (22) (146) (167) 0 Year 23 19.42%	0 (22) (147) (169) 0 Year 24 20.61%	0 (22) (149) (170) 0 Year 25 21.96%	0 (22) (150) (172) 0 Year 26 23.49%	0 (22) (152) (173) 0 Year 27 25.25%	0 (22) (153) (175) 0 Year 28 27.29%
7 Common Stock Issued 8 Long Term Debt Issued 9 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Flow	e) ar-end)	0 (56) (167) (223) 0 Year 15	0 (39) (152) (191) (0) Year 16	0 (22) (137) (159) 0 Year 17	0 (22) (138) (160) 0 Year 18	0 (22) (140) (162) 0 Year 19	0 (22) (141) (163) 0 Year 20	0 (22) (143) (164) 0 Year 21	0 (22) (144) (166) 0 Year 22	0 (22) (146) (167) 0 Year 23	0 (22) (147) (169) 0 Year 24	0 (22) (149) (170) 0 Year 25	0 (22) (150) (172) 0 Year 26	0 (22) (152) (173) 0 Year 27	0 (22) (153) (175) 0 Year 28
7 Common Stock Issued 8 Long Term Debt Retired 9 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Flow Financial Ratios 13 ROI (Net Op Inc/Avg Rate Bass 14 Return on Average Equity 15 Total Debt to Total Capital (Ye 16 Interest Coverage (EBIT/Intere 17 FFO to Total Debt	e) ar-end)	0 (56) (167) (223) 0 Year 15 12.56% 18.79% 50.0% 5.94 37.79%	0 (39) (152) (191) (0) Year 16 13.61% 20.89% 50.0% 6.49 35.23%	0 (22) (137) (159) 0 Year 17 14.40% 22.48% 50.0% 6.91 30.99%	0 (22) (138) (160) 0 Year 18 15.05% 23.78% 50.0% 7.25 32.67%	0 (22) (140) (162) Vear 19 15.77% 25.20% 50.0% 7.63 34.55%	0 (22) (141) (163) 0 Year 20 16.55% 26.76% 50.0% 8.04 36.52%	0 (22) (143) (164) 0 Year 21 17.41% 28.48% 50.0% 8.49 38.74%	0 (22) (144) (166) 0 Year 22 18.36% 30.39% 50.0% 8.99 41.20%	0 (22) (146) (167) 0 Year 23 19.42% 32.52% 50.0% 9.55 43.94%	0 (22) (147) (169) 0 Year 24 20.61% 34.90% 50.0% 10.18 47.02%	0 (22) (149) (170) 0 Year 25 21.96% 37.59% 50.0% 10.89 50.49%	0 (22) (150) (172) 0 Year 26 23.49% 40.65% 50.0% 11.69 54.44%	0 (22) (152) (173) 0 Year 27 25.25% 44.17% 50.0% 12.62 58.98%	0 (22) (153) (175) (175) 0 Vear 28 27.29% 48.24% 50.0% 13.69 64.24%
7 Common Stock Issued 8 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Provided by Financing 12 Net Cash Flow Financial Ratios 13 ROI (Net Op Inc/Avg Rate Bass 14 Return on Average Equity 15 Total Debt to Total Capital (Ye 16 Interest Coverage (EBIT/Intere 17 FFO to Total Debt 18 FFO Interest Coverage 19 IRR 20 IRR 21 IRR 22 IRR 23 IRR	e) ar-end) st) 5 year 10 year 15 year 20 year 20 year	0 (56) (167) (223) 0 Year 15 12.56% 18.79% 50.0% 5.94 37.79%	0 (39) (152) (191) (0) Year 16 13.61% 20.89% 50.0% 6.49 35.23%	0 (22) (137) (159) 0 Year 17 14.40% 22.48% 50.0% 6.91 30.99%	0 (22) (138) (160) 0 Year 18 15.05% 23.78% 50.0% 7.25 32.67%	0 (22) (140) (162) Vear 19 15.77% 25.20% 50.0% 7.63 34.55%	0 (22) (141) (163) 0 Year 20 16.55% 26.76% 50.0% 8.04 36.52%	0 (22) (143) (164) 0 Year 21 17.41% 28.48% 50.0% 8.49 38.74%	0 (22) (144) (166) 0 Year 22 18.36% 30.39% 50.0% 8.99 41.20%	0 (22) (146) (167) 0 Year 23 19.42% 32.52% 50.0% 9.55 43.94%	0 (22) (147) (169) 0 Year 24 20.61% 34.90% 50.0% 10.18 47.02%	0 (22) (149) (170) 0 Year 25 21.96% 37.59% 50.0% 10.89 50.49%	0 (22) (150) (172) 0 Year 26 23.49% 40.65% 50.0% 11.69 54.44%	0 (22) (152) (173) 0 Year 27 25.25% 44.17% 50.0% 12.62 58.98%	0 (22) (153) (175) (175) 0 Vear 28 27.29% 48.24% 50.0% 13.69 64.24%
7 Common Stock Issued 8 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Provided by Financing 12 Net Cash Flow Financial Ratios 13 ROI (Net Op Inc/Avg Rate Bass 14 Return on Average Equity 15 Total Dabt to Total Capital (Ye 16 Interest Coverage (EBIT/Intere 17 FFO to Total Debt 18 FFO Interest Coverage 19 IRR 20 IRR 21 IRR 22 IRR 24 IRR	e) ar-end) st) 10 year 15 year 20 year 20 year 30 year	0 (56) (167) (223) Year 15 Year 15 12.56% 18.79% 5.0% 5.94 37.79% 6.97	0 (39) (152) (191) (0) Year 16 13.61% 20.89% 50.0% 6.49 35.23% 6.56	0 (22) (137) (159) 7 Year 17 14.40% 22.48% 50.0% 6.91 30.99% 5.90	0 (22) (138) (160) Vear 18 15.05% 23.78% 50.0% 7.25 32.67% 6.16	0 (22) (140) (162) Vear 19 15.77% 25.20% 50.0% 7.63 34.50% 6.45	0 (22) (141) (163) Year 20 Year 20 16.55% 26.76% 50.0% 8.04 36.52% 6.77	0 (22) (143) (164) Year 21 17.41% 28.48% 50.0% 8.49 38.74% 7.12	0 (22) (144) (166) Vear 22 18.36% 30.39% 50.0% 8.99 41.20% 7.51	0 (22) (146) (167) Vear 23 Year 23 19.42% 32.52% 50.0% 9.55 43.34% 7.94	0 (22) (147) (169) Vear 24 20.61% 34.90% 50.0% 10.18 47.02% 8.43	0 (22) (149) (170) Vear 25 21.96% 37.59% 50.0% 10.89 50.49% 8.98	0 (22) (150) (172) Vear 26 Year 26 23.49% 40.65% 50.0% 11.69 54.44% 9.60	0 (22) (152) (173) Vear 27 Year 27 25.25% 44.17% 50.0% 12.62 58.98% 10.32	0 (22) (153) (175) Year 28 Year 28 27.29% 48.24% 50.0% 13.69 64.24% 11.15
7 Common Stock Issued 8 Long Term Debt Retired 10 Common Stock Dividends 11 Cash Provided by Financing 12 Net Cash Provided by Financing 12 Net Cash Flow Financial Ratios 13 ROI (Net Op Inc/Avg Rate Bass 14 Return on Average Equity 15 Total Dabt to Total Capital (Ye 16 Interest Coverage (EBIT/Intere 17 FFO to Total Debt 18 FFO Interest Coverage 19 IRR 20 IRR 21 IRR 22 IRR 24 IRR	e) ar-end) st) 10 year 15 year 20 year 20 year 30 year	0 (56) (167) (223) 7 Year 15 12.56% 18.79% 50.0% 5.04 37.79% 6.97	0 (39) (152) (191) (0) Year 16 13.61% 20.89% 50.0% 6.49 35.23% 6.56	0 (22) (137) (159) Year 17 14.40% 22.48% 50.0% 6.91 30.99% 5.90 5.90	0 (22) (138) (160) Vear 18 15.05% 23.78% 50.0% 7.25 32.67% 6.16	0 (22) (140) (162) Year 19 15,77% 25,20% 50,0% 7,63 34,50% 6,45 179	0 (22) (141) (163) Vear 20 Year 20 16.55% 26.76% 50.0% 8.04 36.52% 6.77	0 (22) (143) (164) Vear 21 17,41% 28,48% 50,0% 8,49 38,74% 7,12	0 (22) (144) (166) Vear 22 18.36% 30.39% 50.0% 8.99 41.20% 7.51	0 (22) (146) (167) Year 23 Year 23 19.42% 32.52% 50.0% 9.55 43.94% 7.94	0 (22) (147) (169) Vear 24 20.61% 34.90% 50.0% 10.18 47.02% 8.43	0 (22) (149) (170) Vear 25 21.96% 37.59% 50.0% 10.89 50.49% 8.98	0 (22) (150) (172) Vear 26 23.49% 40.65% 50.0% 11.69 54.44% 9.60	0 (22) (152) (173) Vear 27 25.25% 44.17% 50.0% 12.62 58.98% 10.32	0 (22) (153) (175) Year 28 Year 28 27.29% 48.24% 50.0% 13.69 64.24% 11.15 11.15

Coalition/212 Burgess/6

UG 435 CUB 52 Attachment 1

6 Income Tax	39.94%	118	118	118	119	119	120	120	121	121	121	122	122	123	123
7 Net After Tax 8 Tax Benefit on Interest		177	177	178	179	179	180	181	181	182	183	183	184	185	185
9 Tax Benefit on Investment		68	34	0	0	0	0	0	0	0	0	0	0	0	0
10 Total Operating Cash (ROR Analysis)		245	212	178	179	179	180	181	181	182	183	183	184	185	185

Plan	t Additions	Rate	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
1 2	Plant Depreciation	2.50%	2,900 (1,088)	2,900 (1,160)	2,900 (1,233)	2,900 (1,305)	2,900 (1,378)	2,900 (1,450)	2,900 (1,523)	2,900 (1,595)	2,900 (1,668)	2,900 (1,740)	2,900 (1,813)	2,900 (1,885)	2,900 (1,958)	2,900 (2,030)
3 4	Net Plant Deferred Taxes		1,813 690	1,740 695	1,668 666	1,595 637	1,523 608	1,450 579	1,378 550	1,305 521	1,233 492	1,160 463	1,088 434	1,015 405	943 376	870 347
5 6	Net Rate Base Average Rate Base		1,123 1,179	1,045 1,084	1,002 1,023	958 980	914 936	871 893	827 849	784 806	740 762	697 718	653 675	610 631	566 588	523 544
7 8 9 10	DEBT New Debt Beginning Debt Principal Payment Ending Debt	Rate	0 617 (56) 561	0 561 (39) 523	0 523 (22) 501	0 501 (22) 479	0 479 (22) 457	0 457 (22) 435	0 435 (22) 414	0 414 (22) 392	0 392 (22) 370	0 370 (22) 348	0 348 (22) 327	0 327 (22) 305	0 305 (22) 283	0 283 (22) 261
	Total Payment Interest	6.330%	(19) 37	(5) 34	11 32	9 31	8 30	6 28	5 27	4 25	2 24	1 23	(0) 21	(2) 20	(3) 19	(5) 17
14 15 16 17	EQUITY Paid in Beginning Equity Excess Dividend Net Income Ending Equity Average Equity	(Net Inc)	0 617 (167) 111 561 589	0 561 (152) 113 523 542	0 523 (137) 115 501 512	0 501 (138) 116 479 490	0 479 (140) 118 457 468	0 457 (141) 119 435 446	0 435 (143) 121 414 425	0 414 (144) 122 392 403	0 392 (146) 124 370 381	0 370 (147) 125 348 359	0 348 (149) 127 327 337	0 327 (150) 128 305 316	0 305 (152) 130 283 294	0 283 (153) 131 261 272
Тах	Depreciation	_	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28
1 2	Tax Depreciation Rate Plant Additions		5.91%	2.95%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
3	Total Tax Depreciation		171	86	0	0	0	0	0	0	0	0	0	0	0	0
4	Tax Benefit @	39.94%	68	34	0	0	0	0	0	0	0	0	0	0	0	0
Воо	k Depreciation															
5 6	Book Depreciation Rate Plant Additions		2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
7	Book Depreciation		73	73	73	73	73	73	73	73	73	73	73	73	73	73
8 9 10	Total Tax Depreciation	-	73 171 99	73 86 13	73 0 (73)											
11	Deferred Taxes	39.94%	39	5	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)
	15 year MACRS		5.91%	2.95%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

UG 435 CUB 52 Attachment 1

NW Natural

	Naturai			
Inco	ne Statement	_	Year 29	Year 30
1	Revenue - Original		371	371
2	Operations & Maintenance	\$40.00	(40)	(40)
3	Depreciation	2.50%	(73)	(73)
4	Franchise Tax	2.30%	(9)	(9)
4	Property Tax	1.50%	(13)	(12)
5	Interest Expense	6.33%	(16)	(14)
6	Net Income Before Tax		221	224
7	Income Tax	39.94%	88	89
8	Net Available to Common		133	134
Bala	nce Sheet	_	Year 29	Year 30
Asse	ts			
9	Gross Plant		2,900	2,900
	Accumulated Depreciation		2,103	2,175
11	Net Plant		798	725
12	Total Assets		798	725
	lities and Equity			
	Common Equity		239	218
	Long Term Debt Deferred Taxes		239	218
15	Deterred Taxes		319	290
16	Total Liabilities and Equity		798	725
Cash	Flow Statement		Year 29	Year 30
	ating Activities	-		
1	Net Income		133	134
2	Depreciation		73	73
3	Deferred Taxes		(29)	(29)
4	Cash Provided by Operating	Activities	176	178
	sting Activities		-	-
5 6	Project Cash Used in Investing Activi	ties	0	0
Fina	ncing Activities			
7	Common Stock Issued		0	0
8	Long Term Debt Issued		0	0
9	Long Term Debt Retired		(22)	(22)
10 11	Common Stock Dividends Cash Provided by Financing	Activities	(155) (176)	(156) (178)
	cash i remada by i manoning i		(170)	(110)
12	Net Cash Flow		0	0
			Year 29	Year 30
Fine	cial Pation		1001 23	1001 30

_

			_	fear 29	rear 30
Finar	ncial Ratios				
13	ROI (Net Op Inc/Avg Rate Bas	e)		29.68%	32.53%
14	Return on Average Equity	.,		53.03%	58.73%
15	Total Debt to Total Capital (Ye	ear-end)		50.0%	50.0%
16	Interest Coverage (EBIT/Intere			14.95	16.45
17	FFO to Total Debt	,		70.42%	77.78%
18	FFO Interest Coverage			12.12	13.29
19	IRR	5 year			
20	IRR	10 year			
21	IRR	15 year			
22	IRR	20 year			
23	IRR	25 year			
24	IRR	30 year			
RR (Calculation		(\$2,900)	186	186
			_	Year 29	Year 30
1	Revenue			371	371
2	Operations & Maintenance			(40)	(40
3	Franchise Tax		2.30%	(9)	(9
4	Property Tax		1.50%	(13)	(12

309

311

5 Net Before Taxes

UG 435 CUB 52 Attachment 1

6	Income Tax	39.94%	124	124
7 8	Net After Tax Tax Benefit on Interest		186	186
9	Tax Benefit on Investment		0	0
10	Total Operating Cash (ROR Analysis)		186	186

Plan	t Additions	Rate	Year 29	Year 30
1	Plant	2.50%	2,900	2,900
2	Depreciation		(2,103)	(2,175)
3	Net Plant		798	725
4	Deferred Taxes		319	290
5	Net Rate Base		479	435
6	Average Rate Base		501	457
7 8 9 10	DEBT New Debt Beginning Debt Principal Payment Ending Debt	Rate	0 261 (22) 239	0 239 (22) 218
11	Total Payment	6.330%	(6)	(7)
12	Interest		16	14
13 14 15 16 17 18	EQUITY Paid in Beginning Equity Excess Dividend Net Income Ending Equity Average Equity	(Net Inc)	0 261 (155) 133 239 250	0 239 (156) 134 218 229

Tax Depreciation			Year 29	Year 30	Total
1 2	Tax Depreciation Rate Plant Additions		0.00%	0.00%	100.00%
3	Total Tax Depreciation		0	0	0
4	Tax Benefit @	39.94%	0	0	0
Bool	Depreciation				
5 6	Book Depreciation Rate Plant Additions		2.50%	2.50%	
7	Book Depreciation		73	73	2,175
8 9 10	Total Book Depreciation Total Tax Depreciation Difference	_	73 0 (73)	73 0 (73)	2,175 0 (2,175)
11	Deferred Taxes	39.94%	(29)	(29)	290
	15 year MACRS		0.00%	0.00%	0.00%

Request No.: UG 435 CUB DR 52

52. Refer to NW Natural Oregon Tariff Book Schedule X, please provide the workpapers used to estimate the Category A-D construction allowance for residential customers.

Response:

Please see attached file named "UG 435 CUB DR 52 Attachment 1.xlsx." Note that this file produced the construction allowances as filed in the general rate case UG-221, and not the allowances that are quantified in Schedule X of the tariff. The changes that were proposed in the Company's filing in UG 221 were approved in Order 12-408 (page 8), which adopted the Second Partial Stipulation in the docket. Order 12-408 is attached as "UG 435 CUB DR 52 Attachment 2.pdf." The allowances that are in Schedule X of the tariff are slightly lower than the filed amounts due to the lower resulting revenue requirement after processing the case, but the methodology to produce the allowances was the same. The allowances have not been adjusted in subsequent cases.

The methodology used to determine the allowances was to set the construction cost or allowable such that a revenue stream for different terms created an internal rate of return (IRR) set at the Company's cost of capital. The revenue stream assumed billing on a Straight-Fixed-Variable (SFV) rate design that was proposed in the Company's rate case filing. For Category A in the tariff, the revenue stream was assumed for 30 years; for Category B, the revenue stream was assumed for 15 years, and for Category C, the revenue stream was assumed for 5 years. The 30-, 15-, and 5-year terms were used based on an assumption that a customer having gas space heating would remain a customer for 30 years, and so on.

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 435

In the Matter of) DIRECT TESTIMONY OF) CHARITY FAIN NORTHWEST NATURAL GAS COMPANY,) dba NW NATURAL,) Request for a General Rate Revision.))

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	Away From Gas Utility Service	29

1		I. INTRODUCTION
2	Q.	Please state your name and position with Community Energy Project and
3		summarize your educational background and experience with energy regulation
4		and proceedings before the Public Utilities Commission.
5	A.	My name is Charity Fain, and I am the Executive Director of Community Energy Project.
6		I have included a description of my credentials in the attached Witness Qualifications
7		Statement.
8	Q.	What is the purpose of your testimony?
9	A.	The purpose of my testimony is to describe how everyday Oregonians will be harmed by
10		the rate hike proposed by NW Natural in its opening testimony. Energy insecurity affects
11		a large number of Oregonians, causing cascading impacts to their health, well-being, and
12		financial security. Relief provided by the Oregon Public Utility Commission (the
13		"Commission") during the Covid-19 pandemic relieved some of these harms by placing a
14		moratorium on disconnection of services. However, with the lifting of that moratorium,
15		those with the least resources will once again face the risk of disconnection and
16		escalating bill debts.
17		
18		Governor Brown's Executive Order directed the Commission to "exercise its broad
19		statutory authority" to "mitigate energy burden experienced by utility customers." ¹
20		Additionally, pursuant to HB 2475, utilities must consider "differential energy burdens
21		on low-income customers and other economic, social equity or environmental justice
22		factors that affect affordability for certain classes of utility customers[.]" ² The statute

¹ Oregon Executive Order 20-04, at 8. ² H.B. 2475, Sec. 2.

requires that utilities use these considerations to set differential rates for low-income
 customers who face financial difficulties paying for gas utility service, and that the utility
 invest in energy efficiency measures to reduce energy consumption.

4

5 The bill assistance proposal put forward by NW Natural provides a start in this direction, 6 but fails to provide real relief for customers. NW Natural does not place a monetary 7 ceiling on residential bills for low-income customers, but rather offers these customers a 8 percentage reduction on their monthly payments. NW Natural's bill discount program 9 would defray the cost of the proposed bill increase put forward by NW Natural in this 10 rate case. However, low-income ratepayers already cannot afford the existing rates of 11 NW Natural gas service. Further, because the proposed bill assistance only provides a 12 percentage reduction, not a cap on total bill amount, low-income customers remain 13 vulnerable to future rate increases.

14

Next, I discuss the importance of investing in home weatherization for low-income
Oregonians. Home weatherization is an investment in climate resilience because it
makes a dwelling less vulnerable to temperature extremes. Particularly for energy
insecure Oregonians, home weatherization can mean the difference between eating a
healthy meal and heating one's home. Reducing the need for home heating reduces
associated energy costs, lowering the financial stress on low-income ratepayers.

21

Through its Public Purpose Charge, NW Natural does fund some weatherization work,
but funding for incidental repairs, as described in Schedule 320, is limited to \$1,000 per

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1 home. In stark contrast, of the total \$15,000 allocated for energy efficiency upgrades, 2 NW Natural sets aside \$5,000 for gas furnace upgrades. Low-income ratepayers will lose 3 out on any short-term gains in reduced bill costs associated with more efficient gas appliances as gas utility service rates continue to climb. Comprehensive weatherization 4 5 makes homes more climate resilient, and provides lasting benefits to low-income 6 customers that reduce energy consumption and total bill costs. 7 8 Accordingly, we recommend that NW Natural use all Oregon Low-Income Energy 9 Efficiency ("OLIEE") funds generated through the Public Purpose Charge for home 10 weatherization. We also recommend that the Commission allocate more for incidental 11 repairs to housing structures that are necessary to safely weatherize a home. We also 12 recommend that the Commission add language to Schedule 320 to promote investments 13 in attic and wall insulation—even where these investments do not achieve the 1.0 cost 14 efficiency ratio. Further, we recommend that the Commission eliminate use of this 15 funding to pay for gas-powered appliances. 16 17 Lastly, I discuss the importance of switching low-income and middle-income customers 18 away from gas utility service. CEP has taken a stance that advocates for fuel switching 19 away from gas utility service to electricity service to decrease carbon emissions and 20 improve indoor air quality. Costs for low-income gas utility customers will likely rise in 21 the coming years as more affluent residential customers leave the gas utility. Yet, despite 22 these important policy reasons for supporting fuel switching away from gas service, it has 23 been difficult for CEP to find funding to actually support fuel switching from gas to

1		electric service given constraints on energy efficiency funding set by the Energy Trust of
2		Oregon. We ask the Commission to eliminate any restrictions on funding from the Public
3		Purpose charge that would prevent the Energy Trust of Oregon from investing in fuel
4		switching away from gas utility service to electric utility service. This will give
5		residential customers the freedom to shift away from gas utility service, if that is the kind
6		of change they desire.
7		
8		I also briefly discuss documents produced through data requests that indicate NW Natural
9		is encouraging residential consumers to switch from electric utility service to gas utility
10		service through energy efficiency rebates.
11	Q.	Please explain why income level, energy burdens and insecurity, and home
12		weatherization and efficiency are relevant considerations to NW Natural's
12 13		weatherization and efficiency are relevant considerations to NW Natural's application for a general rate revision.
	A.	
13	A.	application for a general rate revision.
13 14	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad
13 14 15	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers." ³
13 14 15 16	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers." ³ Additionally, in H.B. 2475, the Oregon Legislature mandated that the Commission
13 14 15 16 17	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers." ³ Additionally, in H.B. 2475, the Oregon Legislature mandated that the Commission consider energy burdens and insecurity, and affordability issues that would set a
 13 14 15 16 17 18 	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers." ³ Additionally, in H.B. 2475, the Oregon Legislature mandated that the Commission consider energy burdens and insecurity, and affordability issues that would set a differential rate for low-income customers to alleviate some of the financial burdens
 13 14 15 16 17 18 19 	A.	application for a general rate revision. Governor Brown's Executive Order directed the Commission to "exercise its broad statutory authority" to "mitigate energy burden experienced by utility customers." ³ Additionally, in H.B. 2475, the Oregon Legislature mandated that the Commission consider energy burdens and insecurity, and affordability issues that would set a differential rate for low-income customers to alleviate some of the financial burdens associated with accessing basic needs such as home heating, cooking, and bathing. This

³ Oregon Executive Order 20-04, at 8. ⁴ *See* H.B. 2475 Sec. 7(1).

of how it intends to alleviate energy burdens on low-income ratepayers through reduced
 rates, low-income weatherization, or energy efficiency measures. Given the urgent needs
 of Oregonians, the Commission should take up and consider these issues in this rate case,
 instead of waiting for future dockets to start addressing this serious problem.

5

II. ENERGY INSECURITY HARMS LOW-INCOME OREGONIANS

6 Q. Please describe the concept of energy insecurity.

7 Energy is essential to meeting our basic needs-cooking, boiling water, lighting, and A. heating—and is a prerequisite for good health.⁵ As costs for residential heating, cooling, 8 9 and other household energy needs increase, they account for a higher percentage of household budgets.⁶ Energy insecurity or energy poverty is a public health threat and is 10 extremely prevalent in the United States.⁷ Energy insecurity is defined as the inability to 11 adequately meet basic household energy needs.⁸ For renters, landlords may not 12 weatherize or invest in energy efficiency due to the high upfront costs, forcing renters to 13 14 bear the financial burden of increased energy bills. When low-income, energy insecure 15 households choose to defer utility payments in order to prioritize other household 16 expenses, such as rent or mortgage payments, they can enter a cycle of debt accumulation

⁵ World Health Organization . Fuel for Life: Household Energy and Health. WHO; Geneva: 2006. Available at <u>https://www.who.int/publications/i/item/9789241563161</u>.

⁶ D. Hernandez, "Understanding 'energy insecurity' and why it matters to health," :Soc Sci Med. 2016 Oct; 167: 1– 10, <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/</u>.

⁷ K. Jowers, et al., "Housing Precarity & the Covid-19 Pandemic: Impacts of Utility Disconnection and Eviction Moratoria on Infections and Deaths Across U.S. Counties," Nat'l Bureau of Econ. Research ("NBER"), at 3 (Jan. 2021), <u>http://www.nber.org/papers/w28394</u>.

⁸ D. Hernandez, "Understanding 'energy insecurity' and why it matters to health," :Soc Sci Med. 2016 Oct; 167: 1– 10, <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/</u>.

1

and payment deferral that puts them at an even greater risk of losing their home altogether.⁹

3

2

There are different aspects to energy insecurity. Economic energy insecurity is the 4 5 disproportionate financial burden that imposes high energy costs on low-income households.¹⁰ Households often experience a "cliff effect" where they become ineligible 6 7 for safety net benefits once they gain some form of employment, but they still lack the financial resources to experience full economic self-sufficiency.¹¹ Economic energy 8 9 insecurity reflects not only the limited resources of the individual to pay for bills, but also 10 the excessive cost for home energy needs. These costs accumulate as arrearages build up, 11 when households are unable to pay their full bill balance. They also occur in cheap or 12 subsidized housing that lacks adequate weatherization and energy efficiency appliances—causing high energy costs to heat homes or use other basic services.¹² 13 14 Physical energy insecurity includes deficiencies in the physical structure of the home that 15 impacts home heating and increases energy costs—such as malfunctioning heating systems.¹³ 16 17

19

18 Energy insecurity is an important social, economic, and environmental determinant of health.¹⁴ Energy insecurity is associated with respiratory illnesses, such as asthma and

¹⁴ *Id*.

⁹ K. Jowers, et al., "Housing Precarity & the Covid-19 Pandemic: Impacts of Utility Disconnection and Eviction Moratoria on Infections and Deaths Across U.S. Counties," Nat'l Bureau of Econ. Research ("NBER"), at 3 (Jan. 2021), http://www.nber.org/papers/w28394.

¹⁰ D. Hernandez, "Understanding 'energy insecurity' and why it matters to health," :Soc Sci Med. 2016 Oct; 167: 1– 10. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/.

¹¹ *Id*.

 $^{^{12}}$ *Id*. ¹³ *Id*.

1	pneumonia, as well as with mental health challenges, such as depression and anxiety. ¹⁵
2	Service disconnections may strain chronic health conditions and force individuals to seek
3	additional medical care, which compounds the financial burdens placing them at even
4	greater risk of eviction. Energy insecurity often overlaps with food insecurity-meaning
5	that people sometimes have to choose between putting food on the table and keeping the
6	heat on in the winter. ¹⁶
7	
8	The Energy Information Administration's most recent Residential Energy Consumption
9	Survey ("RECS") found that in 2020, almost one-third of U.S. households (27%)
10	reported difficulty paying energy bills, or kept their home at an unsafe temperature
11	because of energy cost concerns. ¹⁷ The majority of energy insecure individuals rented
12	(41%), and a large percentage had children in the household (37%). Individuals
13	identifying as either Black or Latino reported higher rates of energy insecurity. ¹⁸ Since
14	the time this survey was taken, energy costs have only increased for residential
15	consumers. Energy insecurity is driven by increasing utility costs, as well as
16	neighborhood demographic factors and the quality of housing stock. ¹⁹

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¹⁵ K. Jowers, et al., "Housing Precarity & the Covid-19 Pandemic: Impacts of Utility Disconnection and Eviction Moratoria on Infections and Deaths Across U.S. Counties," Nat'l Bureau of Econ. Research ("NBER"), at 3 (Jan. 2021), <u>http://www.nber.org/papers/w28394</u>.

¹⁶ D. Hernandez, "Understanding 'energy insecurity' and why it matters to health," :Soc Sci Med. 2016 Oct; 167: 1– 10, <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/</u>.

¹⁷ EIA, "In 2020, 27% of U.S. households had difficulty meeting their energy needs," Apr. 11, 2022, https://www.eia.gov/todayinenergy/detail.php?id=51979.

¹⁹ K. Jowers, et al., "Housing Precarity & the Covid-19 Pandemic: Impacts of Utility Disconnection and Eviction Moratoria on Infections and Deaths Across U.S. Counties," Nat'l Bureau of Econ. Research ("NBER") (Jan. 2021), http://www.nber.org/papers/w28394.

1

Q. How has the Covid-19 pandemic affected energy insecurity?

2 In response to the Covid-19 pandemic, governments adopted policies to reduce impacts A. of the pandemic on people facing financial difficulties due to the severe disruption the pandemic had on the national economy. These policies included eviction moratoria, prohibiting landlords from evicting tenants, and moratoria on utility disconnection due to non-payment for services.

The researchers at the National Bureau of Economic Research studied the impact these policy changes had on public health, and specifically Covid-19 infection rates.²⁰ The study evaluated Covid-19 infection rates during the height of the pandemic, from March 1, 2020 through November 28, 2020. The study found that cumulatively moratoria on evictions, and utility disconnection effectively reduced the Covid-19 infection rate by 8.2%, and that a moratorium on utility shutoffs by itself reduced infection rates by 4.4%.²¹ The study found that if governments had imposed moratoria on utility disconnections from the start of their study period, on March 1, 2020, they would have reduced the Covid-19 infection rate by 8.7%.²² The study then evaluated the impact that these policies had on human survival for people infected by the coronavirus. Researchers found that instituting a moratorium on utility disconnection saved significant lives by reducing deaths due to Covid-19 by 7.4%, and if this moratorium had been in place from the start—it would have avoided 9.49% of deaths.²³

21

20

- ²¹ Id.
- 22 *Id*.
- 23 Id.

 $^{^{20}}$ *Id*.

1		This report by the National Bureau of Economic Research demonstrates the profound
2		impact that energy insecurity can have on human health, and the basic survival needs of
3		Oregonians. In Oregon, the Public Utilities Commission placed a moratorium on
4		residential utility disconnections until July, 2021. ²⁴ Even with this moratorium in place,
5		during 2020 the Oregon Health Authority recorded 121,440 cases of Covid-19, of those
6		7,416 people were hospitalized from the infection, and 2,061 people died. ²⁵ As this data
7		shows, keeping home energy costs low is essential for protecting public health.
8	Q.	Could you please explain why low-income individuals often have a high energy
9		burden?
10	A.	Before answering this question, I'd first like to define the term "low-income" because
11		income is the primary lens by which a person qualifies for public assistance programs,
12		including utility benefits such as bill assistance, or bill discount programs. When
13		creating a new program, defining the income threshold will have significant implications
14		on who benefits from the service. ²⁶ Defining this term should take into account service
15		territory, equity, and access. If services are limited and highly sought-after, you may
16		choose lower income guidelines to reach those most in need. If a program is new, niche,
17		complicated, or serves a high number of participants, you may want to cast a wider net
		complicated, of serves a high number of participants, you may want to east a wider net

19

https://www.oregon.gov/oha/covid19/Documents/DataReports/2020-Annual-Data-Report.pdf. ²⁶ Community Energy Project, *Defining and Verifying Low-Income Participants*,

²⁴ In the Matter of Investigation Into the Effects of the Covid-19 Pandemic on Utility Customers, Dkt. No. UM 2114, Order No. 21-164 (May 23, 2021). ²⁵ Or. Health Authority, *Covid-19 2020 Report*, Dec.22, 2021,

https://www.communityenergyproject.org/wp-content/uploads/2021/11/Self-Verification-and-Income-Levels.pdf. ²⁷ Id.

1	The experience of financial insecurity varies depending upon where a person lives.
2	Common income thresholds include the federal poverty line, state median income, and
3	area median income for a smaller area such as a county or city. CEP recommends using
4	either state median income ("SMI") or Area Median Income ("AMI") depending on the
5	program provided and its reach. SMI can provide greater advantage to areas with higher
6	poverty rates across the state, but may put higher income urban areas with more
7	expensive living conditions at disadvantage. If the program is city or county-wide, CEP
8	recommends using AMI as that will most accurately reflect the needs of the community
9	being served. ²⁸
10	
11	In Oregon, 13% of people earned income below the federally defined poverty threshold,
12	representing over half a million Oregonians, 134,000 of which are children. ²⁹ People of
13	color experienced double the rate of poverty as white Oregonians from 2014-2018.
14	Approximately 156,000 people live on the edge of homelessness in Oregon, meaning
15	they spend at least 50% on rent and have a range of risks that make their house insecure,
16	including unexpected medical bills, a lay-off, utility shut-off, or a car repair. ³⁰
17	
18	Next, I'd like to define the term energy burden, to help the Commission understand why
19	low-income households experience financial stress when they pay for utility bills.
20	Energy burden is the percentage of household income spent on energy and transportation
21	costs, as an indication of energy affordability. Home energy burden specifically focuses

 ²⁸ Id.
 ²⁹ Or. Dep't of Energy, 2020 Biennial Energy Report, at 92 (Nov. 1, 2020), <u>https://www.oregon.gov/energy/Data-and-Reports/Documents/2020-BER-Energy-101.pdf#page=94</u>.
 ³⁰ Id.

1	on energy bills for a home in comparison to the total income of the household. ³¹ In
2	Oregon, if a household spends 6% or more of its total income on energy bills for the
3	home it is considered energy burdened, and if the household spends 10% or more on
4	energy bills it is considered severely energy burdened. ³²
5	
6	Of Oregon's approximately 1.5 million households, approximately 375,000 households
7	struggle to pay their energy bills. The Oregon Department of Energy reported that about
8	25% of Oregon households are energy burdened. In addition, the 100,456 households
9	with incomes below 50 percent of the Federal Poverty Level are severely energy
10	burdened and pay an average 23% of their annual income on home energy bills. ³³
11	Further, a recent study published in the well-respected publication, Nature Energy, found
12	that the Covid-19 pandemic has deepened the prevalence of energy insecurity nationwide
13	among low-income households with indication of growing disparities. ³⁴
14	
15	The Oregon Department of Energy identifies four key drivers of home energy burden as
16	including: ³⁵
17 •	Physical: housing age (older homes are less efficient), energy costs to heat and cool
18	homes, building envelope issues (e.g. poor insulation, leaky roofs, inefficient heating and

³¹ *Id*.

³² *Id*.

³³ *Id.* at 94.

³⁴ T. Memmott, et al., "Sociodemographic disparities in energy insecurity among low-income households before and during the COVID-19 pandemic," Nature Energy volume 6, pages186–193 (2021), https://www.nature.com/articles/s41560-020-00763-9. ³⁵ Or. Dep't of Energy, 2020 Biennial Energy Report, at 94-95 (Nov. 1, 2020),

https://www.oregon.gov/energy/Data-and-Reports/Documents/2020-BER-Energy-101.pdf#page=94.

1		cooling systems, and inadequate air sealing), appliances and lighting efficiency,
2		topography and location, and climate change creating weather extremes.
3	•	Socio economic: economic hardship due to persistent low-income, sudden economic
4		hardship due to illness, unemployment or disaster, inability to afford upfront costs of
5		energy efficiency investments, difficulty qualifying for financing options for energy
6		efficiency investments, and systemic inequalities related to race, income, disability or
7		other factors.
8	•	Behavioral: informational barriers to access bill assistance and energy efficiency
9		programs, lack of trust about investments or savings opportunities, lack of cultural
10		competence in outreach and education, and increased energy use due to occupant age,
11		number of people, health related needs, or disability.
12	•	Policy related: insufficient or inaccessible policies and programs for bill assistance,
13		energy efficiency, and weatherization for low-income households, and utility rate design
14		that includes high customer fixed charges that limit customer ability to respond through
15		energy efficiency or conservation.
16		
17		High home energy burdens may affect mental and physical health of families through
18		increased financial stress and can be an indicator of poor efficiency of a home. If homes
19		are not heated, cooled, or ventilated properly, they can contribute to asthma, respiratory
20		problems, heart disease, arthritis, and rheumatism. ³⁶

³⁶ *Id.* at 95.

III. NW NATURAL'S PROPOSED BILL DISCOUNT PROGRAM UNDER H.B. 2475 WILL NOT PROVIDE SUFFICIENT RELIEF TO OREGONIANS

3 Q. Why is NW Natural considering a bill discount program for low-income customers?

- A. Pursuant to HB 2475, utilities must consider "differential energy burdens on low-income customers and other economic, social equity or environmental justice factors that affect affordability for certain classes of utility customers[.]"³⁷ Considering these criteria, the Commission "may authorize classifications or schedules of rates applicable to individual customers or groups of customers[,]" otherwise known as differential rates.³⁸ H.B. 2475
- eustomers of groups of eustomersty, other wise known as afferential faces.
- 9 was passed during the 2021 legislative session.
- 10 The Commission is setting differential rates through a separate docket, Dkt. No. UM
- 11 2211, and CEP is participating in that docket. On March 22, 2022, NW Natural
- 12 presented its first workshop on the bill discount program it is proposing to comply with
- 13 the requirements of H.B. 2475. CEP participated in the workshop. To our knowledge,
- 14 the program described in NW Natural's proposed workshop is preliminary, and the
- 15 company is accepting comments and feedback on its draft proposal.

16 Q. Please describe NW Natural's Proposed Discount Program.

- 17 A. NW Natural proposes to provide preliminary relief to comply with the requirements of
- 18 H.B. 2475 by (1) requesting more funding for its arrearages management program, and
- 19 (2) instituting an interim bill discount program. The bill discount program will put into
- 20 place a reduction in the total bill amount while NW Natural prepares its proposal
- 21 regarding a long-term low-income rate program.³⁹

³⁷ H.B. 2475, Sec. 2.

³⁸ Id.

³⁹ NW Natural, "UM 2211—NW Natural's Interim Action Plan," PUC Dkt. No UM 2211, Feb. 28, 2022, https://edocs.puc.state.or.us/efdocs/HAH/um2211hah153648.pdf.

1		For its bill discount program, NW Natural proposes adopting a three tiered approach that
2		is income dependent. The company proposes to use state median income ("SMI") as a
3		qualifier for a bill discount, and would provide discounts ranging from 15% to 25%
4		depending upon need:
5	•	For households earning 60% SMI, NW Natural would provide a 15% discount on the
6		total monthly bill.
7	•	For households earning 45% SMI, NW Natural would provide a 20% discount on the
8		total monthly bill.
9	•	For households earning 30% SMI, NW Natural would provide a 25% discount on the
10		total monthly bill.
11	Q.	Are you asking the PUC to change the structure of NW Natural's proposed bill
12		discount program in this proceeding?
13	A.	No. I do not ask the PUC to change the structure of NW Natural's proposed bill discount
14		program in this proceeding, because it is undergoing detailed review in Dkt. No. UM
15		2211. CEP participated in the last workshop held by NW Natural regarding its proposal.
16		We will continue to raise critiques regarding our concerns with the bill discount's
17		
		program's design in Dkt. No. UM 2211.
18	Q.	program's design in Dkt. No. UM 2211. Why do you think it's important to consider NW Natural's proposed bill discount
18 19	Q.	
	Q. A.	Why do you think it's important to consider NW Natural's proposed bill discount
19		Why do you think it's important to consider NW Natural's proposed bill discount program in this rate case?

⁴⁰ See H.B. 2475 Sec. 1.

1	energy burdened Oregonians can afford NW Natural's proposed rate increase is directly
2	relevant to this Commission's duty to protect the public from unreasonable exactions for
3	at least the following three reasons:
4	
5	First, while NW Natural has committed to putting in place an interim bill discount
6	program by the effective date that it would receive an order in this rate case, it is
7	imperative to low-income ratepayers that the Commission ensure that such a rate is in
8	place to protect them before approving any order authorizing an increase in rates. As
9	described above, approximately 25% of Oregonians are currently considered energy
10	burdened. Increasing utility rates without putting in place any relief measures would
11	make energy bills even less affordable for these ratepayers who cannot afford their
12	existing utility bills.
13	
14	Second, the Commission should consider the discount program when determining the
15	fairness and reasonableness of the rate increase-specifically, would the proposed bill
16	discount program exacerbate or alleviate energy burdens in light of NW Natural's
17	proposed rate increase? Here, NW Natural's bill discount program barely provides a
18	drop in the bucket to struggling ratepayers. In 2021, the Commission approved a 13%
19	rate increase for NW Natural residential gas utility customers. If the Commission
20	
	approves the 12% rate increase that NW Natural seeks in this proceeding, cumulatively
21	approves the 12% rate increase that NW Natural seeks in this proceeding, cumulatively over the course of two years Oregon ratepayers will be paying 25% more in gas utility
21 22	

23

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1 For the lowest-income earning 30% SMI, NW Natural's proposed bill discount 2 will not provide them relief from their current energy burdens. NW Natural proposes to 3 provide them with a 25% discount on their bills, but if the Commission approves the rate increase, proposed gas utility rates would have increased by 25% in the past two years. 4 5 Thus, the proposed bill discount program would only ensure that the poorest Oregonians 6 are not harmed by the increase in rates, it would alleviate none of their existing energy 7 burdens. This is concerning because the lowest income ratepayers face severe energy 8 burdens. As noted above, 100,456 households in Oregon earn incomes below 50 percent 9 of the Federal Poverty Level and pay an average of 23% of their annual income on home 10 energy bills. If the Commission approves the rate increase proposed in this case, even 11 with a bill discount program these households would likely continue to contribute a 12 quarter of their total income toward home energy bills. 13

Similarly, under NW Natural's proposed bill discount program, ratepayers earning 60%
SMI would barely break-even by avoiding the rate increase proposed in this case. In this
case, NW Natural proposes increasing rates by 12% for residential customers. NW
Natural's bill discount would not alleviate their existing energy burden. Instead, it would
simply mean that they would not have to pay for the rate increase proposed by the
company in this case. However, ratepayers earning 60% SMI would still have to pay for
rate increase approved by the Commission last year.

21

22 Whether low-income households can afford rising gas utility rates is especially relevant 23 now because NW Natural is proposing this rate increase at a time of high inflation when

1		the cost of transportation costs, living expenses, and consumer goods have risen
2		significantly. Consumer prices are 8.5% higher than last year, gasoline prices have
3		increased by 48%, and grocery prices are up 10%. ⁴¹
4		
5		Lastly, the Commission should consider NW Natural's bill discount program in light of
6		why NW Natural is asking the Commission to increase rates—especially because the
7		proposed discount would simply cover the company's proposed rate increase. The total
8		cost to ratepayers of the low-income bill discount program is approximately \$7.4 million.
9		The Commission should compare this cost with the \$11 million that NW Natural requests
10		in its petition to pay for executive compensation and salary bonuses-including \$4
11		million for top executives. NW Natural business executives should not earn recompense
12		from ratepayers through salary bonuses when 25% of Oregonians can barely afford to
13		pay their energy bills.
14 15	IV.	INVESTING IN LOW-INCOME WEATHERIZATION MAKES COMMUNITIES CLIMATE RESILIENT
16	Q.	Why is weatherization one of the most effective solutions to provide relief for energy
17		burdened Oregonians?
18	A.	Housing interventions that promote weatherization are among the most effective options
19		to improve health outcomes because they improve housing conditions, lower bill costs,
20		and thereby beneficially improve the socio-economic determinants of health. Studies
21		show that investments in weatherization improve housing conditions, reduce fuel costs,
22		and increase comfort and a sense of pride in one's home, which then lead to direct and

⁴¹ S. Horsley, "How soaring inflation forces stark choices," *NPR*, April 12, 2022, <u>https://www.opb.org/article/2022/04/12/how-soaring-inflation-forces-stark-choices/</u>.

1		indirect improvements in general health, respiratory health, and mental health. ⁴²
2		Improved health outcomes mean less sick time away from school and work, helping
3		parents and children stay productive and thriving. Addressing energy insecurity through
4		home weatherization has the potential to break chronic cycles of hardship along this path
5		of disadvantage.43
6		
7		Weatherization service typically refers to programs that address the efficiency of the
8		building envelope and building systems (such as unit heating, cooling, lighting, windows,
9		and water heating) through energy audits and upgrades. However, as discussed further
10		below, we recommend that the Commission expand this definition to include critical
11		repairs to homes necessary for safe installation of weatherization services.
12		Weatherization programs reduce energy consumption by low-income consumers, which
13		in turn lowers energy bills.
14	Q.	How does home weatherization make Oregonians more climate resilient and reduce
15		climate emissions?
16	A.	As climate change impacts the planet, it will create more extreme weather events in
17		Oregon that require significant home energy expenditures for temperature regulation—
18		heating in winter and cooling in the summer. Weatherizing homes makes them more
19		resilient to these temperature extremes because it changes building envelope efficiencies
20		to reduce heat loss in the winter, while also keeping buildings cooler in the summer.
21		These changes reduce energy consumption by low-income customers, and make homes

 ⁴² D. Hernandez, "Understanding 'energy insecurity' and why it matters to health," :Soc Sci Med. 2016 Oct; 167: 1–10, <u>https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5114037/</u>.
 ⁴³ *Id*.

1		more comfortable to live in and less expensive. These changes also have the potential to
2		significantly reduce greenhouse gas emissions. A study prepared by the Commission, the
3		Oregon Department of Energy, and the Oregon Housing and Community Services found
4		that investing in weatherization and energy efficiency in low-income homes would
5		reduce greenhouse gas emissions by 396,000 metric tons of CO_{2eq} annually and would
6		cumulatively save low-income rate payers \$114 million annually. ⁴⁴
7	Q.	Why is it important to consider low-income weatherization programs in this rate
8		case?
9	A.	Weatherizing homes of low-income ratepayers would reduce their energy burdens and
10		would make their monthly gas utility expenses more affordable. In E.O. 20-04, the
11		Governor tasked the Commission with considering energy burdens. ⁴⁵ Similarly, in H.B.
12		2475, the Legislature tasked the Commission with considering energy burdens on low-
13		income communities when setting rates. ⁴⁶ Further, the Oregon Legislature specifically
14		authorized the Commission to mitigate energy burdens through weatherization:
15 16 17 18		In addition to comprehensive classifications, tariff schedules, rates and bill credits, the Public Utility Commission may address the mitigation of energy burdens through bill reduction measures or programs that may include, but need not be limited to, demand response or weatherization. ⁴⁷
19		NW Natural imposes a Public Purpose Charge on all ratepayers in Oregon to pay for
20		energy efficiency rebates and low-income weatherization programs. It is important for
21		the Commission to analyze and review these programs in this proceeding because they

⁴⁴ S. Beaulieu, et al., *Ten-Year Plan: Reducing the Energy Burden in Oregon's Affordable Housing*, Or. Dept of Energy, Or. PUC, and Or. Housing & Community Services Dep't, <u>www.oregon.gov/energy/Get-</u> Involved/Documents/2018-BEEWG-TenYear-Plan-Energy-Burden.pdf.

 ⁴⁵ Oregon Executive Order 20-04, at 8.
 ⁴⁶ H.B. 2475, Sec. 2.

⁴⁷ H.B. 2475, Sec. 7(1).

1

2

can lower energy burdens for low-income customers, making gas utility rates more affordable.

Q. Please describe how NW Natural customers currently support weatherization and energy efficiency measures in low income homes.

5 Pursuant to Schedule 301, NW Natural imposes a Public Purpose Charge on all A. 6 residential and commercial gas utility customers to pay for low-income weatherization 7 programs, and energy efficiency programs. A portion of this public purpose charge 8 (0.85% of the total energy use billed) is used to pay for low-income weatherization and 9 energy efficiency programs described in NW Natural's Schedule 320, referred to as the Oregon Low-Income Energy Efficiency ("OLIEE") Program.⁴⁸ To qualify for benefits, 10 11 households must meet the following requirements: (1) the dwelling has a gas service line 12 installed in the home, (2) the primary space heating is powered by gas, and (3) the premises currently has or will have an active account with the company.⁴⁹ 13 14 Through the OLIEE Program, NW Natural funds community action program ("CAP") 15 agencies to perform weatherization services and energy efficiency upgrades for low-16 income ratepayers. NW Natural solicits agencies to perform home weatherization 17 services for low-income ratepayers. NW Natural then reimburses those agencies for 18 costs up to a certain amount. Schedule 320 allows CAP agencies to charge up to \$1,600 19 for program administration services. For each dwelling, the CAP agencies can spend up 20 to \$15,000 per home on weatherization and energy efficiency upgrades. Further, CAP 21 agencies can conduct incidental home repairs that average up to \$1,000 per home to

⁴⁸ Exhibit Coalition/302, NW Natural Gas Company, Schedule 320, Third Revision.

⁴⁹ See Schedule 320.

protect the health and safety of residents and ensure the efficacy of the efficiency
 upgrades.

3 Q. What weatherization and energy efficiency upgrades can CAP agencies make using 4 these funds?

5 Schedule 320 requires CAP agencies to perform a home energy audit using Energy A. 6 Analyzer Software that then recommends what weatherization upgrades a home would 7 need. Schedule 320 requires that weatherization upgrades meet a savings to investment 8 ratio of 1.0 or better. This ratio is calculated using Oregon's residential gas price as 9 determined by the Energy Information Administration. There are two exceptions to this 10 requirement – regardless of efficiency ratios, CAP agencies can upgrade and replace gas 11 furnaces. Of the total \$15,000, NW Natural sets aside \$5,000 for gas furnace upgrades. 12 There is also an exception to this requirement for measures identified as cost effective by 13 a third-party such as the Energy Trust of Oregon. Finally, funds may be available for the 14 costs of health, safety, and repair measures, but each agency must ensure that these funds 15 average not more than \$1,000 per home.

Q. What concerns do you have about limiting expenditures for low-income residences in this manner?

A. I have two concerns. First, NW Natural sets aside \$5,000 for gas furnace upgrades, even
when those investments would not be cost effective. This set aside will likely impose
greater cost on low-income customers in the future as gas utility rates rise and
Oregonians transition away from gas to electric utility service. Second, \$1,000 per home

- is extremely low. Often, critical upgrades are necessary before weatherization
- 23 investments can be effective.

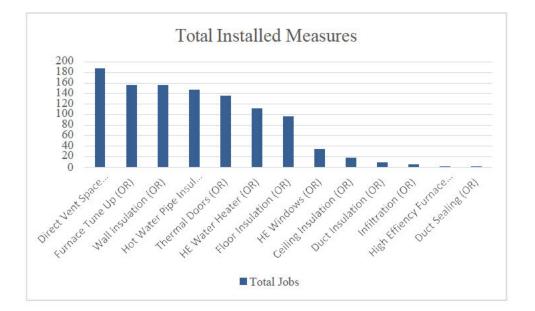
1	
2	As described in the testimony of Nora Apter, Oregonians need to transition away from
3	gas utility service to avoid climate catastrophe. ⁵⁰ Continued investment in growth of the
4	fossil gas system will likely result in stranded assets. These stranded assets will cause
5	gas utility rates to significantly increase in the coming decade, and low-income customers
6	who lack the financial resources to transition to electric utility service will
7	disproportionately bear the costs of escalating rates. ⁵¹ Given these concerns, setting aside
8	funds to specifically finance gas furnace upgrades, even when those upgrades are not cost
9	effective, will cost low-income customers more money in the future as gas utility service
10	bills continue to rise.
11	
12	The exception for gas furnaces was created in the most recent update to Schedule 320. ⁵²
13	In that update, NW Natural recommended changing the program to add an additional
14	\$5,000 per dwelling to specifically pay for heating upgrades. Further, NW Natural
15	proposed clarifying the language in the "Energy Efficiency Measures" section to
16	specifically allow for gas furnace upgrades, even when these upgrades are not cost
17	effective. The previous Schedule 320 policy required all weatherization and energy
18	efficiency upgrades to meet the 1.0 ratio cost effective requirement. ⁵³
19	

⁵⁰ Coalition/100/Apter/5-11 ⁵¹ Coalition/100/Apter/14-15

⁵² NWN OPUC Advice No. 19-19, Schedule 320—Oregon Low-Income Energy Efficiency (OLIEE) Programs, Nov. 19, 2019, <u>https://edocs.puc.state.or.us/efdocs/UAA/uaa17445.pdf</u>. ⁵³ NWN OPUC Advice No. 16-01, Schedule 320, Oregon Low-Income Energy Efficiency Program (OLIEE), at p. 6,

Jan. 29, 2016, https://edocs.puc.state.or.us/efdocs/UAA/uaa123344.pdf.

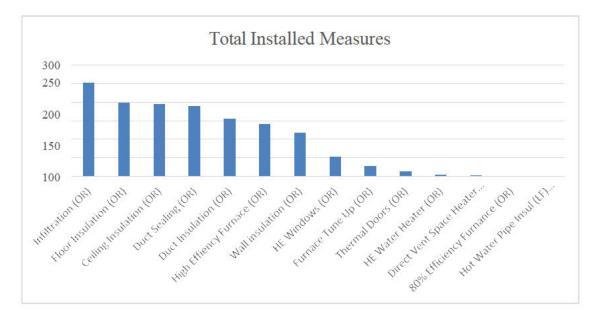
1 The impact of this policy change—creating an exception for gas furnaces—has meant a 2 significant rise in the number of gas furnaces installed in low-income homes through the 3 OLIEE Program. Below are a series of charts taken from the annual reports prepared by 4 NW Natural describing weatherization and energy efficiency upgrades funded by the 5 OLIEE Program. Each graph depicts the number of weatherization measures installed 6 annually by type.



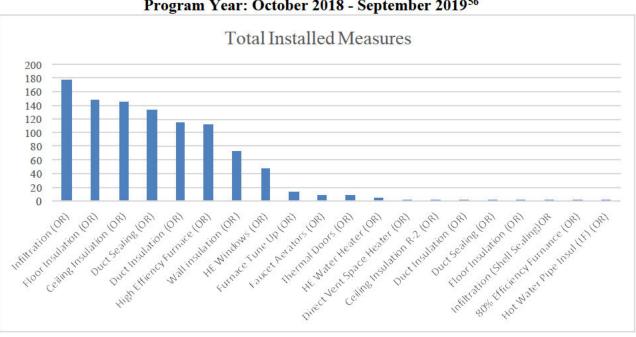
Oregon Program Year: October 2016- September 2017⁵⁴

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⁵⁴ NW Natural, RG-13 - Oregon Low-Income Energy Efficiency Program (OLIEE) Annual Report (Program Year 2016-2017), <u>https://edocs.puc.state.or.us/efdocs/HAQ/rg13haq103413.pdf</u>.



Program Year: October 2017- September 201855

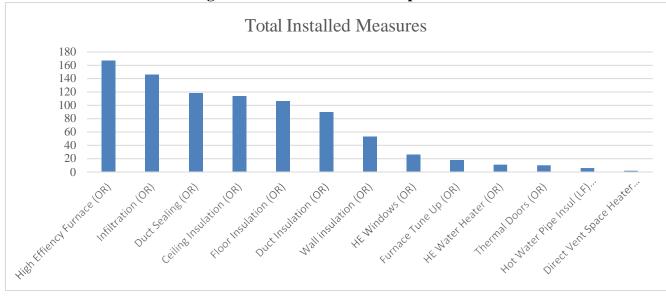


Program Year: October 2018 - September 2019⁵⁶

⁵⁵ NW Natural, RG-13 - Oregon Low-Income Energy Efficiency Program (OLIEE) Annual Report (Program Year 2017-2018), https://edocs.puc.state.or.us/efdocs/HAQ/rg13haq162154.pdf.

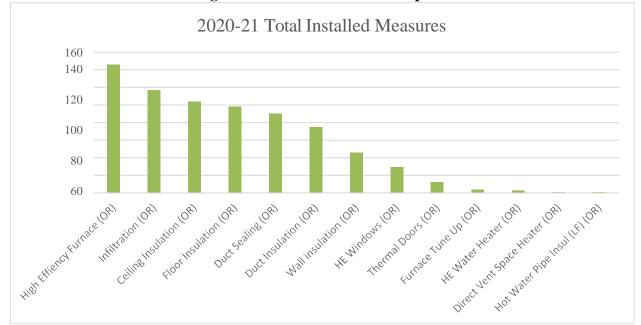
⁵⁶ NW Natural, RG-13 - Oregon Low-Income Energy Efficiency Program (OLIEE), Annual Report (Program Year 2018-2019), https://edocs.puc.state.or.us/efdocs/HAQ/rg13haq121533.pdf.

- 1 As shown above, from 2016-2019, CAP agencies did not install many gas furnaces, presumably
- 2 because these investments were not cost effective. However, once NW Natural changed its
- 3 policy in 2019 to create an exception and a \$5,000 allowance for gas furnaces, gas furnaces
- 4 became the primary energy efficiency upgrade in homes.



Program Year: October 2019- September 2020⁵⁷

⁵⁷ NW Natural, RG 13—Oregon Low-Income Energy Efficiency Program (OLIEE) Annual Report (2019-2020 Program Year), <u>https://edocs.puc.state.or.us/efdocs/HAQ/rg13haq10449.pdf</u>.



Program Year: October 2020 - September 2021⁵⁸

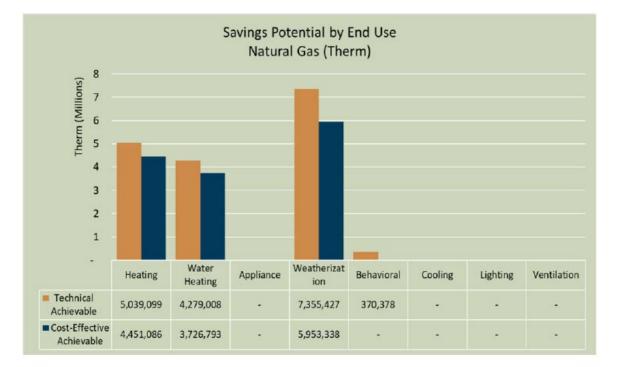
1		Low-income weatherization and efficiency upgrades funded by the OLIEE program are
2		paid for by ratepayers through the Public Purpose Charge. These funds should not be
3		used to preferentially install gas furnaces, which keep low-income customers connected
4		to gas utility service. Keeping low-income customers connected to gas utility service,
5		while other more affluent customers transition away, could significantly increase costs
6		for low-income ratepayers in the future.
7	Q.	Are there any other concerns that you have about the administration of the OLIEE
8		program?
9	A.	Yes. In 2019, NW Natural amended Schedule 320 to increase the amount of the Public
10		Purpose Charge that funds the OLIEE Program. ⁵⁹ The goal of this change was to
11		increase funding for the program and enable weatherization of more homes. This policy

 ⁵⁸ NW Natural, RG 13—Oregon Low-Income Energy Efficiency Program (OLIEE) Annual Report (2020-2021 Program Year), <u>https://edocs.puc.state.or.us/efdocs/HAQ/rg13haq10637.pdf</u>.
 ⁵⁹ NWN OPUC Advice No. 19-19. Schedule 320—Oregon Low-Income Energy Efficiency (OLIEE) Programs.

⁵⁹ NWN OPUC Advice No. 19-19, Schedule 320—Oregon Low-Income Energy Efficiency (OLIEE) Programs, Nov. 19, 2019, <u>https://edocs.puc.state.or.us/efdocs/UAA/uaa17445.pdf</u>.

1		change generated more revenue to finance low-income weatherization, but an analysis of
2		the annual reports reveals that NW Natural has not spent all of the revenue on low-
3		income weatherization. In program year 2019-2020, the Public Purpose Charge
4		generated approximately \$4 million for the OLIEE program, but NW Natural only spent
5		\$2.3 million. In program year 2020-2021, the Public Purpose Charge generated
6		approximately \$4.8 million, but NW Natural only spent \$2.2 million on the OLIEE
7		program that year. It is unclear from NW Natural's annual reports what happens to the
8		surplus funds, and why all the funds are not used for home weatherization programs. We
9		are interested to gain more information from NW Natural on this issue, and reserve it for
10		future analysis in the next round of responsive testimony.
11	Q.	What changes would you recommend that the Commission make to Schedule 320
12		and the OLIEE program administered by NW Natural?
13	A.	I strongly recommend that the Commission eliminate the use of OLIEE program funds to
13 14	A.	I strongly recommend that the Commission eliminate the use of OLIEE program funds to pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not
	A.	
14	Α.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not
14 15	Α.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers
14 15 16	A.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers remain connected to gas utility service, instead of fuel switching to electric utility service.
14 15 16 17	A.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers remain connected to gas utility service, instead of fuel switching to electric utility service. As documented in the testimony of Nora Apter, staying connected to gas utility service
14 15 16 17 18	A.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers remain connected to gas utility service, instead of fuel switching to electric utility service. As documented in the testimony of Nora Apter, staying connected to gas utility service will likely impose significant additional costs on ratepayers in the future, as the company
14 15 16 17 18 19	A.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers remain connected to gas utility service, instead of fuel switching to electric utility service. As documented in the testimony of Nora Apter, staying connected to gas utility service will likely impose significant additional costs on ratepayers in the future, as the company attempts to decarbonize its product and more affluent customers fuel-switch away to
14 15 16 17 18 19 20	A.	pay for gas furnaces. As NW Natural's own documents reflect, gas furnaces often are not cost effective. Further, upgrading this equipment means that low-income customers remain connected to gas utility service, instead of fuel switching to electric utility service. As documented in the testimony of Nora Apter, staying connected to gas utility service will likely impose significant additional costs on ratepayers in the future, as the company attempts to decarbonize its product and more affluent customers fuel-switch away to

1 the 1.0 cost efficiency ratio. The Energy Trust of Oregon ("ETO"), the Commission, and 2 the Oregon Housing and Community Services ("OHCS") studied how to reduce the 3 energy burdens of low-income Oregonians. The resulting report evaluated technically achievable weatherization and energy efficiency upgrades, and compared cost effective 4 5 measures to determine what investments would deliver the highest reduction in energy 6 burden to low-income customers. With regard to gas utility customers, the Commission, 7 ETO, and OHCS found that wall insulation and smart thermostats are the best 8 weatherization and energy efficiency upgrades that would most significantly reduce 9 energy consumption in low-income dwellings.



Overall, the report found that weatherization would deliver the greatest savings in therms.
 The report further noted high-performance insulation in exterior walls, and the
 conventional technologies of duct and air sealing, as the most cost effective way to
 reduce energy burdens. Since the Commission, ETO, and OCHS already found these

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1		measures cost effective, they should be installed in low-income homes; the Commission
2		should add this to Section 320.
3		
4		Finally, I strongly recommend that the Commission increase allocation of funds for
5		healthy, safety, and repair measures, and eliminate the requirement that agencies must
6		spend no more than \$1,000 on average per home.
7 8	V.	THE CLIMATE AND LOW-INCOME RATEPAYERS NEED FINANCIAL RESOURCES TO FUEL SWITCH AWAY FROM GAS UTILITY SERVICE.
9	Q.	How will fuel switching from gas to electric utility service reduce energy burdens
10		and make homes more climate resilient for Oregonians?
11	A.	Frontline communities are disproportionately impacted by the effects of climate change.
12		These communities typically do not have the capacity or resources to adequately prepare
13		for or recover from extreme weather events, and they often experience more economic
14		hardship in the wake of climate-related disasters. Over the last three years, 68% of
15		CEP's clients have been people of color, 95% were low-income, and 74% were women.
16		All of our clients have disproportionately high safety and energy burdens, which
17		compromise their ability to remain housed. The pandemic and recession have made these
18		problems worse. ⁶⁰
19		
20		Investments in electrification can help unlock cost savings and improve health for low-
21		income families. According to data from the U.S. Census Bureau's American Housing
22		Survey, there are an estimated 35 million low-income U.S. households that could save a

⁶⁰ Community Energy Project, *CEP's Stance on Electrification*, <u>https://www.communityenergyproject.org/wp-content/uploads/2021/11/CEP-Policy-on-Electrification-1.pdf</u>.

1	combined \$15 billion per year on their energy bills if they were using new, efficient
2	electric space and water heaters. ⁶¹ These home upgrades would help provide long-term
3	energy affordability for families and reduce their need for energy assistance, which could
4	in turn stretch program dollars to further assist more low-income households in need.
5	Reducing energy costs will make bills more affordable and reduce the risks of shut-offs.
6	
7	Unfortunately, low-income households have been left behind by advances in
8	electrification. More and more affluent households are seizing the benefits of electric
9	space and water heating and rapidly electrifying their homes. Lower income households,
10	unable to afford the high costs of electric space and water heating, are not. When
11	increasing numbers of households electrify, the fixed connection costs of gas utility
12	service will rise as utilities are forced to increase costs to prevent financial losses due to
13	their eroding customer base. Lower income homeowners and renters, unable to afford to
14	leave the fossil gas system, will be left to bear the burden of these higher system costs.
15	
16	At present, community organizations like CEP, that are tasked with making energy
17	efficiency upgrades for low-income customers, struggle to do what is in the best interest
18	for both our clients and the environment because of outdated restrictions that prevent us
19	from using energy efficiency dollars to support electrification, and cost-effectiveness
20	calculations that limit the amount of financial support we can provide. For example,
21	funding for one of CEP's programs will only allow us to install high-efficiency electric

⁶¹ T. Higgins, A. M., Matusiak, A., Calisch, S., & Lai, D, *To decarbonize households, America needs incentives for electric appliances*, Center for American Progress, (Jun. 3 2021), <u>https://www.americanprogress.org/issues/green/reports/2021/06/03/500084/decarbonize-households-america-needs-incentives-electric-appliances/</u>.

1		heat pump water heaters in homes where the old water heater is also electric. CEP is thus
2		unable to help the 60% of clients we serve in Portland who currently have gas water
3		heaters—leaving energy savings and substantial carbon emissions reductions on the table.
4		Like CEP, CAP agencies are required to replace their clients' old oil and gas furnaces
5		with new oil and gas furnaces instead of efficient electric heat pumps.
6	Q.	What changes should the Commission make to promote fuel switching from gas to
7		electric utility service for low-income customers?
8	A.	Without critical policy and funding mechanisms to ensure equitable electrification,
9		frontline communities will shoulder the worst impacts of the climate crisis. CEP supports
10		electrification and recommends the following policy changes to that end:
11		1) To support these communities' need to electrify their space and water heating, we
12		must change the Oregon PUC's policies that prevent utilities and programs like those
13		at Energy Trust of Oregon from spending rate-payer dollars on electrification.
14		2) In addition, utility cost-effectiveness calculations must be adjusted to account for
15		more than just "face-value" costs and benefits to consider other important factors
16		including the social cost of carbon and the benefits of improved health and quality of
17		life, which disproportionately impact lower-income communities.
18		3) Alternately, utility cost-effectiveness calculations should not be used for low-income
19		programs as deferred maintenance in houses in need of electrification results in costs
20		that make such calculations impractical.
21		4) Funding for megaprojects to support electrification needs to be increased at the local,
22		state, and federal levels.
23		

5	Q.	Does this conclude your direct testimony?
4		work happen.
3		support from the Commission, utilities, local, state, and federal governments to make this
2		households to energy efficient, electric space and water heaters, but we need funding and
1		CEP has boots on the ground now and is ready to help transition hundreds of low-income

6 A. Yes, it does. Thank you.

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Coalition/301 Fain/1

WITNESS QUALIFICATION STATEMENT

NAME:	Charity Fain
EMPLOYER:	Community Energy Project
TITLE:	Executive Director
ADDRESS:	2705 E. Burnside, Suite 112 Portland, OR 97214
EDUCATION:	Bachelor of Arts, International Relations The American University, Washington, D.C.

EXPERIENCE: I have over 25 years of experience building stronger communities in the US and around the world. As the Executive Director of the Community Energy Project ("CEP"), where I have been for almost nine years, I am responsible for the overall direction, leadership and management of the organization.

Community Energy Project, Inc. believes that everyone deserves a safe, healthy and efficient, home, regardless of income. CEP provides free home services focused on safety, health, and energy efficiency. We provide free community education and supplies, as well as direct home energy upgrades and repairs. All our services are made possible by partnerships with community members and service organizations, utilities, corporations, foundations, and government agencies. Through our work we hope to create a future where all people can afford to live in their homes with dignity, comfort, and safety. We believe in equitable distribution of resources, reducing barriers to entry, empowering everyone to be capable, reaching clients where they are, and reducing our environmental impact.

CEP has worked in residential weatherization, repairs and energy efficiency since 1979, and we continue to be committed to ensuring safe, healthy, and efficient homes, regardless of income. CEP began life in 1979 as a project of Responsible Urban Neighborhood Technology (RUNT) in response to the oil crises of the 1970's. A VISTA national service member offered the first workshops, teaching people practical energy conservation solutions like caulking and building temporary plastic storm windows. CEP incorporated in Oregon in 1987 and became a contractor with the City of Portland's Bureau of Housing and Community Development, offering training to low-income people through workshops and direct weatherization services to seniors and people with disabilities. Over time, we added workshops in water conservation and lead poisoning prevention. Currently, our workshops are open to people of all income levels.

Thanks to our community partners, we serve a diversity of clients. Fifty-nine percent of our clients are people of color, and 66% live at or below the 50% Median Family Income level. Twenty-four percent of the people served have someone in the household with a disability. The large majority, 74%, of our clients identify as women. Further, we've managed to provide the bulk of our services to renters, with 68% of our clients being renters, and 22% being homeowners. Further, 29% of our clients are over the age of 55.

CEP's programs teach people to weatherize their homes, and our direct install program provides weatherization and energy efficiency upgrades directly to low-income homeowners. I oversee staff who are experts in Home Performance and home repair who work with clients and contractors to make needed upgrades.

I also work closely with Energy Trust of Oregon. For example, I have served on the Diversity Advisory Council and the Foundational DAC. I also work with ETO staff to design new programs to better serve low-income customers. CEP's insights into the needs of low-income homeowners and renters for energy efficiency help ETO staff in the residential markets.

I have testified and provided written comments in various Commission dockets, including DSP (UM 2005) and COVID relief (UM 2114), and I was very active in community solar implementation and rulemaking (UM 1930). I have also testified before the Portland Clean Energy Fund's committee on low-income energy efficiency program design, and to the Portland City Council in support of the Home Energy Score program.

I have presented at a Home Performance Conference in Portland, at Commission DSP workshops, and an Efficiency Exchange conference. I just spoke this week at the Grid FWD conference on equity in DSP and grid innovation.

Attached hereto as Exhibit Coalition/302 is a copy of my resume.



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CHARITY FAIN

EDUCATION: The American University, Washington, DC B. A. International Studies, Russian Minor, *Cum Laude*

Professional Experience

Community Energy Project, 9/13-Present: Executive Director

Serve as chief executive officer responsible for managing the affairs of the organization. Direct new program development in sustainability, energy efficiency, weatherization, solar and healthy homes for low-income, BIPOC and seniors. Direct advocacy efforts on climate and energy justice initiatives. Develop annual budget and oversee finances and accounting practices in accordance with non-profit organization best practices and legal requirements. Maintain internal administrative policies and procedures to carry out CEP programs and policies.

City Club of Portland, 6/08-9/12 Executive Director

Acted as chief executive officer responsible for managing the affairs of the organization. Developed annual budget and oversaw finances and accounting practices in accordance with non-profit organization best practices and legal requirements. Developed and promoted the visibility, image, and influence of the Club through positive community relations. Maintained internal administrative policies and procedures to carry out City Club programs and policies.

Internews Network, Bishkek, Kyrgyzstan,10/05-9/07 Country Director

Directed Kyrgyzstan-based activities under USAID funded media support programs including: a grants program, training program, media law advocacy program and a media policy reform project. Supervised thirty employees in the Kyrgyzstan office including: hiring and training, planning, assigning and directing work, appraising performance, addressing complaints and resolving problems. Managed financial matters including: receiving cash, overseeing financial reporting and compliance with U.S government regulations and Internews' policies, as well as projecting expenditures and burn rates.

International Women's Media Foundation, 02/04-09/05 Program Manager

Managed IWMF programs including: *Leadership Institute*, *IWMF Fellowship*, *Public Health Fellowship* and *Elizabeth Neuffer Fund*. Maintained accurate records for assigned projects, including ensuring financial expenditures remained within budgeted amounts and that records were accurate and up-to-date. Organized conferences and events relating to IWMF programs, including securing locations, catering arrangements, publicizing programs and other logistical details.

The Advocacy Project, Consultant, 02/02-06/02 Open Society Institute, Coordinator, 04/98-6/00

P.U.C. Or. 25

Third Revision of Sheet 320-1 Cancels Second Revision of Sheet 320-1

SCHEDULE 320 OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS

PURPOSE:

To describe the Oregon Low-Income Energy Efficiency (OLIEE) program, which is funded through a designated portion of the Schedule 301 "Public Purposes Funding Surcharge." The OLIEE program includes two parts: 1) the Community Action Program (CAP) and 2) the Open Solicitation Program (OSP).

AVAILABLE:

This program is available to income-eligible residential dwellings located within NW Natural's Oregon (C) service territory where (1) a gas Service Line is installed at the Premise; (2) the primary space heating equipment is fueled by Natural Gas, and (3) and the premise has an active account with the (C) Company, or will have an active account upon completion of work performed under this **Schedule 320.** Any residential dwelling that received assistance for the installation of the same or similar measures under any other energy efficiency program may not be eligible for assistance under this program.

PROGRAM YEAR and REPORTING:

The OLIEE program year will extend from October 1 through September 30 (Program Year). The Company will submit an Annual Report of the OLIEE Programs to the Commission by December 31 following the end of each Program Year.

The Annual Report will consistently include the same Program Year results from year to year. The Annual Report will include the number of homes targeted for completion in the next Program Year, and the average savings per dwelling treated under CAP.

PROGRAM FUNDING:

Each month, the Company will bill and collect Public Purposes funds in accordance with **Schedule 301** of this Tariff. By the 20th of the month following the billing month, the amount collected, net of an allowance for uncollectibles, will be deposited into a market-based interest bearing bank account dedicated to the OLIEE program (OLIEE Account). The reserve for uncollectibles shall be in an amount equal to NW Natural's average percentage of residential net write-offs.

PROGRAM ADMINISTRATION, EVALUATION AND VERIFICATION:

All OLIEE programs are to be administered by the Company in accordance with this **Schedule 320**. The Company will be reimbursed from the OLIEE Account each month for actual program administration costs incurred, except that such reimbursement will not exceed five percent (5%) of the total funds available during each Program Year.

(continue to Sheet 320-2)

Issued November 18, 2019 NWN OPUC Advice No. 19-19 Received by OPUC Filing Center 11/18/2019

Effective with service on and after January 1, 2020

Issued by: NORTHWEST NATURAL GAS COMPANY d.b.a. NW Natural

P.U.C. Or. 25

First Revision of Sheet 320-2 Cancels Original Sheet 320-2

SCHEDULE 320

OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS

(continued)

PROGRAM ADMINISTRATION, EVALUATION AND VERIFICATION (continued):

Following the end of each Program Year, the Company and the OLIEE Advisory Committee (OAC) will evaluate the need for an independent organization to conduct a process and/or impact evaluation for the OLIEE programs. Such evaluation shall be paid from the OLIEE account in an amount not to exceed \$50,000.

PROGRAM ADVISORY COMMITTEE:

The OLIEE Advisory Committee (OAC) will assist in advising the Company on OLIEE program implementation, and evaluation. The OAC will be comprised of at least one member each from the Company, the Commission staff, the Community Action Partnership of Oregon (CAPO), plus two or more representatives from the CAP, and when appropriate, one or more representatives from the OSP. The OAC will have no decision-making authority. The OAC will meet at least twice each program year.

ALLOCATION OF FUNDS:

The amount of funds available to support each OLIEE program will be determined by NW Natural as follows:

- 1. At the beginning of each Program Year, the Company will determine the allocation of funds between the CAP and the OSP based on an estimate of the amount of funds available for that Program Year. Funds will be allocated first to the CAP and second to the OSP.
- 2. Any amounts not disbursed in the Program Year will carry over to the next Program Year.

I. COMMUNITY ACTION PROGRAM ("CAP") DESCRIPTION

CAP provides a home energy evaluation of qualifying low income Customers' dwellings, and if applicable, the installation of energy efficiency measures for the purpose of increasing the energy efficiency of the dwellings. CAP services are performed by qualifying Agencies that contract with NW Natural. When authorized by the Company, CAP may provide no more than 10% of its forecasted Program Year budget for energy education programs. Funding for energy education will be determined at the sole discretion of the Company.

(continue to Sheet 320-3)

Issued October 18, 2013 NWN OPUC Advice No. 13-23 Effective with service on and after November 27, 2013

P.U.C. Or. 25

Second Revision of Sheet 320-3 Cancels First Revision of Sheet 320-3

SCHEDULE 320 OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS (continued)

Agency Qualifications and Responsibilities for CAP Funds:

- 1. In order to qualify to participate in the OLIEE program, an Agency must be a legal entity that has been in the business of providing housing or energy efficiency services to low-income customers for at least one year. Any Agency that is contracting or subcontracting with the State of Oregon, Department of Housing and Community Services (OHCS), which is eligible to administer funding under the Federal Low Income Energy Assistance Program (LIEAP) is automatically authorized to participate. All other Agencies must first apply to the Company for authorization to participate. The conditions upon which the Company will approve an application will include, but are not necessarily limited to (a) availability of funds, (b) Agency location, and (c) number of residential dwellings served by NW Natural.
- 2. All Agencies must enter into a written contract with the Company in order to participate in the administration and delivery of funds under this program.
- 3. Each participating Agency will have sole responsibility to screen and approve applicants for eligibility. Each Agency shall follow the established protocols for the qualification of and disbursement to eligible participants in accordance with the guidelines of this program and the guidelines promulgated by OHCS and the Low-Income Energy Assistance Act of 1981 and subsequent amendments, as outlined in the OHCS Omnibus Contract.
- Each participating Agency shall be responsible to complete and return to the Company, all
 required paperwork and other documentation as may be necessary for the Company to
 process the request in a form prescribed by the Company.
- 5. Each participating Agency must agree to abide by the program parameters established in this Schedule including using, where applicable, the Department of Energy (DOE) approved residential, energy analysis software tool ("Energy Analyzer Software") in determination of all measures that qualify for funding under CAP.
- 6. An Agency that fails to abide by the terms and conditions set forth in this tariff schedule may be removed from participating in the CAP Program.
- Each participating Agency must attend any training workshops offered in collaboration with the Company, OHCS and CAPO. Workshops will be designed to ensure agencies are consistently and accurately entering data into the Energy Analyzer Software. The Company shall inform Staff of the selected workshop trainer and provide a summary report on the workshop's accomplishments.

Customer Qualifications for CAP Funds

All CAP funds collected under this program will be used to weatherize qualified dwellings inhabited by customers of NW Natural. In the event the Company receives a request for premise from two or more Agencies, the Company will process only one request.

(continue to Sheet 320-4)

Issued November 18, 2019 NWN OPUC Advice No. 19-19 Received by OPUC Filing Center 11/18/2019

Effective with service on and after January 1, 2020

Issued by: NORTHWEST NATURAL GAS COMPANY d.b.a. NW Natural (C)

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P.U.C. Or. 25

Fifth Revision of Sheet 320-4 Cancels Fourth Revision of Sheet 320-4

SCHEDULE 320 **OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS**

(continued)

CAP Administration and Delivery Costs

Each Agency will be reimbursed from the OLIEE Account for administrative costs and direct program costs incurred by them in their administration and delivery of the OLIEE program up to \$1,600 per dwelling. The Agency fee will be paid to each Agency along with the measure rebate payments. The Company will process measure rebate payments and Agency payments within thirty (30) days from the date the Company receives all completed documentation in support of such rebate request(s).

Annual Program Year Targets (households)

At the beginning of each Program Year, each participating Agency will be assigned a home completion target that supports the achievement of an annual program target. Agency targets may be adjusted from time to time throughout a Program Year, as necessary. Nothing precludes Agencies from serving more than the annual target of homes in any program year provided sufficient funds are available and approved by the Company. The Company will include the expected targets for the following year, by Agency, in the Annual Report.

Energy Efficiency Measures

Qualifying energy efficiency measures are, 1) energy efficiency measures recommended when the dwelling is modeled in the Energy Analyzer Software. All measures prescribed by the Energy Analyzer Software for the whole house must meet or exceed a Savings to Investment Ratio (SIR) of 1.0 or better unless identified through number 2 or 3 below. The SIR calculation will use the Energy Information Administration's Oregon residential natural gas price as the cost against which the benefits are measured 2) The replacement of non-functioning or red-tagged heating equipment with a high efficiency gas furnace. Heating equipment is considered red-tagged when a representative from the Company or an Agency has deemed the appliance unsafe to operate, 3) Measures identified as cost effective by third party organizations (Regional Technical Forum, Energy Trust of Oregon, etc.).

The energy efficiency measure payment may not exceed \$15,000 per dwelling. When only heating equipment measures are performed, the payment may be up to \$5,000 per dwelling. When no heating equipment measures are installed, energy efficiency measure(s) paid per dwelling shall not exceed \$10,000. When both heating equipment and non heating equipment measures are included the payment may not exceed \$15,000 per dwelling. To accommodate timing differences between measure installations, the payment may be disbursed through one or more requests. Under no circumstances will the payment exceed the actual installed cost of the measure(s). The Company may coordinate with other funders (eq Energy Trust of Oregon) to facilitate payments and appropriate reporting of measures.

(D)

(continue to Sheet 320-5)

Issued September 21, 2021 NWN OPUC Advice No. 21-15

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Coalition/303 Fain/5

(C)

UG 435 Coalition DR 48 Attachment 1 Page 5 of 6

NORTHWEST NATURAL GAS COMPANY

P.U.C. Or. 25

Third Revision of Sheet 320-5 Cancels Second Revision of Sheet 320-5

SCHEDULE 320

OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS

(continued)

Health, Safety and Repair (HSR) Allowance

In addition to funds for qualifying energy efficiency measures, funds may be available for the costs of health, safety and repair (HSR) measures. HSR measures are those items that if not completed would adversely impact the safety and health of the occupants or the effectiveness of the energy efficiency measures. Standard efficiency furnace replacements may qualify for HSR funds if the existing furnace is broken, is found to produce an unsafe level of CO emissions, is back-drafting, or has a cracked heat exchanger and a high-efficiency furnace is not cost-effective or if it is physically impossible to install a high-efficiency furnace. When a furnace is replaced with a standard efficiency furnace, the Agency must specify the reasons for the replacement in the reimbursement request.

The maximum annual HSR disbursement available to each Agency will be \$1,000 times the actual number of households treated by the Agency in the Program Year (HSR Allowance).

Each Agency will have discretion in the use of their individual HSR Allowance such that they may use more or less than the \$1,000 on any one home. Each Agency must manage their HSR funds to ensure that the average HSR amount per home is not more than \$1,000.

Agency Reporting Requirements

For each home treated under the OLIEE Program, each Agency will be required to report to the Company, the following information:

- Customer Name (as shown on NW Natural Account)
- NWN Account Number
- Service Address
- Owner, Occupant or Property Manager Name
- Owner, Occupant or Property Manager Phone
 Number
- Audit Date
- Measure Completion Date
- Reimbursement Request Date
- Agency and Agency Representative
- Size of home in square feet and Year Built
- Measure description
- Installed cost per measure
- Estimated therm savings per measure
- Energy Analyzer Software SIR per measure
- Total Energy Analyzer Software SIR for

Measure Group

- Total Cost of all energy efficiency measures installed (EEMC)
- Total Energy Analyzer Software estimated savings for each household (Total therms)
- Total job cost to Agency (OLIEE and non-OLIEE measure costs)
- Cost per measure
- Fuel cost savings per measures
- Total HSR measure cost
- Total Reimbursement Request: (energy efficiency measure costs up to annual limit + Admin + HSR)
- Prior 12 months of gas usage
- Projected savings as a percentage of the last 12 months gas usage

(continue to Sheet 320-6)

Issued November 18, 2019 NWN OPUC Advice No. 19-19 Received by OPUC Filing Center 11/18/2019

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Issued by: NORTHWEST NATURAL GAS COMPANY d.b.a. NW Natural

P.U.C. Or. 25

First Revision of Sheet 320-6 Cancels Original Sheet 320-6

SCHEDULE 320 OREGON LOW-INCOME ENERGY EFFICIENCY (OLIEE) PROGRAMS (continued)

. . .

II. OPEN SOLICITATION PROGRAM (OSP) DESCRIPTION

The overall goal of the OSP is to cost-effectively provide energy efficiency assistance to a greater number of low-income households in NW Natural's Oregon service territory through a broad and diverse network of delivery channels. The Company will invite proposals that include projects for new affordable housing, existing retrofit opportunities, and owner-occupied or rental dwellings, and will encourage proposals that include a component for energy education, environmentally sustainable practices, and collaboration with other entities or programs.

At the Company's discretion, a portion of OLIEE funds may be allocated to special incentive progams where the Company has determined that there are sufficient OLIEE funds to support such special program(s), and that such special program(s) would result in an increase in the number of low-income households being served under the OLIEE program. Any such special program will be made available only to Customers that qualify to receive services under this Schedule 320.

The Company will make the final determination as to which proposals will be awarded contracts under the OSP. As needed, the Company will review proposals and incentives with the OLIEE Advisory Committee (OAC).

GENERAL TERMS:

This schedule is governed by the terms of this Schedule, the General Rules and Regulations contained in this Tariff, any other Schedules that by their terms or by the terms of this Schedule apply to service under this Schedule, and by all rules and regulations prescribed by regulatory authorities, as amended from time to time.

Issued January 29, 2016 NWN OPUC Advice No. 16-01 Effective with service on and after March 1, 2016

BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

UG 435

In the Matter of) OPENING TESTIMONY OF
) GREER RYAN
NORTHWEST NATURAL GAS COMPANY,)
dba NW NATURAL,)
Request for a General Rate Revision.)
)
)
)
)

Opening Testimony of Greer Ryan

On Behalf of

Intervenors Coalition of Communities of Color, Sierra Club, Verde, Climate Solutions, Oregon Environmental Council, Columbia Riverkeeper, and Community Energy Project

April 22, 2022

1		I. INTRODUCTION
2	Q.	Please state your name and position with Climate Solutions, and please summarize
3		your educational background and experience with energy regulation and
4		proceedings before public utility commissions.
5	A.	My name is Greer Ryan. I am the Clean Buildings Policy Manager for Climate
6		Solutions, a regional nonprofit supporting clean energy solutions to the climate crisis.
7		My business address is 4207 SE Woodstock Blvd. #149 Portland, OR 97206.
8		I hold a B.S. in Molecular Environmental Biology from the University of California,
9		Berkeley and an M.S. in Environmental Science from the School of Public and
10		Environmental Affairs at Indiana University. Before working at Climate Solutions, I was
11		a Senior Energy Policy Analyst in the Energy Justice program at the Center for
12		Biological Diversity, a national conservation nonprofit.
13		
14		I have approximately seven years of experience reviewing, analyzing, and advocating for
15		local, state, and federal energy policies and regulations regarding the transition off of
16		fossil fuel resources onto clean energy resources. My work has included analyzing how
17		rate structures, in conjunction with state-level policies, encourage or discourage the
18		adoption of energy efficiency and clean energy resources, particularly for integrated
19		monopoly utilities. For more information, please see my resume attached as Exhibit A.
20		Of particular relevance to this proceeding:
21		• I have engaged in a number of Oregon PUC proceedings, including
22		providing testimony on the "Natural Gas Fact Finding" proceeding (UM 2178)
23		and various energy affordability dockets. I have recently engaged in NW
24		Natural's Integrated Resource Planning working groups.

DIRECT TESTIMONY OF GREER RYAN - 1

1		• I have provided testimony before the North Carolina Utilities Commission
2		on behalf of the Center for Biological Diversity and Appalachian Voices in Duke
3		Energy Carolinas, LLC's Application for Adjustment of Rates and Charges
4		Applicable to Electric Service in North Carolina. My testimony raised issues
5		related to costs associated with fossil fuel generation in the climate change
6		context, grid improvement plan expenses, costs associated with climate-
7		exacerbated storms, and charges to customers for dues and payments to outside
8		entities engaged in lobbying activities (NCUC Docket 1214).
9		• I co-authored a Petition for Rulemaking to the Federal Energy Regulatory
10		Commission to amend the Uniform System of Accounts' Treatment of Industry
11		Association dues (FERC Docket RM21-15-000).
12	Q.	How have you prepared to submit your testimony?
13	A.	I have reviewed the opening testimony filed by NW Natural on December 17, 2021, and
14		in particular, I have read the Testimony of Cory A. Beck, Melinda B. Rogers, Anna K.
15		Chittum, and Tobin Davila. I have also reviewed all the exhibits included with my
16		testimony.
17	Q.	What is the purpose of your testimony?
18	A.	In the first section of my testimony, my primary purpose is to highlight the inappropriate
19		advertising expenditures that NW Natural seeks to recover from ratepayers. This
20		testimony is a response to the Company's direct testimony of Cory A. Beck. Both
21		Oregon state law and federal law governing the activities of utilities limit the recovery of
• •		advertising intended to promote use of an energy utilities' service. Despite these
22		autoritishing interface to promote use of an energy admittes service. Despite these

DIRECT TESTIMONY OF GREER RYAN - 2

1	promotes gas as a climate friendly solution, misleads the public regarding the company's
2	renewable energy investments and carbon footprint, influences school children-who are
3	not ratepayers—to encourage them to think positively about fossil gas, promotes
4	connecting to gas utility service, promotes use of gas appliances, and encourages fuel
5	switching from electric to gas appliances.
6	
7	These promotional advertising campaigns should be paid for by shareholders, and are not
8	eligible for recovery from ratepayers as Category A or Category B advertising. While a
9	few advertisements funded by NW Natural legitimately relate to safety hazards, these
10	messages are published alongside promotional advertisements and messaging-in the
11	most egregious instances targeting school children. Given NW Natural's misuse of
12	ratepayer funding to support promotional advertising, the Commission should disallow
13	recovery for all advertising expenditures.
14	
15	The purpose in the second section of my testimony is to raise concern regarding lobbying
16	and political influence activities for which NW Natural seeks recovery from ratepayers.
17	NW Natural employees engaged in lobbying and political influence campaigns to affect
18	legislative campaigns in the cities of Eugene, Portland, and potentially others. NW
19	Natural also used staff time to support the company's participation in rulemaking on the
20	Climate Protection Program. As disclosed in data requests, NW Natural seeks recovery
21	for these costs from ratepayers. Ratepayers should not be forced to pay for lobbying or
22	political activities that they do not agree with. The Commission should disallow recovery
23	for community and governmental affairs expenses incurred by NW Natural.

Earthjustice 810 Third Ave. Suite 610 Seattle, WA 98104 (206) 343-7340

DIRECT TESTIMONY OF GREER RYAN - 3

2	NW I	Natural also seeks full recovery of industry association dues from ratepayers for its
3	mem	bership in the American Gas Association and the Northwest Gas Association. Both of these
4	trade	associations engage in various lobbying and other political activities, including seeking to
5	influe	ence legislation or other government agency action at the state and federal level. The
6	Com	mission should disallow recovery of dues and payments to these trade associations as well
7	as an	y other membership dues to third-party groups engaged in political activities.
8 9		II. THE COMMISSION SHOULD DENY RECOVERY FOR NW NATURAL'S PROMOTIONAL AND INSTITUTIONAL ADVERTISING
10	A.	Advertising Cost Recovery Allowances Under Oregon Public Utility Law
11	Q.	What is promotional and institutional advertising?
12	A.	I am not a lawyer, and I provide the below references to state and federal law to the
13		Commission for context, and not as legal argument.
14		
15		Advertising expenses are "expenses for communications which inform, influence, and/or
16		educate customers. Such communication may be by means of, but is not limited to, print,
17		radio, television, billboards, direct mail, videos, banners, telephone listings, and
18		displays[.]" ¹
19		
20		"Promotional Advertising" means advertising that has a primary purpose of
21		communicating an energy utility's promotional activities or promotional concessions. ²
22		Promotional activities are defined as "action by an energy utility with the objective

¹ OAR 860-026-0022(1). ² OAR 860-026-0022(1)(f).

1		of increasing or preventing a decrease in the quantity of the energy service used by
2		present and prospective customers; inducing any person to use an energy utility's service
3		rather than a competing form of energy[.]" ³
4		
5		Institutional advertising "means advertising expenses, the primary purpose of which is
6		not to convey information, but to enhance the credibility, reputation, character, or image
7		of an entity or institution[.]" ⁴
8	Q.	Can a utility recover promotional advertising from ratepayers?
9	A.	The Commission must "represent the customers of any public utility or
10		telecommunications utility and the public generally in all controversies respecting rates,"
11		and the Commission is tasked with using its jurisdiction and power to "protect such
12		customers, and the public generally, from unjust and unreasonable exactions and
13		practices and to obtain for them adequate service at fair and reasonable rates." ⁵
14		
15		To achieve this purpose, Oregon's regulations allow recovery of informational and
16		conservation related advertising but generally prohibit recovery of institutional and
17		promotional advertising unless the utility demonstrates it is fair and reasonable.
18		Oregon's administrative rules categorize advertising costs based on the type of
19		advertising conducted by the gas utility. Promotional advertising and institutional
20		advertising are considered "Category C" advertising. Utilities carry the burden of

³ OAR 860-026-0010. ⁴ OAR 860-026-0022(1)(c). ⁵ ORS 756.040(1).

1		demonstrating that Category C advertising are just and reasonable to include in rate-
2		making. ⁶
3		
4		Federal law generally prohibits recovery of promotional advertising as well. "No gas
5		utility may recover from any person other than the shareholders (or other owners) of such
6		utility any direct or indirect expenditure by such utility for promotional or political
7		advertising[.]" ⁷
8	Q.	Are any advertising costs presumed reasonable?
9	A.	Oregon's administrative rules presume that Category A and B advertising expenses are
10		reasonable. ⁸ For ease of reference, below is a list of Category A and B advertising
11		expenses that are appropriate to recover from rate payers;
12		Category A advertising includes:
13		• "[E]nergy efficiency or conservation advertising expenses" that have a primary
14		purpose of decreasing the total consumption of utility services.
15		• "[U]tility service advertising expenses" that have a primary purpose of providing
16		timely customer information about utility services such as changes in office hours,
17		planned service repair interruptions, the closing or opening of new pay stations, or
18		to encourage efficient and safe use of utility services and similar service-related
19		subjects[.] ⁹

⁸ OAR 860-026-0022(3).

⁶ OAR 860-026-0022(3)(c). ⁷ 15 U.S.C. § 3203(b)(2).

⁹ OAR 860-026-0022(1)(h)

1		• "[U]tility information advertising expenses" that have a primary purpose of
2		increasing "customer understanding of utility systems and the function of those
3		systems, and to discuss generation and transmission methods, utility expenses,
4		rate structures, rate increases, load forecasting, environmental considerations, and
5		other contemporary items of customer interest[.]" ¹⁰
6		Category B advertising includes:
7		• "Legally mandated advertising expenses," the primary purpose of which is to
8		comply with local, state, or federal statutes, ordinances, rules, or regulations, and
9		Court or Commission's orders. OAR 860-026-0022.11
10	B.	Advertising Costs NW Natural Seeks to Recover in this Proceeding
11	Q.	Can you please describe the types of advertising that NW Natural seeks recovery for
12		in this rate case?
12 13	A.	in this rate case? The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and
	A.	
13	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and
13 14	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and
13 14 15	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and B advertising expenditures.
13 14 15 16	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and B advertising expenditures.
13 14 15 16 17	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and B advertising expenditures. NW Natural claims that its Category A advertising provides the public with information about a range of topics including "the facts about RNG supply, sources, and carbon
 13 14 15 16 17 18 	A.	The testimony of Cory A. Beck states that NW Natural seeks recovery of Category A and B advertising expenditures. NW Natural claims that its Category A advertising provides the public with information about a range of topics including "the facts about RNG supply, sources, and carbon reduction benefits for customers, as well as NW Natural's plans for acquiring it." ¹² This

 ¹⁰ OAR 860-026-0022(1)(g).
 ¹¹ OAR 860-026-0022(1)(d).
 ¹² Direct Testimony of Cory A. Beck at 3-4 (hereinafter "Beck Testimony").

1		("SB 98"), renewable natural gas ("RNG"), and associated benefits for customers and the
2		climate improvement goals in Oregon" constitutes Category A advertising. NW Natural
3		also anticipates developing materials describing the Climate Protection Program, and
4		explaining how the company will comply with it. ¹³
5		
6		With regard to Category B communications, NW Natural seeks recovery for "[s]afety-
7		related communications" to customers and the general public that it claims provide
8		information on "how to use natural gas safely," prepare for an earthquake, and recognize
9		and respond to a leak or safety issue related to gas. ¹⁴ NW Natural claims these
10		communications are "legally mandated messages" but does not identify any applicable
11		state or federal law, or court or Commission order requiring the company to conduct this
12		advertising.
13	Q.	Does NW Natural seek recovery of any safety related advertising under its Category
14		A Expenditures?
15	A.	No. Safety related communications are not addressed as a topic in NW Natural's
16		Category A Communications Plan. ¹⁵
17	Q.	Does NW Natural seek recovery of any Category C advertising expenditures from
18		ratepayers?
19	A.	No. NW Natural does not seek recovery of any Category C advertising expenses—
20		institutional and promotional advertising—from ratepayers.

¹³ Beck Testimony at 6-7.
¹⁴ Beck Testimony at 17.
¹⁵ Beck Testimony at 2-3.

1	Q.	How much money does NW Natural seek to recover from ratepayers for advertising
2		expenditures?
3	A.	For Category A advertising, NW natural seeks \$1,847,073 for the forecasted Test Year
4		which runs from November 1, 2022 through October 31, 2023. ¹⁶
5		
6		For Category B advertising expenses, NW natural seeks an additional \$1,080,000 million
7		for the Test Year. This amount is an increase in spending from the Base Year (calendar
8		year 2021).
9		
10		In total, for a single year – the Test Year – NW Natural is asking ratepayers to pay for
11		almost \$3 million in advertising costs.
12 13	C.	NW Natural's Advertisements Seek To Improve the Company's Corporate Image and Encourage Use of its Gas Utility Service.
14	Q.	What documents have you reviewed relevant to NW Natural's request for
15		reimbursement for advertising costs?
16	A.	I have reviewed the Beck testimony and accompanying exhibits. I have reviewed the
17		publicly posted advertisements themselves, which NW Natural produced in data requests
18		to the parties.
19	Q.	What concerns you about NW Natural's request for reimbursement related to its
20		Category A and B advertising expenditures?
21	A.	I am concerned that NW Natural is seeking recovery from ratepayers for advertising
22		which has a primary purpose of improving the company's image and promoting

¹⁶ Ex. Coalition/407/Ryan/4, OPUC DR Response 274 Attach. 1.

1		continued or increased use of gas utility service. Corporate imaging and promotional
2		advertising should be considered Category C advertising costs. NW Natural does not
3		seek recovery of Category C advertising in this case. I am also concerned that NW
4		Natural's advertising about renewable natural gas is misleading. I'll address these topics
5		in the following order:
6		1. Gas propaganda distributed to children, under the guise of providing
7		safety related information.
8		2. Misleading information about the safety of gas stoves.
9		3. RNG advertising as misleading corporate imaging.
10		4. Advertising that promotes maintaining gas utility service, compares gas
11		appliances with electric appliances, or promotes fuel switching constitutes
12		promotional advertising.
13	Q.	How did you obtain advertisements that you discuss in your testimony?
14	A.	All the advertisements discussed in my testimony were produced by NW Natural in
15		response to a data request by the Oregon Citizens' Utility Board ("CUB"). ¹⁷
16	Q.	How has NW Natural categorized these advertisements?
17	A.	All the advertisements discussed below and included as exhibits to my testimony are
18		considered Category A or B advertising documents. ¹⁸ NW Natural seeks recovery from
19		ratepayers for these advertisements, as explained above.

¹⁷ See Ex. Coalition/407/Ryan/2.
¹⁸ See Ex. Coalition/407/Ryan/2; Coalition/407/Ryan/3.

1

School Children Propaganda 1.

Please give an example of NW Natural's safety-related advertising that is Q. 2 promotional. 3

4	A.	In the most concerning example of promotional advertising, NW Natural marketed its gas
5		utility service to school children-encouraging them to associate fossil gas with baking
6		cookies, pizza, clean clothes, and dinosaurs. In 2021, NW Natural sent an email offering
7		to provide educational resources for classrooms or remote learning. ¹⁹ This email offered
8		to "empower students with COMPLIMENTARY natural gas science and safety
9		resources!" Id. NW Natural also sent out a mailer which offered that "FREE resources
10		include: Educational games, videos, experiments, and printable activity sheets;
11		Downloadable teacher's guides and pre/post tests; Fascinating stories, fun facts, and
12		family-friendly activities." ²⁰
13		
14		Neither the mailer nor the email produced by NW Natural identified the intended
15		recipient, but the content of the mailer indicates it targeted educators. Quoted
16		testimonials on the brochure indicated that local schoolteachers had distributed the
17		materials to students:
18		• Thank you for providing materials for different learning levels with fun
19		illustrations, as this allows teachers to reach more students in their classes.
20		• Thank you for this opportunity. Our 4th grade program will greatly benefit from

21

these resources.

¹⁹ Ex. Coalition/406/Ryan/16.
²⁰ Ex. Coalition/406/Ryan2; Coalition/406/Ryan/4.

1		The mailer included a business reply response address located in Massachusetts. The
2		return address is listed as "NW Natural Educational Materials Distribution, 104 Bridge
3		Road, Salisbury, MA 01952-9912" for submitting order forms. The mailer references
4		five publications that could be ordered:
5		- My Nat and Gus Natural Gas Activity Booklet
6		- My Natural Gas Safety Activity Booklet
7		- Your Natural Gas Activity Booklet
8		- Natural Gas: An Invisible Fuel
9		- Natural Gas Safety World
10		Each of these booklets is attached as Exhibit Coalition/406/Ryan/18-89 to my testimony.
11	Q.	Are these booklets part of NW Natural's advertising campaign?
12	A.	Yes. NW Natural produced the mailer and email in response to CUB's Data Request 4,
13		which requests production of all advertising. Further, in response to the Coalition's data
13 14		which requests production of all advertising. Further, in response to the Coalition's data request for these booklets, NW Natural stated the following: "These educational booklets
14		request for these booklets, NW Natural stated the following: "These educational booklets
14 15		request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹
14 15 16	Q.	request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹ NW Natural provided no information regarding which federal regulations recommended
14 15 16 17	Q. A.	request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹ NW Natural provided no information regarding which federal regulations recommended distributing these booklets to school children.
14 15 16 17 18		request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹ NW Natural provided no information regarding which federal regulations recommended distributing these booklets to school children. Who is the intended audience of these booklets?
14 15 16 17 18 19		request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹ NW Natural provided no information regarding which federal regulations recommended distributing these booklets to school children. Who is the intended audience of these booklets? The intended audience for these booklets is school children ages K-6. The mailer, Ex.
14 15 16 17 18 19 20		request for these booklets, NW Natural stated the following: "These educational booklets are part of our public safety awareness program recommended by federal regulation." ²¹ NW Natural provided no information regarding which federal regulations recommended distributing these booklets to school children. Who is the intended audience of these booklets? The intended audience for these booklets is school children ages K-6. The mailer, Ex. Coalition/406/Ryan/3, stated the intended audience for each of the booklets:

²¹ Ex. Coalition/406/Ryan/17.

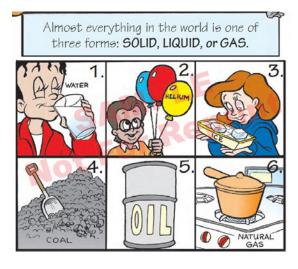
1		• Your Natural Gas Activity Book – Grades 3-5
2		• Natural Gas: Your Invisible Friend – Grades 3–6
3		• Natural Gas Safety World – Grades 4–6
4	Q.	What messages do the contents each of these books send to children?
5	A.	The booklet, My Nat and Gus Natural Gas Activity Booklet, which targets children ages
6		K-2, includes the following "learning connections":
7		• "Energy is used in many different ways. People and animals use food for energy.
8		Cars use energy, too."
9		• "Natural gas is one source of energy. The sun warms the earth's surface and is
10		also a source of energy."
11		• "Traditional natural gas was formed long ago, before the dinosaurs existed.
12		Today, natural gas can be made from waste materials. This is known as
13		renewable natural gas."
14		• "Natural gas comes to our homes, businesses, and factories through underground
15		pipes."
16		• "Natural gas is an efficient fuel for buses, trucks, and cars."
17		• "Natural gas burns more cleanly than diesel fuel."
18		• "Natural gas can be used for cooking, heating homes, heating water, and drying
19		clothes."
20		• "Natural gas can be used in offices for heating and cooling, in restaurants for
21		cooking and baking, and in factories for manufacturing goods."
22		

1	The booklet, My Natural Gas Safety Activity Book, which targets children in grades K-3,
2	includes the following messages:
3	• "We use natural gas every day!" This activity page shows people heating their
4	homes, doing laundry cooking, and heating water.
5	• "Natural gas comes to our homes through underground pipes."
6	
7	The booklet, Natural Gas Safety World, which targets children in grades 4–6, includes
8	the following messages:
9	• "Fossil fuels: Energy sources like coal, oil, and natural gas, which were formed
10	from the decayed remains of plants and animals that died hundreds of millions of
11	years ago. Fossil fuels are the product of pressure, shifting and heat deep within
12	the earth's rock layers."
13	• "Natural Gas: A clean-burning form of energy that is found deep in the earth and
14	is delivered through pipes to homes, schools, and businesses. Natural gas is also
15	used to generate electricity at power plants."
16	Below is an image from the book Natural Gas Safety World, that encourages the reader to
17	communicate messages in the booklet about gas to other students through creative music
18	projects.

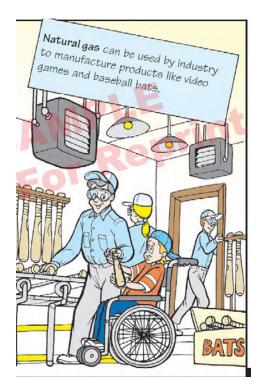


1	The booklet, Your Natural Gas Activity Book, which targets children in grades 3-5,
2	includes the following messages:
3	• "Natural gas is a safe form of energy when used correctly."
4	• "We get natural gas through pipelines from wells drilled deep underground."
5	• "Natural gas is a fuel used in homes, schools, businesses, and vehicles."
6	• The book makes an association between dinosaurs and natural gas, stating that
7	natural gas was formed during the time of the dinosaurs.
8	• "Natural gas can be used as a fuel for cars, trucks and buses. Your school bus
9	might run on natural gas."
10	• "Natural gas can be used by industry to manufacture products like video games
11	and baseball bats."
12	

Below are some images from the booklet, Your Natural Gas Activity Book:



1





DIRECT TESTIMONY OF GREER RYAN - 16

Earthjustice 810 Third Ave. Suite 610 Seattle, WA 98104 (206) 343-7340

1	Q.	Do Oregon's advertising regulations for Category A advertising allow a utility to
2		target school children?
3	A.	No. OAR 860-026-0022 allows recovery of Category A advertising that targets gas
4		utility customers. School children are not gas utility service ratepayers.
5	Q.	Do the booklets contain safety related information?
6	A.	Yes, the booklets contain some information regarding odors associated with gas leaks and
7		some risks associated with fossil gas heating equipment.
8	Q.	Is the primary purpose of the booklets to communicate safety related information?
9	A.	No. Safety related information is relegated to the last few pages of each booklet. Nor do
10		these booklets fully disclose the harms associated with a gas leak. While the booklets
11		advise children to run away and get help if there is a rotten egg odor, the booklets do not
12		explain why children should take these actions to get help.
13		
14		As explained in NW Natural's safety brochure for first responders, gas leaks pose fire
15		and explosion hazards. ²² Because of the serious risks associated with a gas leak, NW
16		Natural includes an odorant in fossil gas that smells like a rotten egg odor. Fire and
17		explosion hazards from gas leaks are not included in these explanatory pamphlets.
18	Q.	Do the booklets explain any of the harms associated with fossil gas extraction,
19		production, transportation, distribution, and burning?
20	A.	None of the booklets describe the problem of climate change, or the fact that extracting,
21		producing, transporting, distributing, and burning fossil gas contributes to global climate
22		change. None of the booklets describe harms to air quality or groundwater aquifers from

²² Ex. Coalition/406/Ryan/6–13.

1 gas drilling activities, or the harms such activities pose to the health of communities 2 living near to gas extraction. None of the multiple and extensive harms associated with 3 gas extraction, production, and distribution are explained in these pamphlets.

4

What messages do these booklets promote? **Q**.

5 The primary purpose of these booklets is to promote continued use and consumption of A. 6 fossil gas by influencing public opinion, in this case—the next generation. While these 7 booklets contain some information about safety hazards associated with gas utility 8 service, the majority of their contents seeks to promote fossil gas as a fuel source to the 9 reader by associating it with things that children often love including dinosaurs, pizza, 10 baseball, and cookies. The books also contain propaganda about the environmental 11 impacts of fossil gas, describing it as "clean," "efficient," and "safe." In another example 12 of the promotional intent of the pamphlets, they discuss and promote the use of fossil gas as a vehicle fuel. 13

14 **Q**. Is it fair or just to ask ratepayers to finance the advertising and distribution of these 15

booklets to children?

16 No. Category A advertising only allows advertising that targets customers, not school A. 17 children. Further, Category A advertising does not allow for recovery of promotional 18 advertising. Category B advertising only allows recovery for advertising that is "legally 19 mandated." NW Natural has not identified any laws that require advertising campaigns 20 targeting children.

21 Are you aware of any federal regulations recommending that gas utilities advertise Q. 22 their products, including any safety related risks to school children?

23 A. No. In fact, federal law prohibits recovery for promotional and political advertising.

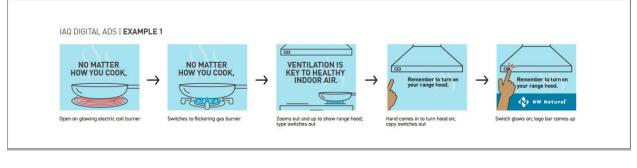
> Earthjustice 810 Third Ave. Suite 610 Seattle, WA 98104 (206) 343-7340

DIRECT TESTIMONY OF GREER RYAN - 18

1		
2		Under federal law, gas utilities are prohibited from recovering from "any person other
3		than the shareholders" any "direct or indirect expenditure for promotional or political
4		advertising." 15 U.S.C. § 3203(b)(2). Promotional advertising is the commercial use of
5		any media to transmit a message to a substantial number of members of the public, or the
6		utility's customers, "for the purpose of encouraging any person to select or use the
7		service or additional service of a gas utility or the selection or installation of any
8		appliance or equipment designed to use [the] utility's service." 15 U.S.C. § 13
9		3204(b)(1)(C). Similarly, political advertising is any advertising, as defined above,
10		meant to "influenc[e] public opinion with respect to legislative, administrative, or
11		electoral matters, or with respect to any controversial issue of public importance." ²³
12	Q.	As an Oregonian, what concerns do you have about NW Natural distributing these
12 13	Q.	As an Oregonian, what concerns do you have about NW Natural distributing these pamphlets to school children?
	Q. A.	
13		pamphlets to school children?
13 14		<pre>pamphlets to school children? I am concerned about these materials for a variety of reasons. First, it is concerning that</pre>
13 14 15		pamphlets to school children? I am concerned about these materials for a variety of reasons. First, it is concerning that school children would be subject to misinformation from corporate entities of any kind,
13 14 15 16		pamphlets to school children? I am concerned about these materials for a variety of reasons. First, it is concerning that school children would be subject to misinformation from corporate entities of any kind, but especially by a corporation selling a product that can be harmful to children's health.
13 14 15 16 17		pamphlets to school children? I am concerned about these materials for a variety of reasons. First, it is concerning that school children would be subject to misinformation from corporate entities of any kind, but especially by a corporation selling a product that can be harmful to children's health. There is a growing body of research that shows that children are disproportionately
 13 14 15 16 17 18 		pamphlets to school children? I am concerned about these materials for a variety of reasons. First, it is concerning that school children would be subject to misinformation from corporate entities of any kind, but especially by a corporation selling a product that can be harmful to children's health. There is a growing body of research that shows that children are disproportionately harmed by indoor air quality harms of fossil gas use in homes. In fact, one meta-analysis

²³ 15 U.S.C. § 16 3204(b)(1)(B). ²⁴ <u>https://academic.oup.com/ije/article/42/6/1724/737113?login=false</u>

Misleading Information About Gas Stoves
 Q. Could you please describe NW Natural's indoor air quality advertising, and how
 that relates to safety?
 A. NW Natural published advertisements about indoor air quality relating to gas stoves, as
 part of its larger campaign to promote the use of gas stoves. These advertisements are
 copied below.



IAQ DIGITAL ADS | EXAMPLE 5



In another advertisement, the bill insert for March 2021, NW Natural informed customers
that "[a]ny type of food preparation can affect indoor air quality. High-temperature
cooking like frying and broiling creates particulates, and even toasters contribute to
indoor air pollution."²⁵

²⁵ Ex. Coalition/405/Ryan/49.

1	Q.	What information do these advertisements fail to convey?
2	A.	This advertisement fails to convey information about the risks of NOx, carbon monoxide,
3		and formaldehyde that gas stoves emit, which can contribute to respiratory illness. ²⁶
4		Researchers at University of California at Berkeley found that:
5 6 7 8 9		Gas burners were estimated to add 25–33% to the week-averaged indoor NO2 concentrations during summer and 35–39% in winter. The variability between seasons likely reflected the fact that air ventilation is lower in winter. For CO, gas stoves were estimated to contribute 30% and 21% to the indoor air concentration in summer and winter, respectively.
10		In its newsletters, NW Natural advised customers of the dangers associated with carbon
11		monoxide poisoning from gas stoves. ²⁷ However, this information is absent from NW
12		Natural's indoor air quality advertisements. The American Gas Association, of which
13		NW Natural is a member, has actively campaigned against scientific findings
14		documenting the emission of harmful air pollutants from gas stoves. ²⁸ This is further
15		explained in the section on industry association dues below.
16	Q.	Why is this advertisement promotional?
17	A.	These advertisements about indoor air quality do not provide unbiased information to
18		ratepayers or the general public about the emissions associated from the use of stoves.
19		Rather, the goal of the advertisement is to mislead consumers into believing that gas
20		stoves pose no greater health risk than electric stoves. Yet, gas stoves emit harmful air
21		pollutants including CO, NOx, and formaldehyde; electric stoves do not emit these same

²⁶ Ex. Coalition/404/Ryan/2, W. Nicole, "Cooking Up Indoor Air Pollution: Emissions from Natural Gas Stoves," Environmental Health Perspectives, Vol. 122, No. 1 (Jan. 2014), https://doi.org/10.1289/ehp.122-A27. ²⁷ See Exhibit Coalition/405/Ryan/46.

²⁸ Amer. Gas Ass'n, Cooking with Gas: Indoor Air Quality and Residential Gas Ranges, Sep. 4, 2020, https://www.aga.org/research/fact-sheets/indoor-air-quality-and-residential-gas-ranges/.

1		pollutants. This advertising misleads the public about those facts in an effort to
2		encourage the public to maintain their gas utility service for home cooking needs.
3		Advertising that promotes maintain gas utility service is promotional.
4	Q.	Could you please describe any other advertisements involving safety issues that are
5		promotional?
6	A.	In the March 2021 bill insert, NW Natural included advertising that encouraged readers
7		to "cook[] with gas." ²⁹ I bring this advertisement to the Commission's attention in
8		particular because it encourages consumers to engage in dangerous behaviors. During
9		power outages, NW Natural encouraged ratepayers to "overid[e] the electronic ignition
10		on the surface burners and instead light[] them with a match" in order to "use your gas
11		cooktop to create a home-cooked candlelight dinner." While seemingly romantic,
12		leaving burners lit for use as "candlelight" poses a serious fire hazard, as well as
13		increased indoor air pollution discussed above.
14		
15		This bill insert also recommended the following: "For the multitasker. Wi-Fi technology
16		lets you preheat your oven or monitor your meal's progress from your home office or
17		walking route." Again, this insert recommends highly dangerous behavior. Here, NW
18		Natural recommends to its residential customers that they operate their gas oven
19		remotely, when they are not at home. From a common sense perspective, lighting an
20		oven while away from your home poses serious dangers including forgetting that your
21		oven is on while you run errands. People commonly store things in their ovens.

²⁹ Ex. Coalition/405/Ryan/49.

1		Operating ovens remotely means people would turn on their ovens without first checking
2		whether they had removed all storage items.
3 4		3. NW Natural's renewable gas advertising is misleading, promotional, and has the primary purpose of trying to improve the company's reputation.
5	Q.	What advertisements will you discuss in your testimony related to "environmental"
6		advertising, and "renewable natural gas"?
7	A.	I have included all advertising related to renewable natural gas and environmental issues
8		that are relevant to my testimony at Exhibits Coalition/403/Ryan/2-19 and
9		Coalition/405/Ryan/2–232. These exhibits include bill inserts, monthly newsletters, on
10		hold messages that the public hears when they call NW Natural, image advertising, and
11		video advertisements.
12	Q.	Were these advertisements booked to regulated accounts?
13	A.	Yes, NW Natural seeks recovery from ratepayers for these advertisements in this rate
14		case. ³⁰
15 16	Q.	How has NW Natural described its acquisition, storage, and distribution of RNG on behalf of ratepayers?
17	А.	NW Natural's renewable natural gas advertising included the following messages:
18		• "We received the green light for renewable natural gas, and can now bring
19		renewable energy directly to our customers. Rulemaking for Senate Bill 98 is
20		complete, giving us a clear path to acquire renewable natural gas, and forging the
21		way for this newest renewable resource to be an increasing part of the state's
22		energy supply. Learn more about renewable natural gas—a zero-carbon resource
23		produced from local organic materials—at Less We Can DOT com."31

³⁰ Ex. Coalition/407/Ryan/2.
³¹ Ex. Coalition/405/Ryan/59 (emphasis added).

1	• "Our facility in Mist, Oregon, provides 20 billion cubic feet of underground
2	storage capacity. That translates into 6 million megawatt hours of renewable
3	storage capability or the equivalent of a \$2 trillion dollar battery. This existing
4	storage is already in place, can deliver on-demand, and is primed to store
5	renewable molecules." ³²
6	• "Renewable natural gas is made from organic materials like wood, food and even
7	human waste, and can be delivered through our existing pipeline to your home or
8	business." ³³
9	• "We are partnering with BioCarbon, a developer and operator of sustainable
10	infrastructure projects, to convert methane from some Tyson Foods facilities into
11	renewable natural gas to heat homes and businesses. Once fully operational, this
12	project is expected to generate enough renewable natural gas each year to heat
13	18,000 homes we serve in Oregon." ³⁴
14	• "New laws in Oregon and Washington will enable NW Natural to begin
15	delivering renewable natural gas to our customers in 2020. We're excited to join
16	these innovative utilities in helping close the loop on waste." ³⁵
17	• "NW Natural is investing in renewable natural gas projects to acquire renewable
18	natural gas for customers. With the first two agreements in place, we can
19	purchase or develop enough renewable natural gas to heat about 36,000 homes.
20	And this is just the beginning. See details at nwnatural.com/RNG." ³⁶

³² Ex. Coalition/405/Ryan/73 (emphasis added).
³³ Ex. Coalition/405/Ryan/45 (emphasis added).
³⁴ Ex. Coalition/405/Ryan/58 (emphasis added).
³⁵ Ex. Coalition/405/Ryan/42 (emphasis added).
³⁶ Ex. Coalition/405/Ryan/25–26 (emphasis added).

1 NW Natural also provided the following message to customers after the passage of

rulemaking on Senate Bill 98:37

2

Green light for renewable natural gas

NW Natural can now bring renewable energy directly to its customers



Rulemaking for Senate Bill 98 is now complete, giving us a clear path to acquire renewable natural gas on behalf of customers, and forging the way for this newest renewable resource to be an increasing part of the state's energy supply.

3		A press release issued by NW Natural further described the rulemaking process for SB
4		98, and lauded the fact that this rulemaking gave NW Natural "a clear path to acquire
5		renewable natural gas on behalf of customers[.]" ³⁸ NW Natural stated that this
6		rulemaking would "forg[e] the way" for "for this newest renewable resource to be an
7		increasing part of the state's energy supply."39
8	Q.	Why have you characterized this advertising as misleading?
9	A.	This advertising is misleading because it implies that NW Natural is currently providing
10		renewable natural gas to its commercial and residential gas utility customers. However,

³⁷ THE 1 CONTRACT OF 111 CONTRACTOR 151

³⁷ This image excerpt was taken from Exhibit Coalition/405/Ryan/54.

³⁸ See Exhibit Coalition/405/Ryan/54.

³⁹ See id.

1		to date none of NW Natural's agreements to purchase renewable energy credits actually
2		provide renewable natural gas service to commercial or residential gas utility customers
3		in Oregon. ⁴⁰ For example, NW Natural informed ratepayers that the Lexington project ⁴¹
4		would provide enough renewable natural gas to "heat 18,000 homes we serve in Oregon."
5		However, none of the renewable natural gas produced from the Lexington Project is
6		piped to residential customers in Oregon. ⁴² NW Natural has only purchased the
7		renewable thermal credit associated with RNG production, but it intends to sell the actual
8		gas to a utility in Nebraska. ⁴³
9		
10		Similarly, NW Natural in its March 2021 newsletter claimed that the Mist gas storage has
11		the capacity to provide "6 million megawatt hours of renewable storage capability or the
12		equivalent of a \$2 trillion dollar battery[.]" However, NW Natural has not provided any
13		evidence demonstrating that it stores any RNG at the Mist facility at all. Communicating
14		to ratepayers that this facility has renewable energy storage capacity equivalent to a \$2
15		trillion battery is disingenuous at best.
16	Q.	What other advertising has NW Natural published regarding renewable natural
17		gas?
18	A.	NW Natural published TV advertisements and digital advertisements that inform the
19		public about the existence of renewable natural gas, but these advertisements fail to

 ⁴⁰ See Apter Testimony at Coalition/100/Apter/18–19.
 ⁴¹ NW Natural refers to the Tyson Lexington project as the BioCarbN project in its

 ⁴² See Chittum Testimony at NW Natural/1100/Chittum/Page 22; Apter Testimony at Coalition/100/Apter/18–19.
 ⁴³ Chittum Testimony NW Natural/1100/Chittum/Page 22.

disclose that <u>none</u> of NW Natural's residential or commercial gas utility customers
 currently receive RNG as part of their gas utility service. I have included as an exhibit to
 this testimony a compilation of these video and digital advertisements as Exhibit
 Coalition/405/Ryan/2–232.

Below is an example of this advertising, which discloses the existence of renewable natural gas as a product. However, none of this advertising explains that customers of residential and commercial gas utility service don't currently receive RNG.



9	Q.	Is the purpose of this RNG advertising to inform ratepayers about the utility's
10		investments in renewable energy?
11	A.	No. If the primary purpose of this advertising were to inform ratepayers about the

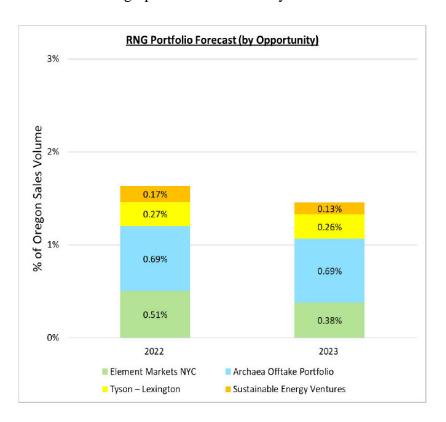
- 12 utility's investments in renewable energy, then it would have informed ratepayers that
- 13 none of the RNG offtake agreements entered into by NW Natural, including the
- 14 Lexington project, bring RNG to any commercial or residential gas utility customers in
- 15 Oregon. This disclosure is critical to understanding the purpose of NW Natural's RNG

6

7

investments. Indeed, NW Natural made this disclosure in its initial filing before the
 Commission in the testimony of Anna Chittum.⁴⁴ However, NW Natural never disclosed
 to ratepayers through its advertising, newsletters, or other media that it intends to sell the
 renewable natural gas produced at the Lexington Project to a local utility in Nebraska.⁴⁵
 Nor has NW Natural communicated to rate payers that its investments in Renewable
 Thermal Credits on behalf of gas utility customers comprise less than 2% of the total

volume of gas sold by the company to gas utility customers in Oregon. This is documented in the below graph from the testimony of Anna Chittum:



8

⁴⁴ Chittum Testimony at NW Natural/1100/Chittum/Page 22.

⁴⁵ Ex. Coalition/405/Ryan/233.

1	Q.	What is the purpose of this RNG advertising?
2	A.	The purpose of this RNG advertising is to improve NW Natural's corporate image by
3		associating its gas utility service with renewable energy, including windmills and solar
4		energy.
5	Q.	Why do you think this is the purpose of NW Natural's RNG advertising?
6	A.	Internal advertising planning documents indicate that the purpose of NW Natural's
7		advertising is to influence public opinion. NW Natural performed several customer
8		surveys that it booked to regulated accounts. ⁴⁶ A copy of these surveys that are relevant
9		to my testimony is included as Exhibits Coalition/405/Ryan/68-69 and
10		Coalition/405/Ryan/77–230. In particular, NW Natural performed public sentiment
11		awareness surveys that tracked the public's concerns with climate change, and
12		simultaneously evaluated public recognition of the term "renewable natural gas." ⁴⁷
13		
14		These surveys sought to understand public sentiment about fossil gas, and also gauge
15		whether survey respondents would support legislative efforts to ban fossil gas. For
16		example, one survey asked the following: ⁴⁸
17 18		The following are a few statements that people sometimes make about natural gas. None may match your opinion exactly, but please
18 19		tell me which is closest to what you think.
20 21		i. Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.
22 23		ii. Natural gas is critical to helping us lower emissions and achieve our climate goals.
24		iii. Natural gas should be used because it's affordable and reliable.

 ⁴⁶ Ex. Coalition/405/Ryan/68–69.
 ⁴⁷ Beck Testimony, Exhs. 904-907.
 ⁴⁸ Coalition/405/Ryan/77.

1		NW Natural's witness on advertising discussed the findings of these surveys. ⁴⁹ Indeed,
2		the Beck Testimony concludes that NW Natural successfully influenced public opinion
3		and that public awareness of RNG has risen as a consequence of their advertising
4		campaign. ⁵⁰
5	Q.	Does NW Natural seek reimbursement from ratepayers for conducting these
6		customer surveys?
7	A.	Yes. NW Natural wants ratepayers to pay for its surveys that gauge political interest
8		about gas bans and public perceptions regarding the harms of climate change.
9	Q.	How do you know NW Natural is asking ratepayers to fund these surveys?
10	A.	NW Natural produced these surveys in response to a data request from CUB which
11		requested a copy of all customer surveys booked to regulated accounts. ⁵¹
12	Q.	What other climate related advertisements have you found misleading?
13	A.	NW Natural published misleading advertising about its carbon footprint, which stated
14		that: "On the coldest winter days NW Natural provides 90% of the energy our residential
15		space and water heating customers need. Yet the use of the gas we purchase for
16		customers accounts for only 6% of Oregon greenhouse gas emissions." This statement is
17		misleading because it implies that NW Natural is providing 90% of residential home
18		heating in winter time. However, a closer read of the statement shows this implication is
19		incorrect. The statement refers only to customers who currently use fossil gas for home
20		heating and water heating. Of those customers, fossil gas provides 90% of the energy
21		needs for space and water heating customers in winter. This is wholly unsurprising

⁴⁹ Beck Testimony at 13–15.
⁵⁰ Beck Testimony at 15.
⁵¹ Ex. Coalition/405/Ryan/68.

because home heating and water heating are the appliances that use the most fossil gas in
 winter.

3	Q.	What other climate related advertisements have you reviewed that have a primary
4		purpose of boosting corporate image?
5	A.	NW Natural has repeatedly touted its investments in RNG as a vehicle fuel through
6		advertising to ratepayers. ⁵² Use of RNG as a vehicle fuel is not relevant to gas utility
7		service, and so presumably the purpose of this advertising is simply to improve the
8		public's perception of fossil gas and of NW Natural.
9 10		4. NW Natural's advertising advocating to "cook with gas" and comparing the benefits of gas versus electric utility services is promotional advertising.
11	Q.	Can you please describe NW Natural's "cooking with gas" campaign?
12	A.	NW Natural has published numerous advertisements that advocate for homeowners to
13		cook with gas stoves. These advertisements tout the benefits of the gas flame for
14		cooking, and also encourage homeowners to install gas stoves to improve the real estate
15		value of their home. Included at Ex. Coalition/403/Ryan/11 is a video clip advertisement
16		that aired on television advocating for "cooking with gas" because homebuyers want
17		home homes with gas stoves. Below is an excerpt from a newsletter included as Exhibit
18		Coalition/405/Ryan/49.
19		

⁵² See, e.g., Ex. Coalition/405/Ryan/47 ("Cherriots public transportation in Salem-Keizer is now the state's cleanest public transit fleet, powering over half of its fleet with renewable natural gas."

Local homebuyers favor natural gas for heating, water heating and cooking A recent study shows homes with natural gas features are more desirable than homes without



When buyers are shopping for a home, an independent study conducted by Escalent Research, shows they prefer—and will pay more for—homes with natural gas heating, water heating and cooking, as well as fireplaces and outdoor grills.

The study surveyed 600 recent and prospective homebuyers in NW Natural's service area and showed 8 in 10 prospective homebuyers prioritize homes with natural gas.

Here are the top reasons why:

- Buyers recognize that natural gas is affordable and efficient.
- They prefer natural gas to electricity for heating and cooking.
- They consider natural gas an important feature when looking for their "ideal" single-family home.

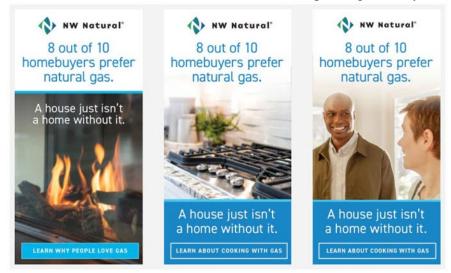
Read more about the study and homebuyer preference for natural gas at nwnatural.com/Preference.

1	This advertisement claims that homebuyers are willing to pay as much as \$50,000 more
2	for a home with fossil gas heating and cooking, versus a home that only uses electricity
3	for home heating and cooking.
4 5	In another advertisement series, NW Natural claims that a "home isn't a home" without
6	gas utility service. ⁵³

⁵³ Ex. Coalition/403/Ryan/4



1 This advertisement series claims that 8 out of 10 homeowners prefer gas utility service:⁵⁴



- 2 This advertisement advocates for gas utility service because it is cheap, without
- 3
- disclosing the significant rate hikes that NW Natural sought in the last general rate case

⁵⁴ Ex. Coalition/403/Ryan/12.

- 1 (and are seeking in this case).⁵⁵ The advertisements also connect inviting, affluent
- 2 images with using gas as a way to further influence public opinion of the Company.
- 3

4 Q. Can you please describe NW Natural's advertisements that compare gas stoves with
5 electric stoves?

- A. NW Natural has numerous advertisements that tout the benefit of gas stoves over electric
 stoves. I have included a few of the digital advertisements below.
- 8 Ex. Coalition/403/Ryan/6.



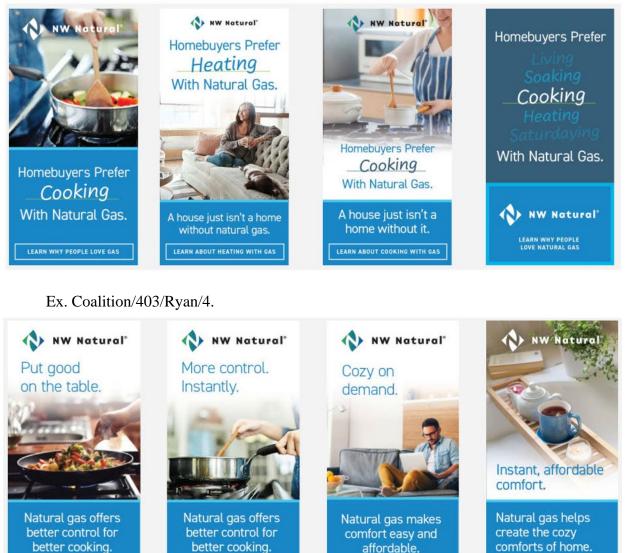
⁵⁵ Ex. Coalition/403/Ryan/10.

Coalition/403/Ryan/5.

LEARN ABOUT COOKING WITH GAS

1

2



Q. What information in these advertisements indicate that they are promotional?
A. These advertisements advocate for using gas utility service for home heating and
cooking. They claim that doing so will improve real estate values by connecting gas
service. The claimed benefits are enormous, including substantially increasing the value
of a person's home by \$50,000. Accordingly, these advertisements promote using and
increasing use of gas utility service.

LEARN ABOUT HEATING WITH GAS

LEARN ABOUT COOKING WITH GAS

DIRECT TESTIMONY OF GREER RYAN - 35

Earthjustice 810 Third Ave. Suite 610 Seattle, WA 98104 (206) 343-7340

LEARN ABOUT HEATING WITH GAS

125.35.44557889910

5 Q. Can you please describe efforts by NW Natural to promote fuel switching to gas
6 utility service?

- 7 A. NW Natural offers incentives and rebates to Oregonians that want to switch from electric
- 8 heating to gas heating.⁵⁶ NW natural claims that "the costs related to those promotional
- 9 activities and rebates are funded by NW Natural's shareholders, and NW Natural is not
- 10 seeking recovery of them in this (UG 435) filing."⁵⁷ Yet NW Natural is seeking recovery
- 11 for advertisements promoting its fuel switching program.

12 Q. Can you please describe advertisements published by NW Natural soliciting

- 13 customers to switch to gas utility service?
- 14 A. NW Natural published advertisements on social media, and other platforms that solicited
- 15 the public to switch to gas utility service. Below are some examples of this advertising:
- 16 Ex. Coalition/402/Ryan/5.



⁵⁶ Ex. Coalition/403/Ryan/17.

⁵⁷ Id.

Ex. Coalition/402/Ryan/4



2		In addition to these advertisements, NW Natural also placed advertisements that solicited
3		customers to install gas-fired water heaters, gas fireplaces, and gas furnaces. ⁵⁸
4	Q.	Does NW Natural seek to recover the cost of its cooking with gas and gas versus
5		electric advertising from ratepayers?
6	A.	Yes. All these advertisements were produced in response to CUB's Data Request No. 4.
7		Thus, as discussed above, NW Natural considers these advertisements part of its
8		Category A advertising expenditures.
9 10	III.	THE COMMISSION SHOULD DENY RECOVERY FOR NW NATURAL'S COSTS RELATED TO LOBBYING AND OTHER POLITICAL ACTIVITIES
11		A. <u>Lobbying and Political Activities</u>
12	Q.	To the best of your knowledge, could you please describe efforts by NW Natural
13		engaged to influence the outcome of local policy that would regulate gas utility
14		service?
15	A.	NW Natural has weighed in on local policy in a variety of jurisdictions.
16		

⁵⁸ Exhs. Coalition/403/Ryan/14; Coalition/403/Ryan/16; Coalition/403/Ryan/19.

1		First, as a recent example, NW Natural opposed a Eugene City Council effort to pass two
2		electrification ordinances, as well as Lane County's greenhouse gas reduction plan. They
3		did so through a variety of efforts, including emailing Councilmembers, ⁵⁹ conducting a
4		paid survey to influence Councilmembers, ⁶⁰ emailing local media, ⁶¹ and publicly
5		testifying in opposition to the policies at multiple public work sessions. ⁶² In addition to
6		the above actions, the Company also took out paid advertisements in a local newspaper.
7		
8		Second, the Company unsuccessfully attempted to influence the Portland Public School
9		Board's decision on whether or not to adopt a Climate Crisis Response Policy, including
10		by weighing in with redlined edits to the draft policy. ⁶³
11		
12		NW Natural has also commented on other local policy efforts, including the efforts by the
13		Milwaukie City Council to introduce and pass an electrification resolution. ⁶⁴
14		
15	Q.	To the best of your knowledge, could you please describe efforts NW Natural
16		engaged in to influence the outcome of state agency rulemaking and related
17		proceedings that would regulate gas utility service?
18	A.	NW Natural has been heavily involved in a variety of agency proceedings related to the
19		regulation of gas service, including the state's Climate Protection Program (CPP).
20		

⁵⁹ Ex. Coalition/408/Ryan/182–84.
⁶⁰ Coalition/408/Ryan/179; Ex. Coalition/408/Ryan/180–8.
⁶¹ Ex. Coalition/408/Ryan/190.
⁶² City of Eugene, City Council Meeting: April 11, 2022, https://www.youtube.com/watch?v=4eOMT_L3E_w.
⁶³ Coalition/408/Ryan/185–86.
⁶⁴ Ex. Coalition/408/Ryan/195–99.

1	Examples of NW Natural political advocacy in the CPP process included, but was not		
2	limited to:		
3	• Sending a letter highlighting the company's "Low Carbon Pathway" strategy,		
4	urging customers to comment (using provided talking points) on both the		
5	Governor's executive order (which spurred the CPP) to reduce carbon emissions		
6	and proposals for bans on new fossil gas hookups. ⁶⁵		
7 8 9	• Sending an email urging customers to publicly comment on the CPP implementation process, with the same talking points as above. ⁶⁶		
10 11	• Sending a follow-up email explaining that the deadline for comment was		
12	extended and again urge customers to weigh in. In this email, NW Natural		
13	provided links to provide comments for submission directly to the company, as		
14	well as an FAQ page. ⁶⁷		
15 16	• Collecting and submitting customer comments regarding the Public Comment		
17	Period for Greenhouse Gas Emissions Program 2021 Rulemaking (October 25,		
18	2021). ⁶⁸		
19 20	In addition to written comments and communications with ratepayers, the Company sent		
21	multiple representatives to various workshops and other public meetings.		
22			

 ⁶⁵ Ex. Coalition/408/Ryan/56–57.
 ⁶⁶ Ex. Coalition/408/Ryan/58–59.
 ⁶⁷ Ex. Coalition/408/Ryan/60–61.
 ⁶⁸ Ex. Coalition/408/Ryan/63.

1	Q.	To the best of your knowledge, could you please describe efforts by NW Natural		
2		engaged to influence the outcome of statewide legislation that would regulate gas		
3		utility service?		
4	A.	NW Natural has been involved, either publicly, behind the scenes, or through various		
5		membership groups, in a variety of legislative advocacy. Of particular relevance to this		
6		proceeding, the Company opposed the "Reach Code" bill, which would have provided		
7		cities and other local jurisdictions with a more energy-efficient building code option.		
8		Notably, NW Natural opposed this bill in both the 2021 and 2022 legislative sessions. ⁶⁹		
9		In 2022, the Company provided testimony against the bill during the final hearing. ⁷⁰		
10 11	Q.	Does NW Natural seek to recover any costs from ratepayers for these political activities?		
12	A.	Yes. NW Natural admits that it seeks to recover costs associated with its political		
13		activities in the City of Eugene. According to NW Natural:		
14		NW Natural seeks to recover all costs and incidental expenditures related to		
15		correspondence with the City of Eugene that are incurred during the normal course of		
16		business or in response to requests by the City of Eugene. Climate action plans may relate		
17		to or affect NW Natural's provision of a public utility service, and the outcome of such		
18		plan can directly impact our customers. As such, it is important for NW Natural to		
19		engage in the public process that could have affect NW Natural's public utility service. ⁷¹		

 $^{^{69}}$ NW Natural testimony opposing the Reach code bill (HB 2398) during Oregon's 2021 legislative session, at

https://olis.oregonlegislature.gov/liz/2021R1/Downloads/PublicTestimonyDocument/4598; NW Natural opposing the Reach code bill (SB 1518) during Oregon's 2022 legislative session, at https://olis.oregonlegislature.gov/liz/2022R1/Downloads/PublicTestimonyDocument/35697. ⁷⁰ Recording available at https://olis.oregonlegislature.gov/liz/2022R1/Committees/SEE/2022-02-07-15-15/Agenda.

⁷¹ Ex. Coalition/408/Ryan/194.

1		B. <u>Membership Dues and Other Payments to Groups Engaged in Lobbying Activities</u>			
2	Q.	Does NW Natural seek to recover as an "above the line" expense payments made to			
3		outside entities that engage in political lobbying?			
4	A.	Yes. NW Natural pays dues and makes other payments to outside entities that engage in			
5		lobbying and other political activities, and NW Natural's Application includes recovery			
6		of portions of its payments to these organizations. In this case, the Company has stated it			
7		intends to recover approximately \$506,000 in dues paid to the American Gas Association			
8		(AGA) and NW Gas Association (NWGA) during the Test Year, as recorded in Account			
9		930.2. ⁷² In addition, the Company made multiple payments to various Chambers of			
10		Commerce, the Oregon Truckers Association, and other membership groups involved in			
11		political advocacy. ⁷³ It is unclear at this time how much exactly the Company wishes to			
12		recover from ratepayers for these various payments to industry association and			
13		membership groups recorded in Accounts other than 930.2.			
14					
15		Regarding Account 930.2, the Commission should not assume that all industry			
16		association activities other than non-deductible lobbying are reasonable expenses to meet			
17		the Company's cost of service. As I will explain below, the AGA, NWGA, and various			
18		Chambers of Commerce, along with other industry association and membership			
19		organizations, fund a wide range of activities, including advocacy to weaken various state			
20		climate initiatives and engage in promotional advertising.			
21					
22					

⁷² Ex. Coalition/408/Ryan/193. ⁷³ Ex. Coalition/408/Ryan/200–237.

1	Q.	What is NW Natural's explanation for these payments?
2	A.	NW Natural states that "Industry association dues are reasonable business expenses that
3		provide a benefit to NW Natural's customers, as these organizations keep employees
4		informed and trained, and also in many cases directly take on issues that benefit
5		customers." ⁷⁴
6	Q.	What are your concerns regarding these payments?
7	A.	I am concerned that NW Natural would include these payments as entirely "above the
8		line" expenses because these outside groups are engaged in robust lobbying and other
9		political activities that are inherently counter to the best interests of Oregon ratepayers
10		and our climate.
11		
12		First, whether such payments to industry associations should be considered "above the
13		line" at all is in question. Indeed, the Federal Energy Regulatory Commission is currently
14		considering a Petition for Rulemaking ("FERC Petition") to reassess its own accounting
15		rules for industry association dues. ⁷⁵ As these rules are largely followed by most state
16		public utility commissions, that ruling could affect accounting and regulatory principles
17		across the country, including in Oregon.
18		

 ⁷⁴ Ex. Coalition/408/Ryan/191–92.
 ⁷⁵ FERC Docket RM21-15-000, <u>https://elibrary.ferc.gov/eLibrary/docketsheet?docket=rm21-15-</u> <u>000</u>.

1		Second, even assuming it should be permissible to allocate a portion of the funds paid to			
2		these entities as "above the line" expenses, NW Natural has not demonstrated that these			
3		funds are not, in fact, being used to support lobbying and other political activities. ⁷⁶			
4					
5		For these reasons, I recommend the Commission reject NW Natural's request to include			
6		payment to these third-party groups as part of its cost of service.			
7					
8	Q.	Please explain the basis for your concern that the American Gas Association (AGA)			
9		and Northwest Gas Association engage in controversial political activities.			
10	A.	As outlined in the FERC Petition, the American Gas Association (AGA) is a trade			
11		association representing more than 200 gas supply companies that supports the use and			
12		production of fossil gas. AGA engages in a variety of controversial political activities,			
13		including but not limited to:			
14		• Actively participating in litigation seeking to lessen environmental protections; ⁷⁷			
15		• Opposing changes to the International Code Council's codes that would make			
16		electric vehicle-ready wiring and electric-powered appliances a widespread			
17		feature of new buildings; ⁷⁸			
18		• Advocating for the build-out of new fossil gas infrastructure; ⁷⁹			

⁷⁶ Ex. Coalition/408/Ryan/193.

⁷⁷ AGA, AGA NWP 12 Coalition Files Brief in 9th Circuit Challenging District Court Order on NWP 12, <u>https://www.aga.org/research/policy/aga-nwp-12-coalition-files-brief-in-9th-circuit-challenging-district-court-orderon-nwp-12/</u>.

⁷⁸ David Iaconangelo, *EVs Dealt Major Blow in Building Code Ruling*, E&E News (Oct. 22, 2020), <u>https://www.eenews.net/energywire/2020/10/22/stories/1063716823</u>.

⁷⁹ AGA Playbook 2021, <u>http://playbook.aga.org/</u>.

1	•	Coordinating misleading influence campaigns related to the climate costs of
2		methane gas; ⁸⁰
3	•	Funding social media ad and "influencer" campaigns to promote methane gas; ⁸¹
4	٠	Creating "educational" materials for children claiming gas is a "very safe energy
5		source," despite its public health harms that disproportionately affect children; ⁸²
6	•	Fighting local electrification efforts; ⁸³

⁸¹ Jeff Brady and Dan Charles, *As Cities Grapple With Climate Change, Gas Utilities Fight To Stay In Business*, NPR (Feb. 22, 2021), <u>https://www.npr.org/2021/02/22/967439914/as-cities-grapple-with-climate-changegas-utilities-fight-to-stay-in-business</u>; Rebecca Leber, *The Gas Industry Is Paying Instagram Influencers to Gush Over Gas Stoves*, Mother Jones (June 17, 2020), <u>https://www.motherjones.com/environment/2020/06/gasindustry-influencers-stoves/</u>.

⁸² Kate Yoder, *Oil and gas coloring books teach kids safety, fossil fuel dependence*, Grist, June 29, 2020, <u>https://grist.org/energy/oil-and-gas-coloring-books-teach-kids-safety-fossil-fuel-dependence/</u>.

⁸³ Emily Holden, Amal Ahmed, and Brendan Gibbons, *A Texas city had a bold new climate plan* – *until a gas company got involved*, The Guardian (Mar. 1, 2021),

https://www.theguardian.com/usnews/2021/mar/01/a-texas-city-had-a-bold-new-climate-planuntil-a-gas-company-got-involved (quoting an AGA statement that the association "will absolutely oppose any effort to ban natural gas or sideline our infrastructure anywhere the effort materializes, state house or city steps"); Jeffrey Tomich, *Gas ban backlash spreads across the U.S.*, E&E News (Feb. 2, 2021), <u>https://www.eenews.net/energywire/stories/1063724065</u>; Steven Mufson, *The battle over climate change is boiling over on the home front*, The Washington Post (Feb. 23, 2021), <u>https://www.washingtonpost.com/climate-environment/2021/02/23/climatechange-natural-gas/.</u>

DIRECT TESTIMONY OF GREER RYAN - 44

Earthjustice 810 Third Ave. Suite 610 Seattle, WA 98104 (206) 343-7340

⁸⁰ Hiroko Tabuchi, A Secret Recording Reveals Oil Executives' Private Views on Climate Change: At a meeting last year, industry leaders contradicted public claims that emissions of climate-warming methane are under control, New York Times, Sept. 20, 2020, https://www.nytimes.com/2020/09/12/climate/methane-natural-gasflaring.html.

1	• Supporting member organizations' efforts to advocate for state legislation that
2	would preemptively prohibit local building electrification, including for public
3	universities. ⁸⁴
4 5	Similarly, although less is public about its efforts, the Northwest Gas Association
6	engages in a variety of political influence activities, including lobbying. These activities
7	and goals are outlined in part in NWGA's Employee Handbook.
8 9	"In order to accomplish its mission, the NWGA will focus its resources on activities that
10	most effectively support the advocacy message by implementing the following strategies:
11	1) Persuasively tell its members' story about the long-term role of gas in meeting
12	society's low carbon policy goals. Win the policy battle.
13	• Argue the counter message to the "zero carbon" and "Electrification mandate"
14	movements. Articulate a pathway to Deep Decarbonization that leverages the
15	benefits of natural gas.
16	• Raise the awareness and appreciation for the value of low-cost long-term supply
17	availability.
18	• Build regional support for a Renewables and Natural Gas partnership as an effective
19	strategy for the PNW region in addressing climate change.

⁸⁴ Sarah Bowman and London Gibson, *Banning natural gas would cut emissions. But lawmakers don't want that happening in Indiana*, Indianapolis Star (Mar. 3, 2021), <u>https://www.indystar.com/story/news/environment/2021/03/03/indiana-general-assembly-tries-stop-cities-banning-natural-gas/4540329001/</u> (describing AGA member companies' efforts to pass H.B. 1191, an anti-electrification bill, and highlighting an AGA letter stating that the association group is "increasingly active" in similar state-level efforts).

1		2) Translate this story into specific lobbying forums to influence public policy in				
2		practical ways as directed by its membership.				
3		• Pro-actively introduce legislation as guided by NWGA's members.				
4		• Represent members' collective position on prospective carbon pricing legislation.				
5		• Intervene to take advantage of public policy driven funding and subsidies that				
6		benefit NWGA's members" ⁸⁵				
7	Q.	Please explain the basis for your concern that the Chambers of Commerce engage in				
8		controversial political activities.				
9	A.	As with AGA and NWGA, various Chambers of Commerce have been actively engaged				
10		in political activities related to gas regulation. For example, the Eugene Chamber of				
11		Commerce recently opposed the City of Eugene's proposed electrification ordinances				
12		(see <u>https://www.eugenechamber.com/ceo-updates</u>).				
13 14		C. <u>Cost Recovery for Political Expenses</u>				
15 16 17 18	Q.	Is it appropriate for NW Natural to recover costs associated with its political activities?				
19	A.	No. The Commission prohibits recovery of ratepayer funds to pay for political activities.				
20		The Commission previously held that:				
21 22 23 24 25 26 27 28 29		The Commissioner views lobbying and similar political activities as essentially the same issue presented by community activities. Ratepayers should not be required to contribute to the advancement of political positions in which they may not believe. Exclusion of political expenditures is even more important than exclusion of community affairs expenditures because a utility's lobbying program can actually harm ratepayers. Stockholder interests with respect to issues such as the nature and scope of regulation often conflict with ratepayer interests. A utility's lobbying program can				

⁸⁵ Ex. Coalition/408/Ryan/33

1 2		be expected to give preference to stockholder interests when issues such as those arise." ⁸⁶
3 4		For industry association dues specifically, even if the Commission finds that some of
5		AGA's, NWGA's, or the various Chambers' activities could constitute services for which
6		costs could properly be recovered from ratepayers, NW Natural seeks to recover all
7		industry association dues and seems to seek to recover all dues for employees' various
8		Chambers of Commerce memberships. Ratepayer funds should not be used for political
9		activities and political advertising.
10		
11		Perhaps most importantly, these anti-climate political activities in which NW Natural and
12		its various industry and employee membership groups have engaged are specifically and
13		overtly counter to the public interest. As described in the Testimony of Nora Apter, we
14		are in a climate emergency. Experts have made clear that to avoid the worst harms of this
15		emergency, we must rapidly transition off fossil fuels. Given all we know about the
16		climate crisis and the public health harms of fossil gas, it is not merely inappropriate for a
17		monopoly utility with captive ratepayers to use ratepayer dollars to fund advertising,
18		lobbying, and dues and other payments to outside entities to promote the use of fossil gas,
19		it is unethical.
20	Q.	Does that conclude your testimony?

21 A. Yes, thank you.

⁸⁶ *Re Pac. Nw. Bell Tel. Co., Am. Network, Inc.*, et al., UT 43, Order No. 87–406, 82 P.U.R. 4th 293, 320 (Mar. 31, 1987).

WITNESS QUALIFICATION STATEMENT

NAME:	Greer Ryan
EMPLOYER:	Climate Solutions
TITLE:	Clean Buildings Policy Manager
ADDRESS:	4207 SE Woodstock Blvd. #149 Portland, OR 97206
EDUCATION:	Bachelor of Science, Molecular Environmental Biology University of California Berkeley, Berkeley, CA
EXPERIENCE:	Engaged in a variety of Oregon PUC proceedings, including the "Natural Gas Fact Finding" proceeding (UM 2178) and various energy affordability dockets. Engaged in NW Natural's Integrated Resource Planning working groups.
	Between 2015 and 2021, worked for the Center for Biological Diversity as a Senior Energy Policy Analyst on a variety of clean energy, climate, energy affordability, and rate related issues. Provided testimony before the North Carolina Utilities Commission on behalf of the Center for Biological Diversity and Appalachian Voices in Duke Energy Carolinas, LLC's Application for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina (NCUC Docket 1214). Co-authored a Petition for Rulemaking to the Federal Energy Regulatory Commission to amend the Uniform System of Accounts' Treatment of Industry Association dues (FERC Docket RM21-15-000).

Exhibit A

Greer Ryan Resume

2011

Experience

Climate Solutions	Portland, OR
Clean Buildings Policy Manager	July 2021-present
Center for Biological Diversity	Portland, OR
Senior Energy Policy Analyst, Energy Justice Program	April 2015 – July 2021
School of Public and Environmental Affairs at Indiana University	Bloomington, IN
Graduate Research Assistant, Meretsky and Attari Labs	2012-2014
Keas, Inc.	San Francisco, CA
Customer Success and Metrics Associate	2011-2012
Education	
Indiana University, School of Public and Environmental Affairs	Bloomington, IN
M.S. Environmental Science	2014
University of California at Berkeley, College of Natural Resources	Berkeley, CA

Select Publications

B.S. Molecular Environmental Biology

Ryan, G. (2021). "Power Crisis: Despite Transparency Failures, Utility Information Reveals Major Home Shutoff Problem," Report for Center for Biological Diversity.

Hernandez R.R., A. Armstrong, J. Burney, **G. Ryan**, K. Moore-O'Leary, I. Diedhiou, S.M. Grodsky, L. Saul-Gershenz, R. Davis, D. Mulvaney, G.A. Heath, S.B. Easter, B. Beatty, M.K. Allen, D.M. Kammen. (2019). Techno-ecological synergies of solar energy for global sustainability. *Nature Sustainability*. 2: 560-568.

Ryan, G. (2019). "Utility Greenwashing in Websites and Investor Reports." Report for Center for Biological Diversity.

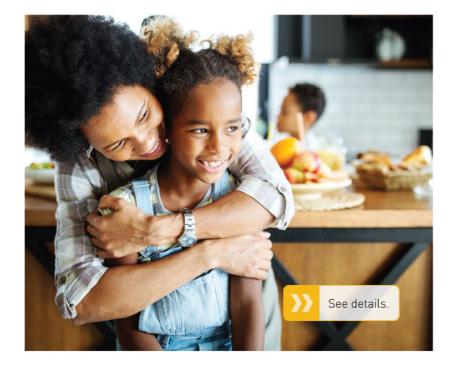
Select Presentations

Ryan, G., J. Su, H. Crystal, C. Hall. (March 2019). "Transforming our Energy System to Meet Climate and Energy Democracy Goals," Panel at the Public Interest Environmental Law Conference in Eugene, OR.

Ryan, G. and R. Hernandez. (March 2018). "Social and Environmental Benefits of Integrated Solar" Panel presented at Public Interest Environmental Law Conference in 2018, Eugene, OR.

Ryan, G. (April 2017). "Energy, Sustainability, and Solar Policy Fights," Lecture given at UC Davis for "Energy and Environment" course in 2017, Davis, CA.

Exhibit: Fuel Switch Coalition/402/Ryan



There's no place like your home.

Make it more comfortable, more affordable with a new high-efficiency natural gas furnace. We can help you get started with **up to \$1,200** in rebates and offers.



Reliable, affordable natural gas comfort

Upgrading to a high-efficiency natural gas furnace can:





Warm your home with clean-burning, consistent heat

Lower space heating costs by up to 18% every year, over its lifetime



efficiency and reduce carbon emissions

NW Natural customers in Oregon and Washington, receive up to \$1,200 in discounts and incentives when working with a NW Natural Preferred Contractor to upgrade your home's heating system.*



Visit nwnatural.com/ Offers for details, requirements and to find a NW Natural Preferred Contractor near you.

*Incentives are available when you work with a NW Natural Preferred Contractor to install qualifying equipment by March 31, 2021. NW Natural Preferred Contractors have implemented additional safety practices and social-distancing guidelines. Qualifications apply. 02/21





Exhibit: Gas Use Coalition/403/Ryan

Comfort without all the cost

NW Natural and Energy Trust of Oregon have great deals on high-efficiency natural gas appliances, windows, insulation and more. Together, we make upgrades more affordable and help lower your energy bills.







Lower your energy bills, reduce your carbon footprint, and make your home more comfortable with these energy-efficiency improvements.

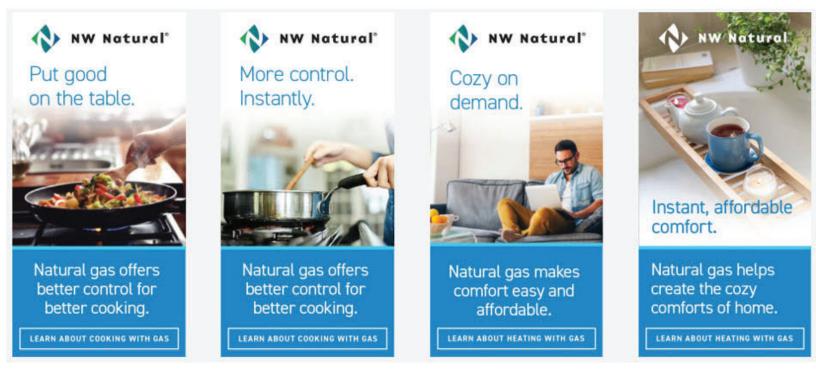
Our rebates and offers help lower the cost.*

Visit nwnatural.com/ Offers for the complete list of rebates and offers.

High-efficiency natural gas furnace	Up to \$1,000, plus a \$200 invoice rebate from NW Natural Preferred Contractors
High-efficiency direct vent natural gas fireplace	Up to \$250, plus a \$150 invoice rebate from NW Natural Hearth Retailers
ENERGY STAR® high-efficiency natural gas tank water heater	\$150 at participating retailers
ENERGY STAR clothes washer	Instant discount on qualifying models at participating retailers
Windows	Up to \$6 per square foot, based on efficiency rating
Insulation (attic, wall, floor and more)	Incentives vary based on area insulated and square footage installed
Smart thermostat	\$100 off qualifying models

* Incentives are subject to funding availability and may change. Some qualifications apply. Visit nwnatural.com/Offers for details.

01/21





Homebuyers Prefer Cooking With Natural Gas.

LEARN WHY PEOPLE LOVE GAS

NW Natural

Homebuyers Prefer Heating With Natural Gas.



A house just isn't a home without natural gas.

LEARN ABOUT HEATING WITH GAS



Homebuyers Prefer Living Soaking Cooking Heating Saturdaying With Natural Gas.

> LEARN WHY PEOPLE LOVE NATURAL GAS





Natural gas delivers more control for precise cooking.

LEARN MORE @ LESS WE CAN

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MORE CONTROL. INSTANTLY.



Natural gas delivers more control for precise cooking.

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Comfort Zone



NATURAL GAS SAFETY AND CUSTOMER NEWSLETTER • MAY 2021 • NWNATURAL.COM

Your Partner in Safety:

We have the resources and pipeline standards in place to help keep you safe

About 2.5 million customers throughout Oregon and Southwest Washington depend on NW Natural to deliver gas service safely and reliably. That's why we have one of the most modern pipeline systems in the nation—a system that exceeds state and federal pipeline safety regulations.

To maintain a safe gas system, we lead continuous efforts like training first responders and excavators.

We also work to keep you safe every day, indoors and out. Brush up on these safety tips:

- Know how to identify a possible gas leak: Natural gas is odorless, so we give it a strong stinky smell similar to rotten eggs. If you smell rotten eggs, leave the area and call us at 800-882-3377. Smell. Go. Let us know.
- Before you start any digging project, call 811 to locate underground utility lines for no charge. Within a few days, you'll see visual markers identifying underground lines, showing you where not to dig.



Learn more safety tips by visiting nwnatural.com/ HomeSafety. Together, we can continue to be a leader in safety, nationwide.

NW Natural news you can use

The low cost of natural gas has saved families a total of \$143 billion over 10 years, nationwide. nwnatural.com/Benefits

NW Natural Street of Dreams tickets on sale now! The summertime tradition since 1975 returns with six homes at two locations, showcasing a range of price points, housing types and energy-efficiency design. See you this summer in Happy Valley, July 31 to August 22, 2021. streetofdreamspdx.com

Many factors contribute to indoor air quality, like cleaning products and the food you cook. Improve indoor air quality by using your kitchen fans and range hoods. **nwnatural.com/** CookingWithGas

5

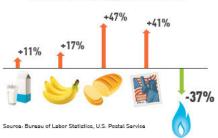
Count on us: Due to efficient operations and lower commodity costs, we pass historically low prices on to you

While the cost of many everyday goods and services are on the rise, our customers are paying about 37% less today on their gas bills than they did 15 years ago. How is this possible? Efficient operations and lower commodity costs mean you benefit from the savings.

Lower bills even more with these energy-saving tips:

- After last fall's wildfires and winter demand on your furnace, take a look at your furnace filter. If it's dirty, your furnace is wasting energy by working harder than it needs to.
- Ceiling fans can help save money in every season. When it's warm out, switch your fan to the counterclockwise direction, and feel the relief of cool circulating air.





 Window coverings can also help trim costs. Keep the sun's glare out by closing drapes in the heat of the day, especially on west-facing windows.

There's always more room to pay less with NW Natural. Visit nwnatural.com/Tips to see ideas we recommend most.

Ways to Save:

Reduce your gas use with high-efficiency appliances

We partner with NW Natural Preferred Contractors and Energy Trust of Oregon to provide rebates and discounts on high-efficiency natural gas upgrades, making appliances more affordable. These energy-saving appliances can lower gas bills-and your household's carbon emissions-all year long.

This summer, you can receive discounts on the following:

- High-efficiency natural gas furnace
- High-efficiency natural gas fireplace
- High-efficiency natural gas water heater
- Insulation, windows and smart thermostats



GET RELIABLE HOT WATER FOR LESS

Visit nwnatural.com/Offers to access this season's rebates and qualifications, and find a contractor near you.



Customer Care: As a NW Natural customer, you have options when it comes to paying your bill

We offer a variety of methods to pay your bill, so you can choose which one works best for you.

Pay by phone, mail, in person or online. You can also set up automatic payments, enroll in paperless billing and much more.



Pay by phone

Make a payment 24/7 using our automated Interactive Voice Response system.

Call us at 800-422-4012.



Pay in person

Many local merchants are authorized to accept payments on behalf of NW Natural. Use our tool to find a location near you.

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Pay by mail

NW Natural provides a return envelope with your monthly bill. Use the envelope to mail in your check.



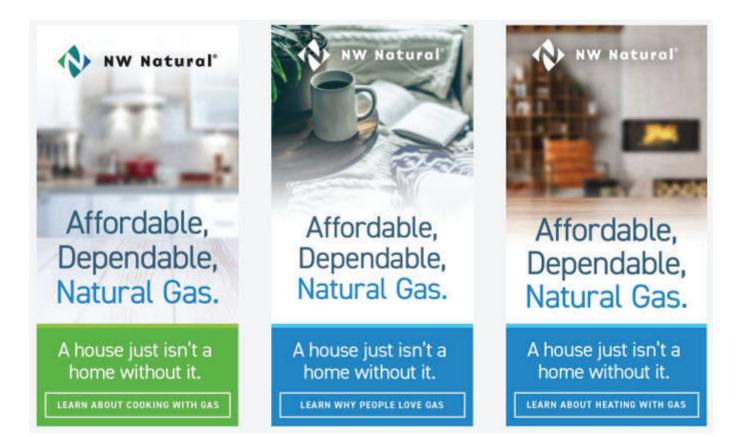
Pay online

Use a credit or debit card or checking account, make a quick one-time payment without logging in, enroll in Auto Pay and other self-service options.

Visit **nwnatural.com/Payment** to see all the options designed to make paying your bill as easy as possible.











Less than ever.

Natural gas customers pay 37% less compared to 15 years ago.





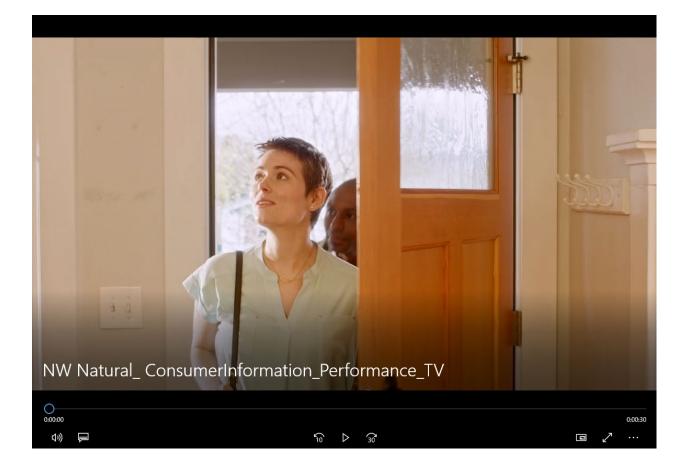
Savings passed on to you.

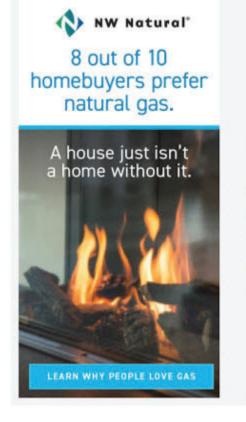
Natural gas prices are lower than 15 years ago.



Video Exhibit Submitted in Native File Format

NW Natural_ ConsumerInformation_Performance_TV







8 out of 10 homebuyers prefer natural gas.



A house just isn't a home without it.

LEARN ABOUT COOKING WITH GAS



8 out of 10 homebuyers prefer natural gas.



A house just isn't a home without it.

LEARN ABOUT COOKING WITH GAS

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 47

47. Please provide all documents relevant to the following advertisement placed on social media on October 12, 2020, including but not limited to the offer itself:

"Beautiful, clean, easy, convenient. Get up to \$1,450 back when you install a natural gas fireplace in Oregon, or up to \$1,850 when coupled with a tankless water heater in Washington. Offers expire December 31."

Response:

The Company objects to this data request under 860-001-0500 because the request for "all documents" is burdensome, overly broad and not commensurate with the needs of this case, the resources available to the parties or the importance of the issues to which the discovery relates. Without waiving this objection, the Company responds as follows:

Please see UG 435 Coalition DR 47 Attachment 1 for the information posted on NW Natural's social media channels for upgrading to high-efficiency equipment. This was not a paid advertisement.

With respect to the incentives offered in the advertisement, the only NW Natural incentive was funded by NW Natural's shareholders and is not requested for recovery in this case.

<u>Oregon</u>

\$1,000 NW Natural (shareholder)

\$200 Hearth Retailer

\$250 Gas Fireplace ETO incentive - Tier 2 75.0+ EF with electronic pilot ignition

\$1,450

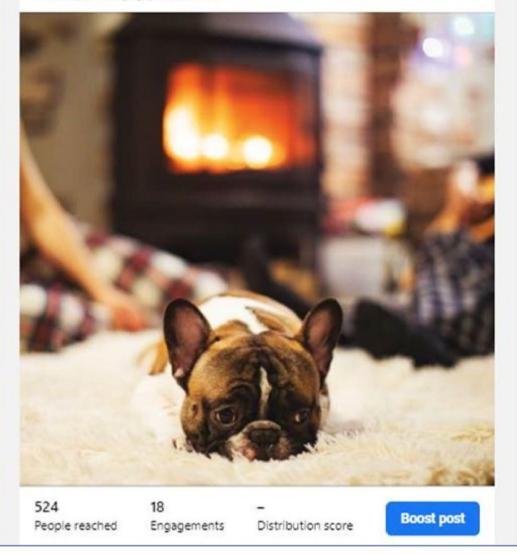
UG 435 Coalition DR 47 Attachment 1

...



Published by Hootsuite () - October 12, 2020 - 😵

Beautiful, clean, easy, convenient. Get up to \$1,450 back when you install a natural gas fireplace in Oregon, or up to \$1,850 when coupled with a tankless water heater in Washington. Offers expire December 31: http://ow.ly/ljzp50BOLWD



NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 51

51. Please provide all documents relevant to the following advertisement placed on social media, including but not limited to a copy of the referced offer:

"New NW Natural customers can get up to \$1,300 back in Oregon or up to \$1,500 back in Washington when you switch to natural gas with a qualifying Rinnai Sensei tankless water heater. Offer available through December 31, 2020."

Response:

The Company objects to this data request under 860-001-0500 because the request for "all documents" is burdensome, overly broad and not commensurate with the needs of this case, the resources available to the parties or the importance of the issues to which the discovery relates. Without waiving this objection, the Company responds as follows:

Please see UG 435 Coalition DR 51 Attachment 1 for the information posted on NW Natural's social media channels for upgrading to high-efficiency equipment. This was not a paid advertisement.

With respect to the incentives offered in the advertisement, the only NW Natural incentive was funded by NW Natural's shareholders and is not requested for recovery in this case.

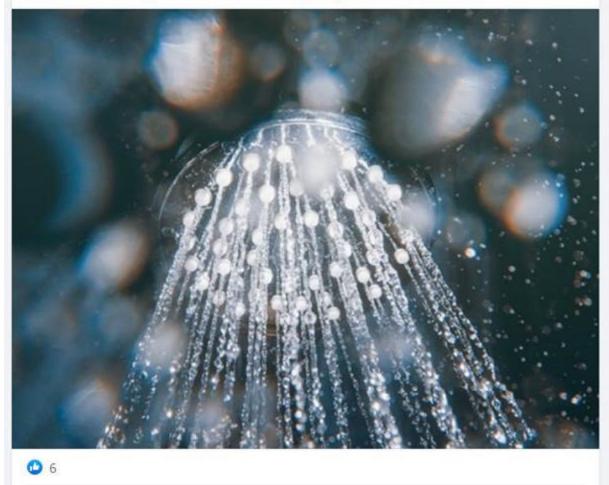
\$1,000 NW Natural (shareholder) \$200 Rinnai tankless Partner (contractor) <u>\$100 Rinnai (manufacturer)</u> **\$1,300**

UG 435 Coalition DR 51 Attachment 1 Page 1 of 1



...

New NW Natural customers can get up to \$1,300 back in Oregon or up to \$1,500 back in Washington when you switch to natural gas with a qualifying Rinnai Sensei tankless water heater. Offer available through December 31, 2020: http://ow.ly/DQ3250AVOs0



NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision <u>Data Request Response</u>

Request No.: UG 435 Coalition DR 53

53. Please state whether NW Natural is promoting fuel switching away from electricity to natural gas service for any of the following energy uses: home heating, stovetop service, fireplaces, BBQ pits, or any similar appliance.

Response:

NW Natural objects to DR 53 on the grounds that it is vague and ambiguous with respect to the term "promoting." Without waiving this objection, NW Natural provides the following answer based on the assumption—which was confirmed by counsel for the Coalition in a conversation with NW Natural's counsel that took place on April 12, 2022--that DR 53 seeks information regarding promotional incentives and rebates provided by NW Natural to encourage customers to "switch" from oil and electric resistance heating (including heat for stovetop service) to natural gas.

NW Natural offers incentives and rebates for customers that wish to switch from oil and electric heating. However, the costs related to those promotional activities and rebates are funded by NW Natural's shareholders, and NW Natural is not seeking recovery of them in this (UG 435) filing.

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 57

57. Please provide all documents relevant to the following advertisement placed on social media on November 12, 2020, including but not limited to the offer itself:

"Convert your heating system to a new high-efficiency natural gas furnace, water heater and central air conditioner and get up to \$3,000 back. Available through December 31:"

Response:

The Company objects to this data request under 860-001-0500 because the request for "all documents" is burdensome, overly broad and not commensurate with the needs of this case, the resources available to the parties or the importance of the issues to which the discovery relates. Without waiving this objection, the Company responds as follows:

Please see UG 435 Coalition DR 57 Attachment 1 for the information posted on NW Natural's social media channels for upgrading to high-efficiency equipment. This was not a paid advertisement.

With respect to the incentives offered in the advertisement, the only NW Natural incentive was funded by NW Natural's shareholders and is not requested for recovery in this case.

<u>Oregon</u>

\$1,500 NW Natural on a natural gas furnace + tank tankless water heater + A/C (shareholder)

\$500 Preferred Partner (Contractor)

\$1,000 Savings Within Reach Invoice Discount (90% AFUE) ETO incentive

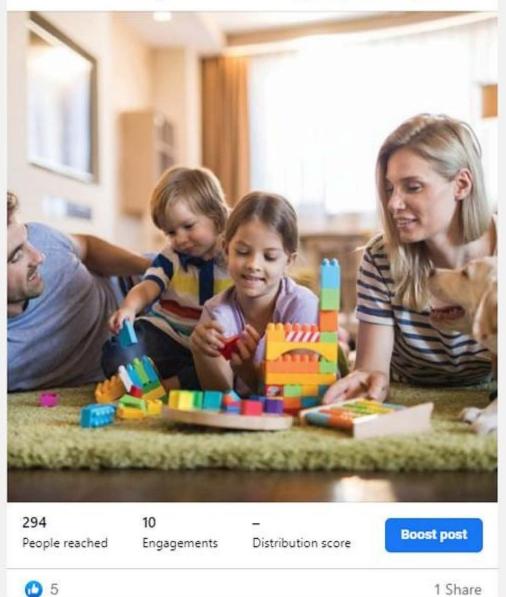
\$3,000



...

UG 435 Coalition DR 57 Attachment 1 Page 1 of 1

Convert your heating system to a new high-efficiency natural gas furnace, water heater and central air conditioner and get up to \$3,000 back. Available through December 31: http://ow.ly/LVoX50CgPs2



Coalition/404 Ryan/1

Exhibit: Indoor Air Quality Coalition/404/Ryan

All *EHP* content is accessible to individuals with disabilities. A fully accessible (Section 508–compliant) HTML version of this article is available at http://dx.doi.org/10.1289/ehp.122-A27.

Cooking Up Indoor Air Pollution

Emissions from Natural Gas Stoves

Natural gas cooking appliances, which are used by a third of U.S. households, can contribute to poor indoor air quality, especially when used without an exhaust hood.¹ Gas stoves emit nitrogen dioxide (NO_2), carbon monoxide (CO), and formaldehyde (HCHO), each of which can exacerbate various respiratory and other health ailments.^{23,4} In a study reported in this issue of *EHP*, researchers from Lawrence Berkeley National Laboratory and Stanford University developed a simulation model to estimate gas stoves emissions and the exposures experienced by different household members.⁵

The model used a sample cohort representing Southern California households, of which more than half use natural gas to cook. The investigators obtained data on the homes and the occupants, including how often they cooked breakfast, lunch, and dinner. The team estimated air exchange rate (i.e., the rate at which outdoor air replaces indoor air), the amount of time people spent at home, and outdoor profiles for NO₂ and CO (indoor concentrations of these two pollutants are heavily influenced by outdoor levels, whereas HCHO concentrations typically depend on a variety of sources). They assumed one adult cooked in each home and that any children aged 0–5 years would be in close proximity to the adult while he or she was cooking.

Gas burners were estimated to add 25–33% to the week-averaged indoor NO₂ concentrations during summer and 35–39% in winter. The variability between seasons likely reflected the fact that air ventilation is lower in winter. For CO, gas stoves were estimated to contribute 30% and 21% to the indoor air concentration in summer and winter, respectively. In this case, the appliances contributed relatively more CO during summer because outdoor concentrations tend to be lower then. The appliances added little to indoor HCHO concentrations relative to other indoor sources such as furniture and building materials.⁵

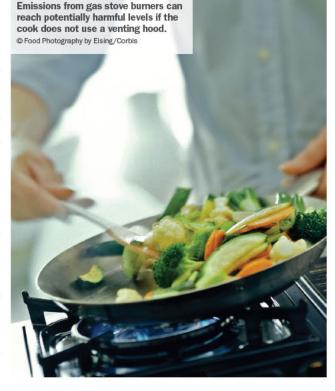
The model predicted that when homes did not use venting range hoods, household exposures frequently exceeded benchmarks the authors set based on federal and state health-based standards.^{6,7} It also indicated that cooks and young children, who were assumed to be in closest proximity to the stove, would have the highest exposures.

Based on these modeling results, the investigators estimated that, during a typical winter week, 1.7 million Californians could be exposed to CO levels that exceed standards for ambient air, and 12 million could be exposed to excessive NO₂ levels, if they do not use venting range hoods during cooking. "Clearly we have unhealthy situations indoors since we exceed outdoor standards in homes," says lead author Jennifer Logue of Lawrence Berkeley National Laboratory.

In colder climates, people may not want to use vents because they send warm indoor air outside. But the authors suggest that increasing the use of venting range hoods could reduce indoor air pollution as well as exposures to these chemicals. Even greater reductions could be achievable with improved hoods that capture pollutants more effectively, or quieter hoods that people are more likely to turn on.

"A vent is a solution but not the only solution," says Greg Diette, a Johns Hopkins University professor of medicine, epidemiology, and environmental health sciences. "Another solution is to swap out the stove [for an electric model]." Diette has also tested a promising air cleaner that adsorbs gases.

Charles J. Wechsler, an adjunct professor with the Environmental and Occupational Health Sciences Institute, Rutgers University,



points out that adsorbents have finite life spans, but it can be difficult to know when it's time to change them. "An exhaust system that incorporates a heat exchanger might be more promising" he says. "Such units are used in Scandinavia." Heat exchangers reduce heat loss to the outdoors.

Logue points out that simply cooking food, even on electric burners, also emits pollutants, especially particulate matter and acrolein. "Just switching from gas to electric will not solve all your pollution issues with cooking," she says.

Wendee Nicole was awarded the inaugural Mongabay Prize for Environmental Reporting in 2013. She writes for Discover, Scientific American, National Wildlife, and other magazines.

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Coalition/404 Ryan/3



Coalition/404 Ryan/4

IAQ DIGITAL ADS | EXAMPLE 5



Coalition/405 Ryan/1

Exhibit: RNG Coalition/405/Ryan

Enewsletters 2021

Residential and Commercial

January



NATURAL GAS SAFETY AND CONSUMER INFORMATION • JANUARY 2021 • NWNATURAL.COM

Making renewable natural gas with Tyson Foods



We're partnering with BioCarbN, a developer and operator of sustainable infrastructure projects, to convert methane from some Tyson Foods facilities into renewable natural gas to heat homes and businesses.

See details »

HOUSELINE MAINTENANCE NOTICE

See insert »

PARKS GET SMART ENERGY DONATION

Learn more »

PARTNER IN SAFETY



There's a reason our gas smells like rotten eggs

We could have made our gas smell like anything: chocolate chip cookies or BBQ ribs. But we gave it a rotten egg odor so it can be detected quickly. If you smell natural gas inside, remember to Smell. Go. Let us know.



Energy Trust improves home comfort without all the cost

WAYS TO

SAVE

NW Natural and Energy Trust of Oregon have great deals on highefficiency natural gas appliances, windows, insulation and more. Together, we make upgrades more affordable and help lower energy bills.

Learn more »



CUSTOMER CARE



MORE WAYS TO SAVE



You have more options when it comes to paying your bill

Now you can pay with Venmo and PayPal, through our payment processor Paymentus. Simply sign in to your account and choose from our self-service options. Rebates help make natural gas upgrades more affordable

NW Natural Preferred Contractors provide rebates when you upgrade to a high-efficiency natural gas furnace, fireplace or water heater.

See rebates »

See ways to pay »

EASY ENERGY-SAVING IDEAS



There's always room to save more

Since 1970, our customers have cut their energy use and carbon emissions in half. Our free and low-cost fixes can help you save energy, too.

See tips »

Have a question? We're here to help. Contact us and we'll respond quickly.



web@nwnatural.com

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February Oregon



NATURAL GAS SAFETY AND CONSUMER INFORMATION • FEBRUARY 2021 • NWNATURAL.COM

Oregon customers received millions back on February gas bills



Did you notice? Customers in Oregon received a credit on February bills – about \$9 for the average residential customer. Learn why we issued \$9.1 million back to customers.

See details »

LIMITED-TIME INSULATION BONUSES

See details »

MANAGE YOUR BILLING OPTIONS

See tools »





There's no place like your home

Make it more comfortable, more affordable with a new high-efficiency natural gas furnace. We can help you get started with up to \$1,200 in rebates and offers.

Winter care for your gas meter

PARTNER IN

SAFETY

We need your help keeping the gas meter safe and accessible. For example, clear snow, ice or other debris off your meter by using a soft broom or brush (but no sharp tools).

See more tips »

IN THE



Learn more »





Lowering greenhouse gas emissions in Oregon

On the coldest winter days, we provide 90% of energy needs for our residential space and water heating customers. Yet our customers' gas use accounts for 6% of Oregon greenhouse gas emissions. We're working to reduce that number even more.

Learn more »

Meet March for Babies leader Willa

Emergency Contact Center supervisor Willa served as the 2020 Portland March for Babies chair. The event helps mothers and babies access the best healthcare possible, with proceeds supporting pregnancy care and neonatal intensive care nursing.

Read more »

WARMING UP IN WINTER



When the power goes out, natural gas can help

The winter storm has ended, but it's still impacting customers. Fortunately, some natural gas appliances continue to work during a power outage, providing heat, fuel for cooking, and hot water for bathing.

Learn more »

Have a question? We're here to help. Contact us and we'll respond quickly.

NW Natural Home Customer Service



ess | Unsubscribe

View In Browser

Coalition/405 Ryan/8

Customer Service: (800) 422-4012 (800) 422-4012Â FREE

Natural Gas Odor? (800) 882-3377 (800) 882-3377Â FREE

Profile Center

NW Natural | 250 S.W. Taylor St | Portland, OR 97204

web@nwnatural.com

©%%xtyear%% NW Natural

March

-

Comfort Zone

NW Natural[®]

NATURAL GAS SAFETY AND CONSUMER INFORMATION • MARCH 2021 • NWNATURAL.COM

A springtime reminder to call 811 before you dig



Utility lines beneath the ground provide all the essentials of a modern home, including electricity, water, sewer and natural gas. Call 811 to locate them at least two business days before digging. It's free and it's the law.

Learn more about 811 »

NEED HELP PAYING YOUR BILL?

See our options »

DISCOUNTS ON NEW GAS EQUIPMENT

See our offers »

WAYS TO SAVE





We make it easier to care for the appliances you rely on

Lower energy bills with a heating and cooling tune-up. Special prices are available when you tune up your natural gas furnace and air conditioner before May 31, 2021.



Local homebuyers favor natural gas for heating and cooking

A recent study shows homes with natural gas features are more desirable than homes without. In fact, 8 in 10 favor - and will pay more for - homes with natural gas heating and cooking.

See prices »









Mentoring makes a difference for vulnerable youth and families

After moving to Portland from The Bronx, Ray – of our Major Account Services team – began mentoring at Self Enhancement, Inc., Oregon's largest African-American-led nonprofit providing cradle-to-career services.



Even small changes can help you use less energy at home

Through our partnership with Energy Trust of Oregon and our customers, we expect to have saved enough energy by 2035 to heat 230,000 homes annually. Our efficiency tips can help you conserve energy now.



See Ray's story »

Cooking with Gas



Cook what you love with control and convenience

There are many reasons why 40 million Americans cook with natural gas, including instant flame control and operation in a power outage. And regardless of the fuel source, ventilation is important for air quality.

Learn more »

Coalition/405 Ryan/11

Residential	I	NW Natural Home	I	Customer Service	ľ	Business	I	Unsubscribe	I	View In Browser
								Customer Service 422-4012Â FREE	e: (800) 422-4012 (800)
NW Natural 250	S.W. T	aylor St Portland, (Natural Gas Odor? (800) 882-33 882-3377Â FREE			0) 882-3377 (800)			
								Profile Center		
web@nwnatural.c	om									
©%%xtyear%% N\	N Natu	ıral								

April

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NATURAL GAS SAFETY AND CUSTOMER INFORMATION • APRIL 2021 • <u>NWNATURAL.COM</u>

We have the resources and pipeline standards in place to keep you safe



Our pipeline system is one of the most modern in the nation - exceeding state and federal pipeline safety regulations. To maintain a safe gas system, we lead continuous efforts like training first responders and excavators. You, too, can help maintain a safe gas system by brushing up on our home safety tips.

See safety tips »

LOWER GAS BILLS
WITH EASY CHANGESDOZER DAY DRIVE-
THRU, MAY 15-16See tips >>Join us! >>ComparisonComparison
Payment
OptionsFor eliability of our service
comes with historically low pricesYou have options when it comes
to paying your billWhile the cost of memory and the payerWe affer a unit of memory but of the payer

While the cost of many everyday goods and services are on the rise, our customers are paying about 37% less today on their gas bills than they did 15 years ago. Our efforts to keep energy costs low include efficient operations and lower commodity costs.

Learn more »

We offer a variety of methods to pay your bill, so you can choose which one works best for you. Pay by phone, mail, in person or online. You can also set up automatic payments, enroll in paperless billing and much more.

View ways to pay »

WAYS TO SAVE



Reduce your gas use with highefficiency natural gas appliances

We partner with NW Natural Preferred Contractors and Energy Trust to provide rebates and discounts on high-efficiency natural gas upgrades. In turn, these appliances can lower gas bills all year long.

TAX INFORMATION



Public service announcement: Federal Earned Income Tax Credit

If your household qualifies to claim the EITC, you could pay less federal tax, no tax or even get a refund.

Learn more »

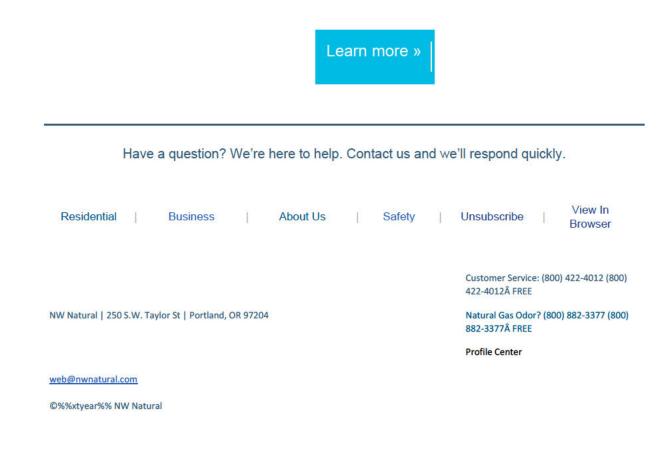
See rebates »

Less We Can!



Thank you for recognizing our actions to help take care of the environment

The utility industry's commitment to the environment is stronger than ever, according to customers of the nation's 140 largest utilities. And in a recent study from Escalent, residential customers placed NW Natural in the top five on the list of 2021 Environmental Champion utilities.



May



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • MAY 2021 • NWNATURAL.COM

Understanding your gas bill: a step-by-step guide

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many Particular States Add Pay a task	Total Pay a trainer 3	nati Derny	

To make reading your gas bill simple and easy, we've broken down your bill to explain its many parts, list how your bill is calculated, and show how every dollar is spent.

See guide »

THE STREET OF DREAMS RETURNS!

Get early bird discount »

SOAK UP WATER-HEATING SAVINGS

See ideas »

PARTNER IN SAFETY



Check out comprehensive tips in our home safety guide

With one of the most modern pipeline systems in the nation, we work to ensure natural gas is there for you whenever you need it. That includes resources to help keep you safe at home.





Improve your home's heating and cooling for less

To help lower your energy bills, we partner with NW Natural Preferred Contractors to offer discounts on highefficiency natural gas furnaces. There's also an incentive for upgrading to an energy-efficient central air conditioner.

See safety tips »

See rebates »

Co

LESS WE

CAN

COMMUNITY



Keeping water hot for limitedincome residents in Lane County

This winter, we helped Lane County's Homes For Good replace a failing water heating system in a 150-unit building that is home to low-income seniors and people with disabilities.

See community resources »



We're working to reduce customers' greenhouse gas emissions even more

Did you know NW Natural delivers more energy in Oregon than any other utility, yet our customers' use of natural gas in homes and businesses accounts for only 6% of the state's greenhouse gas emissions?

Learn more »

NW Natural Nonprofit Programs of Focus



Supporting clean-energy education and careers

As the only major locally based natural gas utility in our service area, we are responsible for helping the communities around us. So we partner with Bonneville Environmental Foundation Clean Energy Schools Program to support educator leadership and equitable access to energy careers.

Learn more »

Have a question? We're here to help. Contact us and we'll respond quickly.

Residential	Ĩ	Business	1	About Us	ļ.	Safety	1	Unsubscribe		View In Browser
		Customer Service: (800) 422-4012 (800) 422-4012Â FREE								
NW Natural 250 S.W. Taylor St Portland, OR 97204								Natural Gas Odor? 882-3377Â FREE	882-3377 (800)	
								Profile Center		
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June



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • JUNE 2021 • NWNATURAL.COM

Is your home prepped to conserve energy and stay cool?



As temperatures climb, we can help you lower summer energy bills while staying cool. Check out our free fixes, low-cost improvement and upgrade ideas.

See tips »

TOOLS TO MANAGE YOUR ACCOUNT

Customize now »

WHAT DO WE DO WITH LANDFILL WASTE?

Watch video »



Lower energy bills with our summer upgrade bundle

Receive rebates when you upgrade to a high-efficiency natural gas furnace and a central air conditioner, plus lower energy bills year-round. (A \$250 air conditioner incentive from Energy Trust is available for customers of PGE and Pacific Power.) You now have more ways to reduce monthly payments

If you need help taking care of a pastdue account balance, our flexible payment plans are now available with longer terms and more flexible options. Grants may also be available.

See details »

See special offer »

YOUR SAFETY



Go outside and play, and count on us to keep you safe

We have the resources to help keep you safe this summer. Brush up on safety tips for grills, gardening and more.

See tips »

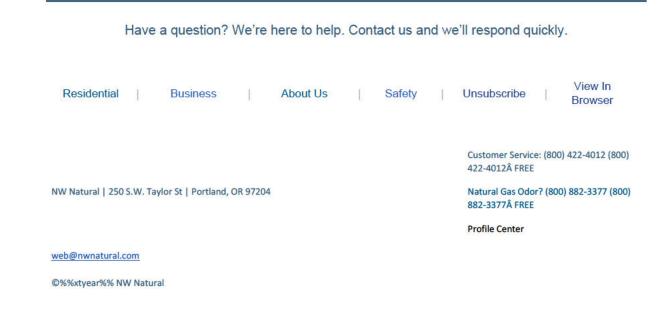
IN THE COMMUNITY



Coastal community chooses our employees as best in customer service

Just about everyone in Lincoln City on the coast knows their local NW Natural field employees. The Lincoln City team was part of the response effort when the Echo Mountain Fire erupted in September 2020.

Read more »



July

-



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • JULY 2021 • NWNATURAL.COM

Put natural gas in your power-outage emergency kit

Coalition/405 Ryan/21



Many natural gas cooktops, fireplaces and water heaters can still work during a power outage; they might just need a little help from you. Watch these videos to make sure you're ready.

Watch videos »

YOU HAVE A VARIETY OF WAYS TO PAY

See options »

LOWER BILLS WITH GAS UPGRADES

See discounts »



Understand the cost of natural gas on your bill

See where every dollar paid on your gas bill goes when you view this helpful

STREET OF DREAMS



NW Natural Street of Dreams returns! Join us July 31-Aug. 22

The summertime tradition since 1975 is back with six homes at two locations,

guide. You'll also learn how bills are calculated, and how natural gas rates compare to other everyday items.

See details »

showcasing a range of prices, housing types and energy-efficiency design. Ticket discount available with code NWNATURAL21.

Get tickets »



Renewable natural gas is on its way home

There has been a shift in how we think about our energy and the challenge of climate change. With renewable natural gas, we're creating a better energy, by design.

Watch video »

YOUR SAFETY



Call before clearing your sewer

Is your sewer or septic line possibly clogged due to increased use of disinfecting wipes this past year? Call us before you clear it. In rare cases, the natural gas pipeline that serves a home or business may cross through a sewer pipe.

Learn more »

Manage billing options



Review your enrollment in the WARM billing program

WARM is designed to smooth out impacts of weather variances for those who heat with gas from December to May. Review enrollment to make sure it's right for you.

Learn more »

Have a question? We're here to help. Contact us and we'll respond quickly.

Residential	Business	I	About Us	ſ	Safety	Ì	Unsubscribe	View In Browser		
							Customer Service: (800 422-4012Â FREE) 422-4012 (800)		
NW Natural 250 S.W. Tay	Natural Gas Odor? (800) 882-3377 (800) 882-3377Â FREE									
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Call										
Call from mobile										
Send SMS										
Add to Skype										
You'll need Skype CreditFree via Skype										

Coalition/405 Ryan/24



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • AUGUST 2021 • NWNATURAL.COM

Environmental, social and governance report: today's results and tomorrow's direction

See some of the most important sustainability work we're focused on



There's a lot of good news to share about efforts that continue improving safety, environment, communities, and diversity, equity and inclusion.

See results »

IDEAS TO MANAGE ENERGY USE

See tips »

DISCOUNTS ON APPLIANCES

See special offers »

WAYS TO SAVE



Equipment tune-ups now mean lower bills later

Prepare your natural gas furnace and fireplace for colder weather with seasonal maintenance. Check your air conditioner, too, because it's been working hard all summer.

YOUR SAFETY



High safety standards for greater resilience

As your energy provider, we operate one of the most modern, tight systems in the nation, and exceed state and federal safety standards. Expect continuous innovation for your safety every day.

See fall prices »

Learn more »

LESS WE



Renewable natural gas is on its way home

We've partnered with Element Markets to deliver the benefits of renewable natural gas. Now, we can purchase or develop enough renewable natural gas to heat

CUSTOMER SERVICE



Another way to lower bill payments this fall

Get predictable monthly payments 11 months of the year, and stress less when the bill's due. How? Enroll in the helpful Equal Pay option. about 36,000 homes. And this is just the beginning.

Read more »

Learn more »

Working hard for you every day



Employee Sonia sees the energy system as part of our circular economy

As a former agricultural business owner, customer service technician Sonia knows the value of using existing natural gas infrastructure to deliver renewable natural gas and renewable hydrogen, which in turn reduce emissions and eliminate other waste streams.

Read more »

Have a question? We're here to help. Contact us and we'll respond quickly.



web@nwnatural.com

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September



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • SEPTEMBER 2021 • NWNATURAL.COM

Easy ways to plan now for an emergency



September is National Preparedness Month, and a great time to create or review an emergency-response strategy. We partner with other regional organizations and agencies, and have resources and tips to help you be prepared.

See tips »

YOU HAVE MANY WAYS TO PAY

See options »

USEFUL INFORMATION ON YOUR BILL

See guide »

WAYS TO SAVE



Love how natural gas can lower heating bills

Count on natural gas when winter arrives. A high-efficiency natural gas furnace provides affordable, dependable heat to keep you comfortable day and night. Discounts help you make the upgrade.

See discounts »



In one year, customers reduced energy use by 18%

LESS WE

CAN

Together, NW Natural and Energy Trust of Oregon helped customers save nearly 6.4 million therms in 2020, that's equivalent to removing greenhouse gas emissions from 7,300 passenger vehicles (source: EPA).

Learn more »

YOUR SAFETY





Smell rotten eggs?

We make natural gas smell bad so you know to leave and call 24/7 800-882-3377. We'll come out day or night.





New rates start in November

NW Natural filed a Purchased Gas Adjustment (PGA) request with the Washington Utilities and Transportation Commission (WUTC).

See details »

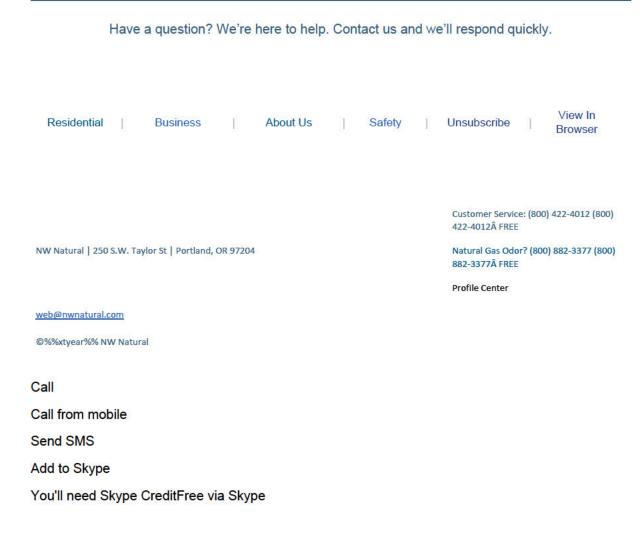
Working hard for communities every day



Prioritizing children and families at risk, and environment nonprofits

We live here, just like you. And as the only major locally-based natural gas utility in our service area, we have a special responsibility to help the communities around us. See some of the local nonprofits we're focusing on.

Read more »



October

-



NATURAL GAS SAFETY AND CUSTOMER INFORMATION • OCTOBER 2021 • NWNATURAL.COM

Enjoy more savings, more comfort with a high-efficiency natural gas fireplace

Rebates and discounts are available



Lower heating bills and keep the family cozy this winter with a high-efficiency natural gas fireplace. Rebates and discounts from NW Natural Hearth Retailers and Energy Trust can help you make the upgrade. Bonus: Many natural gas fireplaces work even when the power goes out.

See special offer »

FREE WEATHERIZATION SERVICES

For qualifying customers »

GRANTS AND PAYMENT PLANS

To help with past-due accounts »







Understand your gas bill and rates

There's a lot of useful information on our website about your bill, what your bill charges mean, and how gas rates compare to everyday items. There's always room to reduce bills even more, and we cover that, too.



Be prepared for winter power outages

Watch helpful step-by-step videos that demonstrate how to operate a natural gas cooktop, water heater and fireplace when the power goes out.

See guide »

Watch videos »

NATURAL GAS



Your rights and responsibilities as a NW Natural customer

We are committed to providing safe and reliable natural gas service to all customers. You can help us by keeping your gas meter protected from damage, calling us in advance if you plan to move, and other easy actions.

IN THE COMMUNITY



Help heat the homes of neighbors in need

Please help us warm the homes of families and senior citizens in need this season, and join NW Natural shareholders, employees and retirees in contributing to the Gas Assistance Program.



Learn more »

Dependable and affordable



A foundation of warmth, comfort and lower carbon emissions

The natural gas performance you count on comes with lower carbon emissions. In fact, on the coldest winter days, NW Natural provides 90% of energy needs for our residential space and water heating customers. Yet our customers' gas use accounts for 6% of Oregon greenhouse gas emissions. We're working to reduce that number even more.

Learn more »

Have a question? We're here to help. Contact us and we'll respond quickly.

Residential

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NW Natural | 250 S.W. Taylor St | Portland, OR 97204

Customer Service: (800) 422-4012 (800) 422-4012Â FREE

Natural Gas Odor? (800) 882-3377 (800) 882-3377Â FREE

Profile Center

web@nwnatural.com

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Call

Call from mobile

Send SMS

Add to Skype

You'll need Skype CreditFree via Skype

November



NW NATURAL CUSTOMER NEWSLETTER • NOVEMBER 2021 • NWNATURAL.COM

Help heat the homes of neighbors in need



Please join NW Natural shareholders, employees and retirees in contributing to the Gas Assistance Program, now in its 39th year. The first \$60,000 in contributions will be matched by NW Natural shareholders to keep the heat on for families and senior citizens in need.

Learn more and donate »

DIY IDEAS FOR THE BEST WINTER HOME

View Energy Trust tips »

A VARIETY OF BILLING OPTIONS TO SUIT YOU

View tools »

COST OF

GAS



New rates begin in November

NW Natural customers will see new rates starting Nov. 1, which include annual Purchase Gas Adjustments recently approved by the Public Utility Commission of Oregon and Washington Utilities and Transportation Commission. And NW Natural rates continue to remain low

As a result of the lower wholesale cost of natural gas and efficient pipeline and gas storage management from the past year, NW Natural customers are still paying nearly 30% less today for their bills than they did 15 years ago.

See details »

Understand rates »



YOUR SAFETY





Get discounts on high-efficiency natural gas appliance upgrades

Natural gas is already the affordable, reliable way to heat your home and water. Discounts on high-efficiency furnaces, fireplaces and water heaters help you save even more.

See special offers »



Carbon monoxide facts and safety tips

Carbon monoxide can be caused by different sources, including household equipment not working or venting properly. Protecting yourself is simple when you know prevention tips and warning signs.

Learn more »

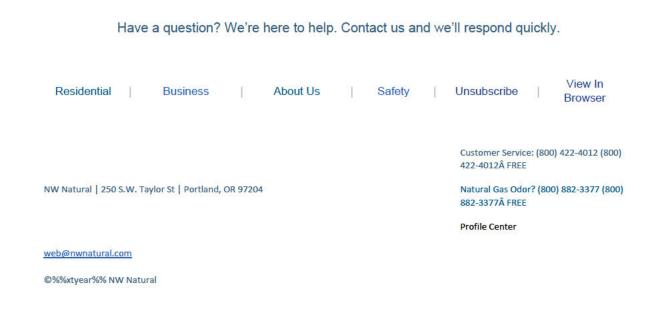
Renewable natural gas is on its way home



NW Natural signs new deal to deliver renewable natural gas to customers and to lower emissions

Under this 21-year agreement, we will purchase environmental attributes generated by Archaea, a leading renewable natural gas producer. The renewable natural gas is expected to have a positive impact through avoided methane emissions at U.S. landfills and displacement of conventional natural gas.

Learn more »



December

-



NW NATURAL CUSTOMER NEWSLETTER • DECEMBER 2021 • NWNATURAL.COM

Instant grants are available for past-due account balances



If you have a past-due account balance, we can help with instant grants and flexible payment plans. Contact us today for options.

Learn more »

SMELL A ROTTEN EGG-ODOR INSIDE?

Smell. Go. Let us know. »

SEASON'S GREETINGS, FROM NW NATURAL

View greeting »

LESS WE CAN



NW Natural carbon neutrality scenario analysis report

NW Natural released Vision 2050: Destination Zero, a report analyzing potential scenarios in which NW Natural could achieve carbon neutrality by 2050 for the energy services we provide. Stay tuned for more about





Upgrade to high-efficiency natural gas appliances for less

We work with NW Natural Preferred Contractors and other organizations to offer discounts on appliances that can lower heating bills, reduce household carbon emissions, and keep you comfortable. Destination Zero in your January newsletter.

Learn more »



IN THE

COMMUNITY

YOUR SAFETY



No power? No problem

Watch helpful videos to see how select natural gas appliances can operate even when your power is out.

See videos »



Volunteer of the Year honored for supporting veterans

NW Natural technician John was honored as our Volunteer of the Year for his work with veterans and Operation Spartan Flags, a nonprofit he created to support veterans re-entering civilian life.

Learn more »

Give warmth to neighbors this season



Be part of a 39-year, \$6 million tradition

The NW Natural Gas Assistance Program helps pay gas-heating bills for families and senior citizens who need extra help this year. Our shareholders are standing by to match the first \$60,000 in contributions.



Have a question? We're here to help. Contact us and we'll respond quickly.

Residential	I	Business	I	About Us	I	Safety	1	Unsubscribe	I	View In Browser
								Customer Service 422-4012Â FREE) 422-4012 (800)
NW Natural 250	S.W. Tayl	lor St Portland, C	OR 97204	i.				Natural Gas Odo 882-3377Â FREE		0) 882-3377 (800)
								Profile Center		

web@nwnatural.com

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NW Natural

YOU'LL NEVER GUESS where we found the newest renewable.



Renewable Natural Gas A low-carbon path toward a cleaner future.

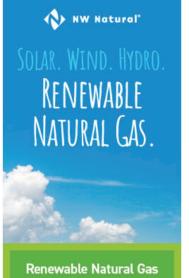
LEARN MORE @ LESS WE CAN



Together, we're reducing emissions by turning agricultural waste into renewable energy.

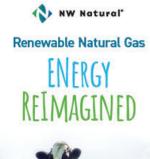


Renewable Natural Gas ENERGY REIMAGINED



A low-carbon path toward a cleaner future.

LEARN MORE @ LESS WE CAN





Helping the environment by turning waste into reliable energy.

LEARN MORE @ LESSWE CAN

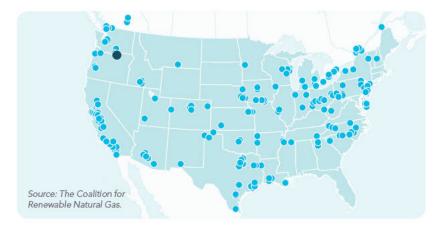
Comfort Zone



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C

Less We Can: Wave of renewable natural gas projects are turning waste into energy today



It's happening now in North America: Wastewater treatment plants, food and farm waste and landfills naturally produce biogases that are being captured and converted into renewable natural gas.

With improved technology and growing demand, 110 renewable natural gas facilities are in operation today in the U.S. and Canada—up from just 41 in 2014.

In the Community: We're committed to addressing homelessness and helping at-risk youth and families

At NW Natural, we do more than natural gas. We work to improve the health of our community. **That's why we've awarded five local nonprofits with grants totaling half a million dollars from our shareholders' Corporate Philanthropy Fund, plus in-kind resources and volunteer support.** Our 2020-2022 Programs of Focus are:

- A Village for One provides a safe environment for youth impacted by commercial sexual exploitation, and opportunities to heal physically, mentally and spiritually.
- Bonneville Environmental Foundation's "Clean Energy. Bright Futures" provides underserved youth with equitable access to energy education and careers.
- Community Warehouse is an innovative "furniture bank" that



provides essential household furnishings to neighbors-in-need.

- Janus Youth Programs serves more than 6,000 at-risk children, youth and families each year in Oregon and Washington, helping to stabilize lives and create paths to success.
- Portland Homeless Family Solutions empowers homeless families with children to get back into housing long-term and thrive.

Visit nwnatural.com/Community to learn more about our ongoing community support and contribution programs. Nearly 100 more are in development or under construction, including projects in Portland and Eugene.

The Three Mile Canyon dairy in Boardman, Oregon, is also producing renewable natural gas for vehicles, helping to eliminate about 130,000 metric tons of carbon dioxide emissions annually—equivalent to removing 28,000 cars from the road.

New laws in Oregon and Washington will enable NW Natural to begin delivering renewable natural gas to our customers in 2020. We're excited to join these innovative utilities in helping close the loop on waste.

Learn more about the newest local renewable at LessWeCan.com.

Ways to Save: Reliable savings and warmth come with natural gas heating upgrades

Space heating makes up the bulk of a home's energy use. To help lower heating costs, we team up with NW Natural Preferred Contractors to offer special incentives on high-efficiency natural gas equipment and appliances. These appliances use less energy, while delivering the performance you count on. They also help you:

- Spend less on energy bills
- Lower your household's carbon emissions





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Rate Change Request Filed

NW Natural is asking Oregon regulators for a general rate increase. The request is to recover costs associated with investments to strengthen and reinforce the natural gas system, provide necessary system maintenance and operational resiliency, and technology upgrades.

If approved as filed, the request would result in an overall revenue increase of \$71.4 million or about 11.5%.

Under this proposal, a residential customer using 53 therms per month would see an average monthly bill increase of about \$6.43. A commercial customer using 242 therms a month would see an average monthly bill increase of about \$25.40.

Will this proposed increase change my bill this winter? No, the request will not affect customer bills this winter. Rate cases typically take up to 10 months to complete. If approved by the Public Utility Commission of Oregon (OPUC), new rates will likely take effect Nov. 1, 2020. The requested rate change is subject to review by the OPUC, and is not binding on the commission.

HOW CAN I LEARN MORE OR PROVIDE INPUT?

Copies of the filing are available for inspection at NW Natural's main office and at nwnatural.com. For more information about the filing, or notice of the time and place of any hearing, contact NW Natural or the commission at:

NW Natural Main Office

220 NW Second Avenue Portland, Oregon 97209-3991 800-422-4012, ext. 3589

Public Utility Commission of Oregon 201 High Street SE, Suite 100 PO Box 1088 Salem, Oregon 97308-108 800-522-2404

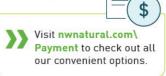




We offer many flexible bill payment options online so you can choose which time-saving method works for you.

Try our monthly automatic payment service and avoid late payments. Pay as a guest with Quick Pay, a secure way to pay without requiring an online account. Receive email reminders when your bill is ready. Or, set up an online account to pay your bill, manage your account, and schedule

NW Natural services all from one place.



Partner in Safety: There's a reason our natural gas smells like rotten eggs Smell. Go. Let us know®

NW Natural customers receive natural gas through our pipeline system—one of the most modern in the U.S.

But before natural gas reaches your home or business, we add an odorant. We could have made it smell like anything: barbecue ribs or chocolate chip cookies. But we gave it a rotten egg odor so it can be quickly detected.

If you smell a rotten egg or sulfur odor inside, we're counting on you to go outside and call us at 800-882-3377, day or night.

We'll send a technician right over to check things out. Just remember to: Smell. Go. Let us know[®].



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WANT TO GO PAPERLESS? Visit nwnatural.com/Paperless and enroll in paperless billing today.



Comfort Zone



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Bill Credit: We returned a record total of \$17 million to Oregon customers



We are marking 16 years of bill credits with about \$16 back on your June gas bill.

Natural gas delivers affordability and reliability year-round. But this spring, NW Natural customers received another cost savings-a credit on June bills.

"Natural gas delivers an affordable essential service for the region. In fact, our customers' natural gas bills are about 40% lower than they were 15 years ago," said David H. Anderson, NW Natural president and CEO. "During such a challenging time for so many due to COVID-19, we're especially pleased to share these cost savings."

The average household in Oregon received a credit of about \$16.88. Compared to the average monthly bill, that equals a cost savings of 30%. Average small business customers received credits of about \$77.09.

This year's record total of \$17 million in bill credits to Oregon customers

reflects an updated gas storage sharing mechanism, and efficient pipeline capacity management.

Washington customers also receive cost-saving benefits from NW Natural. But instead of a one-time credit, Washington credits are included in the monthly billing rate throughout the year.

Learn more about the June bill credits by visiting nwnatural.com/ AboutNWNatural/PressRoom,



Partner in Safety: PSU study finds our system potential resource for resilience in disasters

Did you know our natural gas system could be helpful in earthquake recovery? A new study by Portland State University's Center for Public Service, conducted in partnership with NW Natural, finds that the regional natural gas system could provide a transportation sector backup that would be helpful for post-disaster recovery plans.

"What we found was that the natural gas system is distributed both in terms of generation and storage, making a strong case for it to be evaluated as a low-cost, low-risk system," said Hal Nelson, assistant professor of public administration at Portland State and the faculty adviser on the study.

"This is a new way of thinking about post-disaster infrastructure."

HOME, SAFE AND SOUND

NW Natural continually coordinates with other regional organizations and agencies as part of a statewide earthquake preparedness effort. But emergency preparedness doesn't stop with us. You can take additional precautions with your natural gas appliances and equipment, too. See our emergency preparedness tips and other safety best practices at nwnatural.com/Residential/ Safety.



Read more at nwnatural.com/AboutNWNatural/PressRoom.

Ways to Save: More comfort, less impact. You can rely on high-efficiency natural gas appliances

Natural gas is already the affordable way to heat your home and water, and cook your food. Newer high-efficiency natural gas appliances can help lower your energy bills—and household carbon emissions—even more, especially with help from limited-time cash incentives.

- You can receive up to \$750 when upgrading to a high-efficiency natural gas furnace, and a \$250 incentive when you install a new air conditioner.
- Receive up to \$400 back when upgrading to a high-efficiency natural gas fireplace.
- Federal tax credits may also be available. Why schedule now? Heating and cooling contractors may



have more flexible schedules, helping you install upgrades before fall kicks in.

Incentives are available when you work with a NW Natural Preferred Contractor or Hearth Retailer when installing qualifying natural gas equipment. NW Natural Preferred Contractors have also implemented additional safety practices and social-distancing guidelines. Qualifications apply.



See full details and requirements at nwnatural.com/Offers.

More Convenience Coming to a Screen Near You: One dashboard for all your account-management needs

When you sign into our new website later this year, you'll see enhancements designed to give you the best NW Natural experience on every device. In addition to improved responsiveness, security and self-service options, a central account dashboard lets you easily manage program enrollments, track energy use and more.

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have up any important for an eral property in	

Everything in one place

From your account dashboard, you'll be able to:

- Toggle between multiple accounts in a dropdown menu
- Label your accounts for easy identification
- View your account balance, due date, billing-setting status, gas-use comparison all on one screen
- Compare your current month's gas use with last year's use in a single click
- Quickly access and download 14 months of gas-use history
- Conveniently view your enrollment and account-management options
- Pay your bill online with one click

You don't have to wait for our new website to start managing your account. Set up your online profile today at **nwnatural.com**. (Your account and profile setting will migrate to the new site.)



Renewable Natural Gas: Energy reimagined

We're putting organic waste to good use while reducing carbon emissions. Renewable natural gas is made from organic materials like wood, food and even human waste, and can be delivered through our existing pipeline to your home or business.



WE'RE HERE TO HELP. Please contact us today if you need payment assistance or to make payment arrangements. Call us at 800-422-4012, 7 a.m. to 6 p.m., Monday through Friday.





Comfort Zone



New rates take effect Nov. 1

NW Natural customers in Oregon will have new

combined effects of a rate case and the annual

Purchased Gas Adjustment, both recently approved

The impacts of both adjustments together will

mean a rate increase for the average residential

customer of about \$2 more per month (4%). It's

approximately \$10 more a month (5%) for the

Average monthly bill calculations are based

on residential usage of 53 therms per month

and small business usage of 242 therms per

month. The effect of rate changes may vary

for individual customers depending on their

customer category, usage and other factors.

NATURAL GAS BILLS REMAIN LOW

efficiency measures.

NW Natural customers are paying about

37% less today for their bills than they did

15 years ago, due to lower commodity costs

coupled with efficient operations and energy

average small commercial customer.

by the Public Utility Commission of Óregon.

rates starting November 1, which include the

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Ways to Save: We can help lower the cost of comfort with rebates and limited-time bonuses

Reliable heating is key to a cozy home. To help you upgrade to clean-burning, consistent heat that comes with a high-efficiency natural gas furnace, we're partnering with NW Natural Preferred Contractors and Energy Trust of Oregon to offer rebates and limited-time bonuses.

When you upgrade to a high-efficiency natural gas furnace, you can receive rebates up to \$1,200 and a limited-time bonus from Energy Trust—plus save energy and money every month. To get the most from your furnace and save even more, Energy Trust is also offering a limited-time bonus for installing attic/ceiling insulation.*



ENERGY-SAVING TIP

Change your furnace filter once a month during the fall/winter season (for standard filters). A dirty filter slows air flow, makes the system work harder and wastes energy.

SEE MORE IDEAS AT NWNATURAL.COM.

>>

Visit **nwnatural.com/Offers** for rebates and limited-time Energy Trust bonuses. Qualifications apply.

* To receive limited-time bonus from Energy Trust, installation must be completed between September 1, 2020 and March 31, 2021. Rebates and bonuses are subject to funding availability and may change. Qualifications apply. NW Natural Service Solutions Preferred Contractors have implemented additional safety practices and social-distancing guidelines. More information is available on the Rates & Regulations section of **nwnatural.com** or by calling 503-226-4211. Our Customer Service team can also provide information about flexible payment plans and low-income assistance.

Passion for service:

NW Natural Customer Service and Spanish Resource Team work hard for you every day



When a Spanish-speaking customer calls NW Natural Customer Service, our Spanish Resource Team is ready to help. The team takes pride in providing the high-quality service NW Natural is known for, and their dedication to serving Spanish-speaking customers runs deep. Rebecca sees her work as a continuation of a commitment that began when she was 13. "My parents never learned English, so I translated for them a lot," she said. "I'm so happy I can be there now for people who don't speak English."

When Victor moved from Mexico City to Portland as a teenager, he didn't speak English, and that experience helps him serve customers.

"I remember when I had to call about bills and needed someone who could speak my language," he said. "I've been there. I know what it feels like." The team also supports other Spanish-language needs across NW Natural. Judi, who oversees the team, said, "We go wherever we're called, and we deliver on NW Natural's core value of service every day."

The NW Natural Customer Service team is here to provide options that can help you manage bills and lower monthly payments. Please contact us at 800-422-4012 for help with your bill, in Spanish and additional languages. Or visit nwnatural.com.

Less We Can: Cherriots is now the state's cleanest public transit fleet, thanks to renewable natural gas



Longtime NW Natural customer and community partner Cherriots public transportation in Salem-Keizer is now the state's cleanest public transit fleet, powering over half of its fleet with renewable natural gas.

By using renewable natural gas, Cherriots expects to reduce harmful smog-forming tailpipe emissions by more than 90% and greenhouse gas emissions by more than 40%.

"Clean public transit is key as we move toward a more healthy, sustainable and equitable Oregon. Transportation is the single largest source of greenhouse gas emissions in Oregon, as well as other harmful pollutants that put vulnerable communities at risk. We need to rapidly decarbonize the transportation sector, including medium and heavy-duty vehicles like trucks and buses. I commend Cherriots for leading the way with cleaner, renewable natural gas buses," said Oregon Governor Kate Brown.

"This is a perfect example of the creative thinking and problem solving we need in our community," said Salem Mayor Chuck Bennett.



By using renewable natural gas, Cherriots expects to reduce harmful smog-forming tailpipe emissions by more than 90% and greenhouse gas emissions by more than 40%.

The cost savings from using renewable natural gas will allow Cherriots to expand its bus service and help maintain affordable fare prices.

What is renewable natural gas?

Renewable natural gas is a zero-carbon resource produced from local, organic materials like food, agricultural and forestry waste, wastewater or landfills. As these materials decompose, they produce methane. That methane can be captured, conditioned to pipeline quality and delivered in the existing pipeline system to homes and businesses where it can be used in existing natural gas appliances, equipment and vehicles. This process closes the loop on waste and provides a renewable energy option for the natural gas system, in the same way that wind and solar are used to generate renewable electricity.

>>

Learn more about renewable natural gas and how we innovate sustainable ways to meet the demands of the region's growing population at **nwnatural.com**.

Your partner in safety: Keeping carbon monoxide in check



Under normal operating conditions, natural gas burns cleanly. But if natural gas isn't burning properly or an appliance isn't working properly, it could cause a carbon monoxide (CO) hazard.

CO safety tips:

- Know CO exposure symptoms, including headache, dizziness, feeling out of breath, confusion and nausea. If you suspect carbon monoxide poisoning, immediately leave your home and call 911.
- Install and regularly test UL-approved carbon monoxide detectors around your home. Contact your state fire marshal for more information.

FOLLOW US: 📑 达 쯺 in 🧿

- Make sure all vents and chimneys are properly installed and regularly inspected. Keep them free of debris, such as leaves, animal nests and creosote.
- Have your gas appliances inspected or tuned up regularly by a qualified technician.

Visit nwnatural.com for more home safety best practices.

Enroll in NW Natural Paperless Billing today.

Now you can receive a helpful email or text reminder that lets you know when your bill is ready. Visit **nwnatural.com/Paperless**.





Comfort Zone



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Less We Can: NW Natural and BioCarbN form innovative renewable natural gas partnership with Tyson Foods



We are partnering with BioCarbN, a developer and operator of sustainable infrastructure projects, to convert methane from some Tyson Foods facilities into renewable natural gas to heat homes and businesses.

Once fully operational, the four projects are expected to generate more than 1.2 million MMBtu of renewable natural gas each year enough to provide heat for about 18,000 homes we serve in Oregon.

This is our first investment under the landmark new state RNG law, Oregon Senate Bill 98, which

supports renewable energy procurement and investment by natural gas utilities.

RNG is produced from organic materials like agricultural and forestry by-products, food waste, wastewater, or landfills, and is a valuable form of renewable energy. It combines similar emission-reduction benefits of traditional, intermittent renewables such as wind and solar, with the reliability and storage capabilities of natural gas—all while capturing and using organic material that would otherwise add carbon to the atmosphere.

Visit **nwnatural.com/RNG** to learn more about how we create new, sustainable ways to meet demands of the region's growing population.

NW Natural bill credit: Customers received \$9.1 million in recent bills

Our Oregon customers received a credit on their February bill, as we issued \$9.1 million in bill credits for services provided at our underground natural gas storage facility at Mist, Oregon, as well as from efficient pipeline capacity management.

The average residential customer in Oregon saw a credit of about \$9, which equals a savings of 16% compared to average monthly bills. The average small commercial customer in Oregon received a credit of about \$39.

For the past 17 years, NW Natural has issued nearly \$170 million in bill credits to Oregon customers. Previously, the credits were distributed in June. This year they are given out in February as a result of the most recent rate case outcome where the Utility Commission agreed the credits should align with the winter heating season when demand is highest.

Natural gas remains an affordable energy choice. NW Natural customers are paying about 37% less today for their bills than they did 15 years ago, due to lower commodity costs, efficient operations and energyefficiency measures. David H. Anderson

66

David H. Anderson NW Natural president and CEO

99



Springtime tips from your partner in safety

We innovate for your safety every day, with one of the most modern pipeline systems in the nation. As with any utility, safety awareness is key. And you can help simply by picking up your phone:

- Smell. Go. Let us know.[®]—That's all you need to do if you suspect a natural gas leak or smell rotten eggs. Before natural gas reaches your home, we add an odorant so a gas leak can be detected quickly. If you smell it, leave the area and call us at 800-882-3377.
- Call 811 before you dig—Utility lines beneath the ground provide

all the essentials of a modern home, including electricity, water, natural gas and sewer. Call 811 to locate them at least two business days before starting any project that involves digging on your property. It's free and it's the law.





Local homebuyers favor natural gas for heating, water heating and cooking A recent study shows homes with natural gas features are more desirable than homes without



82%

of recent and prospective homebuyers surveyed said they would incur an additional cost of \$50,000 for a home with natural gas heating and cooking, versus a lower-priced home with all electric heating and cooking.

When buyers are shopping for a home, an independent study conducted by Escalent Research, shows they prefer-and will pay more for-homes with natural gas heating, water heating and cooking, as well as fireplaces and outdoor grills.

The study surveyed 600 recent and prospective homebuyers in NW Natural's service area and showed 8 in 10 prospective homebuyers prioritize homes with natural gas.

Here are the top reasons why:

- Buyers recognize that natural gas is affordable and efficient.
- They prefer natural gas to electricity for heating and cooking.
- They consider natural gas an important feature when looking for their "ideal" single-family home.

Read more about the study and homebuyer preference for natural gas at nwnatural.com/Preference.

Ways to Save: Natural gas is good sense, and these rebates mean even more savings

We work with NW Natural Preferred Contractors and Energy Trust of Oregon to provide rebates when you upgrade to qualifying high-efficiency natural gas appliances. They use less energy to heat your home and water, which can lower energy bills in every season.



High-efficiency

natural gas furnace

UP TO \$1,200

High-efficiency



High-efficiency natural gas water heater **UP TO \$200**

UP TO \$400 See this season's rebates at nwnatural.com/Offers.

natural gas fireplace

Cooking with natural gas: Chef's choice and your choice! See why 40 million Americans cook with natural gas

A few are:

There are plenty of reasons people who like to cook choose natural gas.

- Control! A gas cooktop gives you total control. Adjust the flame to immediately raise or lower the cooking intensity. Natural gas burners distribute heat evenly to prevent scorching.
- Hot food when the power's out? By overriding the electronic ignition on the surface burners and instead lighting them with a match, you can use your gas cooktop to create a home-cooked candlelight dinner.
- For the multitasker. Wi-Fi technology lets you preheat your oven or monitor your meal's progress from your home office or walking route.

As with any appliance, make sure your natural gas cooking equipment is properly installed and maintained. Ventilation is particularly important, regardless of the fuel source. Today's ventilation standards are designed to keep the air inside your home safe and healthy.

Any type of food preparation can affect indoor air quality. High-temperature cooking like frying and broiling creates



particulates, and even toasters contribute to indoor air pollution.

Every kitchen should have a range hood or exhaust fan that vents outside. If the fan recirculates air into the kitchen, keep a window open or use an exhaust fan in another room.



Learn more cooking safety tips and why so many chefs choose natural gas at nwnatural.com/CookingWithGas.



Comfort Zone

NW Natural Customer Newsletter • Oregon

YOUR SAFETY IS ALWAYS FIRST Easy ways to plan now for an emergency

September is National Preparedness Month, and a great time to create or review an emergency-response strategy.

Here is a checklist to help you be prepared and stay safe:

- MAKE A PLAN: Agree on how to communicate before, during and after a disaster with family and friends, and assume you may not be together. Visit ready.gov for tips to complete a plan.
- BUILD A KIT: Gather essential supplies that will last for at least two weeks after a disaster for everyone in your home, including pets. Download an emergency kit list at redcross.org.
- BE AWARE OF YOUR ENVIRONMENT: Know disaster risks in your area, such as winter storm, heat wave and earthquake trends. Visit Oregon.gov/oem for more.
- STAY INFORMED: Sign up for emergency notifications in your county so you know what's happening in your area at publicalerts.org.

ightarrow For more preparedness and safety ideas, visit nwnatural/Prepare.



In Case of an Emergency Remember that many natural gas appliances work when the power goes out. See how at nwnatural.com/PowerOutage.

NW Natural

September 2021 • nwnatural.com



CUSTOMER CARE Choose from a variety of payment methods

As a NW Natural customer, you have a variety of payment methods to help make paying your bill as easy as possible.

- Pay by phone. Make a payment 24/7 using our automated system. Call us at 800-422-4012.
- Pay in person. Many local merchants are authorized to accept payments on behalf of NW Natural. Use the helpful map to find a location near you.

If you need help taking care of a past-due account balance, flexible payment plans are available with longer terms and more flexible options.

- Pay by mail. NW Natural provides a return envelope with your monthly bill. Use the envelope to mail in your check.
- Pay online. Use a credit or debit card or checking account, make a quick one-time payment without logging in, enroll in Auto Pay and much more.

Visit nwnatural.com/Payment to see all the convenient options available to you.

More NW Natural news you can use



Smell Rotten Eggs? We make natural gas smell bad so you know to leave and call 24/7 800-882-3377. We'll come out day or night. nwnatural.com/RottenEggs



Tune Up Heating Equipment Is your natural gas furnace or fireplace cleaned and read to deliver instant heat and lower bills? Special fall prices are available. mwnatural.com/TuneUp

Reducing Energy Use



Together, NW Natural and Energy Trust helped customers save nearly 6.4 million therms in 2020, an 18% improvement in one year. nwnatural.com/LessWeCan



WAYS TO SAVE

Tips, rebates and resources to help lower heating bills this fall



Make sure your home is prepared for fall and winter with dependable heating and easy cost savings.

Count on reliable, efficient warmth.

Natural gas heats your home quickly and efficiently. Thanks to NW Natural Preferred Contractors and local organizations, you can receive rebates when you upgrade to energy-saving appliances, like high-efficiency natural gas furnaces, fireplaces and water heaters.

See all of this season's rebates at nwnatural.com/Offers.

Manage monthly energy use.

There are simple changes you can do today to lower energy consumption and payments, especially in cold winter months.

Small adjustments include updates to your ceiling-fan and roomventilation settings, as well as dishwashing and laundry habits.

See ideas at nwnatural.com/Tips.

Qø

SUSTAINABILITY Environmental, Social and Governance report: See some of the most important work we're focused on

The 2020 ESG report has plenty of good news for customers, outlining environmental, social and governance progress made over a year's time, and ongoing focus for the future. Here are a few highlights:

- Safety: Continued to operate one of the most modern, tight systems in the nation, with an emphasis on investing in people, processes and technology for constant improvement.
- Environment: Saved more than 379,000 metric tons of carbon dioxide equivalent and remained on track to meet or exceed NW Natural's voluntary carbon-savings goal of 30% savings from our own operations and customers' use of our product by 2035, based on 2015 emissions levels.
- Communities and customers: Invested more than ever in the communities we serve, contributing nearly \$1 million to nonprofits and funding energy-efficiency programs for low-income customers. During the pandemic, we voluntarily suspended late fees and customer disconnections.





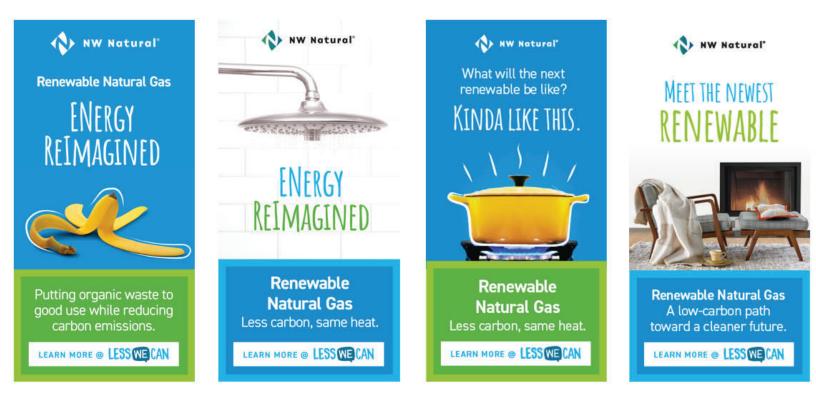
HAPPENING NOW:

NW Natural is investing in renewable natural gas projects to acquire renewable natural gas for customers. With the first two agreements in place, we can purchase or develop enough renewable natural gas to heat about 36,000 homes. And this is just the beginning. See details at nwnatural.com/RNG.



Learn more about today's results and tomorrow's direction at nwnatural.com/ESGreport.







ENERGY REIMAGINED

More Comfort, Less Impact

Natural Gas offers reliable heat, more control for precise cooking, and lower energy bills with high-efficiency appliances.

Plus with Renewable Natural Gas, we can help the environment by turning waste into low-carbon, reliable energy. Soon to be delivered through the existing pipeline system, so you can make a difference without changing a thing.

It's your energy, reimagined.



Comfort Zone



NATURAL GAS SAFETY AND CONSUMER INFORMATION • JULY 2020 • NWNATURAL.COM

Green light for renewable natural gas

NW Natural can now bring renewable energy directly to its customers



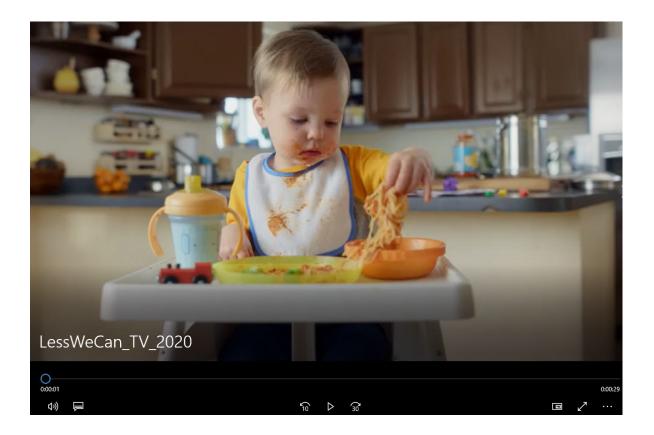
Rulemaking for Senate Bill 98 is now complete, giving us a clear path to acquire renewable natural gas on behalf of customers, and forging the way for this newest renewable resource to be an increasing part of the state's energy supply.

Learn more »

HELPFUL BILL-PAYMENT
OPTIONS TIPS TO LOWER
ENERGY BILLS
See ideas >> Access now >> See ideas >> WAYS TO
SAVE NW NATURAL
STREET OF DREAMS

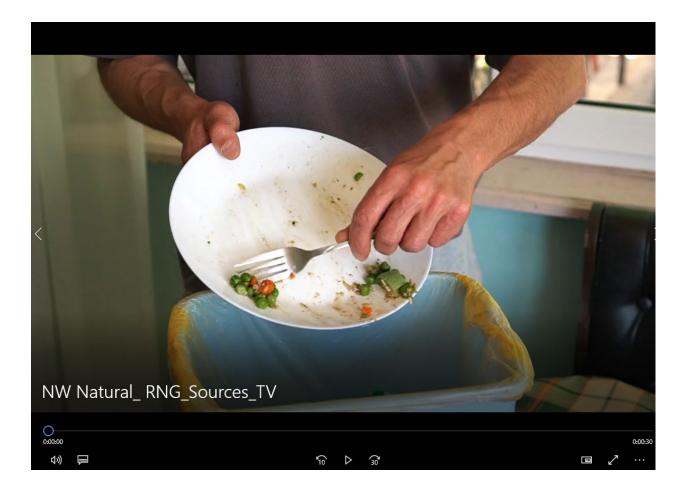
Video Exhibit Submitted in Native File Format

LessWeCan_TV_2020



Video Exhibit Submitted in Native File Format

NW Natural_ RNG_Sources_TV





JULY/AUGUST 2021 ON-HOLD MESSAGES

At Northwest Natural, we make managing your account online a snap. You can track your gas use, view and pay your bill, schedule equipment tune-ups and more. Everything you need to stay up to date on your account, and save time and money while you're at it. Get started with free, convenient, self-service tools at N W natural DOT com.

[musical break]

With one of the most modern pipeline systems in the nation, we work to ensure natural gas is there for you whenever you need it. That includes providing the resources you need to help keep you safe at home. Check out our comprehensive safety tips at N W natural DOT com slash HOMESAFETY.

[musical break]

To make reading your gas bill simple and easy, we've broken down your bill to explain its many parts, list how your bill is calculated, and show how every dollar is spent. See our step-by-step guide to understanding your bill at N W natural DOT com slash GUIDE.

[musical break]

Bundle up for summer and save. Really! When you upgrade to a high-efficiency natural gas furnace AND a central air conditioner, you can receive a summer bundle of rebates totaling up to \$1,000. So you can lower energy bills year-round and save that money for something else. Visit N W natural DOT com slash OFFERS for details, requirements and to find a preferred contractor near you.

[musical break]

Did you know Northwest Natural delivers more energy in Oregon than any other utility, yet our customers' use of natural gas in homes and businesses accounts for only six percent of the state's greenhouse gas emissions? We're working to reduce customers' greenhouse gas emissions even more. Learn how at Less We Can DOT com.

[musical break]



MARCH/APRIL 2021 ON-HOLD MESSAGES

At Northwest Natural, we're big fans of convenience, so we make managing your account online a snap. You can track your gas use, view and pay your bill, schedule equipment tune-ups and more. Everything you need to stay up to date on your account, and save time and money while you're at it. Get started with free, convenient, self-service tools at N W natural DOT com.

[musical break]

Utility lines beneath the ground provide all the essentials of a modern home, including electricity, water, natural gas and sewer. Call 811 to locate them at least two business days before starting any project that involves digging on your property. It's free. And it's the law, one that can prevent thousands of dollars in damage and the risk of injuries. Remember to call 811 before you dig.

[musical break]

We are partnering with BioCarbon, a developer and operator of sustainable infrastructure projects, to convert methane from some Tyson Foods facilities into renewable natural gas to heat homes and businesses. Once fully operational, this project is expected to generate enough renewable natural gas each year to heat 18,000 homes we serve in Oregon. Learn more at N W natural DOT com slash R N G.

[musical break]

There's no place like your home, so make it more comfortable, more affordable with a new highefficiency natural gas furnace. We can help you get started with up to \$1,200 n rebates and offers. Visit N W natural DOT com slash OFFERS for details, requirements and to find a Northwest Natural Preferred Contractor near you.

[musical break]

When it comes to paying your bill, you can use more than a bank card or check. Register or sign in to your account online to securely and quickly pay with Venmo or PayPal. To learn more and see all our convenient ways to pay, visit N W natural DOT com.

[musical break]

Commented [GS1]: Eight one one

Commented [GS2]: Twelve hundred dollars



SEPTEMBER/OCTOBER 2020 ON-HOLD MESSAGES

At Northwest Natural, we're big fans of convenience, so we make managing your account online a snap. You can track your gas use, view and pay your bill and more. Everything you need to stay up to date on your account, and save time and money while you're at it. Get started with free, convenient, self-service tools at N W natural DOT com.

[musical break]

Tune up gas appliances now, for a comfortable, affordable home this fall. If you're planning for more time inside, Northwest Natural Service Solutions Contractors can help lower energy bills by tuning up your natural gas furnace, fireplace or air conditioner. Tuned-up appliances can also improve indoor air quality, last longer and protect a product warranty. Visit N W natural DOT com slash Tune Up for special pricing and requirements.

[musical break]

As we continue to respond to the impacts of COVID-19, Northwest Natural is keeping customers at the forefront. Please contact us if you need temporary payment arrangements or payment assistance. For call responses, our employees are following CDC guidelines regarding social distancing, face covering and sanitizing protocols. For more information and the latest updates about our services to customers, employee best practices and community assistance, visit N W natural DOT com.

[musical break]

Call 811 to have your utility lines located for no charge. Utility lines beneath the ground provide all the essentials of a modern home, including electricity, water, natural gas and sewer. Call 811 to locate them before you start any projects that involve digging on your property—like landscaping, fence installation or construction. It's the law, and one that can prevent thousands of dollars in damage and the risk of injuries.

[musical break]

We received the green light for renewable natural gas, and can now bring renewable energy directly to our customers. Rulemaking for Senate Bill 98 is complete, giving us a clear path to acquire renewable natural gas, and forging the way for this newest renewable resource to be an increasing part of the state's energy supply. Learn more about renewable natural gas—a zero-carbon resource produced from local organic materials—at Less We Can DOT com.



Renewable Natural Gas A step on the low-carbon pathway toward a cleaner future.

REIMAGINE YOUR ENERGY AT



You don't have to change, TO MAKE A DIFFERENCE.

Renewable Natural Gas Converting waste into low-carbon, renewable energy.

REIMAGINE YOUR ENERGY AT



Renewable Natural Gas is on the way home.

REIMAGINE YOUR ENERGY AT



Reduce carbon emissions with the high-efficiency appliances you already have.

REIMAGINE YOUR ENERGY AT

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NW Natural Can Now Bring Renewable Energy Directly to Its Customers

Oregon Rulemaking Complete, Giving Green Light for New Energy Source

Media contact: media@nwnatural.com; 503-818-9845 (pager)

FOR IMMEDIATE RELEASE

July 16, 2020

PORTLAND, Ore. — Rulemaking for Senate Bill 98 (SB 98) is now complete, giving NW Natural a clear path to acquire renewable natural gas on behalf of customers, and forging the way for this newest renewable resource to be an increasing part of the state's energy supply.

NW Natural, a subsidiary of NW Natural Holding Company (NYSE: NWN), worked collaboratively with legislators and renewable natural gas stakeholders to create SB 98, a groundbreaking bill that was signed into law by Oregon Governor Kate Brown last year. Since then, the Public Utility Commission of Oregon (OPUC), consumer groups and natural gas utilities have been working through a rulemaking process, so natural gas utilities can begin procuring renewable natural gas under the legislation.

Renewable natural gas is a zero-carbon resource produced from local organic materials like food, agricultural and forestry waste, wastewater, or landfills. The gas can be cleaned and added into the existing natural gas system, where it is fully interchangeable with conventional natural gas.

SB 98 goes further than any other law by setting voluntary goals for adding as much as 30% renewable natural gas into the state's pipeline system by 2050. The law allows up to five percent of a utility's revenue requirement to be used to cover the incremental cost of investments in renewable natural gas infrastructure.

parameters for the procurement: Voluntary targets of 5% by 2020, 10% by 2025, 15% by 2030, 20% by 2035 and 30% by 2050 are now in place.

 Utilities can invest in and own the cleaning and conditioning equipment required to bring raw biogas and landfill gas up to pipeline quality, as well as the facilities to connect to the local gas distribution system.

Further, the new law supports all forms of renewable natural gas including renewable hydrogen, which is made from excess wind, solar and hydro power. Renewable hydrogen can be used for the transportation system, industrial use, or blended into the natural gas pipeline system.

"We're excited to use this landmark law, one of the first of its kind in the nation, to acquire a renewable product for our customers and bring our region one step closer to a clean energy future," said David H. Anderson, president and CEO of NW Natural. "Another important benefit is that local communities now have a potential revenue source to turn their waste into energy."

The market for renewable natural gas is fairly new but growing quickly. There are about 115 projects nationwide, and that's expected to increase by 50% over the next year. Renewable natural gas is being prioritized as a main energy source for space heating in places like SeaTac Airport, and is being used in transportation fleets like UPS and Waste Management.

What is renewable natural gas?

Renewable natural gas is a zero-carbon resource produced from local, organic materials like food, agricultural and forestry waste, wastewater, or landfills. As these materials decompose, they produce methane. That methane can be captured, conditioned to pipeline quality and delivered in the existing pipeline system to homes and businesses where it can be used in existing appliances and equipment. It can also be used in natural gas vehicles. This process closes the loop on waste and provides a renewable energy option for the natural gas system, in the same way that wind and solar are used to generate renewable electricity.

How much renewable natural gas is possible?

In 2018, the Oregon Department of Energy released its first inventory of technical potential and estimated there are enough sources statewide to produce nearly 50 billion cubic feet (BCF) of renewable natural gas.

potential of renewable natural gas supply is substantial when compared to current natural gas throughput. In fact, when looking at development costs and existing technologies, the report estimates there is enough potential renewable natural gas to achieve a 95% reduction in emissions in the residential sector.

The supply estimates from the ICF report do not include the potential for renewable hydrogen for the pipeline network or the impacts of deep energy efficiency to reduce future energy use. With these collective innovations pursued together, the company believes a carbon neutral vision for the gas pipeline network is possible.

Request for Proposal

NW Natural will soon release a Request for Proposal for the immediate procurement of renewable natural gas. Please email renewables@nwnatural.com to be placed on the distribution list for the RFP.

About NW Natural

NW Natural is a local distribution company that currently provides natural gas service to approximately 2.5 million people in more than 140 communities through more than 760,000 meters in Oregon and Southwest Washington with one of the most modern pipeline systems in the nation. NW Natural consistently leads the industry with high J.D. Power & Associates customer satisfaction scores.

NW Natural is part of Northwest Natural Holding Company, (NYSE: NWN) (NW Natural Holdings), is headquartered in Portland, Oregon, and through its subsidiaries has been doing business for more than 160 years. It owns NW Natural Gas Company (NW Natural), NW Natural Water Company (NW Natural Water), and other business interests and activities. RNG and customers - NW Natural

Terms and Conditions Online Privacy CA Privacy Policy Bill Inserts En Español Contact Us

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LESS WE CAN Renewable Natural Gas is on its way home. NW Natural'

YOUR FAVORITE ENERGY. Becoming renewable.



LESS WE CAN Renewable Natural Gas is on its way home. YOUR FAVORITE ENERGY.

Becoming renewable.



LESS WE CAN Renewable Natural Gas is on its way home.

LEARN MORE

NW Noturol' BETTER ENERGY, BY DESIGN

LESS WE CAN Renewable Natural Gas is on its way home.



NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision <u>Data Request Response</u>

Request No.: UG 435 CUB DR 5

5. Please provide an electronic copy of all customer survey results, and focus groups results that are booked to regulated accounts during the last 5 years.

Response:

Please note after NW Natural conferred with Mike Goetz, we agreed on a 3-year time frame. Based on a subsequent conversation, CUB and the Company agreed to modify the above request to "during the last 3 years."

Please see UG 435 CUB DR 5 Attachments 1-13 for this response.

Attachment 1a-c: 2019 Environmental Perception and transcripts

Attachment 2a-d: 2019 Gas Product Positioning

Attachment 3a-c: 2019 Panel Energy Choice

Attachment 4a-c: Panel Safety TV

Attachment 5a-g: 2019 Renter Preference (UG 435 DR 5 Attachment 5b is confidential.)

Attachment 6a-d: 2020CSATModel

Attachment 7a-e: 2020 Homeowner Preference (UG 435 DR 5 Attachment 7a is confidential.)

Attachment 8a-c: 2021 Panel Safety

Attachment 9: Annual Builder HVAC

Attachment 10a-b: Annual Safety

Attachment 11a-d: CSAT Tracking

Attachment 12: JD Power

NWN Response Page 2 of 2

Attachment 13a-b: Quarter Awareness Public Sentiment

Comfort Zone

UG 435 Coalition DR 2 Attachment 12 Page 1 of 2

OREGON NATURAL GAS SAFETY AND CONSUMER INFORMATION • MARCH 2021 • NWNATURAL.COM

Less We Can: NW Natural and BioCarbN form innovative renewable natural gas partnership with Tyson Foods



We are partnering with BioCarbN, a developer and operator of sustainable infrastructure projects, to convert methane from some Tyson Foods facilities into renewable natural gas to heat homes and businesses.

Once fully operational, the four projects are expected to generate more than 1.2 million MMBtu of renewable natural gas each year enough to provide heat for about 18,000 homes we serve in Oregon.

This is our first investment under the landmark new state RNG law, Oregon Senate Bill 98, which

supports renewable energy procurement and investment by natural gas utilities.

RNG is produced from organic materials like agricultural and forestry by-products, food waste, wastewater, or landfills, and is a valuable form of renewable energy. It combines similar emission-reduction benefits of traditional, intermittent renewables such as wind and solar, with the reliability and storage capabilities of natural gas—all while capturing and using organic material that would otherwise add carbon to the atmosphere.

Visit nwnatural.com/RNG to learn more about how we create new, sustainable ways to meet demands of the region's growing population.

NW Natural bill credit: Customers received \$9.1 million in recent bills

Our Oregon customers received a credit on their February bill, as we issued \$9.1 million in bill credits for services provided at our underground natural gas storage facility at Mist, Oregon, as well as from efficient pipeline capacity management.

The average residential customer in Oregon saw a credit of about \$9, which equals a savings of 16% compared to average monthly bills. The average small commercial customer in Oregon received a credit of about \$39.

For the past 17 years, NW Natural has issued nearly \$170 million in bill credits to Oregon customers. Previously, the credits were distributed in June. This year they are given out in February as a result of the most recent rate case outcome where the Utility Commission agreed the credits should align with the winter heating season when demand is highest.

Natural gas remains an affordable energy choice. NW Natural customers are paying about 37% less today for their bills than they did 15 years ago, due to lower commodity costs, efficient operations and energyefficiency measures. David H. Anderson

66

NW Natural president and CEO

99



Springtime tips from your partner in safety

We innovate for your safety every day, with one of the most modern pipeline systems in the nation. As with any utility, safety awareness is key. And you can help simply by picking up your phone:

- Smell. Go. Let us know.[®]—That's all you need to do if you suspect a natural gas leak or smell rotten eggs. Before natural gas reaches your home, we add an odorant so a gas leak can be detected quickly. If you smell it, leave the area and call us at 800-882-3377.
- Call 811 before you dig—Utility lines beneath the ground provide

all the essentials of a modern home, including electricity, water, natural gas and sewer. Call 811 to locate them at least two business days before starting any project that involves digging on your property. It's free and it's the law.





UG 435 Coalition DR 2 Attachment 12

🔨 Local homebuyers favor natural gas for heating and cooking

A recent study shows homes with natural gas features are more desirable than homes without



82%

of recent and prospective homebuyers surveyed said they would incur an additional cost of \$50,000 for a home with natural gas heating and cooking, versus a lower-priced home with all electric heating and cooking. When buyers are shopping for a home, an independent study conducted by Escalent Research, shows they prefer—and will pay more for—homes with natural gas heating, water heating and cooking, as well as fireplaces and outdoor grills.

The study surveyed 600 recent and prospective homebuyers in NW Natural's service area and showed 8 in 10 prospective homebuyers prioritize homes with natural gas.

Here are the top reasons why:

- Buyers recognize that natural gas is affordable and efficient.
- They prefer natural gas to electricity for heating and cooking.
- They consider natural gas an important feature when looking for their "ideal" single-family home.

Read more about the study and homebuyer preference for natural gas at nwnatural.com/Preference.

Ways to Save: Natural gas is good sense, and these rebates mean even more savings

We work with NW Natural Preferred Contractors and Energy Trust of Oregon to provide rebates when you upgrade to qualifying high-efficiency natural gas appliances. They use less energy to heat your home and water, which can lower energy bills in every season.



High-efficiency

natural gas furnace

UP TO \$1,200

High-efficiency natural gas fireplace



High-efficiency natural gas water heater UP TO \$200

See this season's rebates at nwnatural.com/Offers.

UP TO \$400

Cooking with natural gas: Chef's choice and your choice!

See why 40 million Americans cook with natural gas

There are plenty of reasons people who like to cook choose natural gas. A few are:

- Control! A gas cooktop gives you total control. Adjust the flame to immediately raise or lower the cooking intensity. Natural gas burners distribute heat evenly to prevent scorching.
- Hot food when the power's out? By overriding the electronic ignition on the surface burners and instead lighting them with a match, you can use your gas cooktop to create a home-cooked candlelight dinner.
- For the multitasker. Wi-Fi technology lets you preheat your oven or monitor your meal's progress from your home office or walking route.

As with any appliance, make sure your natural gas cooking equipment is properly installed and maintained. **Ventilation is particularly important, regardless of the fuel source.** Today's ventilation standards are designed to keep the air inside your home safe and healthy.

Any type of food preparation can affect indoor air quality. High-temperature cooking like frying and broiling creates



particulates, and even toasters contribute to indoor air pollution.

Every kitchen should have a range hood or exhaust fan that vents outside. If the fan recirculates air into the kitchen, keep a window open or use an exhaust fan in another room.



Learn more cooking safety tips and why so many chefs choose natural gas at **nwnatural.com/CookingWithGas**.





To Our Customers

At NW Natural, we are engaged on multiple fronts to reduce emissions.

The Low Carbon Pathway we launched in 2016 began our planning for renewable energy in our pipeline. In 2019, we commissioned Energy+Environmental



President and Chief Executive Officer

Economics to conduct a study designed to achieve the Paris Accord emission reduction targets by 2050, with the results showing how it can be done using NW Natural's existing system.

The release of our Destination Zero report is the next evolution for us. It provides in-depth scenario analysis incorporating a broad spectrum of solutions and advancements that leverage our system for more holistic, economy-wide approaches to greenhouse gas reductions.

NW Natural is a 163-year-old company that has evolved many times since 1859 to meet the essential energy needs of our region. We are committed to implementing climate solutions that work for our environment, our customers, and our communities. The renewable supply is growing, the necessary technology exists, and our modern storage and delivery system is ready.

We are eager to share this important work and our vision forward with our customers, recognizing it will continue to evolve through our energy transition. Scan the QR code to explore the report further.

David A. Aleron-

Helping customers use less is the fastest and cheapest way to reduce emissions. We are

Leading the Way

OUR KEY DECARBONIZATION PRINCIPLES

- cheapest way to reduce emissions. We are dedicated to continuing to help customers conserve energy, save money, and reduce emissions through deep energy efficiency.
- All forms of renewable energy are needed in a balanced, low-carbon future. We are committed to displacing conventional natural gas over time with renewable natural gas and clean hydrogen.
- Communities served by the gas system have greater energy reliability. We need a dual energy system — gas and electric – to handle peak energy loads and to prepare for a future with potentially more extreme weather events Homes and businesses with gas service can have energy verw when the power is out.
- Families and businesses should have a choice of energy options to meet their needs. Energy system diversification and competition provides the best opportunity for accelerated innovation, affordability and dependability.
- We must drive toward carbon neutrality in a way that leaves no one behind. We are committed to pursuing solutions that provide equitable support for our most vulnerable customers.

Innovating Toward Carbon Neutrality

On the coldest winter days NW Natural provides 90% of the energy our residential space and water heating customers need. Yet the use of the gas we purchase for customers accounts for only 6% of Oregon greenhouse gas emissions.¹ We're working to reduce those numbers even further.

OREGON GREENHOUSE GAS EMISSIONS BY SECTOR

36%	29%	22%	13	%
TRANSPORTATION	ELECTRICITY	OTHER (other fuels & waste)	NATU GA	
Source: Oregon DEQ In-Boundary GHG Inventory preliminary 2019 date.	2			
NW Natural Residential and Commercial Customer Use እ				

Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere. In the Destination Zero report, we analyze three different scenarios using various combinations of decarbonization measures (energy efficiency, renewable energy, carbon offsets and carbon capture, utilization and sequestration) that allow us to build upon our existing efforts and realize our vision for a carbon neutral gas utility.

Central to all scenarios is the replacement of conventional natural gas with carbon neutral alternatives like renewable natural gas and clean hydrogen over time.

Renewable Natural Gas

Renewable natural gas is produced from organic materials like food, agricultural and forestry waste, landfills and wastewater. With a similar climate benefit to wind and solar, RNG turns the problem of waste into a powerful climate solution using our pipeline network already in place. Just as the electric grid's transmission lines can deliver electricity made from natural gas, coal, hydro, wind or solar, our pipelines can deliver natural gas from conventional or renewable sources. Early Progress on RNG

Within just one year of ground-breaking Oregon legislative rules being in place, Wi Matural has signed agreements to purchase and develop 3% of our supply as RNG—enough renewable gas to heat the equivalent of all the homes we serve in Eugene and Corvalls. With wind and solar accounting for 11% of U.S. electric generation after decades of development was reproud of this early progress.⁷

2 https://www.eie.gov/tools/feqs/feq. php?id=4276t=3

| Our Clark, Klickitat and Skamania County outtoment' natural gas use accounts for half a parsent (0.5%) of greenhouse gas emissions in Washington state: Washington Department of Ecology 2012 OHB Inventory

TURNING WASTE INTO RENEWABLE ENERGY

UG 435 Coalition DR 2 Attachment 13 Page 2 of 2

North American sources of organic waste that can be converted to RNG to displace conventional natural gas are vast—and provide similar climate benefits to wind and solar:







LANDFILLS Source: Coalition for Renewable Natural Bas

As we acquire RNG for customers now, we're also looking forward—to opportunities to deliver low-carbon hydrogen, which can be produced in myriad ways to serve multiple industries and end-uses.

Clean Hydrogen

When used as energy, hydrogen emits water vapor—so it's expected to be an important part of energy system decarbonization over the next several decades. Through the power-to-gas process, renewable hydrogen can be created using wind, solar and hydro energy sources that often produce excess power at times of low demand. Renewable hydrogen can be blended with natural gas or converted to synthetic natural gas and used as a direct replacement for conventional natural gas. Clean, low-carbon hydrogen can also be produced by reforming conventional natural gas, paired with carbon capture and storage ("blue hydrogen") to make it carbon neutral.

Dur facility in Mist, Oregon, provides 20 bitlion cubic feet of underground storage capacity. That translates into 6 million megawatt hours of renewable storage capability or the equivalent of a 52 trivition doultar battery; 71 his existing storage is already in place, can deliver on-demand, and is primed to store renewable molecules.

Hydrogen pathways can deliver clean energy

to multiple industries via pipeline infrastructure



3 Cole, Wexley, and A. Will Frazier. 2019. Cost Projections for Utility-Scale Battery Storage. Bolden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-73222. https://www.nrel.gov/doce/fy19osti/73222.pdf.



Our Destination Zero analysis supports what we've believed for some time: Using our existing gas infrastructure in new ways will help our region reach its climate gals faster, more affordably and more resiliently.

We firmly believe the right answer for a net-zero future is a diversified energy system that pairs renewable electrons in the wires overhead with renewable molecules running through the pipes underground. NW Natural has initiated progress on multiple fronts in support of this vision, including ramping up our RNG procurement and actively supporting the development and utilization of clean hydrogen in the Pacific Northwest.

Building on 163 years of success, we are looking forward—channeling the advantages of our modern infrastructure, our expertise, and our innovative spirit toward what's next: **Destination Zero**

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\$100+



You've read the information included on this insert. You've reviewed the details about NW Natural's vision to get to carbon neutrality by 2050. Now enter for a chance to win one of five amazing prizes.

Here's how to enter:

- 1. Visit nwnatural.com/destinationzerosweepstakes
- 2. Click on the button to start the quiz (you will be taken to another website to enter)
- 3. Answer five trivia questions about NW Natural Vision 2050: Destination Zero
- 4. Supply us with your contact information (information will not be stored
- and will only be used to select and contact the winners) 5. Five winners will be randomly selected from all qualified entries

CONSOLATION PRIZES One of four \$100 Visa gift cards

What you can win:

furnace, fireplace, OR tankless water heater installed by a

GRAND PRIZE A high-efficiency natural gas

NW Natural Certified

Contractor



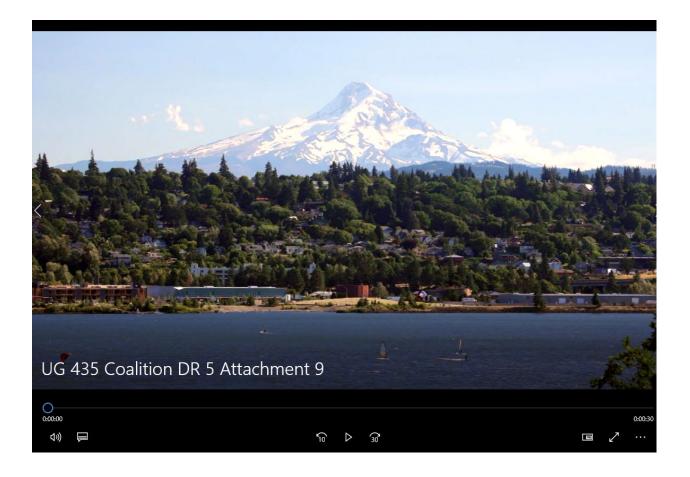
Video Exhibit Submitted in Native File Format

UG 435 Coalition DR 5 Attachment 5



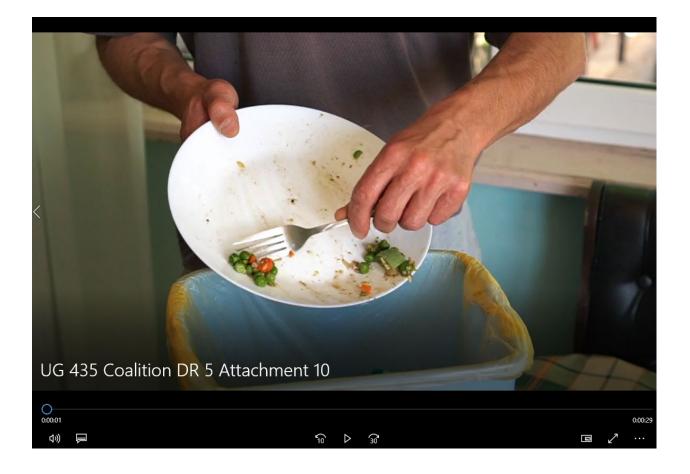
Video Exhibit Submitted in Native File Format

UG 435 Coalition DR 5 Attachment 9



Video Exhibit Submitted in Native File Format

UG 435 Coalition DR 5 Attachment 10



Quarterly Public Sentiment and Advertising Awareness Tracking

- I. Screeners
- II. General assessment
 - a. All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?
- III. Advertising awareness
 - a. In the past three months, how many advertisings did you recall seeing, reading, or hearing any advertisement from NW Natural/[your electric provider]?
 - b. Think about the advertising you recall from NW Natural, what was/were the message(s) about? Mark all that apply.
 - i. Renewable natural gas
 - ii. Natural gas is environmentally friendly
 - iii. Natural gas plays a role in reducing greenhouse gas emission
 - iv. Natural gas is safe
 - v. Natural gas is affordable
 - c. Where did you see or hear this/these communication(s)? Mark all that apply.
- IV. Environmental awareness
 - a. Which statement comes closest to your point of view? [Rotate A and C, ask B second]
 - i. Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.
 - ii. The right amount of effort is being spent to reduce carbon emissions in my city.
 - iii. Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.
 - b. The following are a few statements that people sometimes make about natural gas. None may match your opinion exactly, but please tell me which is closest to what you think.
 - i. Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.
 - ii. Natural gas is critical to helping us lower emissions and achieve our climate goals.
 - iii. Natural gas should be used because it's affordable and reliable.
 - c. Berkeley, California, recently passed a law to ban new natural gas hookups for homes and buildings. Several other West Coast cities are considering similar laws. Would you support or oppose your local government banning new natural gas hookups in homes and buildings?
- V. Product positioning
 - a. If you were looking for a new home, how important would it be to you that the new home have natural gas appliances
 - b. Opinion about the following features of natural gas vs. electricity
 - i. Affordable
 - ii. Reliable
 - iii. Efficient
 - iv. Safe
 - v. Environmentally friendly
 - c. How would you rate NW Natural on its...
 - i. Efforts to move toward clean energy
 - ii. Investments made in renewable resources
 - iii. Overall actions on environmental issues
- VI. Demographics
 - a. Gender
 - b. Age
 - c. Education
 - d. Income

UG 435 CUB DR 5 Attachment 13a Page 2 of 2

e. Rent/own

NW Natural Quarterly Advertising Awareness and Public Sentiment Tracking - Q2 2020



UG 435 CUB DR 5 Attachment 13b Page 1 of 152

UG 435 CUB DR 5 Attachment 13b Page 2 of 152

Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - June
 - September
 - December
 - March

UG 435 CUB DR 5 Attachment 13b Page 3 of 152

Executive Summary – Ad Awareness

- 48% of all respondents recalled seeing NW Natural ads during the past three months.
 - 56% of NW Natural customers vs. 39% of non-customers.
 - This quarter's NW Natural ad awareness is higher than other local utilities among their own customers: PGE 44%, Pacific Power 43%, and Clark PUD 39%.
- Among those recalled seeing NW Natural ads, close to half saw Natural Gas is Safe or Natural Gas is environmental friendly.
- 59% of the recalls were from TV, followed by websites 25% and social media 22%.

UG 435 CUB DR 5 Attachment 13b Page 4 of 152

Executive Summary – Public Sentiment

- 42% thought that our local community is headed towards the right direction (37% customers vs 48% non-customers)
- Nearly half believe that the right amount efforts is being spent on carbon reduction, 39% said not enough and 14% too much.
 - The following groups demand more carbon reduction efforts: noncustomers (45%), democrats (46%), Multnomah county residents (50%).

UG 435 CUB DR 5 Attachment 13b Page 5 of 152

Executive Summary – Natural Gas Preference

- A majority value either the affordability and reliability of natural gas (46%) or believe it can help achieve climate goals (38%).
- 16% believe natural gas is fossil fuel and should be ban (non-customers 20%, democrats 24% and renters 23%).
- About half do not have a position in whether natural gas should be banned in new buildings.
 - 30% oppose gas ban: 39% homeowners, 35% male, 54% republicans, 41% in Washington county, 39% in Clark county.
 - 23% support gas ban: 30% renters, 29% male, 30% democrats, 30% in Multhomah county.
- 60% of all said natural gas is important for their next home purchase: 81% customers, 66% homeowners, 71% male, 69% republicans.
- Three third agree that natural gas is reliable, efficient or affordable, about half said that natural
 gas is safe or environmentally friendly.
- About half view NW Natural's environmental efforts as adequate.

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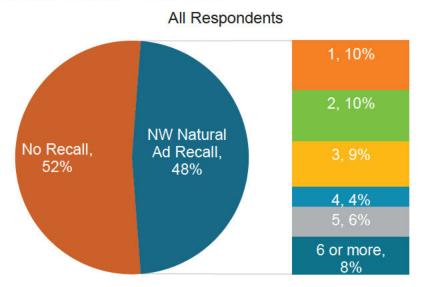
Advertising Awareness

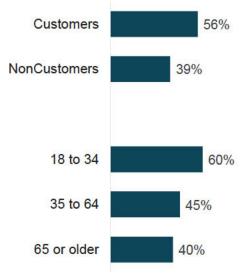


UG 435 CUB DR 5 Attachment 13b Page 7 of 152

NW Natural Advertising Awareness

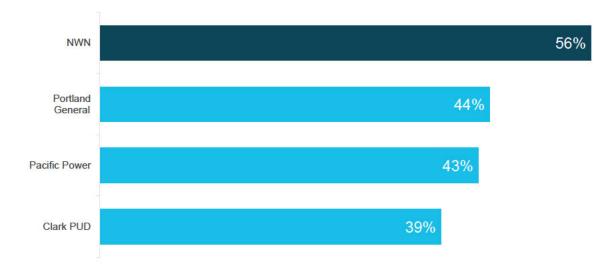
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?





Utility Company Advertising Awareness among its own customers

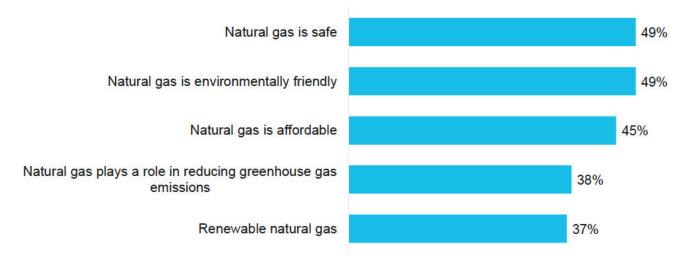
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



UG 435 CUB DR 5 Attachment 13b Page 9 of 152

NW Natural Ad Message Recall

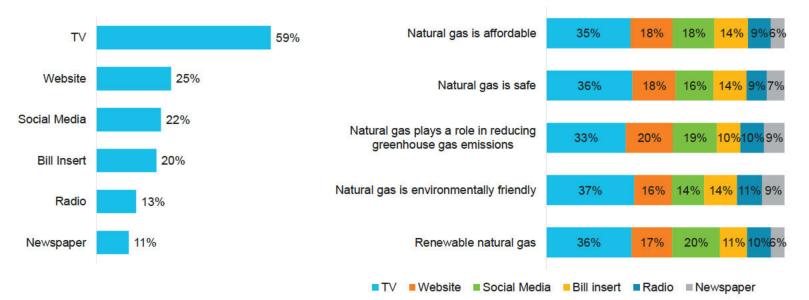
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



UG 435 CUB DR 5 Attachment 13b Page 10 of 152

NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



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Public Sentiments



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General mood

All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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4%

16%

15%

6%

13

14%

26%

43%

479

13%

10%

Carbon Reduction Effort Statement

 Total
 39%
 48%

 NonCustomers
 45%
 45%

 Customers
 32%
 50%

 Male
 33%
 51%

 Female
 42%
 45%

 Republican
 24%
 50%

 Independent
 42%
 43%

 Democrat
 46%
 45%

 Multhomah
 50%
 34%

Washington Clackamas Clark Marion* Lane*

Which statement comes closest to your point of view?

Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

* Small sample size

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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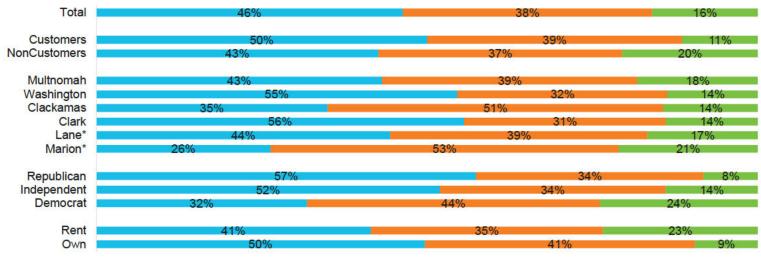
Natural Gas Preference



UG 435 CUB DR 5 Attachment 13b Page 15 of 152

Natural Gas Statements

The following are statements that people sometimes make about natural gas. Please tell me which is closest to what you think.



Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

* Small sample size

Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

UG 435 CUB DR 5 Attachment 13b Page 16 of 152

Natural Gas Ban

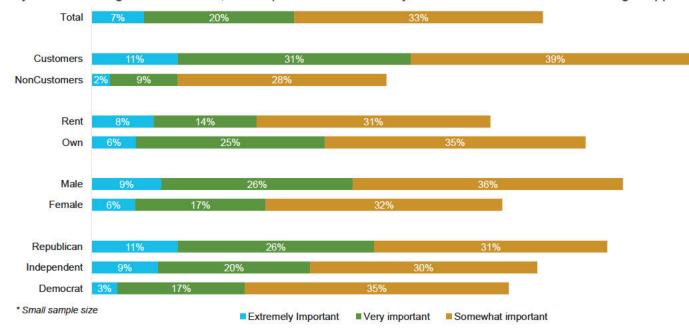
Would you support or oppose your local government banning new natural gas hookups in homes and buildings?

Total	14%	17%	47%		15%	8%
Rent Own	12% 7 15%	24%	50%	44%	17%	13% % 4%
NonCustomers	and the second se	.%	55%		11%	12%
Customers	18%	21%	39	9%	18%	4%
Male	20%	15%	36%		24%	5%
Female	10%	18%	52%		10%	10%
Republican	30	%	25%	28%	11%	7%
Independent	14%	14%	51%		13%	9%
Democrat	5% 15%		51%		20%	9%
Multnomah	14%	14%	43%		20%	9%
Washington	23%	18%	30	6%	5%	18%
Clackamas	11%	16%	52%		16%	5%
Clark	14%	25%		44%		% 6%
Marion*	16%	11%	37%	16%	21	%
Lane*	6% 17%	ó	61%		11	% 6%
* Small sample size	Strongly op	pose ∎Oppose ∎Ne	either support nor oppose	Support Strong	ly support	

UG 435 CUB DR 5 Attachment 13b Page 17 of 152

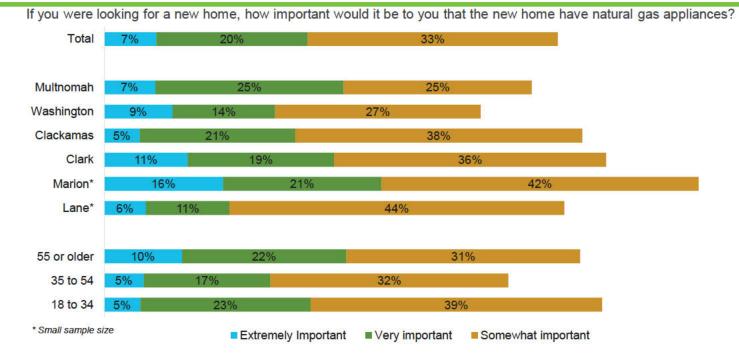
Natural Gas Preference

If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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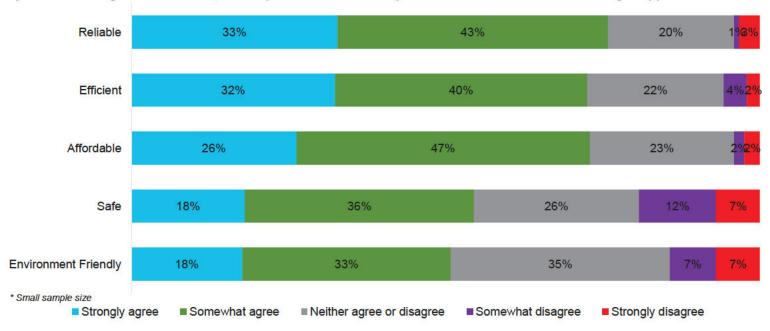
Natural Gas Preference (continued)



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Natural Gas Attributes

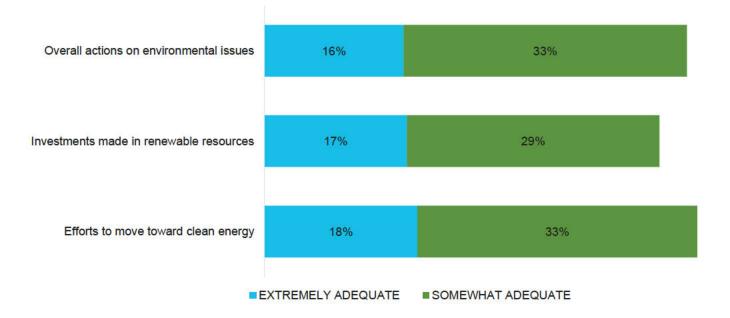
If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



UG 435 CUB DR 5 Attachment 13b Page 20 of 152

NW Natural Environmental Efforts

How would you rate NW Natural on the following:



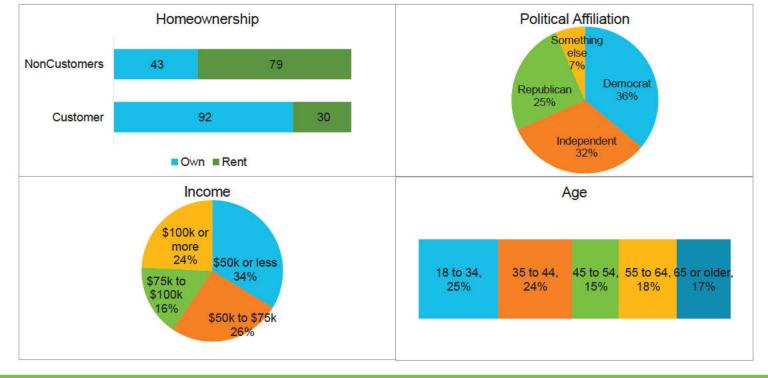
UG 435 CUB DR 5 Attachment 13b Page 21 of 152

Demographics



UG 435 CUB DR 5 Attachment 13b Page 22 of 152

Demographics



UG 435 CUB DR 5 Attachment 13b Page 23 of 152

NW Natural Advertising Awareness Public Sentiment Tracking - Q3 2020



UG 435 CUB DR 5 Attachment 13b Page 24 of 152

Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - June
 - September
 - December
 - March

UG 435 CUB DR 5 Attachment 13b Page 25 of 152

Executive Summary – Ad Awareness

- 55% of all respondents recalled seeing NW Natural ads during that last quarter, an improvement of 7 percentage points from Q2.
 - The increase is largely due the age of 35 64, while other groups drops.
 - Other local utilities are also experiencing increases in their own advertising awareness: PGE 48%, Pacific Power 47%, and Clark PUD 45%.
- Among those recalled seeing NW Natural ads, about half of them saw Natural Gas is Safe or Natural Gas is environmental friendly.
- 62% of the recalls were from TV, followed by social media 29% and websites 22%.

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Executive Summary – Public Sentiment

- 44% thought that our local community is gotten off the wrong track, close to half of NW Natural customers shared the same sentiment vs. 40% of non-customers.
- Possibly due to the wildfire occurring during the month of September, the percentage of people who said that not enough is being done to reduce carbon reduction jumped from last quarter's 39% to 53%. This trend is consistent across customers and noncustomers, and different demographic groups.

UG 435 CUB DR 5 Attachment 13b Page 27 of 152

Executive Summary – Natural Gas Preference

- A majority value either the affordability and reliability of natural gas (40%) or believe it can help achieve climate goals (38%). Though it dropped slightly from last quarter, possibly also due to the wildfire.
- 22% believe natural gas is fossil fuel and should be ban, comparing to 16% from last quarter.
- Those who oppose natural gas ban has remained stable this quarter at 30%, while those who support a ban has increased by 9 percentage points.
- 58% of all said natural gas is important for their next home purchase, it is down slightly from last quarter.
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable, about half said that natural gas is safe.
- About half view NW Natural's environmental efforts as adequate.

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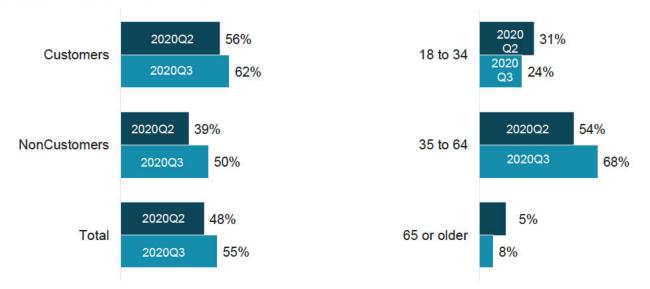
Advertising Awareness



UG 435 CUB DR 5 Attachment 13b Page 29 of 152

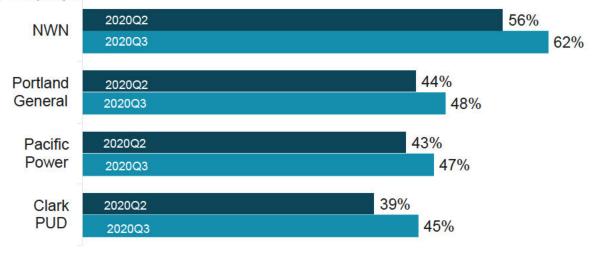
NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?



Utility Company Advertising Awareness among its own customers

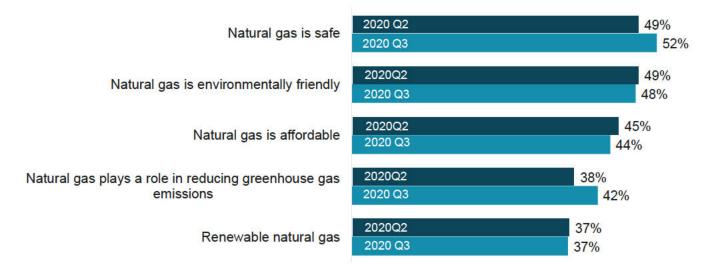
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



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NW Natural Ad Message Recall

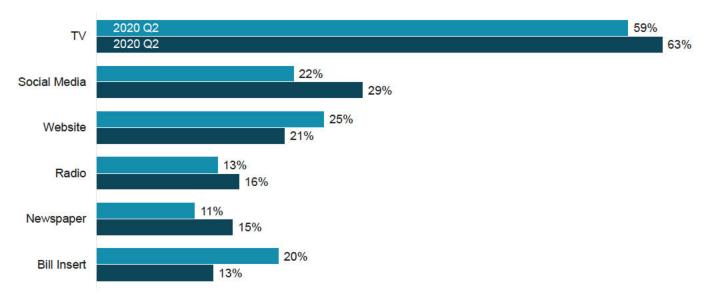
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



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NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



Coalition/405 Ryan/111

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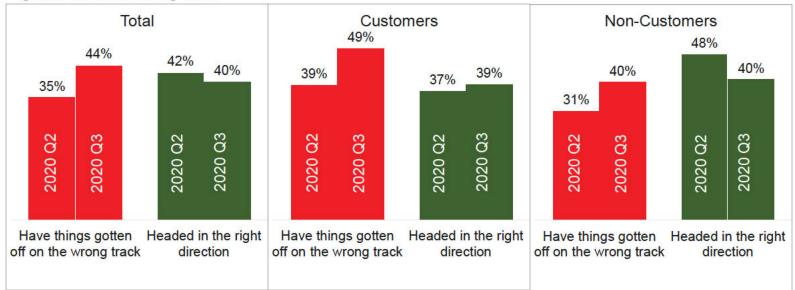
Public Sentiments



UG 435 CUB DR 5 Attachment 13b Page 34 of 152

General mood

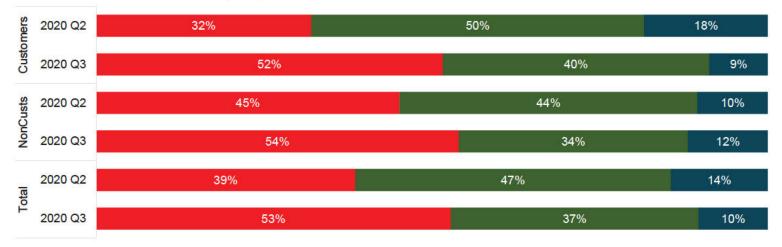
All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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Carbon Reduction Effort Statement

Which statement comes closest to your point of view?



Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

Coalition/405 Ryan/114

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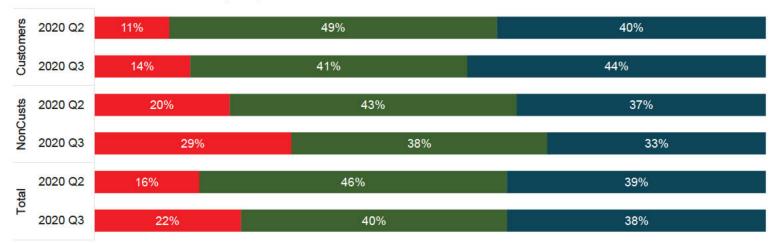
Natural Gas Preference



UG 435 CUB DR 5 Attachment 13b Page 37 of 152

Natural Gas Statements

Which statement comes closest to your point of view?



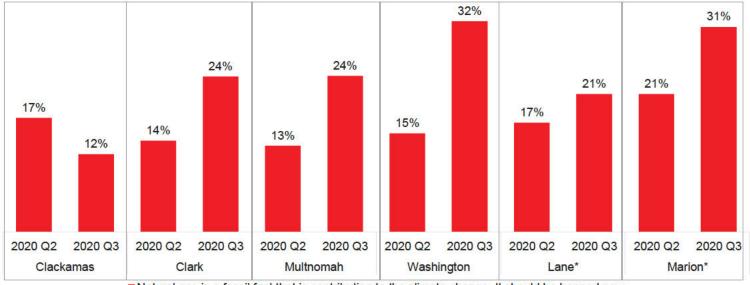
Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Statements by County



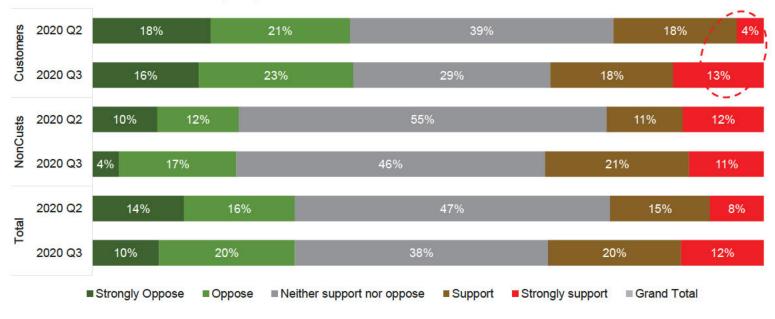
Statement: Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

UG 435 CUB DR 5 Attachment 13b Page 39 of 152

Natural Gas Ban

Which statement comes closest to your point of view?



UG 435 CUB DR 5 Attachment 13b Page 40 of 152

Natural Gas Ban by county

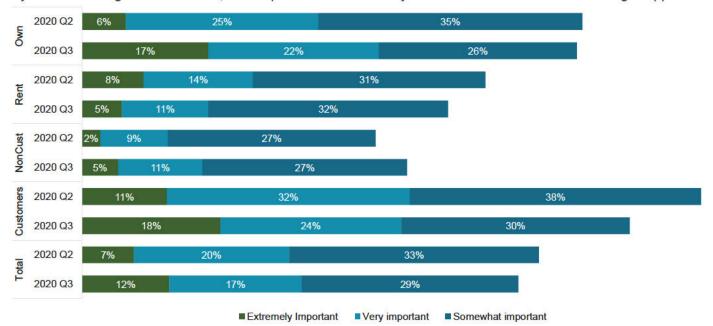
Would you support or oppose your local government banning new natural gas hookups in homes and buildings?

lthom ah	2020 Q2	8% 20%			39%		23%	11%
Mult	2020 Q3	13% 16%			42%		21	% 8%
Clackam Washing Multhom as ton ah	2020 Q2	10%	13%		42%		17%	19%
	2020 Q3	20%		20%		35%	5%	20%
Clackam as	2020 Q2	12%	14%		52%			16% 6%
	2020 Q3	10%	19%		37%		22%	12%
Clark	2020 Q2	14%	2	5%		44%		11% 6%
	2020 Q3	5%	29%		37%		18%	6 11%
Marion*	2020 Q2	16%	11%		37%		16%	21%
	2020 Q3	13%	13%		38%		19%	19%
Lane*	2020 Q2	6% 1	7%		61%			11% 6%
	2020 Q3	21%	1	1%	4	7%		11% 11%
* Small sample size		■ Strongly (oppose ∎Opp	oose ∎Neither s	support nor oppose	e ■Support	Strongly suppo	ort

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Natural Gas Preference

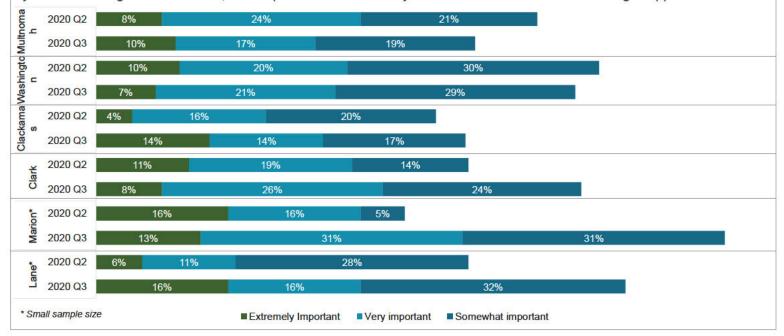
If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Preference by county

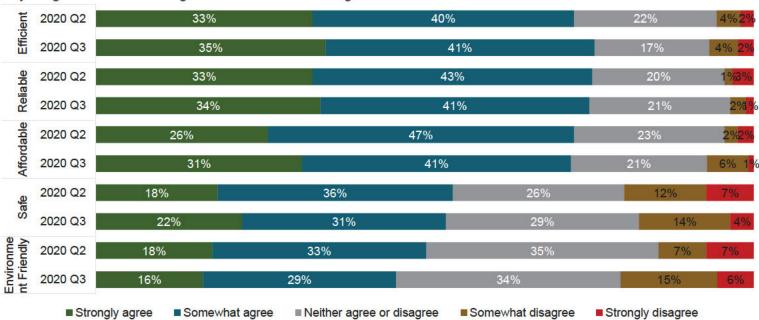
If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Attributes

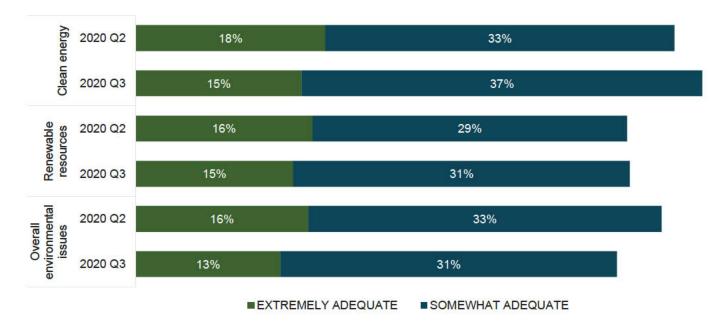
Do you agree with the following statements about natural gas?



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NW Natural Environmental Efforts

How would you rate NW Natural on the following:



Coalition/405 Ryan/123

UG 435 CUB DR 5 Attachment 13b Page 45 of 152

NW Natural Advertising Awareness Public Sentiment Tracking - Q4 2020



UG 435 CUB DR 5 Attachment 13b Page 46 of 152

Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - June
 - September
 - December
 - March

UG 435 CUB DR 5 Attachment 13b Page 47 of 152

Executive Summary – Ad Awareness

- 55% of all respondents recalled seeing NW Natural ads during that last quarter, an improvement of 7 percentage points from Q2.
 - The increase is largely due the age of 35 64, while other groups drops.
 - Other local utilities are also experiencing increases in their own advertising awareness: PGE 48%, Pacific Power 47%, and Clark PUD 45%.
- Among those recalled seeing NW Natural ads, about half of them saw Natural Gas is Safe or Natural Gas is environmental friendly.
- 62% of the recalls were from TV, followed by social media 29% and websites 22%.

UG 435 CUB DR 5 Attachment 13b Page 48 of 152

Executive Summary – Public Sentiment

- 44% thought that our local community is gotten off the wrong track, close to half of NW Natural customers shared the same sentiment vs. 40% of non-customers.
- Possibly due to the wildfire occurring during the month of September, the percentage of people who said that not enough is being done to reduce carbon reduction jumped from last quarter's 39% to 53%. This trend is consistent across customers and noncustomers, and different demographic groups.

UG 435 CUB DR 5 Attachment 13b Page 49 of 152

Executive Summary – Natural Gas Preference

- A majority value either the affordability and reliability of natural gas (40%) or believe it can help achieve climate goals (38%). Though it dropped slightly from last quarter, possibly also due to the wildfire.
- 22% believe natural gas is fossil fuel and should be ban, comparing to 16% from last quarter.
- Those who oppose natural gas ban has remained stable this quarter at 30%, while those who support a ban has increased by 9 percentage points.
- 58% of all said natural gas is important for their next home purchase, it is down slightly from last quarter.
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable, about half said that natural gas is safe.
- About half view NW Natural's environmental efforts as adequate.

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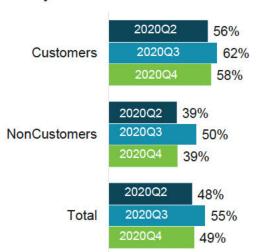
Advertising Awareness



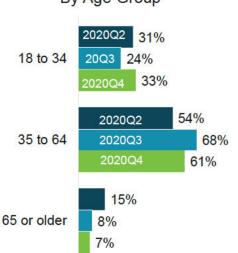
UG 435 CUB DR 5 Attachment 13b Page 51 of 152

NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?



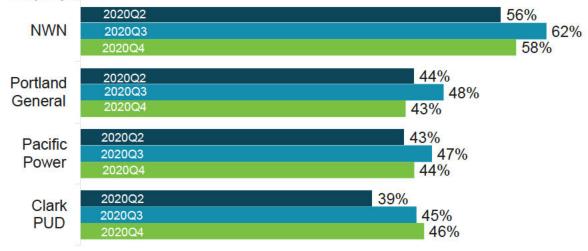
By Customers/Non-customers



By Age Group

Utility Company Advertising Awareness among its own customers

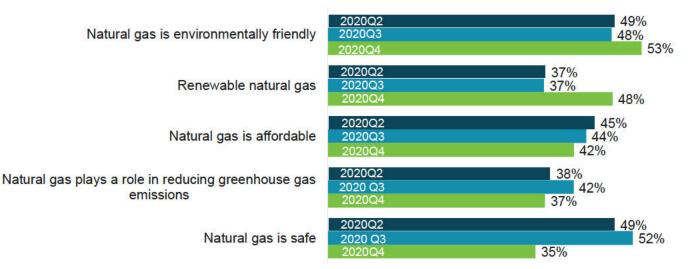
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



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NW Natural Ad Message Recall

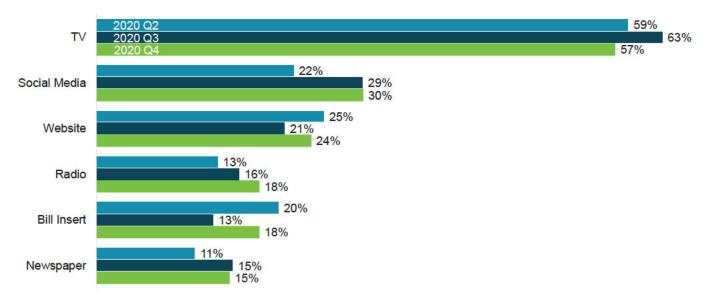
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



UG 435 CUB DR 5 Attachment 13b Page 54 of 152

NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



UG 435 CUB DR 5 Attachment 13b Page 55 of 152

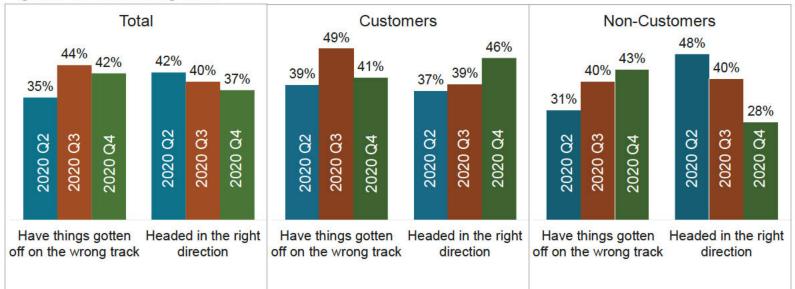
Public Sentiments



UG 435 CUB DR 5 Attachment 13b Page 56 of 152

General mood

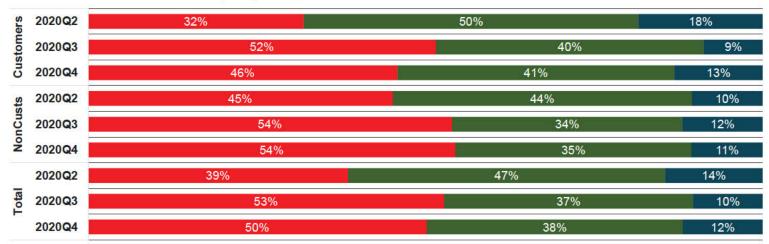
All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



UG 435 CUB DR 5 Attachment 13b Page 57 of 152

Carbon Reduction Effort Statement

Which statement comes closest to your point of view?



Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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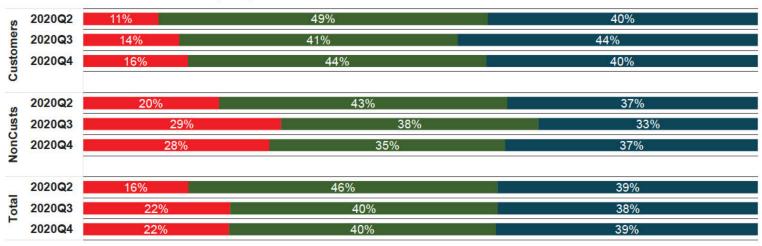
Natural Gas Preference



UG 435 CUB DR 5 Attachment 13b Page 59 of 152

Natural Gas Statements

Which statement comes closest to your point of view?



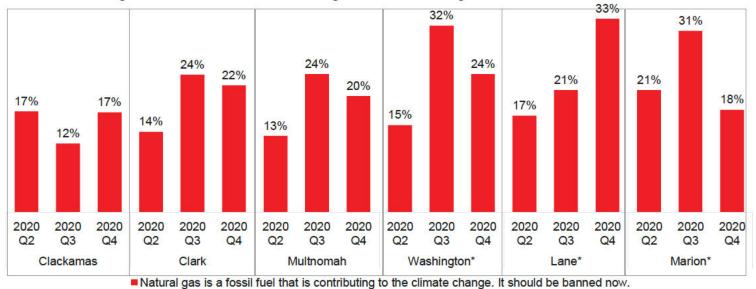
Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Statements by County



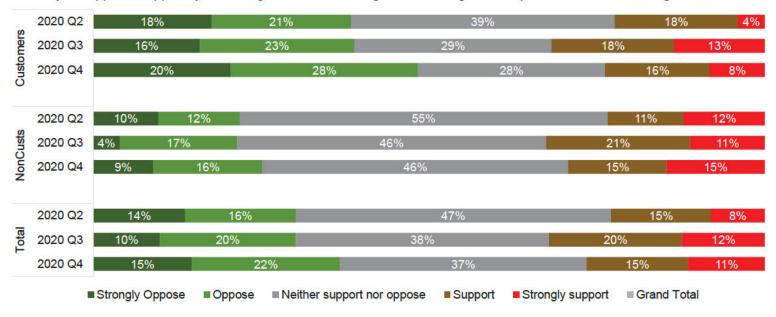
Statement: Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

* Small sample size

UG 435 CUB DR 5 Attachment 13b Page 61 of 152

Natural Gas Ban Support

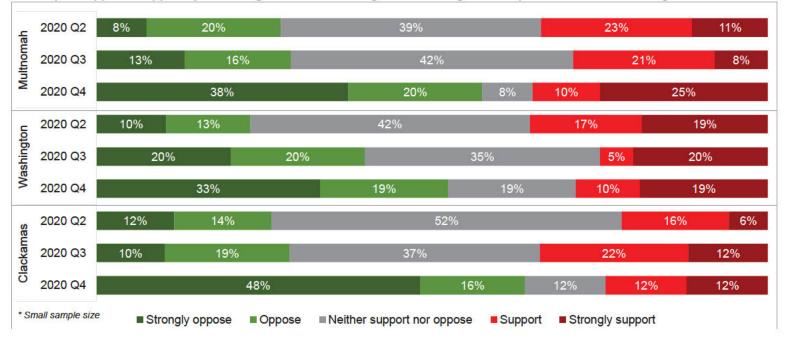
Would you support or oppose your local government banning new natural gas hookups in homes and buildings??



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Natural Gas Ban by county

Would you support or oppose your local government banning new natural gas hookups in homes and buildings?



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Natural Gas Ban by county (continued)

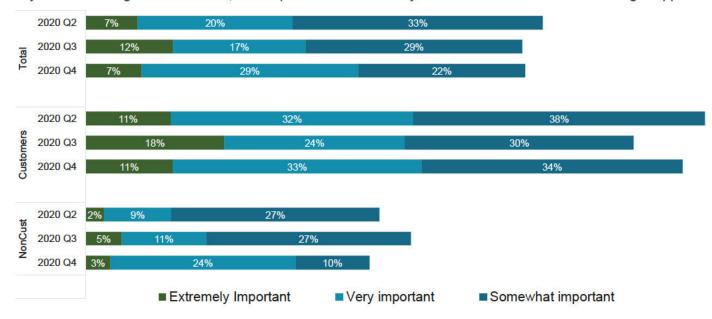
2020 Q2 14% 25% 11% 6% Clark 2020 Q3 29% 18% 11% 2020 Q4 9% 16% 13% 22 2020 Q2 16% 379 16% 21% 11% Marion* 2020 Q3 38% 19% 19% 13% 13% 2020 Q4 12% 6% 24% 29% 2020 Q2 17% 11% 6% 6% Lane* 2020 Q3 47% 11% 11% 21% 2020 Q4 41% 15% 22% 15% 7% * Small sample size Strongly oppose Neither support nor oppose Strongly support Oppose Support

Would you support or oppose your local government banning new natural gas hookups in homes and buildings?

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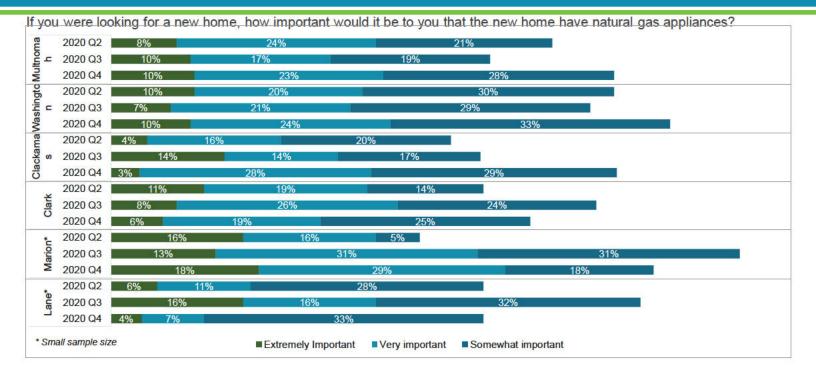
Natural Gas Preference

If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Preference by county



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Natural Gas Attributes

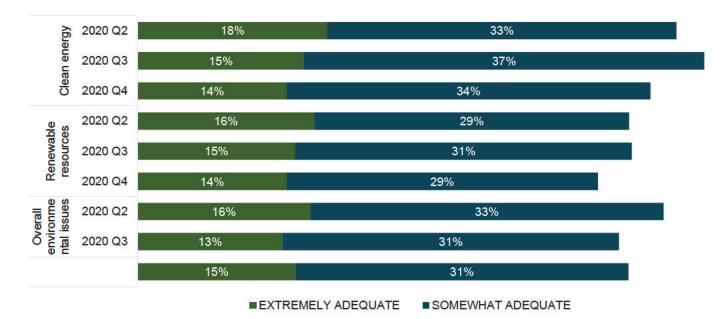
Do you agree with the following statements about natural gas?

Efficient	2020 Q2	33%		40%	22%	4%2%
	2020 Q3	35%		41%	17%	4% 2%
Eff	2020 Q4	38%		37%	18%	6% 2%
e	2020 Q2	33%		43%		1%3%
Reliable	2020 Q3	34%		41%		2%
Re	2020 Q4	36%		37%		4%2%
ble	2020 Q2	26%	47	47%		2%2%
Affordable	2020 Q3	31%		41%	21%	6% 1 <mark>9</mark>
Affc	2020 Q4	30%	38	3%	22%	7% 2%
	2020 Q2	18%	36%	26%	12%	7%
Safe	2020 Q3	22%	31%	29%	14%	6 4%
	2020 Q4	24%	33%	25%	10%	7%
dy	2020 Q2	18%	33%	35%	7%	7%
Environme nt Friendly	2020 Q3	16%	29%	34%	15%	6%
	2020 Q4	20%	27%	30%	13%	9%

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NW Natural Environmental Efforts

How would you rate NW Natural on the following:



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NW Natural Advertising Awareness Public Sentiment Tracking - Q1 2021



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Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - March
 - June
 - September
 - December

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Executive Summary – Ad Awareness

- 57% of all respondents recalled seeing NW Natural ads during the last quarter, unchanged from Q4 last year.
 - By age group: only 65+ group increased while the other two decline slightly.
 - PGE's ad awareness jumped almost 10 percentage points to 54%, but it is still 7 points less the NW Natural recalls among customers.
- Among those recalled seeing NW Natural ads, about half of them saw Natural Gas is Safe or Natural Gas is environmental friendly.
- 60% of the recalls were from TV, followed by social media 28% and websites 18%.

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Executive Summary – Public Sentiment

- 49% of all who surveyed agreed that our local community is headed in the right direction - a jump of 12 percentage points. The increase was all coming from non-customers – an increase of 21 percentage points.
- After a 2 points drop during Q4 last year, the percentage of people claiming not enough is being done to reduce carbon emissions increased slightly to 55%. At the same time, the percentage of people who said too much effort is being spent to reduce carbon emissions also steadily increases to 15%.

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Executive Summary – Natural Gas Preference

- A majority value either the affordability and reliability of natural gas (42%) or believe it can help achieve climate goals (38%).
- 20% believe natural gas is fossil fuel and should be ban, a drop of 2 points from last quarter. But the sentiment remained high in both Multnomah and Lane county (27%), all other major counties were in the tens.
- Those who oppose natural gas ban has remained stable this quarter at 35%, while those who support a ban has dropped slightly by 2 percentage points.
- 66% of all said natural gas is important for their next home purchase an increase of 8 percentage points from last quarter.
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable.
- About half view NW Natural's environmental efforts as adequate.

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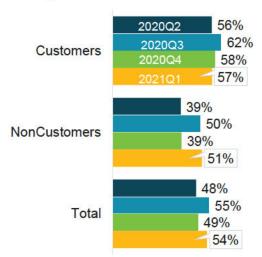
Advertising Awareness



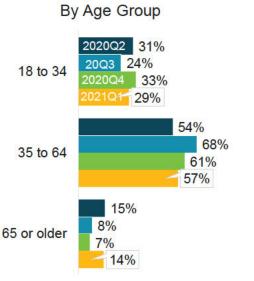
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NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?

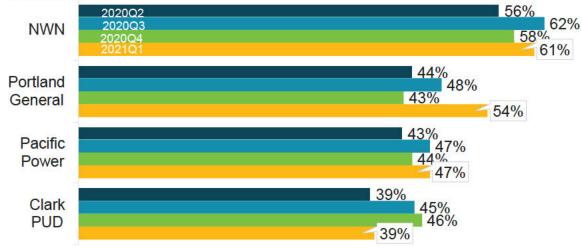


By Customers/Non-customers



Utility Company Advertising Awareness among its own customers

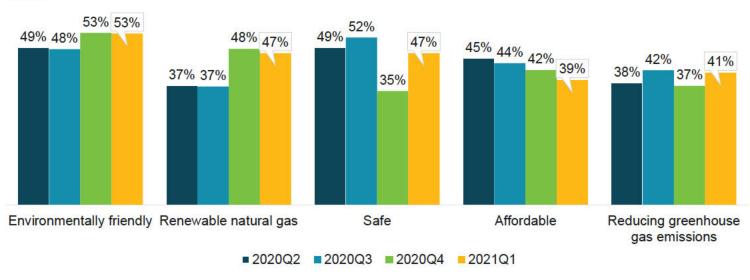
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



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NW Natural Ad Message Recall

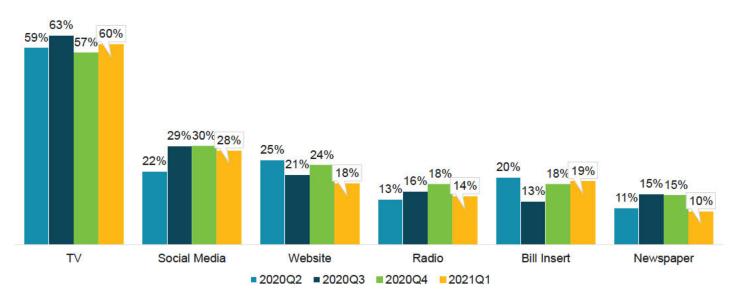
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



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NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



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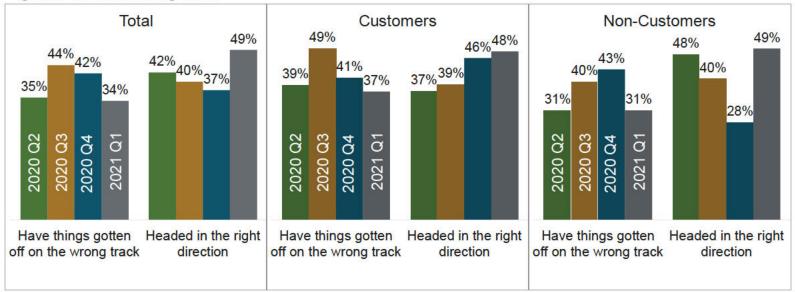
Public Sentiments



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General mood

All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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Carbon Reduction Effort Statement

Which statement comes closest to your point of view?

S	2020Q2	32%	50%	18%
omers	2020Q3	52%	40%	9%
usto	2020Q4	46%	41%	13%
บี	2021Q1	51%	32%	17%
5	2020Q2	45%	44%	10%
custs	2020Q3	54%	34%	12%
NonC	2020Q4	54%	35%	11%
z	2021Q1	59%	29%	12%
	2020Q2	39%	47%	14%
Total	2020Q3	53%	37%	10%
1 ^o	2020Q4	50%	38%	12%
	2021Q1	55%	30%	15%

Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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Natural Gas Preference



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Natural Gas Statements

Which statement comes closest to your point of view?

S	2020Q2 11% 2020Q3 14% 2020Q4 16%		49%	<u>40%</u> 44%		
ler			41%			
Customer			44%	40%		
sn	2021Q1 20%		43%	37%		
0						
	2020Q2	20%	43%	37%		
sts	2020Q3	29%	38%	33%		
NonCusts	2020Q4	28%	35%	37%		
lon	2021Q1 20%		40%	40%		
~						
	2020Q2	16%	46%	39%		
a la	2020Q3	22%	40%	38%		
Total	2020Q4	22%	40%	39%		
	000404	000/	400/	200/		
	2021Q1	20%	42%	38%		

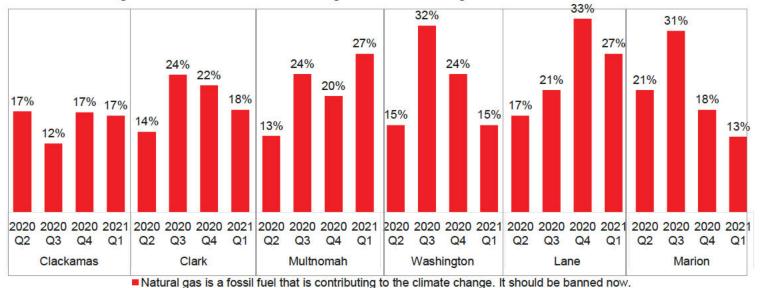
Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

■ Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Statements by County



Statement: Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

* Small sample size

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Natural Gas Ban Support

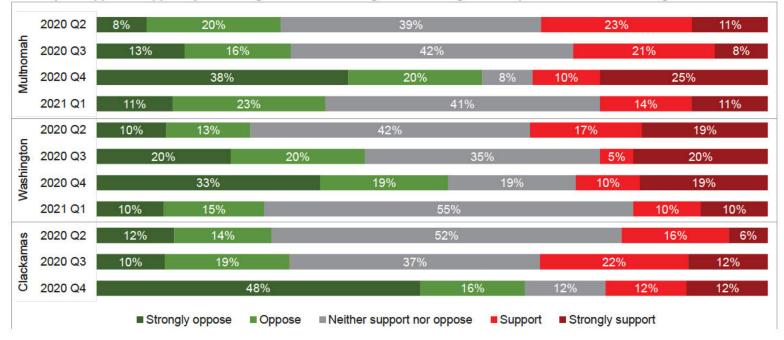
Would you support or oppose your local government banning new natural gas hookups in homes and buildings??

	2020 Q2	18%	21%	39%	18%	4%
lers	2020 Q3	16%	23%	29%	18%	13%
tom	2020 Q4	20%	28%	28%	16%	8%
Customers	2021 Q1	20%	20%	32%	17%	11%
	2020 Q2	10% 12%		55%	11%	12%
sts	2020 Q3	4% 17%		46%	21%	11%
NonCusts	2020 Q4	9% 16	%	46%	15%	15%
Nor	2021 Q1	9%	19%	50%	15%	7%
	2020 Q2	14%	16%	47%	15%	8%
a	2020 Q3	10%	20%	38%	20%	12%
Total	2020 Q4	15%	22%	37%	15%	11%
	2021 Q1	15%	20%	41%	16%	9%
		Strongly Opp	oose ∎Oppose ∎Neith	ner support nor oppose	Strongly support	

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Natural Gas Ban by county

Would you support or oppose your local government banning new natural gas hookups in homes and buildings?



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Natural Gas Ban by county (continued)

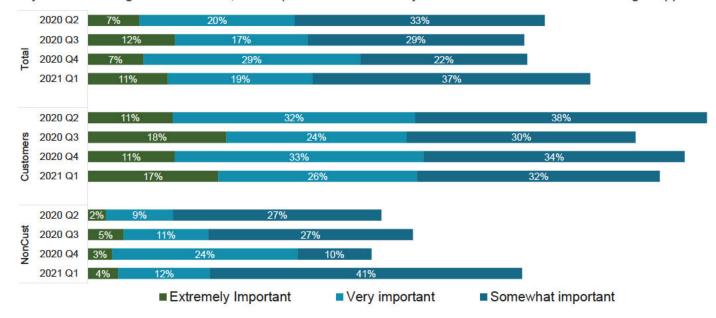
Would you support or oppose your local government banning new natural gas hookups in homes and buildings?

	2020 Q2	14%	25%			44	4%		11%	6%
Clark	2020 Q3	5%	29%		3	7%		18%		11%
Ö	2020 Q4	13%		41%			22%	9%	16'	%
	2021 Q1	15%	9%		44%			21%		12%
	2020 Q2	16%	11%		37%		16	%	21%	
Marion	2020 Q3	13%	13%		38%		19	9%	19%	
Mai	2020 Q4	24%		29%			29%		12%	6%
	2021 Q1	9%	30%	A.		35%		17%	b l	9%
	2020 Q2	6% 17%	н. 1		6	1%			11%	6%
Lane	2020 Q3	21%	11%			47%		11	1%	11%
La	2020 Q4		41%		15%	7%		22%	15	%
	2021 Q1	14%	14%			55%			9%	9%
		Strongly o	ppose Oppo	ose ■Neither	support nor op	pose 🔳 S	Support S	trongly support		

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Natural Gas Preference

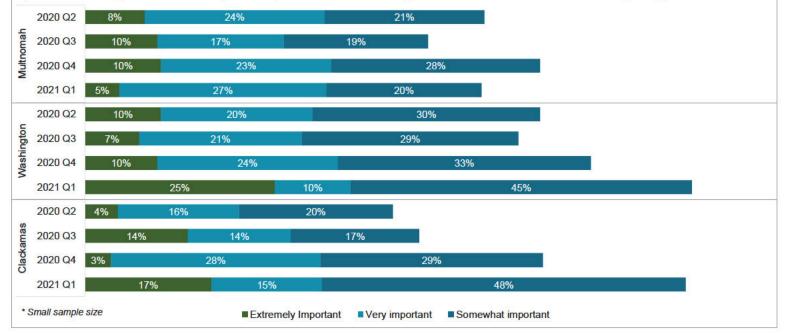
If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Preference by county

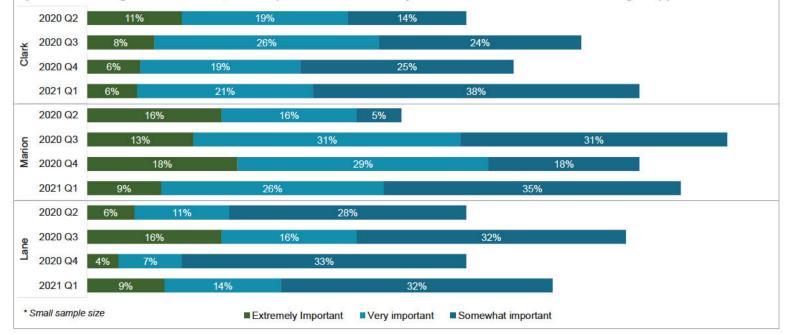




Natural Gas Preference by county (continued)

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If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Attributes

Do you agree with the following statements about natural gas?

	2020 Q2	33%	40%	22% 4% 2%
Efficient	2020 Q3	35%	41%	17% 4% 2%
Effic	2020 Q4	38%	37%	18% 6% 2%
	2021 Q1	34%	41%	21% 3%8%
	2020 Q2	33%	43%	20% 1 <mark>%3%</mark>
able	2020 Q3	34%	41%	21% 2%
Reliable	2020 Q4	36%	37%	22% 4% 2%
	2021 Q1	36%	38%	22% 3%8%
	2020 Q2	2 26%	47%	23% 2%2%
lable	2020 Q3	31%	41%	21% 6% 1 <mark>%</mark>
Affordable	2020 Q4	30%	38%	22% 7% 2%
4	2021 Q1	28%	39%	27% 5% 1 <mark>%</mark>
		Strongly agree Somewhat	agree ■ Neither agree or disagree ■	Somewhat disagree Strongly disagree

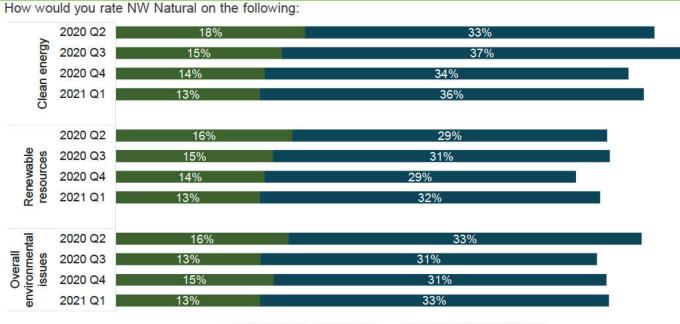
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Natural Gas Attributes (continued)

Do you agree with the following statements about natural gas? 2020 Q2 26% 18% 36% 2020 Q3 29% 31% 22% 149 Safe 2020 Q4 24% 33% 25% 10% 2021 Q1 40% 26% 22% 35% 2020 Q2 33% 18% Environment Friendly 2020 Q3 34% 29% 16% 2020 Q4 30% 20% 27% 32% 2021 Q1 22% 30% Strongly agree Somewhat agree Neither agree or disagree Somewhat disagree Strongly disagree

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NW Natural Environmental Efforts



■EXTREMELY ADEQUATE ■SOMEWHAT ADEQUATE

Coalition/405 Ryan/171

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NW Natural Advertising Awareness Public Sentiment Tracking - Q2 2021



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Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - June
 - September
 - December
 - March

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Executive Summary – Ad Awareness

- 52% of all respondents recalled seeing NW Natural ads during the last quarter, down slightly comparing to last quarter.
 - By age group: the younger group under 34 registered a small increase while the other two groups decline slightly.
 - Around 50% of three other larger utilities' customers in our region recalled seeing their advertisings.
- Among those recalled seeing NW Natural ads, about half of them saw RNG or Natural Gas is environmental friendly piece, while Safe, Affordable and Reducing greenhouse gas emissions ads registered around 40% recall.
- 55% (- 5 pts) of the recalls were from TV, followed by social media 33% (+5 pts) and radio 20% (+6 pts).

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Executive Summary – Public Sentiment

- 50% of all who surveyed agreed that our local community is headed in the right direction - unchanged from last quarter. While those said we are getting off the wrong track dropped from 34% to 31%.
- The percentage of people claiming not enough is being done to reduce carbon emissions dropped 7 points to 47%, while those who said too much effort is being spent to reduce carbon emissions also decreased 3 points to 12%. 40% said the right amount is being spent.

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Executive Summary – Natural Gas Preference

- 42% of respondents believed that natural gas should be used, 36% natural is critical to reach climate goals, and only 19% natural gas should be ban. All these three measures have been unchanged from last quarter.
- Natural gas preference remains stable among gas customers, but experienced a slight drop among non-customers, especially in the somewhat important category.
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable, about half safe or environmental friendly.
- Slightly less than half of all respondents viewed NW Natural's environmental efforts as adequate.

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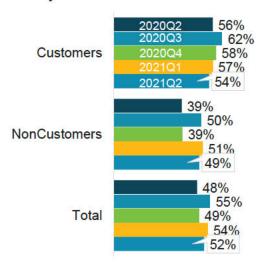
Advertising Awareness



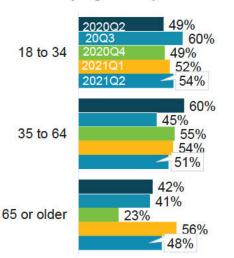
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NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?



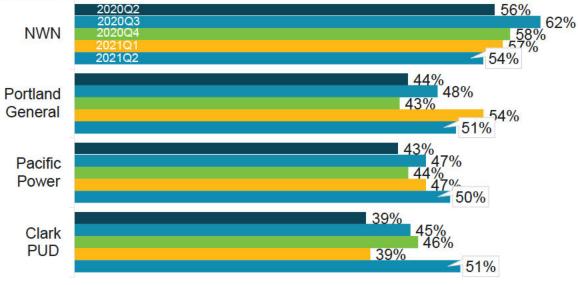
By Customers/Non-customers



By Age Group

Utility Company Advertising Awareness among its own customers

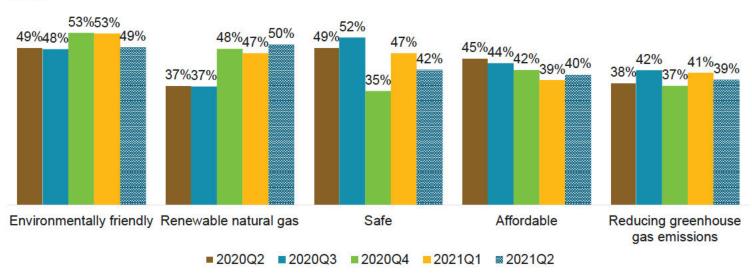
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



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NW Natural Ad Message Recall

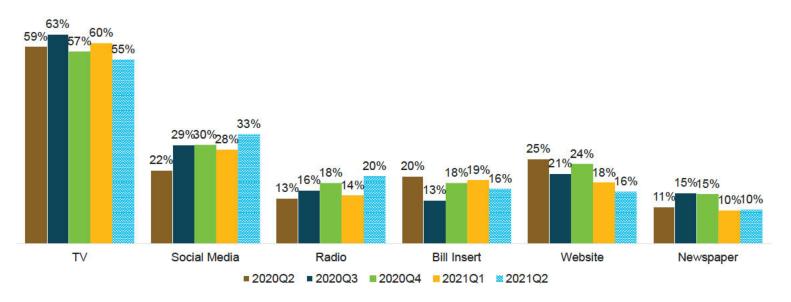
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



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NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



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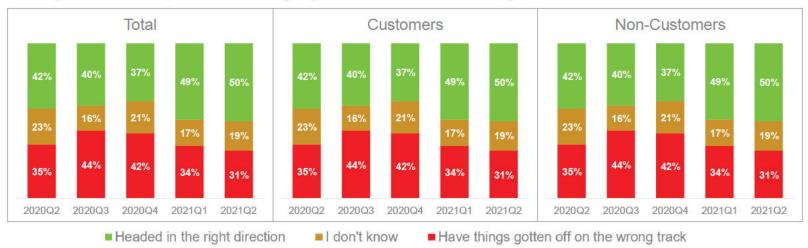
Public Sentiments



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General mood

All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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Carbon Reduction Effort Statement

Which statement comes closest to your point of view?

10	2020Q2	32%	50%	18%
ers	2020Q3	52%	40%	9%
Ē	2020Q4	46%	41%	13%
sto	2021Q1	51%	32%	17%
Customers	2021Q2	47%	41%	12%
	2020Q2	45%	44%	10%
ts	2020Q3	54%	34%	12%
SIN	2020Q4	54%	35%	11%
NonCusts	2021Q1	59%	29%	12%
No	2021Q2	47%	40%	13%
	2020Q2	39%	47%	14%
	2020Q3	53%	37%	10%
otal	2020Q4	50%	38%	12%
E	2021Q1	55%	30%	15%
	2021Q2	47%	40%	12%

Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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Natural Gas Preference



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Natural Gas Statements

Which statement comes closest to your point of view?

stomers	2020Q2	11%	49%	40%
	2020Q3	14%	41%	44%
	2020Q4	16%	44%	40%
	2021Q1	20%	43%	37%
Cus	2021Q2	12%	46%	42%
NonCusts	2020Q2	20%	43%	37%
	2020Q3	29%	38%	33%
	2020Q4	28%	35%	37%
	2021Q1	20%	40%	40%
	2021Q2	26%	38%	36%
Total	2020Q2	16%	46%	39%
	2020Q3	22%	40%	38%
	2020Q4	22%	40%	39%
	2021Q1	20%	42%	38%
	2021Q2	19%	42%	39%

Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

■ Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Ban Support

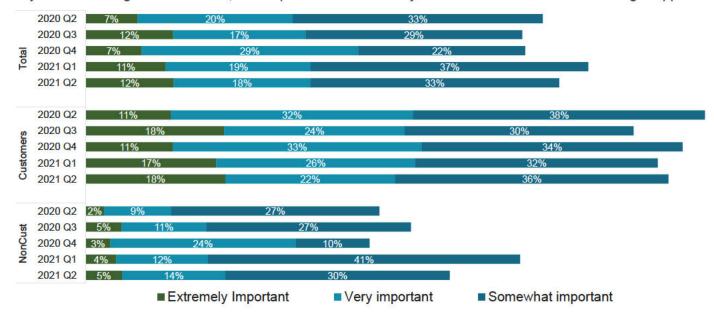
Would you support or oppose your local government banning new natural gas hookups in homes and buildings??

	2020 Q2	18%	21%	3	9%	18%	4%
S	2020 Q3	16%	23%	29%		18%	13%
Customers	2020 Q4	20%	28%	6	28%	16%	8%
Isto	2021 Q1	20%	20%	32%	6	17%	11%
S	2021 Q2	22%	22%		32%	18%	6%
	2020 Q2	10% 12%		55%		11%	12%
ts	2020 Q3	4% 17%		46%		21%	11%
NonCusts	2020 Q4	9% 16%		46%		15%	15%
u l	2021 Q1	9% 19%		50%		15%	7%
ž	2021 Q2	15% 9%	b and a second se	50%		14%	12%
	2020 Q2	14%	16%	47%		15%	8%
a	2020 Q3	10% 20	%	38%		20%	12%
Total	2020 Q4	15%	22%	37%	1	15%	11%
	2021 Q1	15%	20%	41%		16%	9%
		Strongly Oppose	■Oppose ■N	leither support nor oppose	Support	Strongly support	

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Natural Gas Preference

If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Attributes

Do you agree with the following statements about natural gas?

	2020 Q2	33%	40%	22% <mark>4%2%</mark>
	2020 Q3	35%	41%	17% 4% 2%
Efficient	2020 Q4	38%	37%	18% 6% 2%
ffic	2021 Q1	34%	41%	21% 3%%
ш	2021 Q2	36%	35%	25% 4%1%
-	2020 Q2	33%	43%	20% 1 <mark>%3%</mark>
	2020 Q3	34%	41%	21% 2%%
Reliable	2020 Q4	36%	37%	22% 4% 2%
Selis	2021 Q1	36%	38%	22% 3%%
Ľ.	2021 Q2	38%	32%	<u>24%</u>
	2020 02	000/	470/	000/ 00/00/
Affordable	2020 Q2	26%	47%	23% 2%2%
da	2020 Q3	31%	41%	21% 6% 1%
ffor	2020 Q4	30%	38%	22% 7% 2%
A	2021 Q1	28%	39%	27% 5% 1%
		Strongly agree Somewhat agree	Neither agree or disagree	Strongly disagree

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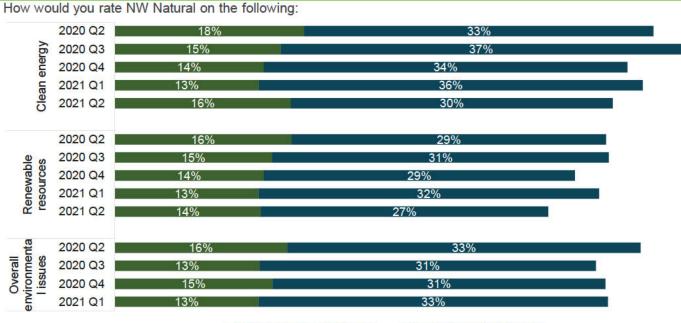
Natural Gas Attributes (continued)

2020 Q2 18% 36% 26% 2020 Q3 22% 31% 2020 Q4 24% 33% 25 Safe 2021 Q1 40% 22% 2021 Q2 30% 25% Environment Friendly 2020 Q2 33% 18% 2020 Q3 29% 2020 Q4 20% 27% 2021 Q1 30% 220 Strongly agree Somewhat agree Neither agree or disagree Somewhat disagree Strongly disagree

Do you agree with the following statements about natural gas?

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NW Natural Environmental Efforts



■EXTREMELY ADEQUATE ■SOMEWHAT ADEQUATE

Coalition/405 Ryan/191

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NW Natural Advertising Awareness Public Sentiment Tracking - Q3 2021



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Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - September
 - December
 - March
 - June

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Executive Summary – Ad Awareness

- 57% of all respondents recalled seeing NW Natural ads during the last quarter, a jump of 5 points comparing to last quarter.
 - Most of the gain were coming from our customers: 70% in Q3 vs. 54% last quarter.
 - By age group: readings from all three groups were increasing this quarter, led by 18 -34 group which added 11 points.
 - Around 50% of three other larger utilities' customers in our region recalled seeing their advertisings.
- Among those recalled seeing NW Natural ads, about half of them saw RNG, Natural Gas is environmentally friendly, Safe, or Affordable (47% - 52%), reducing greenhouse gas emissions is the only one lagging at 36%.
- 57% of the recalls were from TV(+2 pts), followed by social media 34% (+1 pts) and billing insert 21% (+5 pts).

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Executive Summary – Public Sentiment

- 44% (-6 pts) of all who surveyed agreed that our local community is headed in the right direction, while those said we are getting off the wrong track jumped from 31% to 39%.
- The percentage of people claiming not enough is being done to reduce carbon emissions remained unchanged while those who said too much effort is being spent to reduce carbon emissions increased 4 points to 16%. 36% said the right amount is being spent.

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Executive Summary – Natural Gas Preference

- 42% of respondents believed that natural gas should be used(+2 pts), 41% natural gas is critical to reach climate goals, and only 17% (-2 pts) natural gas should be ban.
- Natural gas preference remained stable among people surveyed. Though the preference among customers experienced a 6 points drop in the extremely important category (Q3: 12% vs Q2: 16%).
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable, about half safe or environmentally friendly.
- About half of all respondents viewed NW Natural's environmental efforts as adequate.

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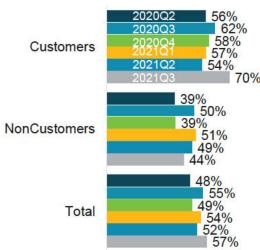
Advertising Awareness



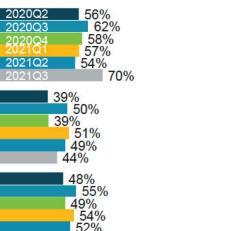
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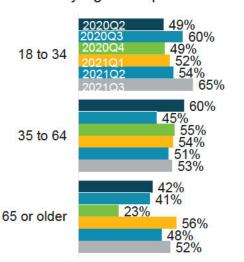
NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?



By Customers/Non-customers

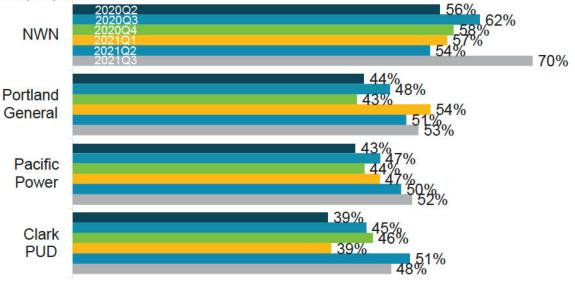




By Age Group

Utility Company Advertising Awareness among its own customers

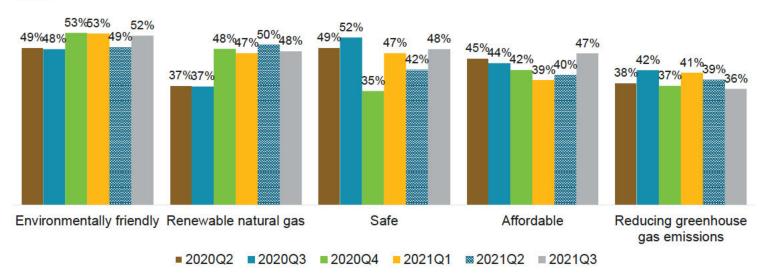
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your utility company?



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NW Natural Ad Message Recall

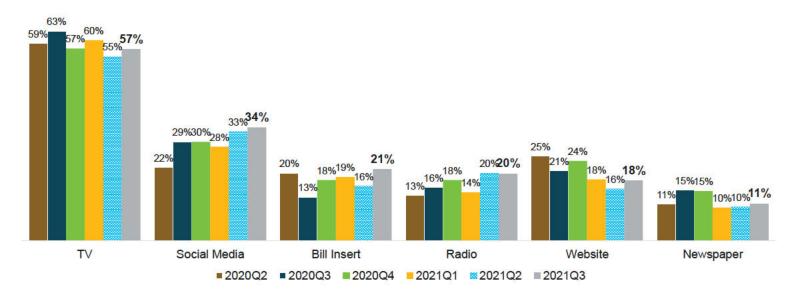
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



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NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



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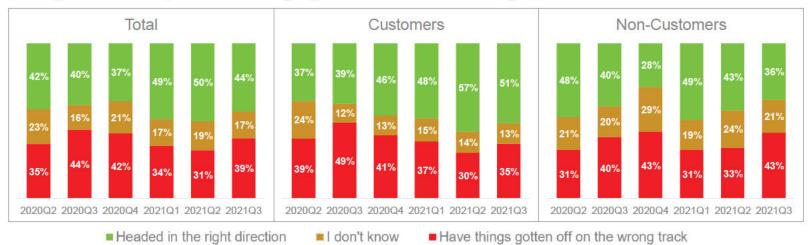
Public Sentiments



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General mood

All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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Carbon Reduction Effort Statement

Which statement comes closest to your point of view?

	2020Q2	32%	50%	18%
2	2020Q3	52%	40%	9%
Je	2020Q4	46%	41%	13%
5	2021Q1	51%	32%	17%
Ist	2021Q2	47%	41%	12%
บี	2021Q3	51%	32%	17%
	2020Q2	45%	44%	10%
S	2020Q3	54%	34%	12%
st	2020Q4	54%	35%	11%
5	2021Q1	59%	29%	12%
5	2021Q2	47%	40%	13%
ž	2021Q3	46%	39%	15%
	2020Q2	39%	47%	14%
	2020Q3	53%	37%	10%
ta	2020Q4	50%	38%	12%
ē	2021Q1	55%	30%	15%
	2021Q2	47%	40%	12%
	2021Q3	48%	36%	16%

Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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Natural Gas Preference



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Natural Gas Statements

Which statement comes closest to your point of view?

	2020Q2	11%	49%	40%
ŝ	2020Q3	14%	41%	44%
ler	2020Q4	16%	44%	40%
5	2021Q1	20%	43%	37%
Ist	2021Q2	12%	46%	42%
ō	2021Q3	11%	39%	50%
	2020Q2	20%	43%	37%
	2020Q2	29%	38%	37.76
ts			35%	37%
sn	2020Q4	28%		
S	2021Q1	20%	40%	40%
ō	2021Q2	26%	38%	36%
z	2021Q3	24%	45%	31%
	2020Q2	16%	46%	39%
	2020Q3	22%	40%	38%
a	2020Q4	22%	40%	39%
ot	2021Q1	20%	42%	38%
1	2021Q2	19%	42%	39%
	2021Q3	17%	42%	41%

Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Ban Support

Would you support or oppose your local government banning new natural gas hookups in homes and buildings??

	2020 Q2	18%	21%	39%	18%	4%
S	2020 Q3	16%	23%	29%	18%	13%
	2020 Q4	20%	28%	28%	16%	8%
Custome	2021 Q1	20%	20%	32%	17%	11%
	2021 Q2	22%	22%	32%	18%	6%
	2021 Q3	13%	22%	38%	19%	9%
	2020 Q2	10% 1	2%	55%	11%	12%
0	2020 Q3	4% 17%		46%	21%	11%
N	2020 Q4	9%	16%	46%	15%	15%
Norucis	2021 Q1	9%	19%	50%	15%	7%
0	2021 Q2	15%	9%	50%	14%	12%
Z	2021 Q3	14%	13%	43%	17%	12%
	2020 Q2	14%	16%	47%	15%	8%
	2020 Q3	10%	20%	38%	20%	12%
σ	2020 Q4	15%	22%	37%	15%	11%
I Ula	2021 Q1	15%	20%	41%	16%	9%
	2021 Q2	19%	16%	41%	16%	9%
	2021 Q3	13%	18%	41%	18%	10%

Strongly Oppose

e ∎Oppose ■N

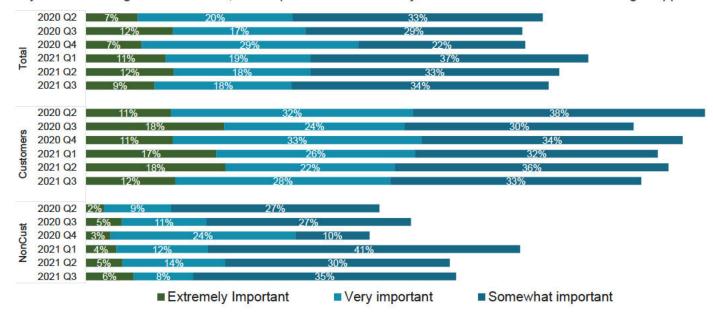
Neither support nor oppose

Support Strongly support

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Natural Gas Preference

If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Attributes

Do you agree with the following statements about natural gas?

	2020 Q2	33%	43%	20%	1%3%
	2020 Q3	34%	41%	21%	2% <mark>1%</mark>
Reliable	2020 Q4	36%	37%	22%	4%2%
Selis	2021 Q1	36%	38%	22%	3%0%
	2021 Q2	38%	32%	24%	4%2%
	2021 Q3	34%	44%	17%	5%1%

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Natural Gas Attributes (continued)

	2020 Q2	26%	479	%	23%	2%2
	2020 Q3	31%	N.	41%	21%	6%
ple	2020 Q4	30%	380	%	22%	7% 2
Affordable	2021 Q1	28%	39%		27%	5%
ffo	2021 Q2	28%	36%		28%	6% 2
A	2021 Q3	26%	41%		26%	5%
	2020 Q2	18%	36%	26%	12%	-7%
	2020 Q3	22%	31%	29%	1	4% 49
(I)	2020 Q4	24%	33%	25%	109	6 7%
Safe	2021 Q1	22%	40%		26%	9% 39
S	2021 Q2	25%	30%	25%	15%	% 4 %
	2021 Q3	24%	35%	25%	1	3% 4%
	2020 Q2	18%	33%	35%	7	% 7%
Friendly	2020 Q3	16%	29%	34%	15%	6%
Friendly	2020 Q4	20%	27%	30%	13%	9%
e e	2021 Q1	22%	30%	32%		3% 49
ш	2021 Q2	20%	26%	36%	10%	8%
	2021 Q3	19%	30%	32%	11%	8%

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NW Natural Environmental Efforts

How would you rate NW Natural on the following: 2020 Q2 18% 2020 Q3 Clean energy 37% 15% 2020 Q4 34% 14% 2021 Q1 36% 39 2021 Q2 30% 16% 2021 Q3 2020 Q2 16% 29%2020 Q3 Renewable resources 15%31% 2020 Q4 29% 14% 2021 Q1 32% 2021 Q2 27% 2021 Q3 13% 32% Overall environmental issues 2020 Q2 16% 33% 2020 Q3 31% 13% 2020 Q4 31% 15% 2021 Q1 13% 33% 2021 Q2 26% 16% 2021 Q3 15% 34%

■EXTREMELY ADEQUATE ■SOMEWHAT ADEQUATE

Coalition/405 Ryan/211

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NW Natural Advertising Awareness Public Sentiment Tracking - Q4 2021



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Methodology

- Online research panels
- Primary residence within NW Natural service territory
- 250 respondents each quarter
 - 125 gas customers
 - 125 non-gas customers
- Repeat every three months
 - September
 - December
 - March
 - June

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Executive Summary – Ad Awareness

- 54% of all respondents recalled seeing NW Natural ads during the last quarter, a drop of 4 points comparing to last quarter.
 - The one-time blip in last quarter was mostly due to our climate policies outreach campaign in August and September.
 - By age group: 18 -34 and older age group dropped slightly while 35 64 group remained unchanged.
 - Around 50% of three other larger utilities' customers in our region recalled seeing their advertisings.
- Among those recalled seeing NW Natural ads, between 40% to 50% of them saw RNG, natural gas is environmentally friendly, safe, affordable, or reducing greenhouse gas emissions ad.
- 63% of the recalls were from TV(+5 pt.s), followed by social media 26% (-8 pts) and billing insert 18% (+3 pt.s).

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Executive Summary – Public Sentiment

- 44% (+/- 0 pts) of all who surveyed agreed that our local community is headed in the right direction, while those said we are getting off the wrong track dropped from 39% to 33%.
- The percentage of people who claimed not enough is being done to reduce carbon emissions jumped 6 points to 54%.

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Executive Summary – Natural Gas Preference

- 34% of respondents believed that natural gas should be used(-8 pts), 40% natural gas is critical to reach climate goals (-1 pt.), and 26% (+9 pts) natural gas should be ban.
- Natural gas preference remained stable among people surveyed: 60% of
- About three quarters of all respondents agreed that natural gas is reliable, efficient or affordable, about half safe or environmentally friendly.
- About half of all respondents viewed NW Natural's environmental efforts as adequate.

Coalition/405 Ryan/216

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Advertising Awareness



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60%

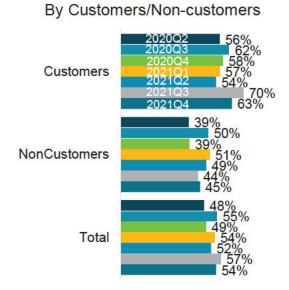
60%

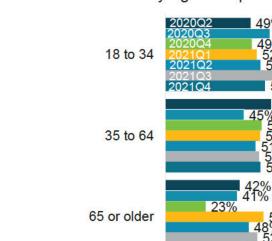
45

48% 48%

NW Natural Advertising Awareness

During the past three months, how many advertisements do you recall seeing, reading, or hearing from your natural gas company - NW Natural?





By Age Group

Utility Company Advertising Awareness among its own customers

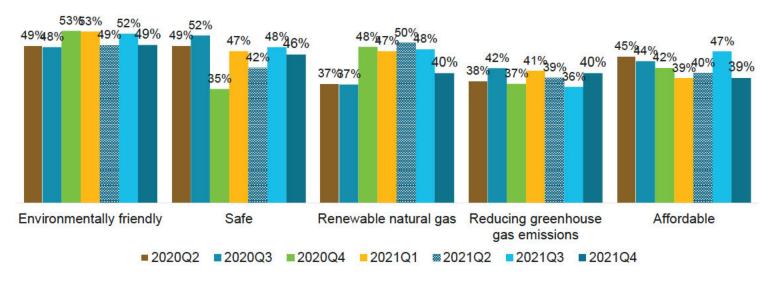
During the past three months, how many advertisements do you recall seeing, reading, or hearing from your



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NW Natural Ad Message Recall

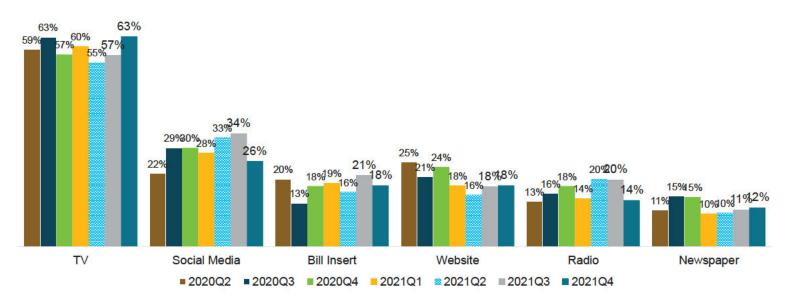
Think about the advertisement(s) you recall from NW Natural, what were the message(s) about? Mark all that apply.



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NW Natural Ad Message Channel

Where did you see or hear this/these communication(s)? Mark all that apply.



Coalition/405 Ryan/221

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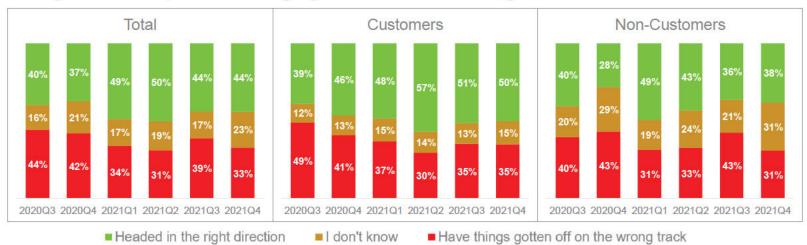
Public Sentiments



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General mood

All things considered, would you say that your local community is headed in the right direction, or have things gotten off on the wrong track?



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Carbon Reduction Effort Statement

Whi	ch statement co	mes closest to your point of view?		
	2020Q2	22%	49%	18%
0	2020Q3	53%	41%	9%
er	2020Q4	46%	41%	13%
E	2021Q1	50%	31%	1/%
to	2021Q2	46%	40%	12%
sn	2021Q3	51%	32%	17%
0	2021Q4	52%	37%	12%
	2020Q2 44%		44%	10%
	2020Q3	55%	35%	12%
ts	2020Q4	54%	35%	10%
sn	2021Q1	58%	29%	12%
Q	2021Q2 46%		39%	13%
P N	2021Q3	46%	39%	15%
2	2021Q4	56%	29%	14%
	2020Q2	38%	46%	14%
	2020Q3	54%	38%	11%
-	2020Q4	50%	38%	12%
otal	2021Q1	54%	30%	14%
Ĕ	2021Q2	46%	40%	12%
	2021Q3	48%	36%	16%
	2021Q4	54%	33%	13%

Not enough is being done to reduce carbon emissions in my city. This needs to be a higher priority.

The right amount of effort is being spent to reduce carbon emissions in my city.

Too much effort is being spent to reduce carbon emissions in my city. There are other higher priorities.

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Natural Gas Preference



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Natural Gas Statements

Which statement comes closest to your point of view?

2020Q3	14%	41%	44%
2020Q4 16%		44%	40%
2021Q1 💼	20%	43%	37%
2021Q2		46%	42%
2021Q3 📕	11%	39%	50%
2021Q4	25%	32%	44%
2020Q3	29%	38%	33%
2020Q4	28%	35%	37%
2021Q1 🗰	20%	40%	40%
2021Q2 📕	26%	38%	36%
2021Q3 💻	24%	45%	31%
2021Q4	27%	36%	37%
2020Q3	22%	40%	38%
2020Q4	22%	40%	39%
2021Q1	20%	42%	38%
2021Q2	19%	42%	39%
2021Q3	17%	42%	41%
2021Q4	26%	34%	40%

Natural gas is a fossil fuel that is contributing to the climate change. It should be banned now.

Natural gas should be used because it's affordable and reliable.

Natural gas is critical to helping us lower emissions and achieve our climate goals.

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Natural Gas Ban Support

Would you support or oppose your local government banning new natural gas hookups in homes and buildings??

	2020 Q3	16%	24%	30%	19%	14%
S	2020 Q4	20%	28%	28%	16%	8%
	2021 Q1	20%	19%	31%	17%	10%
UO	2021 Q2	22%	22%	31%	17%	6%
ustome	2021 Q3	13%	22%	38%	19%	9%
ō	2021 Q4	14%	15%	36%	23%	12%
	2020 Q3	4% 18%		47%	22%	11%
(0)	2020 Q4	9% 169	6	45%	15%	15%
Ist	2021 Q1	9% 1	9%	50%	14%	7%
NonCusts	2021 Q2	15%	9%	49%	14%	12%
Б	2021 Q3	14%	13%	43%	17%	12%
Z	2021 Q4	16%	21%	34%	13%	16%
	2020 Q3	10%	21%	39%	20%	13%
	2020 Q4	15%	22%	37%	15%	11%
(C)	2021 Q1	14%	19%	40%	16%	9%
Total	2021 Q2	19%	15%	40%	16%	9%
	2021 Q3	13%	18%	41%	18%	10%
	2021 Q4	15%	18%	35%	18%	14%

Strongly Oppose

■ Oppose ■ Ne

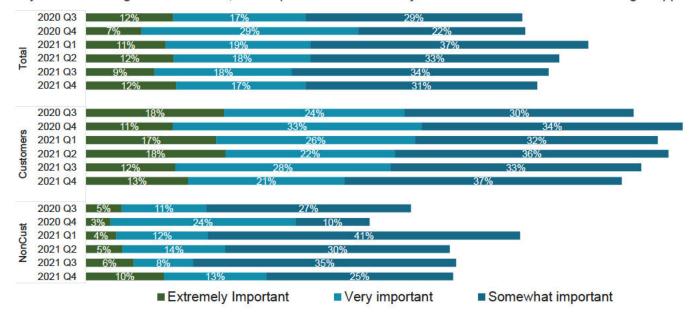
Neither support nor oppose

Support Strongly support

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Natural Gas Preference

If you were looking for a new home, how important would it be to you that the new home have natural gas appliances?



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Natural Gas Attributes

Do you agree with the following statements about natural gas?

		Strongly agree	■ Somewhat agree	■ Neither agree or disagree ■ Somewhat disagree	Strongly disagree	
	2021 Q	4	33%	37%	25%	2% 4%
	2021 Q	3	34%	44%	17%	5%1 <mark>%</mark>
Re	2021 Q	2	38%	32%	24%	4%2%
Reliable	2021 Q	1	36%	38%	22%	3%0%
e	2020 Q	4	36%	37%	22%	4%2%
	2020 Q	3	34%	41%	21%	2% <mark>8%</mark>
	2020 Q	2	33%	43%	20%	1%3%
	2021 Q	4	35%	33%	22%	5% 5%
	2021 Q	m 4	34%	41%	20%	3%1%
Ē	2021 Q		36%	35%	25%	4%1%
Efficient	2021 Q		34%	41%	21%	3%0%
ŧ	2020 Q		38%	37%	18%	6% 2%
	2020 Q	3	35%	41%	17%	4% 2%
	2020 Q	2	33%	40%	22%	4%2%
			- Carl			

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Natural Gas Attributes (continued)

	2020 Q2	26%	47%		23%	2%2
	2020 Q3	31%	4	1%	21%	6%
ple	2020 Q4	30%	38%		22%	7% 2
Affordable	2021 Q1	28%	39%		27%	5%
õ	2021 Q2 💻	28%	36%		28%	6% 2
Af	2021 Q3	26%	41%		26%	5%
	2021 Q4	25%	36%	27	%	8% 4
	2020 Q2 18%		36%	26%	12%	7%
	2020 Q3 22%		31%	29%	14%	6 4
	2020 Q4 24%		33%	25%	10%	7%
Safe	2021 Q1	22%	40%	performance and a second se	5%	9% 3
ŝ	2021 Q2	25%	30%	25%	15%	49
	2021 Q3	24%	35%	25%	13%	4
	2021 Q4	23%	30%	28%	11%	8%
	2020 Q2	18%	33%	35%	7%	7%
	2020 Q3	16%	29%	34%	15%	6%
÷	2020 Q4	20%	27%	30%	13%	9%
en	2021 Q1	22%	30%	32%	13%	6 4
Friendly	2021 Q2	20%	26%	36%	10%	8%
	2021 Q3	19%	30%	32%	11%	8%
	2021 Q4 💻	17%	23%	33%	15%	10%

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NW Natural Environmental Efforts

How would you rate NW Natural on the following: 2020 Q2 18% 33% 2020 Q3 15% 37% Clean energy 2020 Q4 14% 34% 2021 Q1 13% 36% 2021 Q2 2021 Q3 30% 16% 14% 33% 2021 Q4 15% 1% 2020 Q2 16% 29% 2020 Q3 2020 Q4 15% 310% Renewable resources 14% 29% 2021 Q1 2021 Q2 2021 Q2 2021 Q3 2021 Q4 13% 32% 14% 27% 13% 32% 13% 28% Overall environmental 2020 Q2 16% 33% 2020 Q3 2020 Q4 13% 31% issues 15% 319 2021 Q1 2021 Q2 13% 33% 16% 26% 2021 Q3 15% 34% 2021 Q4 13% 29%

■EXTREMELY ADEQUATE ■SOMEWHAT ADEQUATE



To Our Customers

At NW Natural, we are engaged on multiple fronts to reduce emissions.

The Low Carbon Pathway we launched in 2016 began our planning for renewable energy in our pipeline. In 2019, we commissioned Energy+Environmental



President and Chief Executive Officer

Economics to conduct a study designed to achieve the Paris Accord emission reduction targets by 2050, with the results showing how it can be done using NW Natural's existing system.

The release of our Destination Zero report is the next evolution for us. It provides in-depth scenario analysis incorporating a broad spectrum of solutions and advancements that leverage our system for more holistic, economy-wide approaches to greenhouse gas reductions.

NW Natural is a 163-year-old company that has evolved many times since 1859 to meet the essential energy needs of our region. We are committed to implementing climate solutions that work for our environment, our customers, and our communities. The renewable supply is growing, the necessary technology exists, and our modern storage and delivery system is ready.

We are eager to share this important work and our vision forward with our customers, recognizing it will continue to evolve through our energy transition. Scan the QR code to explore the report further.

David A. Aleron-



Leading the Way OUR KEY DECARBONIZATION PRINCIPLES

- Helping customers use less is the fastest and cheapest way to reduce emissions. We are dedicated to continuing to help customers conserve energy, save money, and reduce emissions through deep energy efficiency.
- All forms of renewable energy are needed in a balanced, low-carbon future. We are committed to displacing conventional natural gas over time with renewable natural gas and clean hydrogen.
- Communities served by the gas system have greater energy reliability. We need a dual energy system – gas and electric – to handle peak energy loads and to prepare for a future with potentially more extreme weather events. Homes and businesses with gas service can have energy verw when the power is out.
- Families and businesses should have a choice of energy options to meet their needs. Energy system diversification and competition provides the best opportunity for accelerated innovation, affordability and dependability.
- We must drive toward carbon neutrality in a way that leaves no one behind. We are committed to pursuing solutions that provide equitable support for our most vulnerable customers.

Innovating Toward Carbon Neutrality

On the coldest winter days NW Natural provides 90% of the energy our residential space and water heating customers need. Yet the use of the gas we purchase for customers accounts for only 6% of Oregon greenhouse gas emissions.¹ We're working to reduce those numbers even further.

OREGON GREENHOUSE GAS EMISSIONS BY SECTOR

36%	29%	22%	13%			
TRANSPORTATION	ELECTRICITY	OTHER (other fuels & waste)	NATURAL GAS			
Source: Oregon DEQ In-Boundery GHG Inventory preliminary 2019 date.						
NW Natural Residential and Commercial Customer Use 🔰						

Carbon neutrality means having a balance between emitting carbon and absorbing carbon from the atmosphere. In the Destination Zero report, we analyze three different scenarios using various combinations of decarbonization measures (energy efficiency, renewable energy, carbon offsets and carbon capture, utilization and sequestration) that allow us to build upon our existing efforts and realize our vision for a carbon neutral gas utility.

Central to all scenarios is the replacement of conventional natural gas with carbon neutral alternatives like renewable natural gas and clean hydrogen over time.

Renewable Natural Gas

Renewable natural gas is produced from organic materials like food, agricultural and forestry waste, landfills and wastewater. With a similar climate benefit to wind and solar, RNG turns the problem of waste into a powerful climate solution using our pipeline network already in place. Just as the electric grid's transmission lines can deliver electricity made from natural gas, coal, hydro, wind or solar, our pipelines can deliver natural gas from conventional or renewable sources. Early Progress on RNG

Within just one year of ground-breaking Oregon legislative rules being in place, Wi Natural has signed agreements to purchase and develop 3% of our supply as RNG—enough renewable gas to heat the equivalent of all the homes we serve in Eugene and Corvalls. With wind and solar accounting for 11% of U.S. electric generation after decades of development was reproud of this early progress.⁷

2 https://www.eie.gov/tools/feqs/feq. php?id=£278t=3

1 Our Clark, Klickitat and Skamania County outtomers' natural gas use accounts for half a parsent (0.5%) of greenhouse gas emissions in Washington state: Washington Department of Ecology 2012 OHB Inventory

TURNING WASTE INTO RENEWABLE ENERGY

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North American sources of organic waste that can be converted to RNG to displace conventional natural gas are vast—and provide similar climate benefits to wind and solar:



17,000



LANDFILLS

ion for Renewable Natural Gas

As we acquire RNG for customers now, we're also looking forward—to opportunities to deliver low-carbon hydrogen, which can be produced in myriad ways to serve multiple industries and end-uses.

Clean Hydrogen

When used as energy, hydrogen emits water vapor—so it's expected to be an important part of energy system decarbonization over the next several decades. Through the power-to-gas process, renewable hydrogen can be created using wind, solar and hydro energy sources that often produce excess power at times of low demand. Renewable hydrogen can be blended with natural gas or converted to synthetic natural gas and used as a direct replacement for conventional natural gas. Clean, low-carbon hydrogen can also be produced by reforming conventional natural gas, paired with carbon capture and storage ("blue hydrogen") to make it carbon neutral.

Dur facility in Mist, Oregon, provides 20 billion cubic feet of underground storage capacity. That translates into 6 million megawatt hours of renewable storage capability or the equivalent of 32 tritilion dollar battery.⁹ This existing storage is already in place, can deliver on-demand, and is primed to store renewable molecules.

Hydrogen pathways can deliver clean energy

to multiple industries via pipeline infrastructure



3 Cole, Wexley, and A. Will Frazier. 2019. Cost Projections for Utility-Scale Battery Storage. Bolden, CO: National Ranewable Energy Laboratory. NREL/TP-6420-73222. https://www.nrel.gov/doce/fy19osti/73222.pdf.



Our Destination Zero analysis supports what we've believed for some time: Using our existing gas infrastructure in new ways will help our region reach its climate gals faster, more affordably and more resiliently.

We firmly believe the right answer for a net-zero future is a diversified energy system that pairs renewable electrons in the wires overhead with renewable molecules running through the pipes underground. NW Natural has initiated progress on multiple fronts in support of this vision, including ramping up our RNG procurement and actively supporting the development and utilization of clean hydrogen in the Pacific Northwest

Building on 163 years of success, we are looking forward—channeling the advantages of our modern infrastructure, our expertise, and our innovative spirit toward what's next: **Destination Zero**

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You've read the information included on this insert. You've reviewed the details about NW Natural's vision to get to carbon neutrality by 2050. Now enter for a chance to win one of five amazing prizes.

Here's how to enter:

- 1. Visit nwnatural.com/destinationzerosweepstakes
- 2. Click on the button to start the quiz (you will be taken to another website to enter)
- 3. Answer five trivia questions about NW Natural Vision 2050: Destination Zero
- 4. Supply us with your contact information (information will not be stored and will only be used to select and contact the winners)
- 5. Five winners will be randomly selected from all qualified entries



What you can win:

furnace, fireplace, OR tankless water heater installed by a

GRAND PRIZE A high-efficiency natural gas

NW Natural Certified

Contractor



NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision <u>Data Request Response</u>

Request No.: UG 435 Coalition DR 19

19. Has NW Natural informed customers that RNG produced at the Lexington Plant will not be used in Oregon, but instead will be used by a local utility in Nebraska?

Response:

NW Natural objects to this data request under OAR 860-001-0500 as being over broad, in that the Company does not agree with the underlying premise of the request that "RNG produced at the Lexington Plant will not be used in Oregon, but instead will be used by a local utility in Nebraska."

Please see NW Natural/1100, Chittum, Pages 5-6, 22 and 28 for a discussion about how the RNG produced at the Lexington Plant will be used in Oregon.

Coalition/406 Ryan/1

Exhibit: Safety Coalition/406/Ryan

Educational Materials Distribution 104 Bridge Road Salisbury, MA 01952

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NW Natural





VISIT OUR E-SMARTKIDS WEBSITE FOR STUDENTS, TEACHERS, AND PARENTS: nwnatural.e-smartkids.com

FREE resources include:

- · Educational games, videos, experiments, and printable activity sheets
- Downloadable teacher's guides and pre/post tests
- Fascinating stories, fun facts, and family-friendly activities

NW Natural has been a trusted safety partner in your community for more than 160 years. We have one of the most modern pipeline systems in the nation, and our System Integrity Program ensures we meet and exceed state and federal safety standards. Though natural gas leaks are rare, they can happen. That's why we need everyone's help to prevent pipeline damage and natural gas leaks. Learn more about our pipeline safety programs at mnatural.com.

#12321 @ 2021 Culver Hedla, LLC

Order Your FREE

Learning Resourc from NW Natural

of Booklets

State: ____Zip: __

Email:

Thank you for your order. Materials will arrive in 2-4 weeks.



NW NATURAL IS COMMITTED TO PROVIDING SAFE, RELIABLE SERVICE FOR OUR COMMUNITIES.

Whether your students are in a classroom or at home this winter or spring, our energy education resources can help them catch up on possible learning losses and maintain grade-level standards in ELA/reading, science, and health.

Student booklets for grades K-6



Convenient for classroom use FREE booklets include teacher's guides and pre/post tests to help you assess learning. Our guides make it easy to implement the lessons, with detailed background information, discussion points, follow-up activities, and answer keys.

Ideal for home-based learning too!

These high-interest booklets give students a break from screen time and feature home safety inspections, gas leak response tips, and experiments to engage the whole household. When students share safety resources with their families, everyone benefits,

e-SMARTkids website: Your hub for energy education

Now's a perfect time for your students and their families to check out all of the fun learning experiences on our e-SMARTkids website. Educational games, videos, experiments, and activities address core subject matter and support academic standards. [Visit the online ordering page from the Teachers tab to view our standards correlations.) Use our website in the classroom or for remote learning.

FREE activity sheets



help students learn how to stay safe around natural gas. Order these resources and access a variety of educational materials online at nwnatural.e-smartkids.com.

ORDER YOUR FREE SUPPLY OF CLASSROOM BOOKLETS

NW Natural wants students to learn about natural gas safety. That's why we offer FREE educational materials.

- My Nat and Gus Natural Gas Activity Booklet >> Grades K-2, #35620
- Enables non-readers and early readers to easily understand natural gas science and safety through two whimsical cartoon characters
 Packed with tearning activities, including coloring, identifying, tracing, matching, counting, and sequencing
 - My Natural Gas Safety Activity Book --> Grades K-3, #25200
 - Engaging coloring pages and puzzles lead non-readers and early readers through the basics
 of natural gas safety
- 3 Covers natural gas use in our daily lives, how to recognize a gas leak, and gas appliance safety Your Natural Gas Activity Book >> Grades 3-5, #35630
 - Fun-filled puzzles, lessons, math activities, and word games teach students where natural gas comes from and how to use it safely · Covers natural gas formation, uses of gas, and natural gas-powered vehicles

 - Natural Gas: Your Invisible Friend >> Grades 3-6, #3762 Uses word jumbles, crossword puzzles, math exercises, and decoding activities
 - "Going Further" elements challenge students to research, discuss, or act upon core content
 - Natural Gas Safety World >> Grades 4-6, #36425 Addresses core science topics such as density, states of matter, and geology
 - · Includes natural gas safety tips and a home safety inspection

Please share this safety information with students and their families. For natural gas emergencies, dial 911 and NW Natural: 800-882-3377.



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If You Suspect a Gas Leak:

Leave your home or the outside area immediately and move to a safe location, far from the site of the possible leak. Even a tiny spark can ignite leaking gas, so never use a phone or cell until you are safely away and do not operate appliances or switches such as lights, doorbells, radios, TVs, TV controllers, or garage door openers. Do not strike a match.

800-882-3377. Keep everyone far from the leak until emergency response personnel inform you that the area is safe.



🚺 NW Natural'

School name:

Address:

Comments:

City:

Phone:

Role (e.g., teacher, principal, librarian):

Is this a homeschool? 🗆 Yes 🗆 No

Which subject(s) do you teach?

Which grade(s) are you ordering for? How many teachers will be using these materials?

My Nat and Gus Natural Gas Activity Book Grades K-2, #35620

My Natural Gas Safety Activity Book Grades K-3, #25200

Your Natural Gas Activity Book Grades 3-5, #35630

Natural Gas Safety World Grades 4-6, #36425

Natural Gas: Your Invisible Friend Grades 3-6, #37620



24-hour emergency phone number indicate the need for extra care around our high-pressure gas transmission pipelines. Please call us if you notice any type of suspicious activity near a pipeline marker These markers do not identify the exact location of our pipelines, so never use them as a substitute for calling 811 before digging nearby.

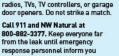
Call Before You Dig Call 811 if you plan to dig or move earth Know what below. Call before using the service marks the location of underground utility lines so you can dig a ste distance away from them. After you call, by law you must wait at least two full business days before

PROTECT OUR NATURAL GAS LINES. PROTECT THE COMMUNITY.

digging, not counting the date that you notify 811, weekends, and legal holidays.

Be Alert for Gas Pipeline Leaks

Gas leaks usually have a distinctive, rotten egg-like odor—but not always. So use all your senses to stay alert for additional signs, such as dirt or water being thrown into the air; a hissing, whistling, or roaring sound; continuous bubbling in water; or dead or dying vegetation (in an otherwise moist area) over or near a pipeline.





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VISIT OUR E-SMARTKIDS WEBSITE FOR STUDENTS, TEACHERS, AND PARENTS: nwnatural.e-smartkids.com

FREE resources include:

- Educational games, videos, experiments, and printable activity sheets
- Downloadable teacher's guides and pre/post tests
- Fascinating stories, fun facts, and family-friendly activities

W Natural has been a trusted safety partner in your community for more than 162 years. We have one of the most modern pipeline systems in the nation, and our System Integrity Program ensures we meet and exceed state and federal safety standards. Though natural gas leaks are rare, they can happen. That's why we need everyone's help to prevent pipeline damage and natural gas leaks. Learn more about our pipeline safety programs at nwnatural.com.

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3 Ways to Order Your FREE Classroom Booklets 1. Online: Complete

Unune: Complete the online order form at mwnatural.e-smartkids. com/teachers-homepage/68110-teacher-materials/ and submit.

2. Fax: Complete the order card and fax to 978-463-1715.

3. Mail: Complete the order card [attached], fold along the perforation, tear, and mail. No postage required. postage required. Please, no phone orders. Quantities are filled on a first-come, first-served basis. Orders for these educational materials are restricted to schools within NW Natural's service territory.

service territory

110



NW Natural

PROGRAM FOR THE CLASSROOM

"Thank you for providing materials for different learning levels with fun illustrations, as this allows teachers to reach more students in their classes."

"Thank you for this opportunity. Our 4th grade program will greatly benefit from these resources."

FREE ENERGY EDUCATION

Resources include natural gas safety website, student booklets, teacher's guides, and pre/post tests.

- Meet state academic standards Encourage family involvement Address healthy choices and responsible behavior



Order Your FREE Learning Resource from NW Natural

_State: ___Zip: ___

#13104

Email:



NW NATURAL IS COMMITTED TO PROVIDING SAFE, RELIABLE SERVICE FOR OUR COMMUNITIES.

Our energy education resources can help your students catch up on possible learning losses and maintain grade-level standards in ELA/reading, science, and health.

Student booklets for grades K-6



FREE booklets include teacher's guides and pre/post tests to help you assess learning. Our guides make it easy to implement the lessons, with detailed background information, discussion points, follow-up activities, and answer keys.

Ideal for home-based learning too!

These high-interest booklets give students a break from screen time and feature home safety inspections, experiments to engage the whole household, and natural gas safety tips. When students share safety resources with their families, everyone benefits.

e-SMARTkids website: Your hub for energy education

Now's a perfect time for your students and their families to check out all of the fun learning experiences on our e-SMARTkids website. Educational games, videos, experiments, and activities address core subject matter and support academic standards. [Visit the online ordering page from the Teachers tab to view our standards correlations.) Use our website in the classroom or for remote learning.



Order these resources and access a variety of educational materials online at nwnatural.e-smartkids.com.

ORDER YOUR FREE SUPPLY OF CLASSROOM BOOKLETS

NW Natural wants students to learn about natural gas science and safety. That's why we offer FREE educational materials.

- My Nat and Gus Natural Gas Activity Booklet >> Grades K-2, #38495
- Enables non-readers and early readers to easily understand natural gas science and safety through two whimsical cartoon characters Packed with learning activities, including coloring, identifying, tracing, matching, counting, and sequencing
- Engaging coloring pages and puzzles lead non-readers and early readers through the basics
 of natural gas safety
- vers natural gas use in our daily lives, how to recognize a gas leak, and gas appliance safety
- Your Natural Gas Activity Booklet -->>>>>> Grades 3-5, #38500
- Fun-filled puzzles, lessons, math activities, and word games teach students where natural gas comes from and how to use it safely Covers natural gas formation, uses of gas, and natural gas-powered vehicles

Natural Gas: An Invisible Fuel >> Grades 3-6 #38690

- Uses word jumbles, crossword puzzles, math exercises, and decoding activities
 "Going Further" elements challenge students to research, discuss, or act upon core content
- Natural Gas Safety World >> Grades 4-6, #36425
- Addresses core science topics such as density, states of matter, and geology
 Includes natural gas safety tips and a home safety inspection



Please share this safety information with students and their families. For natural gas emergencies, call 911 and NW Natural: 800-882-3377.



Call Before You Dig Call B11 if you plan to dig or move earth in any way—even just planting a tree or shrub. This free service marks the location of underground utility lines so you can dig a safe distance away from them. Call B11 at least two full business days before digging. It's free and it's the law.

Be Alert for Gas Pipeline Leaks

NW Natural adds a distinctive, rotten egg- or sulfur-like odor to natural gas to assist in detecting gas leaks. However, in some instances you may not be able to smell this odorant. Use your senses of sight, hearing, and smell, along with the following signs, to alert you to a gas leak: a hissing, whistling, or roaring sound; continuous bubbling in water; dirt or water being thrown into the air; or dead or dying vegetation in an otherwise moist area over or near a pipeline.

If You Suspect a Gas Leak

Leave your home or the area immediately, far from the site of the possible leak. Even a tiny spark can ignite gas, so do not use a phone until you are safely away and do not operate appliances or switches such as lights, doorbells, radios, TVs, TV controllers, or garage door openers. Do not strike a match.

Call 911 and NW Natural at 800-882-3377. Keep away until emergency response personnel inform you that the area is safe.



🚯 NW Natural'

School name:

Address:

City:

Comments:

Phone:

Role (e.g., teacher, principal, librarian):

Which grade(s) are you ordering for?

My Nat and Gus Natural Gas Activity Booklet Grades K-2, #38495

My Natural Gas Safety Activity Booklet Grades K-3, #25215 (English)

My Natural Gas Safety Activity Booklet Grades K-3, #38485 (Spanish)

Your Natural Gas Activity Booklet Grades 3-5, #38500

Natural Gas: An Invisible Fuel Grades 3-6, #38490

Natural Gas Safety World Grades 4-6, #36425

How many teachers will be using these materials?

Which subject(s) do you teach?



Thank you for your order. Materials will arrive in 2-4 weeks.



e around our nigh-pressure gas transmission pipelines. Pleast call us if you notice any type of susplicious activity near a pipeline marker. These marke do not identify the exact locati of our pipelines, so never use them as a substitute for callin 211 before dimining nosche



first responder



Staying Safe While Protecting Others

For emergencies, call 911 and NW Natural at 800-882-3377.



Coalition/406

Ryan/6

nwnatural.e-smartresponders.com



Respect the Potential of Natural Gas

Learn how it behaves so you can respond safely.

- Natural gas is lighter than air. It will rise vertically and dissipate if unconfined, and it will move laterally or migrate upward when underground or in enclosed spaces.
- Natural gas has a flammable (explosive) range of approximately 5% to 15%. When the concentration is below 5% or above 15%, natural gas will not burn.
- Gas can accumulate in storm drains, construction trenches, buildings, and other confined spaces, and as gas concentrations rise or fall, they can pass through the flammable range.
- Gas can displace oxygen. In confined spaces where gas cannot dissipate, it can create oxygen-deficient conditions and pose an asphyxiation hazard.
- Learn to recognize the common indicators of a leak:
 - A distinctive, sulfur-like odor*
 - A hissing, whistling, or roaring sound
 - Dirt spraying or blowing into the air
 - Continual bubbling in water
 - Vegetation that is dead or dying for no apparent reason
 - A damaged connection to a gas appliance
 - Exposed pipeline after an earthquake, fire, flood, or other disaster

*The odor of natural gas comes from a chemical additive called mercaptan. Because not all natural gas is odorized, some leaks may not be detectable by smell alone.



Coalition/406

Don't Rely on Your Nose to Assess a Gas Leak!

A fire crew responding to the report of a smell of natural gas conferred as they approached the doorway to the residence. They felt the gas did not smell "all that thick," so they entered the building without utilizing air-monitoring equipment to take "a quick peek." As they entered, a spark from a thermostat ignited the accumulated gas and caused an explosion that blew a door off its hinges and subjected the crew to an intense pressure wave. Once the presence of a gas odor was confirmed, the crew should have employed air-monitoring equipment and evacuated the premises.



Be Alert for Ignition Sources

Take action to prevent natural gas fires.

A lit cigarette is enough to ignite leaking natural gas, and even the smallest electrical spark has been known to cause an explosion. If you suspect a gas leak, take these steps to minimize the possibility of ignition:

- Create an isolation zone, and shut off all vehicles in the immediate hazard area.
- Use intrinsically safe radios and flashlights.
- Do not ring doorbells, use garage openers, or turn on or off any lights or electrical devices or appliances.
- Do not step on doormats. Friction from boots could create a spark of static electricity.
- Alert the local electric utility if the situation warrants a discontinuation of electric service to a building.

This booklet is designed to supplement—not replace your department's standard operating procedures for natural gas safety.



Coalition/406

Look Out for Potential Sources of Combustion

Common sources include doorbell and wall switches; telephones, cell phones, and pagers; flashlights; static electricity; any type of electronic ignition; running gasoline or diesel engines; motors, refrigerators, pilot lights, and appliances.



Responding to Gas Leaks

Situational awareness is the key to your safety.

- When you arrive at the scene, confirm your dispatcher has notified the local gas utility.
- Park emergency vehicles away and upwind from the area, and do not park over storm drains or manholes.
- Evacuate the area and nearby structures immediately—330 feet in all directions, if possible. For larger leaks, consider downwind evacuation for at least a half-mile.
- Secure the area with caution tape, and reroute traffic if necessary.
- Never enter a manhole, sewer, or underground vault.
- Never enter a structure where gas is leaking unless it is safe to do so. If you must approach, wear full personal protective equipment (PPE) and self-contained breathing apparatus (SCBA).
- Monitor the atmosphere using multiple monitors, if it is safe to do so.

In any natural gas incident, the local gas utility can provide important guidance to the incident commander and, if needed, work as part of the command team.

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Coalition/406

Situational Awareness Save Lives

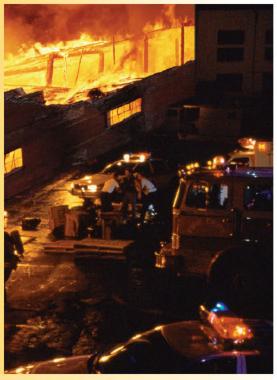
Responding to the report of a natural gas odor, a shift commander observed a backhoe operating at a residence under construction. Upon exiting his vehicle, he smelled a strong odor of natural gas and a heard a loud hiss coming from a hole near the backhoe. He positioned all responding apparatus two houses away from the suspected leak and warned all workers to evacuate the site. As the backhoe operator reached the edge of the property, the home became substantially involved with heavy fire showing from multiple floors. Thanks to the appropriate actions of the shift commander, no injuries occurred during this incident.



Responding to Gas Fires

Utilize clear procedures to enhance operational success.

- If gas has ignited, let it burn. Extinguishing the fire may allow unburned gas to collect and cause an explosion.
- Do not use water to suppress a natural gas fire. It is not effective and may introduce water into gas mains.
 - You may use a fog spray to cool combustible exposures or gas valves and to assist with rescue operations.
- Evacuate to a distance of 330 feet in all directions; clear all buildings of occupants, and clear the area of bystanders.
- Be alert for migrating gas and possible reignition.
- Turn off gas ONLY at an aboveground service valve before the meter or at appliance supply lines never at underground valves or relief vents.
 - After the service valve has been closed, do not open it under any circumstances. Only utility personnel can restore gas service.
 - Inform the gas utility of any valve you have closed and its precise location. This information is critical for system safety and service restoration.



Coalition/406

Gas Explosion Occurs After a Structure Fire Is Knocked Down

While controlling a structure fire ignited by a lightning strike at a single-family residence, crews detected the odor of natural gas. They quickly shut off gas service and notified command, who ordered an immediate evacuation. As firefighters exited the building, accumulated gas ignited and an explosion occurred, pushing fire out of the basement windows and dislodging an interior wall where firefighters had been operating prior to the evacuation. Thanks to the timely gas shut-off and evacuation, no injuries were sustained. 5



In Case of a Natural Gas Explosion

Life safety is always your highest priority.

Natural gas explosions occur when leaking gas accumulates underground or in other enclosed areas and is ignited. A flammable range of approximately 5% to 15% is highly volatile, and any ignition source can cause an explosion.

- **Exercise extreme caution** when approaching and entering the scene.
- Contact the local electric utility to turn off power to the structures or area involved.
- Clear the area as soon as possible after an explosion is confirmed to prevent loss of life. Evacuate 330 feet to a half-mile, depending upon the size and intensity of the leak.
- Wear self-contained breathing apparatus (SCBA).
- Be aware of the risk of secondary explosions. There could be additional gas trapped near the initial explosion site or in nearby buildings. Evacuate accordingly.



Coalition/406

Prompt Evacuation After Gas Pipe Rupture

Construction workers damaged a gas pipeline, and the damage sent gas migrating into nearby buildings. Fire and gas company personnel quickly arrived on the scene and promptly evacuated the immediate area. Soon after, an explosion occurred, destroying one building and severely damaging adjacent structures. Three firefighters, two police officers, and three other people were injured; thanks to speedy response and evacuation, no one was killed.



Carbon Monoxide Hazards

A CO meter can detect what your senses can't.

Carbon monoxide (CO) is a colorless, odorless, and toxic gas that accumulates rapidly and is difficult to detect. CO is created when combustion of any fuel occurs with insufficient oxygen. Victims can be exposed to harmful or even fatal levels of CO without realizing it.

If a CO incident is reported in a building served by natural gas, notify the local gas utility and take these steps:

- Evacuate the building.
- Make sure victims seek fresh air and get immediate medical attention.
- Ventilate the building.
- Shut off the gas at the aboveground service valve before the meter.
- Work with the gas utility to determine the cause of the carbon monoxide leak and when it is safe for occupants to return.

If possible, carry a CO meter. It will help you identify the presence of CO when responding to medical calls and other situations where CO is not immediately suspected.



7

Coalition/406

CO Detectors Save Lives

The Consumer Product Safety Commission recommends installing one CO detector in the hallway near every separate sleeping area. Detectors must be installed away from areas of extreme temperature and humidity and at least 15 feet from fuel-burning appliances.

first responder

Coalition/406 Ryan/13

Know the procedures for gas emergencies

Firefighters, police, and EMTs are often first on the scene of a natural gas emergency and face the greatest risk. Understanding the potential dangers of natural gas and the proper response makes everyone safer.

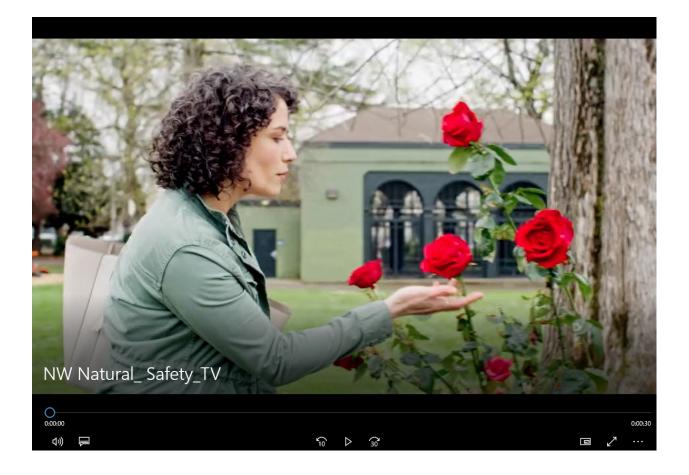
- Don't rely on your nose to detect a gas leak. Learn the other common warning signs, and use air-monitoring equipment.
- Wear PPE and SCBA for all gas incident response.
- Eliminate ignition sources. Even very small flames and sparks can cause gas fires and explosions.
- **Evacuate** the area.
- **Do not extinguish a gas fire. Let it burn!** Wait for the local gas utility to shut off the gas and protect exposures with a fog spray.
- Turn off gas ONLY at an aboveground service valve before the meter or at appliance supply lines. After a service valve has been closed, never reopen it under any circumstances.
- **Use extreme caution.** Confined gas within its flammable range may explode.
- **Be alert for carbon monoxide hazards.** Carry a CO meter if possible.

When you suspect natural gas hazards, ask your dispatcher to request the response of the local gas utility.

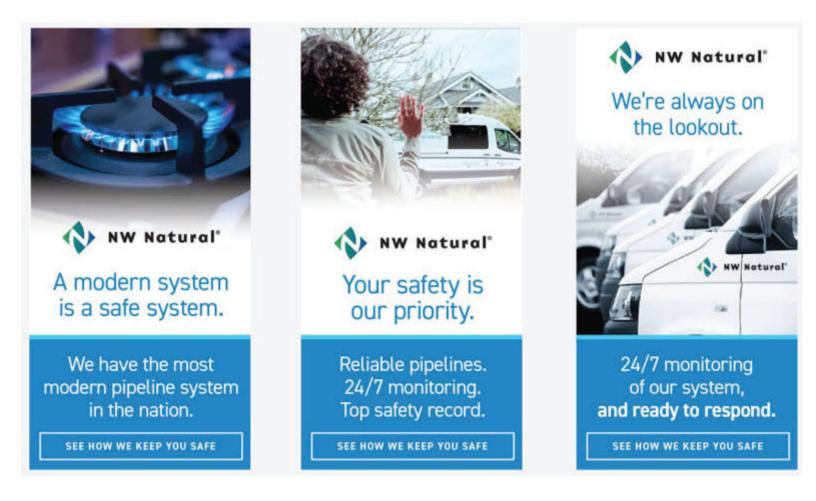
Coalition/406 Ryan/14

Video Exhibit Submitted in Native File Format

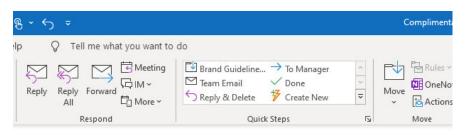
NW Natural_Safety_TV



Coalition/406 Ryan/15



School email



ducational Resources for Classroom or Remote Learning

Educational Resources <NWNatural@culveremail.com>

th how this message is displayed, click here to view it in a web browser.

	Tradition variance of the second of Glade internet.		
	🚯 NW Natural'		
	Order FREE materials for grades R4 FLEXIBLE SOLUTIONS FOR THE CLASSROOM OR HOME		
	Empower students with COMPLIMENTARY natural gas science		
	and safety resources! Whether your students are in a classroom or at home this year, our energy education resources can help them catch up on possible learning bases and maintein grade-level star-fairets in ELA/Youding, Science, and Health.		
	Order COMPLIMENTARY solivity booklets for obscoroom use or to cend home to students and their families These high-investor bookles der advanter an organize previx fores scenes tess. They lease advantes and expenses, interview and when both practices, and home awkay imposterior to receipt the which bounded. When addeed when when ymercurse with the practices are pregord for which bounded. When addeed when when ymercurse with the practices are pregord for which bounded.		
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	Explore our energy website Our #304011 bits waters comparents the activity bookiets with more activities, responsing, and genno, are well an entant join selecy videos. Use our website in the classroom and/or assign the artime carriculare mationals for remote learning at home.		
	Meet academic content standards		
	Our meterisels are devoluped by adaptions, for aduations, and support Origon and Weekington adaptivitic control standards in ELA/Reading, Science, and Health/Selecy Eduation.		
	Share these resources with parents and caregivers Encourse your students' parents/caregivers to take advintage of these resources by		
	sending home bookins and providing a link to the e-3MAKI linds website. Here is some language that can be copied and pashed into an email to send to perembel angregovers:		
	Our hood instantil gais provider, NW Network, has consted engiging and fun influentional metanistic on natural gais science and safety for our students and families. These include backlets, online misuarces, and perent/backhor guides:		
	 Booklets finite meaning and presentation general statements general to a statement general statement of the statement is the statement of the in touch on here to obtain booklets. The NW Natural = 3004/1 lock website (mension) an markids.com) offers additional 		
	The NV Netzon & CARRY User website (version a emitted carry others address address and experiments, as well as games and video. Penetthecharg gades that accompany the address help amplify student learning. They can be found in the Teachers address followed loads website		
	learning, They can be learned within Trachien's workion of the e-SMAAA (Index workionte (Inventional) e-invehicida.com). I hape you enjoy exploring these helpful energy education resources with your students!		
	We appreciate your commitment to safety education and the responsible use of natural gas/		
	Under Complementary Matemate Loday		
	View, download, prest, or order a variety of complementary educational resources at menatural a-smarfields.com.		
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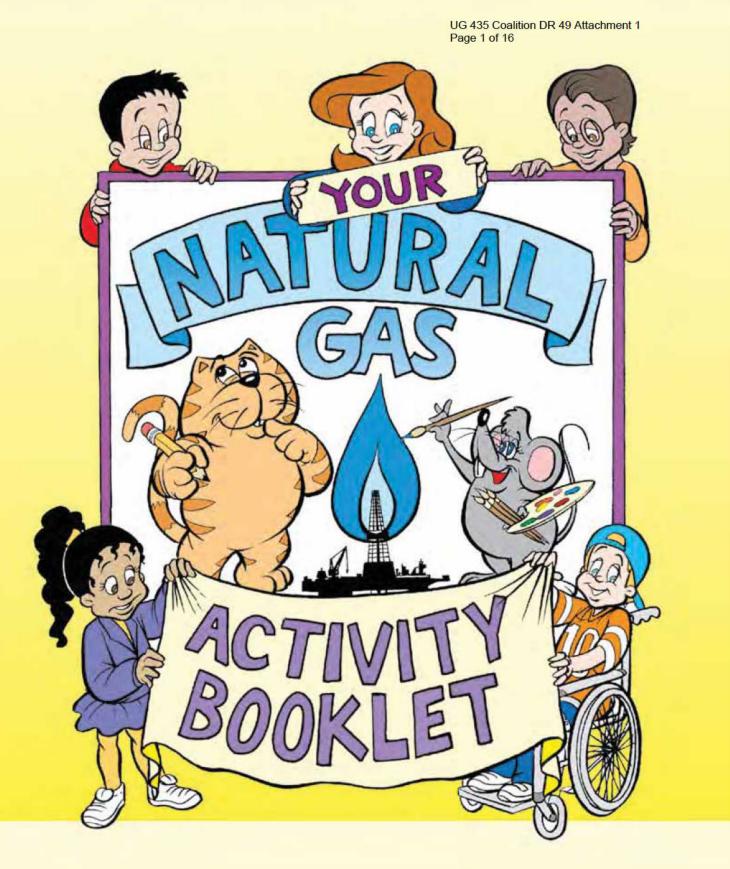
Request No.: UG 435 Coalition DR 49

49. Attached to this data request is an advertisement placed by NW Natural which describes classroom booklets on natural gas services. See Attachment A. Please provide copies of the following publications referenced in Attachment A:

- My Nat and Gus Natural Gas Activity Booklet
- My Natural Gas Safety Activity Booklet
- Your Natural gas Activity Booklet
- Natural Gas: An Invisible Fuel
- Natural Gas Safety World

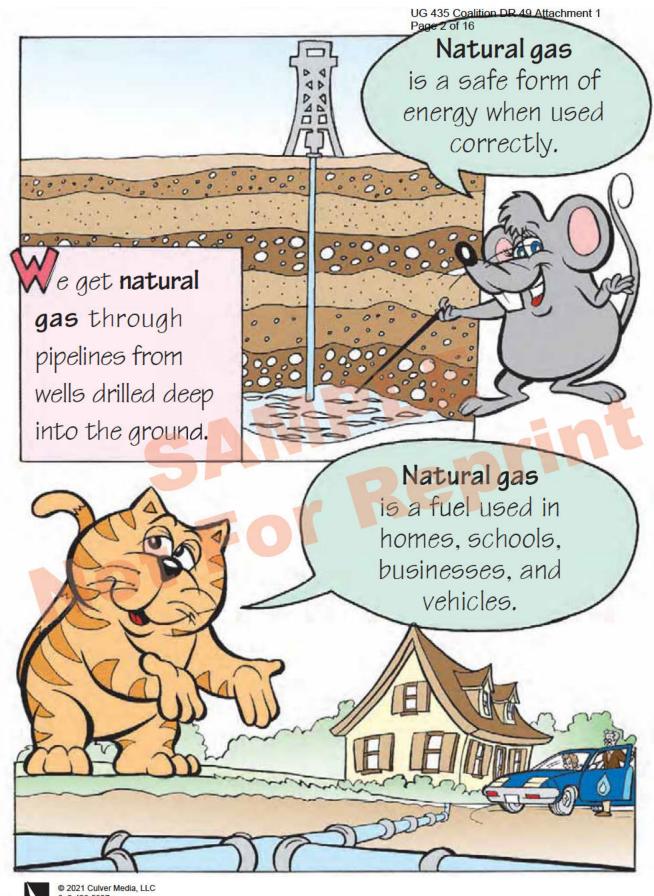
Response:

Please see UG 435 Coalition DR 49 Attachments 1-6 for copies of the booklets that educate children about the origins and uses of natural gas and important safety information about natural gas. Additional information can be found here: <u>https://nwnatural.e-smartkids.com/</u>. These educational booklets are part of our public safety awareness program recommended by federal regulation.



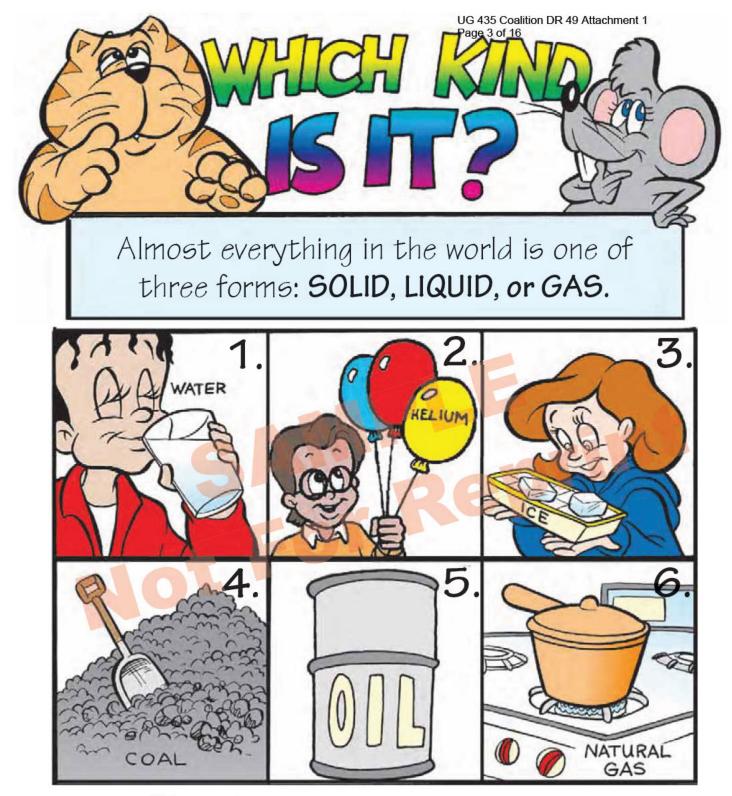


nwnatural.e-smartkids.com





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Directions: Write SOLID, LIQUID, or GAS for each numbered picture on the lines below.

1	2	3
4	5	6



Directions: Read the story and then unscramble the words and write them where they belong.

Traditional natural gas was formed long before the dinosaurs existed. Plants and animals in prehistoric lakes and seas died, sank to the bottom, and were covered by sand and mud. Their weight and the earth's heat changed them into natural gas. We now find natural gas deposits deep below the earth's surface. ASG.FO.EHT.REA.HET.SSIOEDPT.WOBEL. LAUNATR. ECRSFUA. RTEHA 0 0

Traditional natural gas was formed long ago. Today, natural gas can be made from waste materials. This is known as renewable natural gas.

Coalition/406 Ryan/22

UG 435 Coalition DR 49 Attachment 1 Page 5 of 16



Deep wells are drilled to bring natural gas to the surface. Natural gas travels through underground pipes to homes and businesses all over.

If 5 wells are sch druled 5 miles deep, and 4 wells are each drilled 3 miles deep, how many total miles are drilled?

Natu al Gas Math

Bonus Question: If all the natural gas pipelines in the U.S.A. were stretched out in one continuous line, it would be long enough to circle the earth 120 times. The earth measures 25,000 miles around. How many miles of natural gas pipeline are there in the U.S.A.?

Safety Tip:

00

When people dig they must be careful not to damage underground gas pipelines. Adults who are planning a digging project should call 811 several days before digging to find out where pipelines are located.

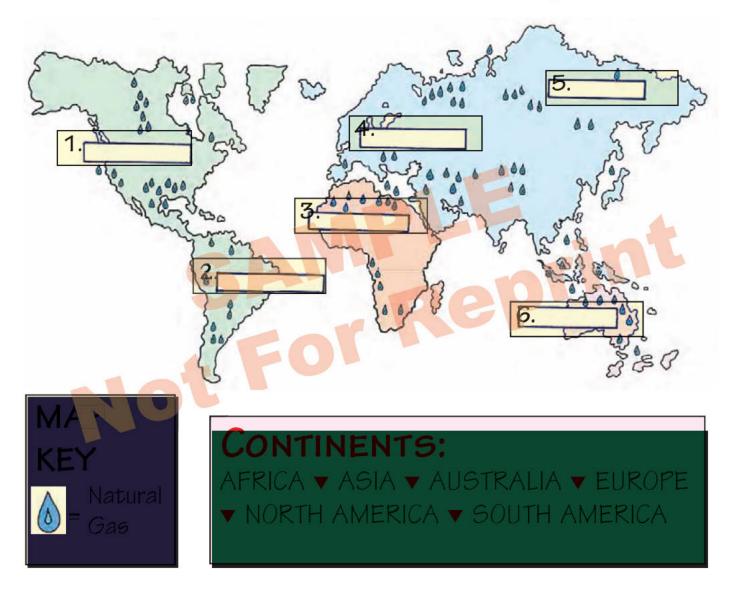






Directions:

Write the names of the continents where natural gas is found.

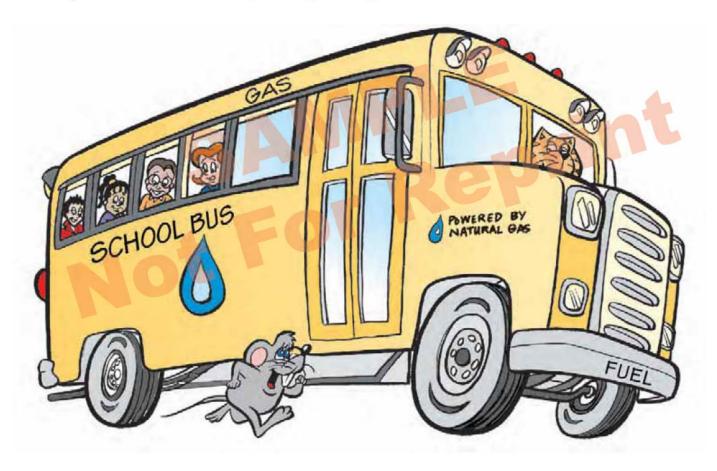


Bonus Research Question: Name 5 countries where natural gas is found. Use an atlas to find the countries. Write your answers below.



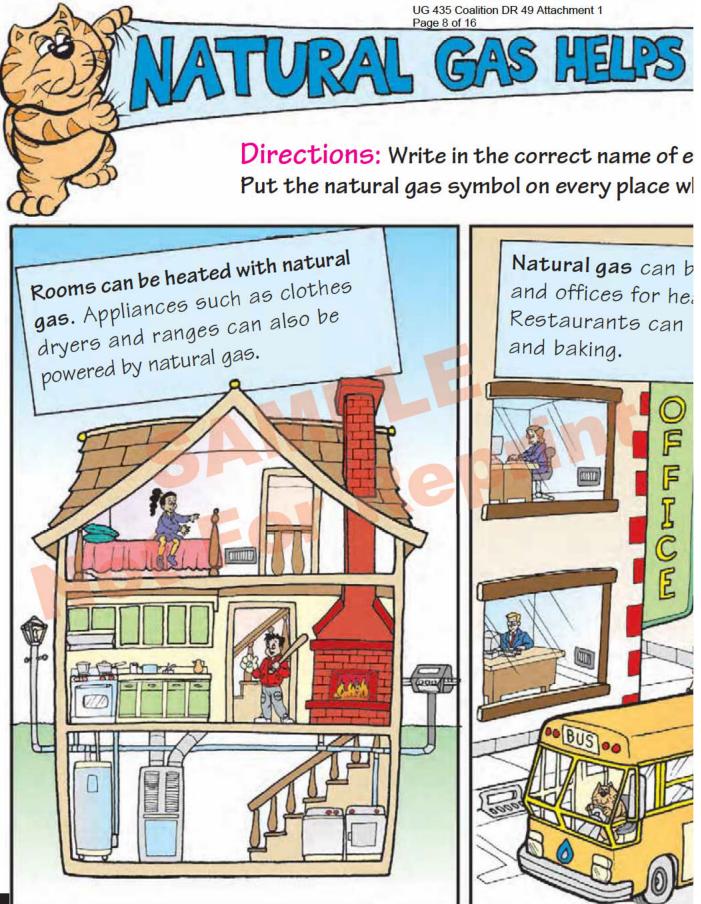
Directions:

Complete the following story using the words written on the bus.



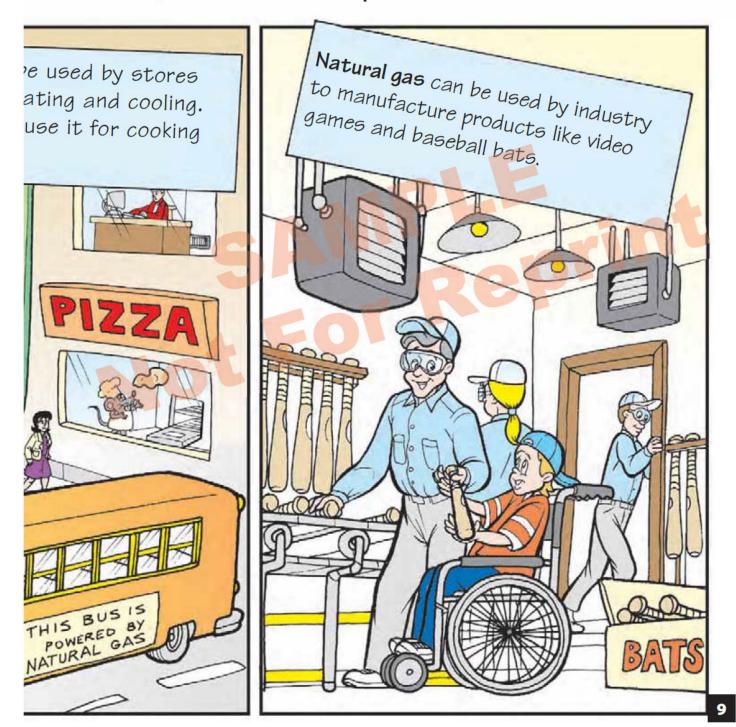
atural _____ can be used as a _____ for cars, trucks, and buses. Your _____ might run on natural gas!

Coalition/406 Ryan/25

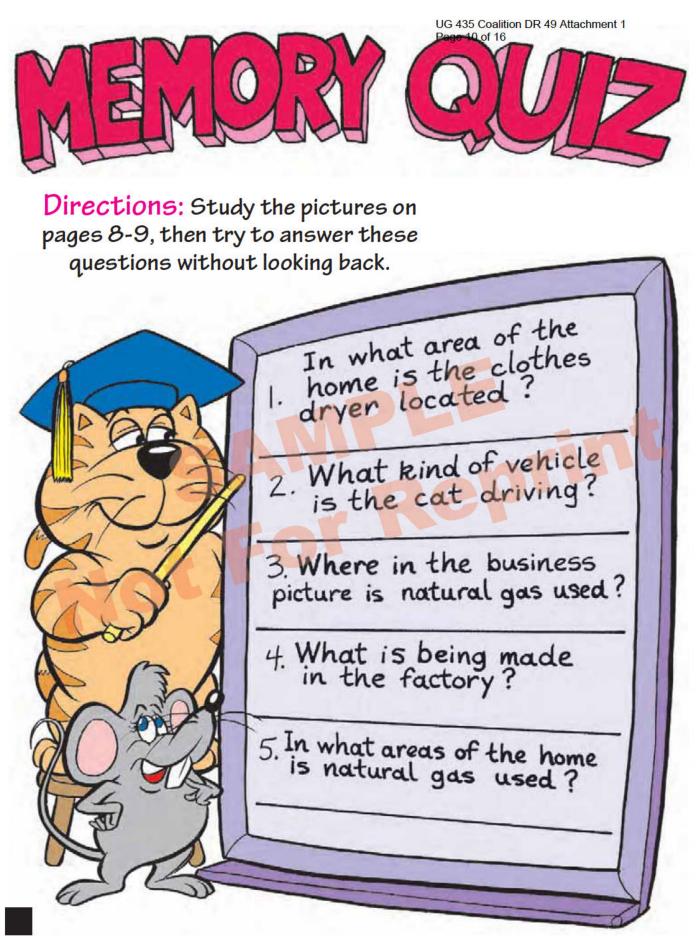




ach section: HOME, BUSINESS, or FACTORY. here natural gas is used in these pictures.

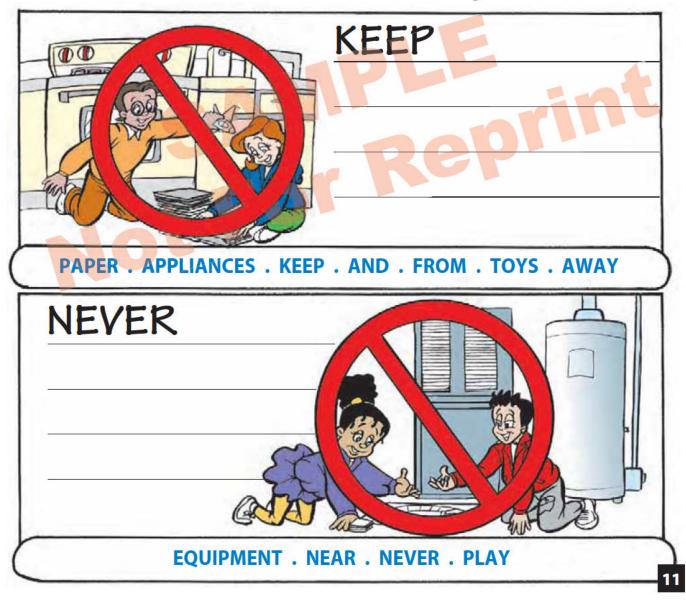


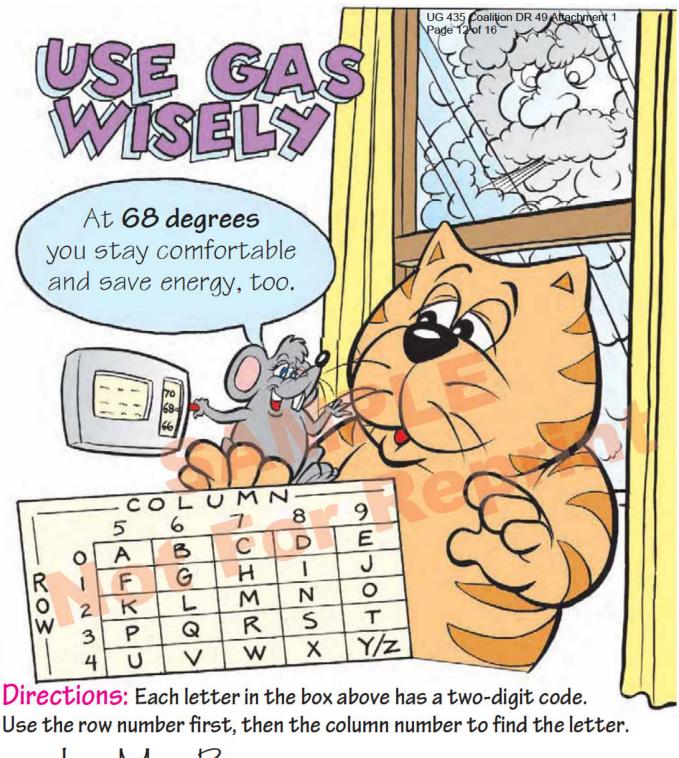
Coalition/406 Ryan/27

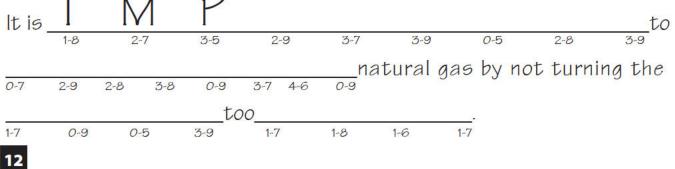


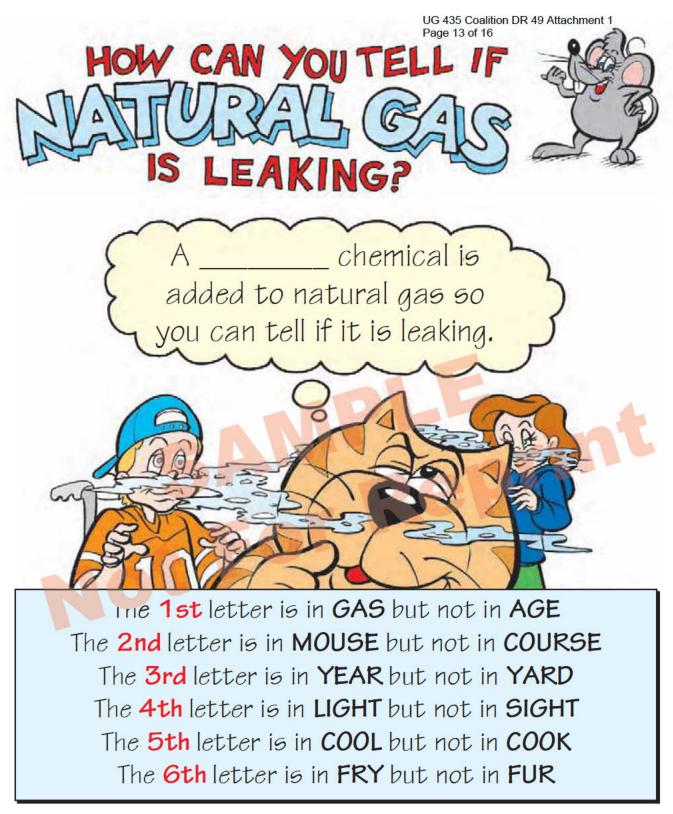


Directions: Put the words in each of these messages in the correct order. The first word for each message is shown below.



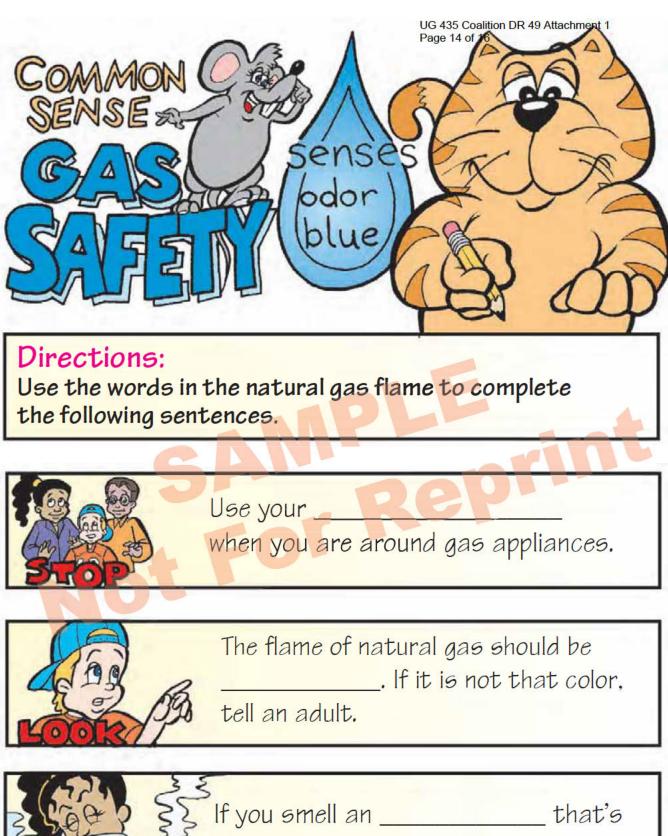






Bonus Question:

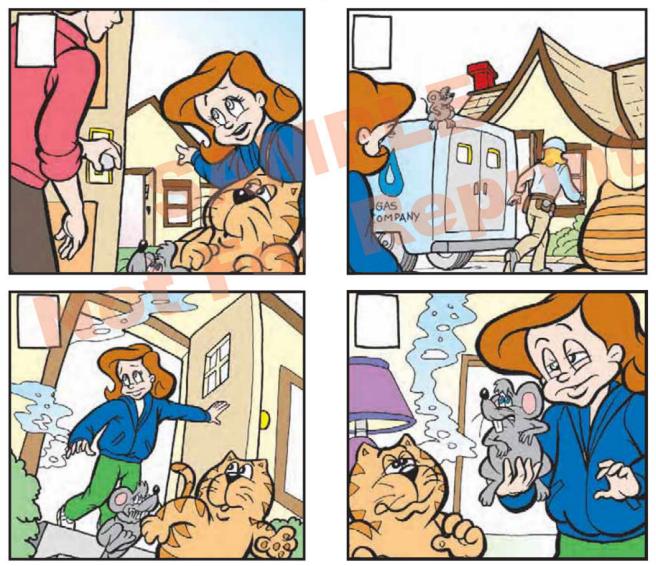
Why is it necessary to add an odor to natural gas?



like sulfur or rotten eggs, tell an adult.

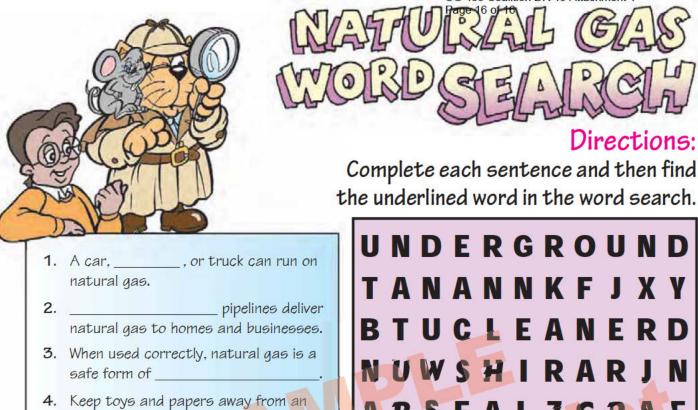


Directions: Put the pictures in the correct order by numbering them from 1 to 4.



If you smell gas in your home, tell an adult. If no adult is present, get everyone out of the house quickly. Do not use a light switch, flashlight, candle, TV, or even a phone. Go to a safe location and ask an adult to report the leak to 911 and the local natural gas utility.

Directions:



- 5. A well is drilled to obtain natural
- _ gas provides 6. efficient energy.

U	N	D	E	R	G	R	0	U	N	D
Т	A	N	A	N	N	K	F	J	X	Y
В	T	U	C	L	E	A	N	E	R	D
N	U	W	S	H		R	A	R	J	Ν
A	R	S	E	A	L	Z	G	R	А	E
R	A	F	K	L		A	G	Y	B	Ŵ
G	L	A	P	P	L	I	A	N	C	Ε

UG 435 Coalition DR 49 Attachment 1

Natural Gas Pipeline Safety

Leaks from natural gas pipelines are very rare. However, because gas leaks are a fire hazard, it is important to know how to recognize them in case one occurs in your community.

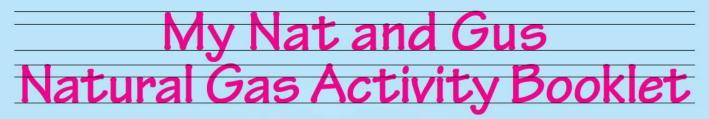
Here are some warning signs:

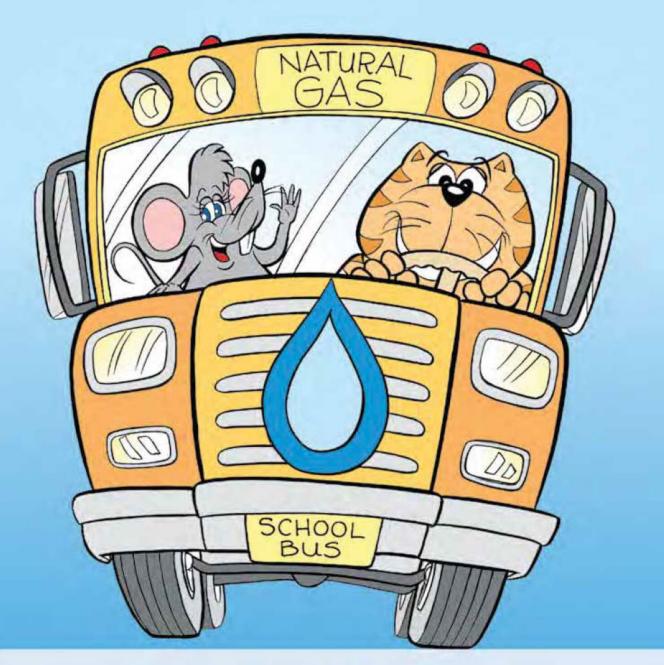
- A smell of sulfur or rotten eggs
- log A hissing, whistling, or roaring sound
- logical Dirt spraying or blowing into the air
- la Continuous bubbling in water
- la Grass or plants dead or dying for no apparent reason

If you suspect a gas pipeline leak, do not use fire or electricity as it could ignite the gas. Go far away from the area and do NOT go back until safety officials say it is safe. Ask a trusted adult to report the leak to 911 and the local gas utility.

Name:

UG 435 Coalition DR 49 Attachment 2 Page 1 of 16



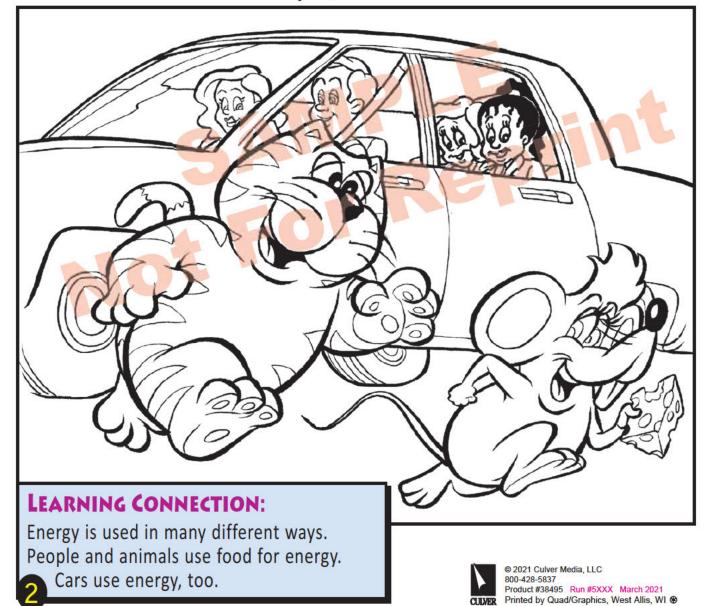




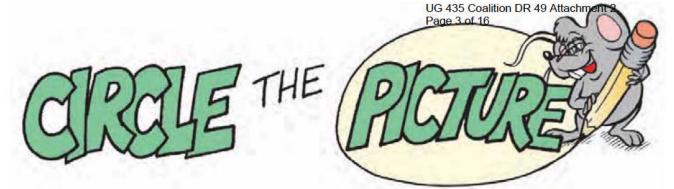
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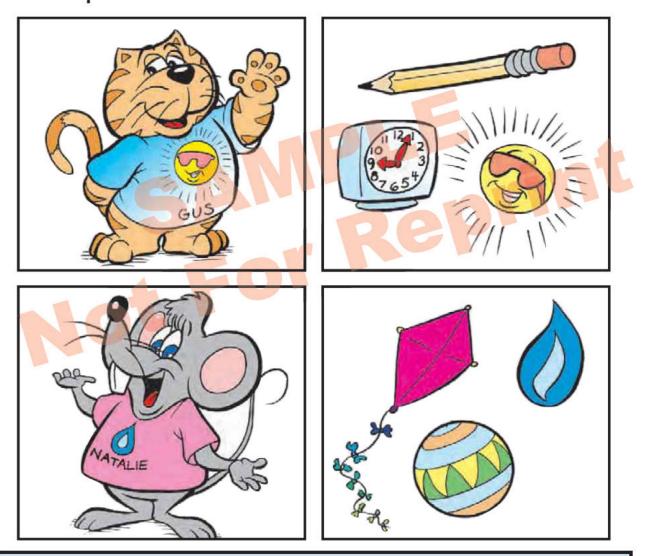
Directions: Read this page and then color it.



Coalition/406 Ryan/36

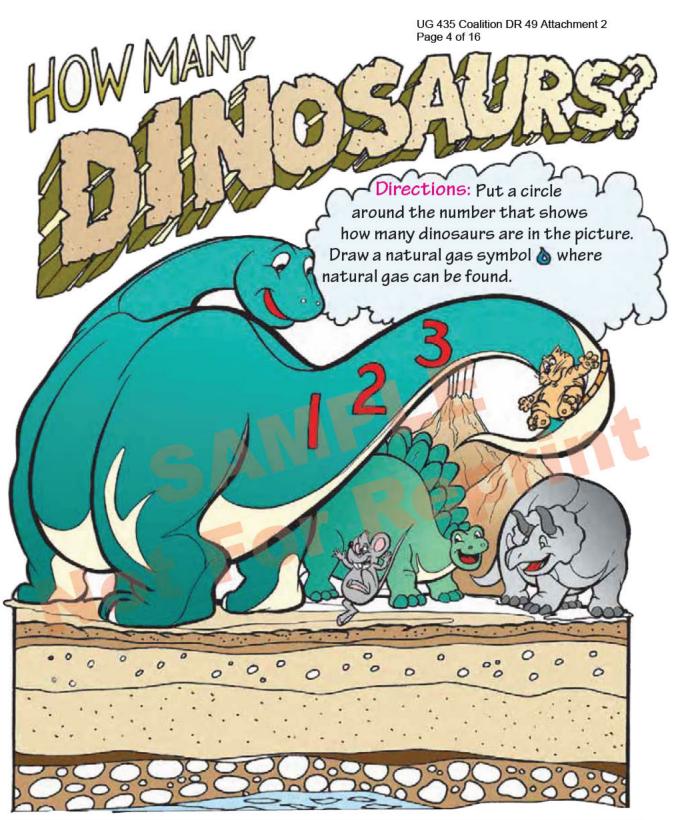


Directions: Circle the objects that match the pictures on Gus's and Natalie's T-shirts.



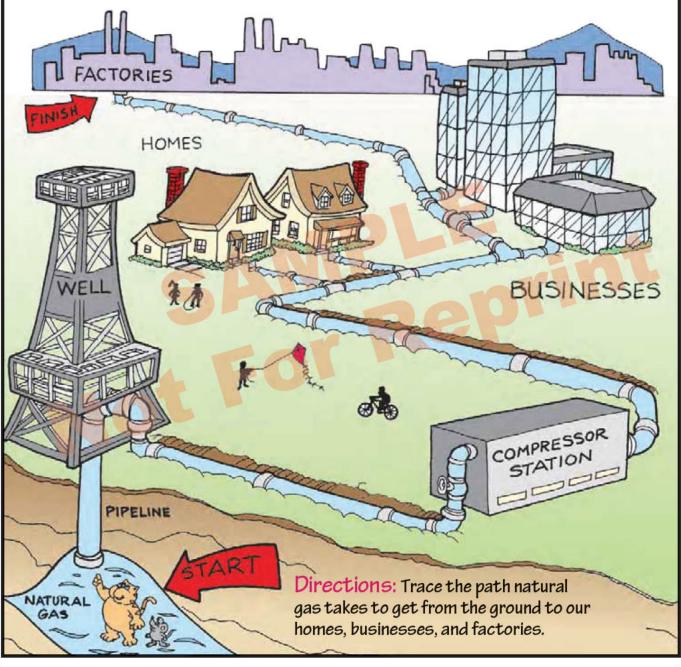
LEARNING CONNECTION:

Natural gas is one source of energy. The sun warms the earth's surface and is also a source of energy.

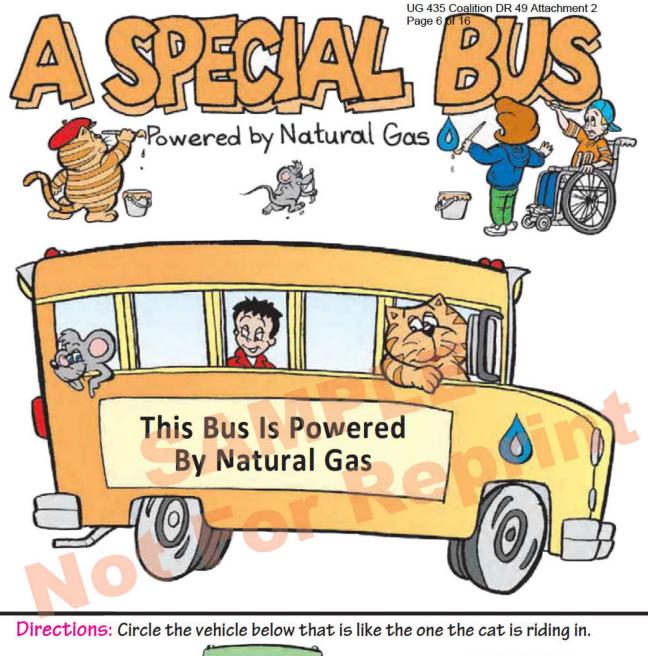


Traditional natural gas was formed long ago, before the dinosaurs existed. Today, natural gas can be made from waste materials. This is known as renewable natural gas.





Natural gas comes to our homes, businesses, and factories through underground pipes.





Natural gas is an efficient fuel for buses, trucks, and cars.



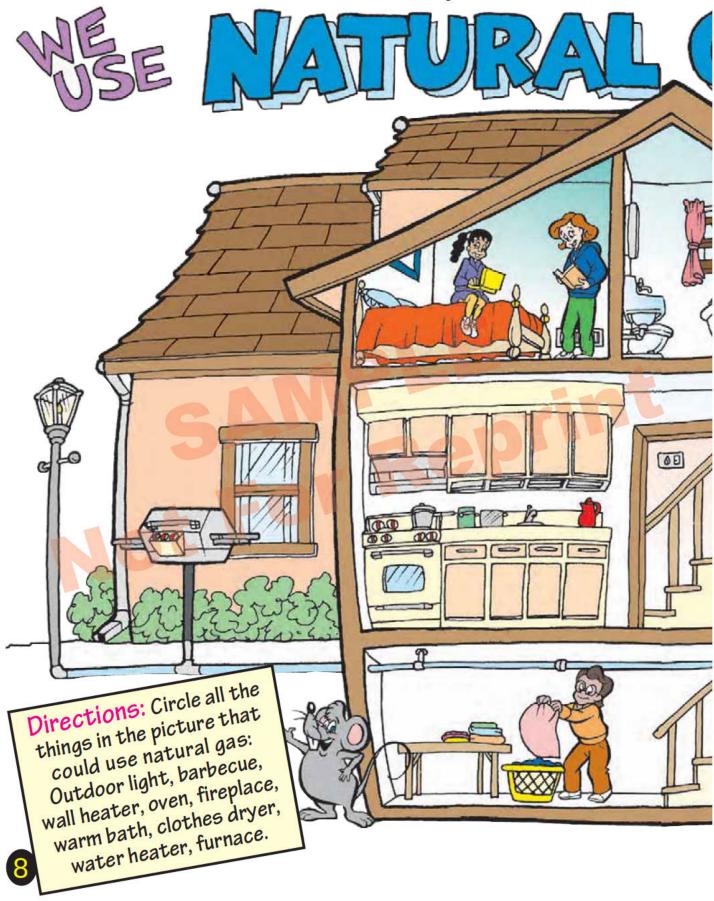
Directions: Circle the pictures that show something clean. Put an "X" through the pictures that show something dirty.

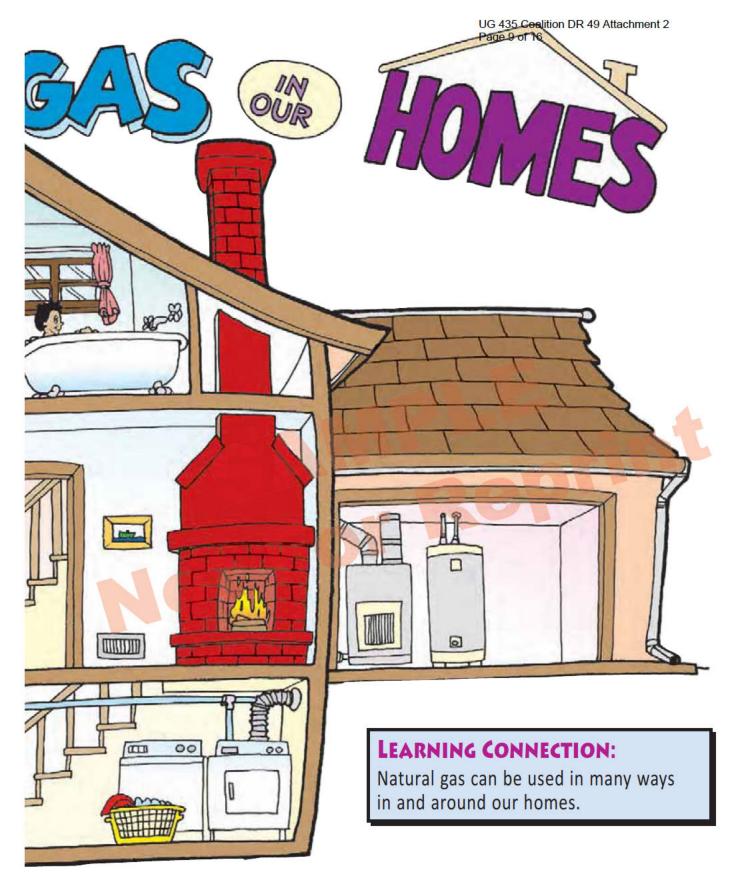


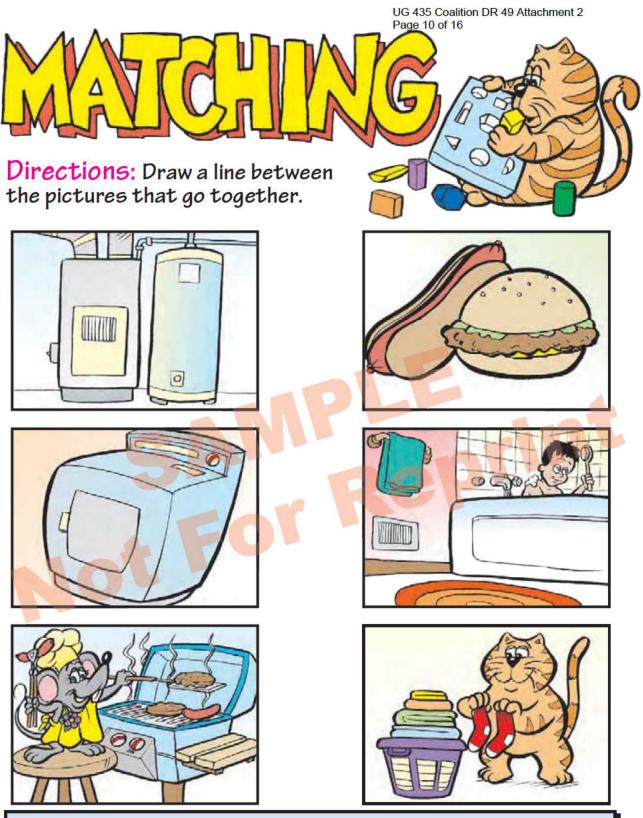
LEARNING CONNECTION:

Natural gas burns more cleanly than diesel fuel.

UG 435 Coalition DR 49 Attachment 2 Page 8 of 16







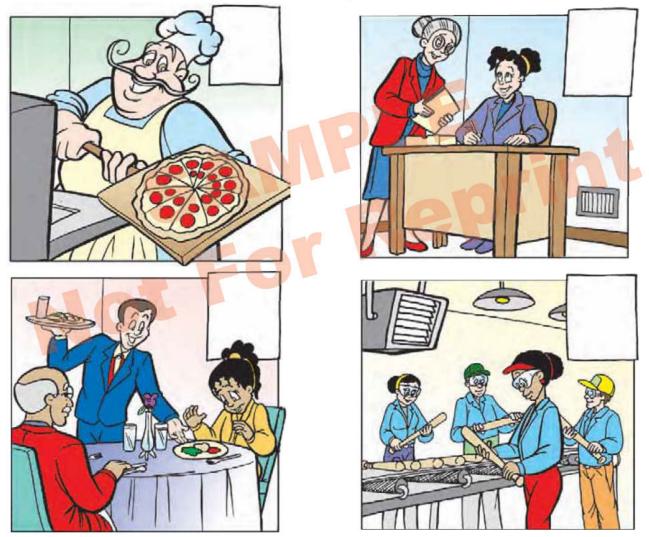
Natural gas can be used for cooking, heating homes, heating water, and drying clothes.

10

Coalition/406 Ryan/44

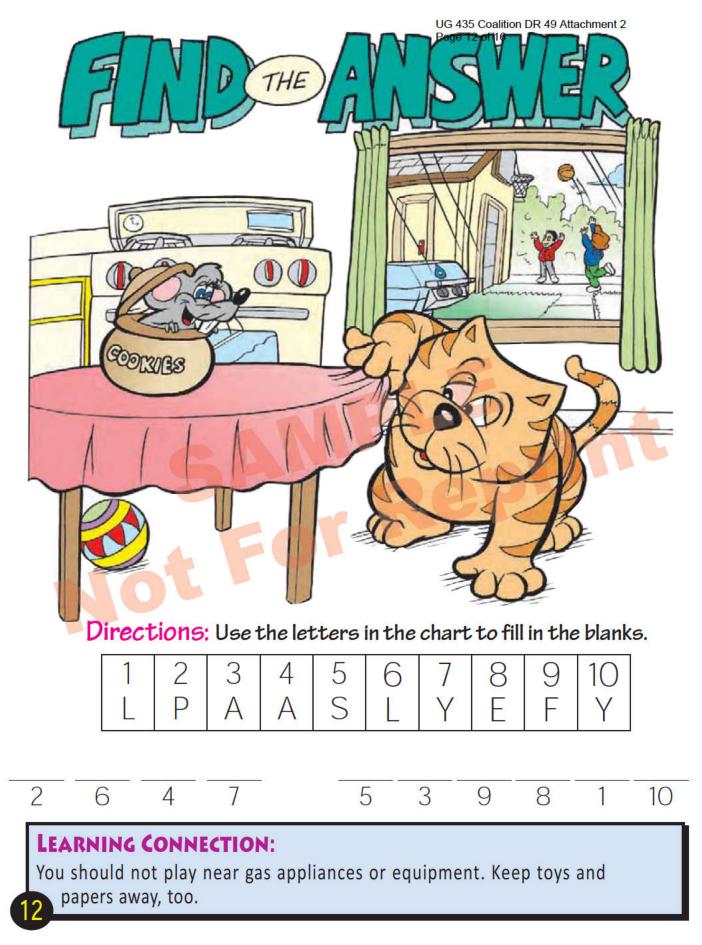


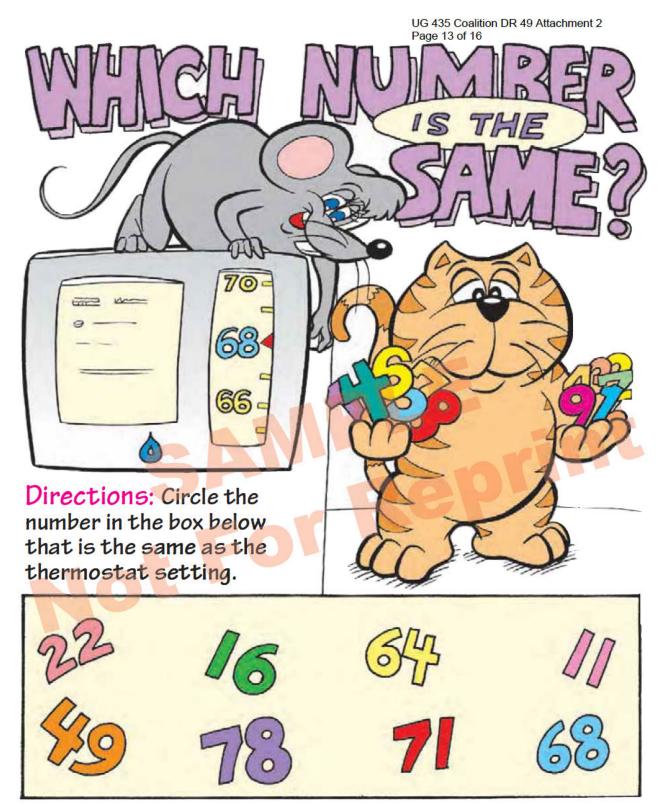
Directions: Count the number of people who are using natural gas in each box. Write that number in the box in each picture. Which picture shows an office?____ A restaurant?____ A factory?____ A kitchen?____.



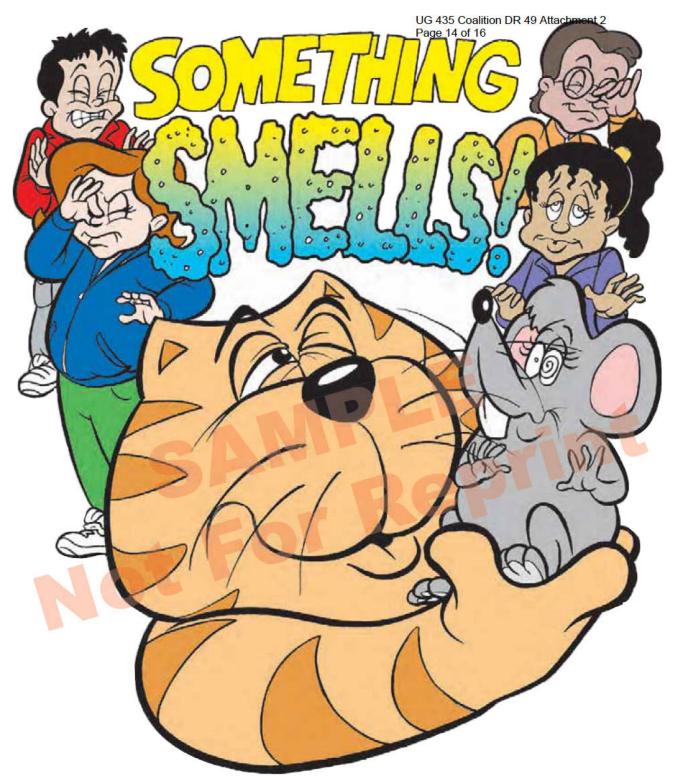
LEARNING CONNECTION:

Natural gas can be used in offices for heating and cooling, in restaurants for cooking and baking, and in factories for manufacturing goods.





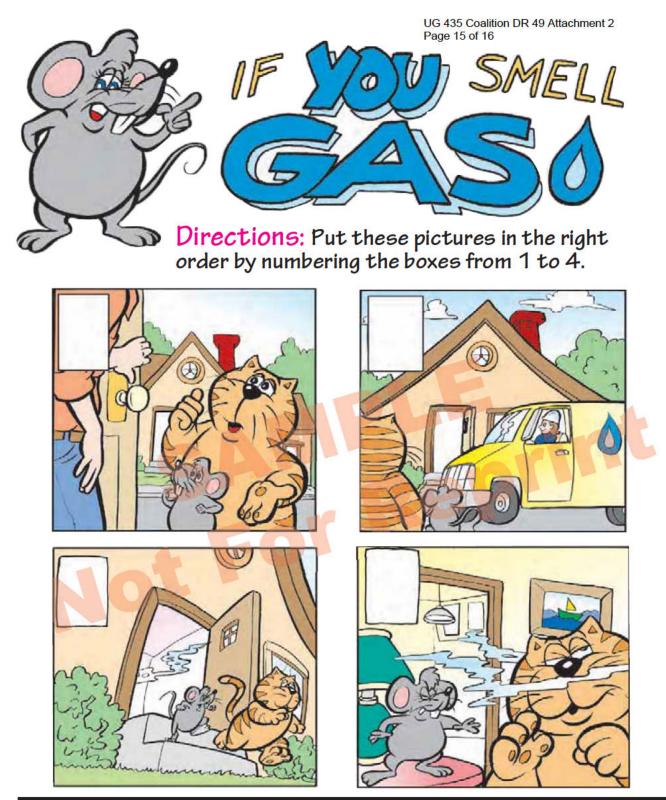
Setting the thermostat at 68 degrees will keep you comfortable and save energy, too.



Directions: Circle the part of the cat, mouse, and children that helps them smell a gas leak.

LEARNING CONNECTION:

A smell is added to natural gas so you can tell if it is leaking.



If you smell gas in your home, tell an adult. If no adult is present, get everyone out of the house quickly. Do not use a light switch, flashlight, TV, or even a phone. Go to a safe location and ask an adult to report the leak to 911 and the local natural gas utility.

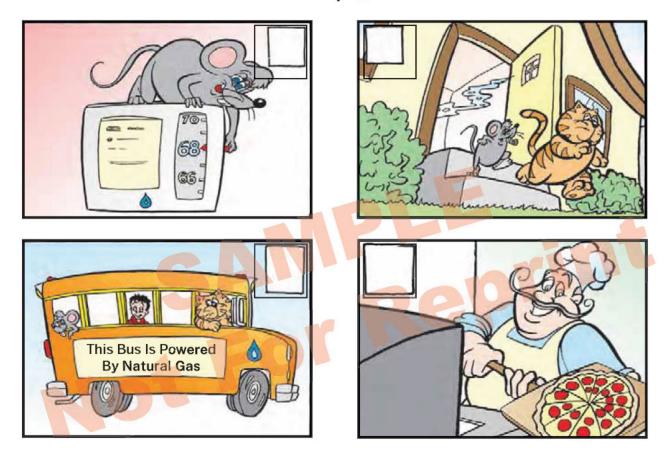
Coalition/406 Ryan/49







Directions: Find the page where the picture is and then write the page number in each box.



LEARNING CONNECTION boxes throughout this booklet contain useful information about natural gas. They are designed to be read aloud to students.

SAFETY TIP:

When people dig they must be careful not to damage underground gas pipelines. Adults who are planning a digging project should call 811 several days before digging to find out where pipelines are located.



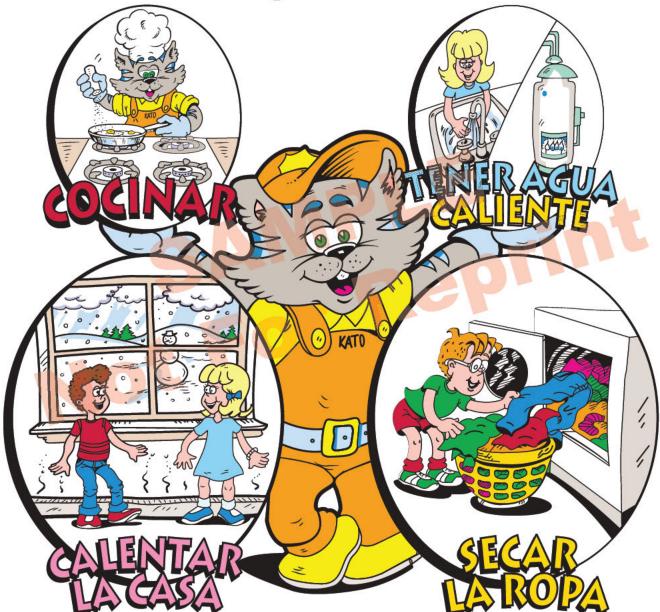


UG 435 Coalition DR 49 Attachment 3 Page 2 of 8



Mi cuaderno de actividades de seguridad con el gas natural

Usamos el gas natural todos los días para...



El gas natural llega a nuestras casas a través de tuberías subterráneas.



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UG 435 Coalition DR 49 Attachment 3 Page 4 of 8



Mi cuaderno de actividades de seguridad con el gas natural

Si hay algún problema, te darás cuenta por el olor.



UG 435 Coalition DR 49 Attachment 3 Page 5 of 8

SI HUELES GAS, SAL DE LA CASA RÁPIDO

Une los puntos hasta salir.



UG 435 Coalition DR 49 Attachment 3 Page 6 of 8



Mi cuaderno de actividades de seguridad con el gas natural

Sólo los adultos deben usar los artefactos a gas.

Usa un crayón para pintar a las únicas personas que deberían usar este artefacto a gas.





etermina lo que está bajo tierra. Llama antes de excavar.

Cuando uno excava, debe tener mucho cuidado de no dañar las tuberías subterráneas de gas. Los adultos deben llamar al 811 varios días antes de excavar para preguntar dónde están las tuberías.

UG 435 Coalition DR 49 Attachment 3 Page 7 of 8



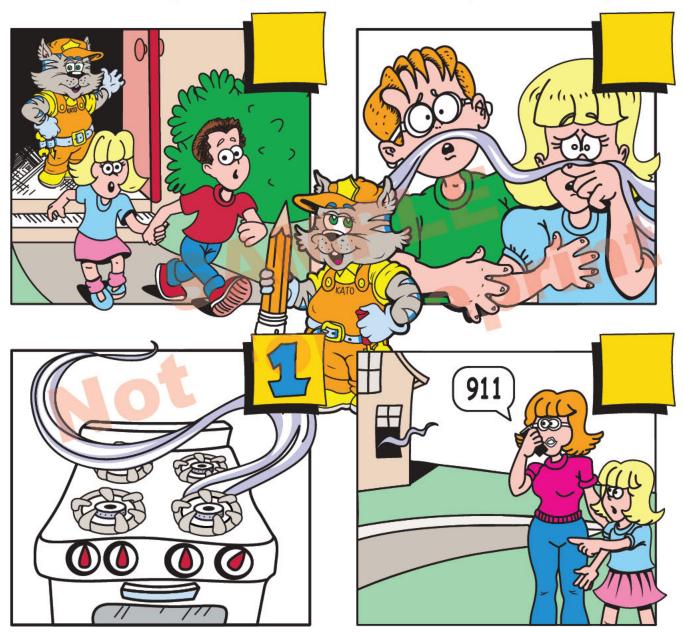
UG 435 Coalition DR 49 Attachment 3 Page 8 of 8



Mi cuaderno de actividades de seguridad con el gas natural

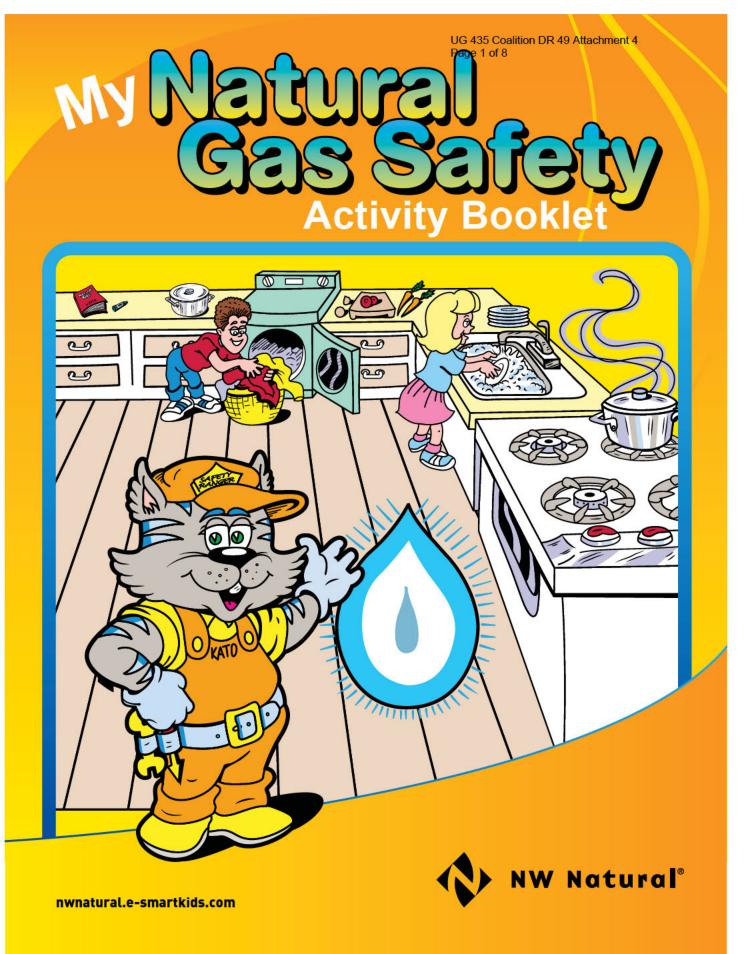
Pide ayuda cuando estás afuera.

Enumera estas imágenes según el orden correcto. Te ayudamos con la primera.



También puede haber escapes de gas afuera.

Presta atención a estas señales: Olor a azufre o a huevo podrido; un siseo, silbido o rugido; tierra o polvo que se levanta y vuela en el aire; burbujeo continuo en el agua; y césped o plantas muertas o moribundas sin ningún motivo.



UG 435 Coalition DR 49 Attachment 4 Page 2 of 8

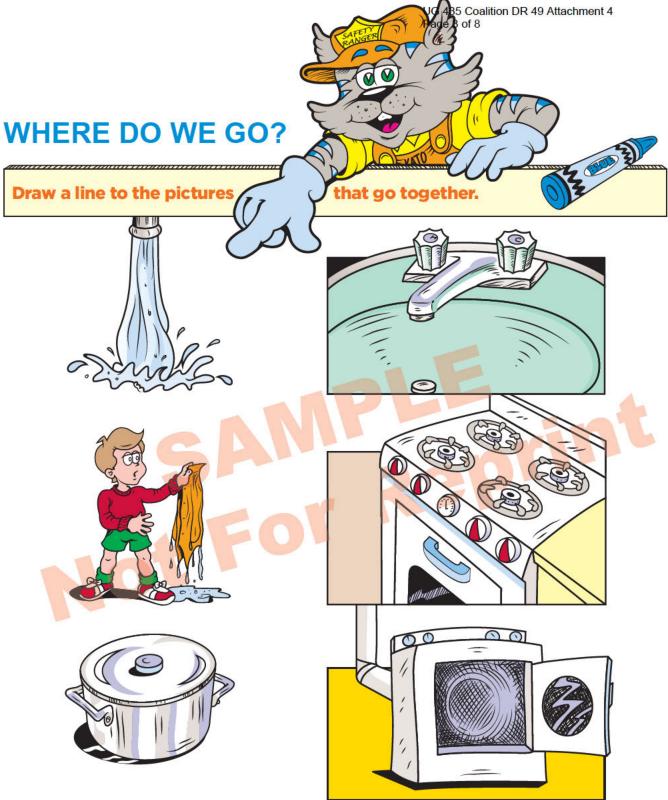


My Natural Gas Safety Activity Booklet

We use natural gas every day!



Natural gas comes to our homes through underground pipes.



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UG 435 Coalition DR 49 Attachment 4 Page 4 of 8



My Natural Gas Safety Activity Booklet

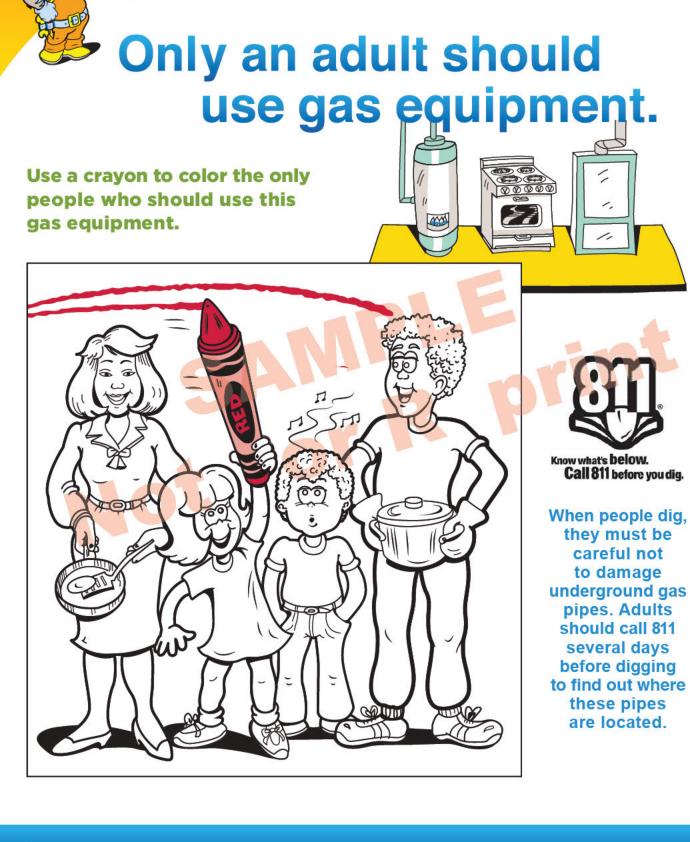
When something is wrong, you can tell by the smell.



UG 435 Coalition DR 49 Attachment 4 Page 5 of 8



UG 435 Coalition DR 49 Attachment 4 Page 6 of 8



My Natural Gas Safety Activity Booklet

UG 435 Coalition DR 49 Attachment 4 Page 7 of 8

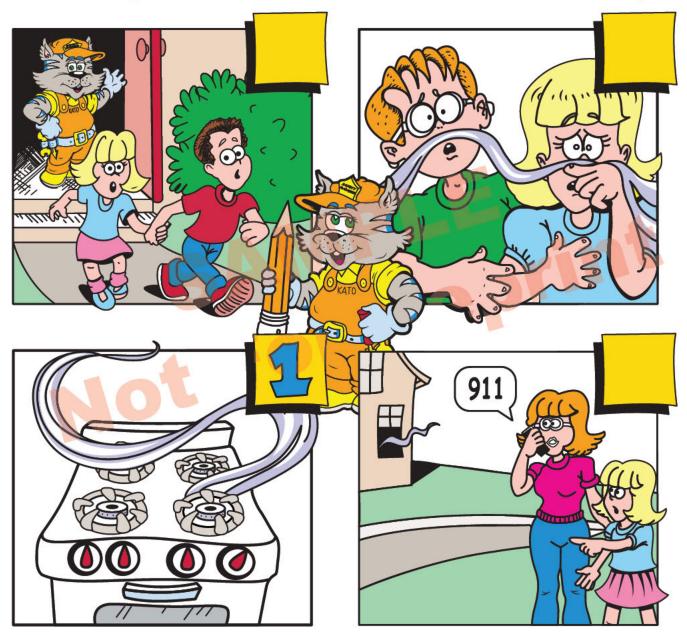


UG 435 Coalition DR 49 Attachment 4 Page 8 of 8

My Natural Gas Safety Activity Booklet

Get help when you are outside!

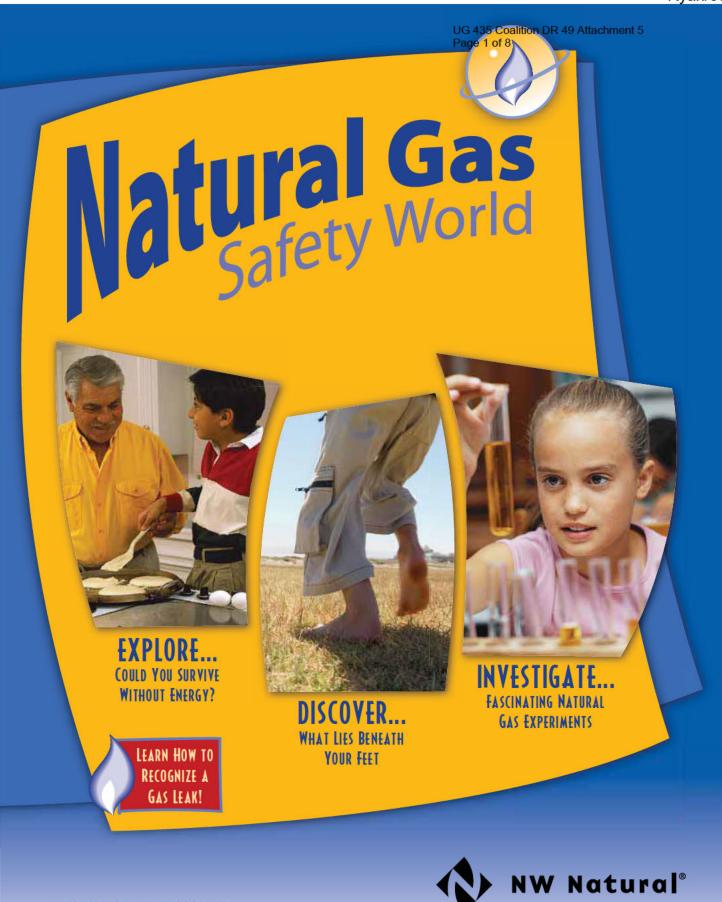
Number these pictures in the correct order. The first one has been done for you.



Gas leaks can also happen outdoors.

Be alert for any of these signs: A smell of sulfur or rotten eggs; a hissing, whistling, or roaring sound; dirt spraying or blowing into the air; continuous bubbling in water; and grass or plants that are dead or dying for no apparent reason.





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UG 435 Coalition DR 49 Attachment 5 Page 2 of 8

WITHOUT USING ENERGY?

YOU NEED ENERGY TO WORK OR PLAY, AND YOU GET YOUR ENERGY FROM FOOD. APPLIANCES LIKE OVENS, SPACE HEATERS, WATER HEATERS, TVS, AND COMPUTERS NEED ENERGY TO WORK, TOO, BUT THEY GET THEIR ENERGY FROM SOURCES LIKE NATURAL GAS AND ELECTRICITY.

ENERGY USE CHART

A

List all the ways you have used energy today. Some sources of energy you might have used are natural gas, electricity, wood, charcoal, fuel oil, propane, gasoline, diesel, or solar. An example is done for you.



iance/ qui ment I Used

water heater

Energy Source

natural gas

GET CREATIVE!

Pick one of the natural gas science facts or safety tips inside this book. Make a poster, rap song, mini-book, or oral presentation to explain it to your friends.

WHAT DO YOU THINK?

Could you survive for a day without using any energy sources? Write or explain how you would keep warm or cool, what you would eat, and what you would do for transportation. Bonus: What would you do for fun?

UG 435 Coalition DR 49 Attachment 5 Page 3 of 8

HERE ARE SOME NATURAL GAS VOCABULARY WORDS. SEE IF YOU CAN FIND THEM IN THE PUZZLE.

ERGETIC

APPLIANCE: A stove, clothes dryer, dishwasher, toaster, or other device that is used in the home to perform chores.

ENERGY: A property of many substances that is associated with heat, light, electricity, mechanical motion, and sound.

FOSSIL FUELS: Energy sources like coal, oil, and natural gas, which were formed from the decayed remains of plants and animals that died hundreds of millions of years ago. Fossil fuels are the product of pressure, shifting and heat deep within the earth's rock layers.

GAS: A substance whose molecules are randomly moving so quickly that the molecules easily separate from one another. Gases will spread out and take on the shape and volume of whatever they are in—a jar, a room, or the atmosphere. Gas is also one of the states of matter.

GAS METER: A device that measures how much natural gas is being used by a natural gas customer.

NATURAL GAS: A clean-burning form of energy that is found deep in the earth and is delivered through pipes to homes, schools, and businesses. Natural gas is also used to generate electricity at power plants.

									~	2	4
•	E	п	W	an a	C	in i			N	E	c
S	E	R	V	I	С	E	L	I	Ν	E	S
L	T	Α	L	R	Ε	Т	Ε	Μ	S	Α	G
Ε	T	Η	Ρ	0	S	V	Ε	L	U	Ν	Α
С	Α	N	Ε	L	Ε	V	Ε	L	Α	Ν	S
Ρ	S	Ε	С	R	U	0	S	Ε	R	Т	U
Т	Ε	N	E	R	G	Y	Ζ	C	Ν	Α	C
L	Y	T		L	E	T	U	Ζ	V	Η	L
F	0	S	S	T	L	F	U	Ε	L	S	L
W	Ε	C	N	Α	I.	L	Ρ	P	A	F	E
Ľ	P	S	Α	M	U	E	L	X	Α	M	W
Ĩ	Z	S	A	G	L	A	R	U	T	A	N
Ε		M	A	D	T	S	0	Ν	J	Α	В
N	L	0	D	0	R	A	Ν	Т	Α	Ν	L

ODORANT: A chemical with the smell of rotten eggs that is added to natural gas so people will know if natural gas is present.

RESOURCES: There are two types of energy resources: renewable (those which are easily replenished), such as sun, wind, and hydropower, and nonrenewable (those which will some day run out), such as fossil fuels.

SERVICE LINES: Small pipelines that carry natural gas from the street to houses, businesses, schools, and other buildings.

UTILITY: A supplier that provides a basic service such as delivering electricity, natural gas, and/or water to a community.



UG 435 Coalition DR 49 Attachment 5 Page 4 of 8

GAS LIQUID EVERYTHING IN THE WORLD EXISTS IN ONE OF THREE DIFFERENT STATES. THESE AREN'T STATES LIKE MASSACHUSETTS OR CALIFORNIA.

THEY ARE THE THREE STATES OF MATTER-SOLID, LIQUID, AND GAS.

Some things change from one state to another when they are heated or cooled. For instance, when you light a candle, the **SOLID** wax around the base of the wick gets hot and becomes a **LIQUID**. When this liquid wax gets hot enough, it turns to a **GAS** and burns.

Can you think of other things that change states when they are heated or cooled?

MATCH THE WORD TO THE SENTENCE THAT DESCRIBES IT.

This ubstance is shapeless. It takes on the shape of (and fills up the space of) whatever container it's in—like a jar or a room.

This substance takes on the shape of its container, but fills the same amount of space no matter what container it's in.

This substance keeps its shape and always takes up the same amount of space.

WHAT DO YOU THINK?

LIQUID

SOLID

SOL

Natural gas, coal, and oil are known as fossil fuels because they were formed from the decayed remains of plants and animals that died hundreds of millions of years ago. Which of these fuels is a liquid? Which is a gas? Which is a solid?

USE ENERGY WISELY

The Earth's supply of natural gas and other fossil fuels is limited. Using energy wisely can help make these fuels last longer.

UG 435 Coalition DR 49 Attachment 5 Page 5 of 8

Materials:

- A 16 oz. plastic soda bottle with cap
- About 6 oz. tap water
- About 6 oz. cooking oil
- 1. What do you ink wi ha en if you pour the cooking oil and the water into the bottl
- 2. Pour the liquids in and put the cap on the bottle. happened in the bottle, and your best oue s as to

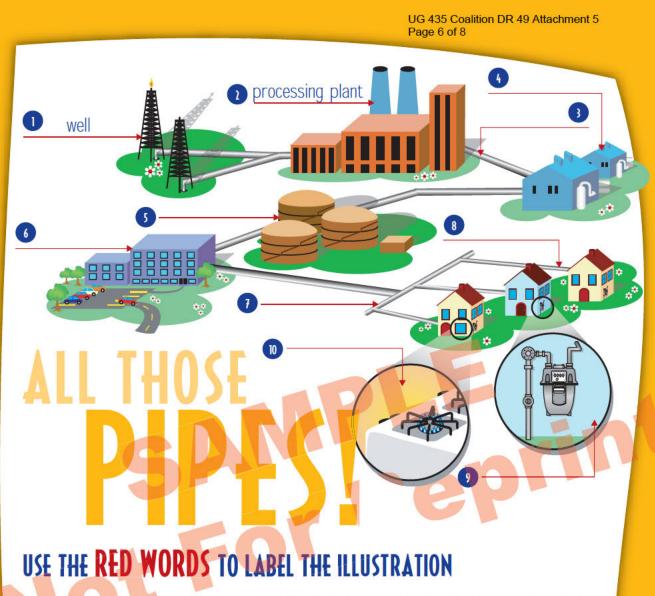
it a ew o...ents. ow describe what

What is hereing in the bottle has to do with density. Density is a measure of how many molecules were are in a certain amount of a substance. The more molecules, the denser. Denser substances sink and less dense substances float.

 The bottle actually contains three substances: water, air, and oil. Which is densest? _____ Next dense? _____ Least dense? _____

GO UNDERGROUND!

The substances in the bottle behave the same way as water, natural gas, and oil do underground. Use what you have learned from your experiment to color the blank areas of this diagram and label them with WATER, NATURAL GAS, and OIL in the order you think they would be found underground.



Natural gas is pumped up from the ground through a **well** (1). A **processing plant** (2) removes impurities like water and sand. Then the gas is sent through large **transmission pipes** (3) to a **compressor station** (4), where it is pressurized to flow quickly through many miles of pipes.

Some natural gas is sent to **storage tanks** (5). Some of it is sent to a **utility** (6)—a supplier that delivers natural gas to homes, schools, and businesses. The utility adds a chemical odorant that makes gas smell like rotten eggs so people will be able to recognize gas leaks.

From the local utility, natural gas is sent through a large underground pipe called a **distribution main** (7), and then through **service lines** (8) to houses, schools, and businesses. Next, the gas flows through a **gas meter** (9), which measures how much gas is used. Smaller pipes inside the house carry the gas to **appliances** (10) like ranges, furnaces, water heaters, and clothes dryers. **Which appliances in your home use natural gas?**

DIG SAFELY

If people dig into natural gas pipelines, the gas can leak out and become a fire hazard. That's why anyone planning a digging project should call the one-call utility locator service at 811 several days before digging. They will make sure underground gas pipelines are clearly marked so people can dig a safe distance away. If you see pavement markings or colored flags, please leave them undisturbed.



UG 435 Coalition DR 49 Attachment 5 Page 7 of 8

Gas appliances use a flame. So it's



important to keep papers, toys, curtains, paint thinner, and other flammable liquids away from them to prevent fires.

If you smell natural gas or notice any other gas leak



NATURAL GAS

warning signs in or around your home, tell an adult. If no adult is home, get everyone out of the house and go to a safe location to call the local natural gas utility. Do not use a light switch, candle, flashlight, TV, radio, garage door opener, or even a hone—a spark could ignite the gas.

If the burners on top of the range have a blue flame, they are working correctly.

If your flame is large, yellow, and flickering, ask an adult to have the range checked by a qualified repairperson.



Don't play with ga app nces or pipes. Make sur you ger str or brothers

don't pla, with oven knobs or pipes they could accidentally turn the gas on.



GAS PIPELINE SAFETY

Leaks from natural gas pipelines, although rare, can be a fire hazard. Be alert for any of the warning signs below, and learn what to do in case a natural gas leak occurs in your community.

GAS LEAK WARNING SIGNS

- A sulfur-like or rotten-egg smell
- · A hissing, whistling, or roaring sound
- Dirt spraying or blowing into the air
- Continuous bubbling in water
- Grass or plants dead or dying for no apparent reason

WHAT TO DO

- Do not use electricity or fire. Even the tiniest spark from a phone, flashlight, electrical appliance, or match could ignite the gas.
- Go far away from the area immediately and do NOT go back until safety officials say it is safe.
- Ask a trusted adult to report the leak to 911 and the local natural gas utility.

UG 435 Coalition DR 49 Attachment 5 Page 8 of 8

HOME SAFETY INSPECTION

TAKE THIS BOOKLET HOME AND DO THIS NATURAL GAS SAFETY INSPECTION WITH AN ADULT. IF YOU FIND ANY HAZARDS, CHECK "NEEDS FIXING" AND ASK AN ADULT TO HAVE THEM FIXED.

LOOK FOR:

None

1. Small children playing near the natura None Needs fixing

s range and other natural gas appliances. Fixed

2. People digging without having called 811 first.

None Needs fixing 🗅 F ed

3. Laundry hung on gas or water pipes to dry.

- None Needs fixing
- low flam n your gas range. Needs fixing Fixed None
- 5. The natural gas oven used to heat the room or dry clothes.
 - None Needs fixing Fixed
- 6. The chimney flue and appliance vents clogged or in disrepair. None Fixed
 - Needs fixing
- 7. Papers, clothing, curtains, and flammable liquids near open flames or heaters.

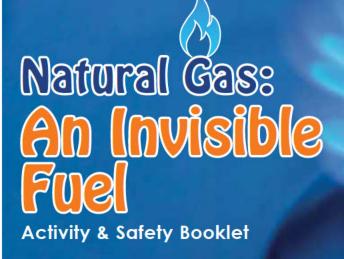
Fixed

Fixed

Needs fixing

Reviewed by Pipeline and Hazardous Materials Safety Administration, **United States Department of Transportation**

UG 435 Coalition DR 49 Attachment 6 Page 1 of 16





nwnatural.e-smartkids.com

UG 435 Coalition DR 49 Attachment 6 Page 2 of 16

Natural Gas Is an Invisible Fuel

Natural gas is a colorless, odorless fuel. A chemical that smells like sulfur or rotten eggs is added to natural gas so we can smell it easily in case it leaks.

Natural gas is a source of energy.



Activity

Add the missing vowels (a, e, i, o, and u) to complete the words below.

NATURAL GAS CAN BE USED FOR:



Hint: Read "Going Further" to help with this activity.



GOING FURTHER

Use your imagination! Make a collage of pictures from magazines that show food being cooked, goods being manufactured, hot water being used, and people or goods being transported.

UG 435 Coalition DR 49 Attachment 6 Page 3 of 16

Energy in Your Life



Activity

Unscramble the words in the following sentences:

Energy is the ability to do _____.

Energy can make things _____.

When you move, your _____ uses energy.

We get our _____ from the food we ______

Activity

I a na group, or by yo rself, list five activities you did today that required a lot of energy. Record the amount of time spent for each activity. Graph the results.

ACTIVITIES	TIME SPENT

GOING FURTHER

0000

Write a story about what your life would be like without energy. Would anything get accomplished? How would your daily life be changed? What difficulties would you encounter?

UG 435 Coalition DR 49 Attachment 6 Page 4 of 16

Fossil Fire Activity To complete the story, write each light blue letter in the box below that matches the light blue number. Millions of years ago, even before the dinosaurs, tiny plants and animals died and settled to the bottom of lakes and oceans. Eventually they were covered by sand and mud. Their bodies decomposed, and as a resolution of the earth's heat and pressure, the w r tu jed into 9 10 U cabulary decompose: to rot or decay fossil: the remains of an animal or plant that lived long ago **GOING FURTHER** Bury objects like a banana skin, piece of plastic, lettuce leaf, and so forth.

Check after five weeks to see which ones decomposed.

UG 435 Coalition DR 49 Attachment 6 Page 5 of 16

Trapped in Rock



Write the number of each orange word next to its definition below.

Traditional natural gas formed when tiny, dead plants and animals became buried. After millions of years of (1) pressure, heat, and (2) shifting, gas formed in (3) porous and (4) sedimentary rock. This rock was surrounded by other layers of rock that could not be (5) penetrated. The gas remains in these small pockets waiting to be discovere

moving or changing

- gone into or passed through
- sand, mud, and gravel that are deposited at the bottom of lakes and rivers form this material
- full of pores or tiny holes through which water and air may pass
 - force caused by one thing pushing against another thing

GOING FURTHER

Today, natural gas can be made from waste materials such as garden and lawn clippings, food scraps, and cow manure. This is known as renewable natural gas, or RNG. Do some internet research to learn how RNG is made.

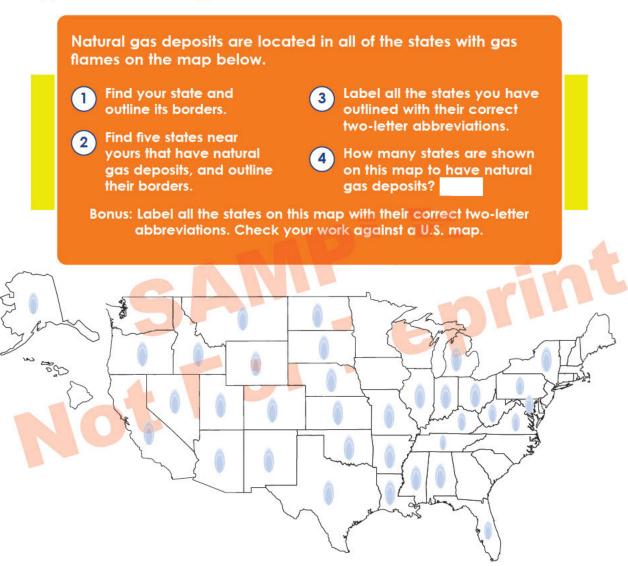


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UG 435 Coalition DR 49 Attachment 6 Page 6 of 16

Pump it Up

Scientists find where natural gas is located underground. Wells are drilled to bring the gas to the surface. The United States is the biggest producer of natural gas in the world, and it supplies most of the natural gas we use.



Gas Math

In 1821, the first commercial well was drilled in Fredonia, New York. It was 27 feet deep.

How many years ago was the first commercial well in the United States drilled?

How Many Digits?

Underground pipel nes bring natural gas to homes, schools, and businesses. There are over three million miles of natural gas pipeline in the United States.

How do you write the number three million using digits?

UG 435 Coalition DR 49 Attachment 6 Page 7 of 16

Natural Gas Can't Be Seen

When natural gas comes out of the ground it is colorless, odorless, and tasteless. A chemical odor that smells like sulfur or rotten eggs is added to the gas so we can smell it easily in case it leaks.

Natural gas is _____

A natural gas flame should be blue.

Activity

Cross out the letters that appear twice. (Do not cross out any letters that appear once or three times.) The letters that remain spell the missing word above.

Ζ	1	J	
V	I	G	Α
Ζ	0	R	
J	Α	В	С
R	E	Μ	0
C	S	С	L
Μ	N	W	19

SAFETY TIP

If your flame is large, yellow, and flickering, ask an adult to have the range checked by a qualified repair person.

Gas Pipeline Safery

Pipeline markers can save lives by providing important information in emergency situations. They provide the pipeline operator's name and emergency phone number.

Warning signs of a natural gas leak

Leaks from natural gas pipelines, although rare, can be a fire hazard. Be alert for any of the warning signs below, and learn what to do in case a natural gas leak occurs in your community.

- A smell of sulfur or rotten eggs
- A hissing, whistling, or roaring sound
- Dirt spraying or blowing into the air from a hole in the ground

• Grass or plants dead or dying for no apparent reason

Continuous bubbling in water



- Do not use electricity or fire. Even the tiniest spark from a phone, flashlight, electrical device, or match could ignite leaking gas.
- Go far away from the area immediately and do NOT go back until safety officials say it is safe.
- Ask a trusted adult to report the leak to 911 and your local natural gas utility.



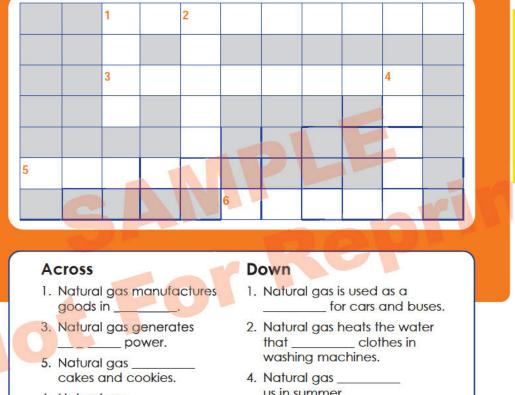
UG 435 Coalition DR 49 Attachment 6 Page 8 of 16

Natural Gas Power

We use natural gas in our homes, businesses, and schools, and for transportation.



Crossword Puzzle Activity



- 6. Natural gas_ offices in the winter.
- us in summer.

factories

fuel

Word List bakes cleans cools electric

heats

GOING FURTHER

Investigate how natural gas is used to generate electricity. Find out if any of the electricity provided by your local electric utility is generated from natural gas.

UG 435 Coalition DR 49 Attachment 6 Page 9 of 16

NVGs* Get Us There!



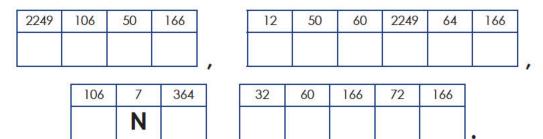
* NGVs are natural gas vehicles.

Activity

- 1. Find the answer to each problem.
- 2. Write the letter from the box under the number it goes with.
- 3. The first one is done for you.

How many days in a week?	7	= N
Divide 96 by 3		= B
Add 254 and 110		= D
Subtract 24 from 88		= K 🧃
Multiply 15 x 4		= U
Divide 48 by 4		= T
Add 114 and 52		= S
How many states in the U.S.?		= R
Subtract 101 from 207		= A
Multiply 24 x 3		= E
Add 925 and 1324		= C

Natural gas can be used to run...



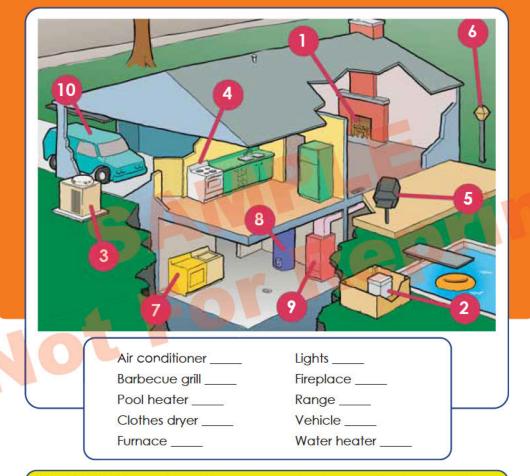
UG 435 Coalition DR 49 Attachment 6 Page 10 of 16

Home Sweet Home

Natural gas can be used in and around the home.

Activity

Write the number from the picture next to each use of natural gas.



SAFETY TIP: Make sure to keep items like paper towels and pot holders away from the gas range. Store all flammable liquids like aerosol in cans, paint thinner, and gasoline far away from natural gas appliances, as the vapors could be ignited by a pilot light or appliance flame.

GOING FURTHER

Interview family members and friends about what fuels they use in their homes and why they prefer them. Write your findings in your journal.

UG 435 Coalition DR 49 Attachment 6 Page 11 of 16

Natural Gas Can Heat and Cool

Activity

Who says what? Match the people's statements with their descriptions.

- A. Office building owner
- B. Pizza restaurant manager
- C. Hotel manager
- D. Bus rider
- E. Popcorn plant manager
- _ "We use natural gas here for cooking."
- "It is efficient for heating and cooling our offices and it saves us money."
 - "Our guests like the temperature and humidity controls in their rooms."
 - "It's a safe, efficient fuel to use in our plant."
 - "I commute to work using a natural gas vehicle."

GLS Cooking and Heating Safety

- When using a gas range, make the flame fit the pot. High flames are a fire hazard and waste energy.
- Natural gas space heaters must be properly vented or else have a switch to automatically shut them off if indoor oxygen levels get too low.
- Keep space heaters far away from flammable objects such as papers and curtains.



UG 435 Coalition DR 49 Attachment 6 Page 12 of 16 Lighter Than Air **Everything in the world** exists in one of three different states: solid, liquid, or gas. These are the three states of matter. Milk Matter in the gas state is lighter than air, so when Water natural gas is released it dissipates into the air. Eraser Helium Peneils Activity Chalk Put each word from the globe on the right into Nitrogen Oxygen its correct category below. Juice Liquids Solids es **Ar tivities** Fill a glass with cold water. Add one drop of food 1 coloring. Observe the way the color spreads through the water. This is similar to the way natural gas dissipates into the air. Blow up a balloon, tie it, and toss it into the air. Did it 2 float? Discuss what happened to the balloon and why.

GOING FURTHER

In an automobile accident, if the fuel line in a car breaks, why is it safer to have natural gas rather than gasoline as a fuel? Do some internet or library research to find out.

UG 435 Coalition DR 49 Attachment 6 Page 13 of 16

Natural Gas Conservation

Traditional natural gas is a nonrenewable energy source, which means that someday our supply of it will run out. That is why it is good to practice conserving it.

Activity

Each blank is a letter. To find the secret message, first complete the sentences. Then put the letters in the numbered spaces in the box below.

- Natural gas is used as a source of _____n ____n ____ y.
 Natural gas began forming ______ III _____ of vears ago. ______ 12 __26 _____ 27 _____ 15 _____ 8
- 4. Natural gas can be used as a fuel in h _____, schools, and businesses. 18 2 13 20
- 5. Natural gas can also be used as fuel for _____ portation.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28

0000

GOING FURTHER

- 1. List everything in your house that uses energy.
- 2. Read your gas meter at 7:00 a.m. and 7:00 p.m. (or another convenient time in the morning and evening) on two different days. Did your household use the same amount of gas on these days?
- 3. Work out a plan with your family for how you can save energy. For example, setting your thermostat at 68° will keep you warm and comfortable and save energy, too.

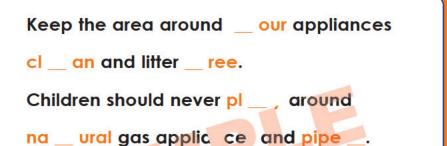
UG 435 Coalition DR 49 Attachment 6 Page 14 of 16

Safety First

It is important to know how to use natural gas safely and prevent hazards.

Activity

Fill in the missing letter of each incomplete word. Then write the letters in the boxes below.



Unscramble the letters you added to find the secret word.

Call 811 Before You Dig

If people dig into natural gas pipelines, the gas can leak out and cause a fire hazard. So if someone you know is planning a digging project, remind them to call the underground utility locator service at 811 several days before digging. This service makes sure underground gas pipelines and other utilities are clearly marked so people can dig a safe distance away.



Call before you dig.

GOING FURTHER

In a small group, or by yourself, come up with creative ways to get people to practice natural gas safety.

UG 435 Coalition DR 49 Attachment 6 Page 15 of 16

Smell, Leave, and Tell

Activity

Start with the letter "G" at the top of the circle and go clockwise, writing down every third letter in the space below.

If you smell gas ...

If you smell gas or notice any other gas leak warning signs in or around your home, tell an adult. If no adult is home, leave the house immediately and take everyone with you. Remember, don't use a light switch, candle, flashlight, TV or monitor, remote controller, radio, garage door opener, or even a phone, as a spark from any of these could ignite leaking gas.

0

Go to a safe location and ask a trusted adult to report the leak to 911 and your local natural gas utility. Do NOT go back to your home until safety officials say it is safe.



GOING FURTHER

Discuss why it would be hazardous to use candles, lights, or electrical devices if you suspect a natural gas leak.

Page 16 of 16 0 data Coalition DR 49 Attachment 6

Natural Gas Word Search

VtivityA

horizontally, vertically, and diagonally. Find the words in the list. They have been hidden

								No A Y					120
	B	Z	X	Ν	-3	1	В	1.	5	1	۸	Ν	I
om	A	K	В	0	M	0	1	В	1	С	Э	1	Э
АЯТ	ſ	M	T	T	1	S	S	Ε	1	В	0	D	0
LEFI SWI	Ь	0	d	L	I	٨	ç	В	Ε	N	1	D	0
ZED	S	۸	Ð		E	В	1	M	٦	7	Э	W	S
AR	A	-	N	1	N	A	В	-	В	1	ļ	A	Ð
OD	ອ	N	1	В	n		С	A	Н	Π	Ν	A	W
AN MA	٦	F	1	0	1	Ν	ອ	Ν	Ν	A	Э	1	С
AM	¥	1	¥	d	- L	Э	Э	Ν	L	1	S	В	A
LEA	В	Э	Э	S	S	W	Π	Э	I	В	1	Π	W
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HEY Ene	1	I	Ν	A	0	D	Э	W	Π	1	0	1	L
EOS	A	d	С	В	Н	Э	۸	A	Э	1	В	0	X
ENE	N	Ø	В	L	S	S	Э	1	В	0	1	0	С
313	_										10 C		

Answer Key

-	_	_					and the second	-	-			-
C	0	L	0	R	L	E	S	S	T	в	Q	N
X	0	B	L	E	A	V	E	F	R	C	P	A
T	F	0	L	h	М	E	D	0	A	N	I	T
B	E	G	K	U	F	Z	I	S	N	H	P	υ
M	U	L	B	I	E	U	M	S	S	E	E	R
A	R	S	L	T	N	E	E	I	P	A	L	A
C	L	E	A	N	N	G	N	L	0	т	I	L
M	A	N	U	F	A	C	т	U	R	I	N	G
G	A	I	L	B	E	R	A	N	т	N	E	A
S	М	E	L	L	W	T	R	Е	A	G	V	S
0	D	E	N	E	R	G	Y	I	т	P	0	P
0	D	0	R	L	E	S	S	L	I	I	W	J
E	L	Е	C	т	R	I	C)	W	0	R	K)	Α
I	N	v	I	S	I	В	L	E)	N	х	Z	В

JUICE, MILK, WATER; GASES: HELIUM, NITROGEN,

OXYGEN. LEAKING NATURAL GAS IS LESS LIKELY

VEHICLES, 4. HOMES, 5. TRANSPORTATION, SMART

PAGE 12 SOLIDS: CHALK, ERASER, PENCILS; LIQUIDS:

TO CATCH FIRE THAN GASOLINE

GAS USE MEANS CONSERVATION

PAGE 13 1. ENERGY, 2. MILLIONS, 3. NATURAL GAS

PAGE 14 Y, E, F, A, T, S, SAFETY

BACK

PAGE 15 GET RIGHT OUTSIDE QUICKLY

- PAGE 6 3,000,000 PAGE 7 **INVISIBLE**
 - 34, ANSWER CHANGES EACH YEAR,

Т 0 R

C Е

> Н E A Τ S

CARS, TRUCKS, AND BUSES

Τ R C 0

7, 32, 364, 64, 60, 12, 166, 50, 106, 72, 2249,

COOKING FOOD, HEATING HOMES & WATER,

E S

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1

TRANSPORTATION, MANUFACTURING

WORK, MOVE, BODY, ENERGY, EAT

F

U

Е L

L

K Е

PAGE 11 B, A, C, E, D

PAGE 2

PAGE 3

PAGE 8

BA

PAGE 9

A

2C

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A N

S

PAGE 10 3, 5, 2, 7, 9, 6, 1, 4, 10, 8

DRK

113

JVF **JISIBLE ONITA** 13 **TISS** ERGY CTRIC

COOKING

COLORLESS

BUS

BLUE

NOITATAO92NA

YAATNEMID FETY **SSET BOOKTESS ELINE ZAÐ JARUT** ANUFACTURING

- PAGE 5 2,5,4,3,1

PAGE 4 NATURAL GAS

Exhibit: Other Coalition/407/Ryan

Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 CUB DR 4

4. Please provide an electronic copy of all advertisements in 2020 and 2021 that were booked to regulated accounts.

Response:

Please see UG 435 CUB DR 4 Attachments 1-2 that contain electronic copies of all advertisements for 2020 and 2021, respectively, booked to regulated accounts. Due to the size of these files they are being submitted via a mailed thumb drive.

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 80

80. Please provide a copy of all advertisements, correspondence, educational materials or other documents sent to ratepayers in Eugene during the past three years, from the date of your response to this request.

Response:

NW Natural objects to DR 80 as it calls for communications for which NW Natural does not seek recovery in this case and such communications are therefore outside of the scope of this case. Notwithstanding that objection, NW Natural responds as follows:

Please refer to UG 435 CUB DR 4 for copies of all materials published for 2020 and 2021 for all customers, including customers in Eugene.

Any advocacy advertisement, correspondence, educational materials or other documents sent specifically to customers residing in Eugene were funded by NW Natural's shareholders. NW Natural is not seeking to recover the costs of these communications from customers.

UG 435 OPUC DR 274 Attachment 1 Total Cat A Budget 1 of 3

TOTAL CATEGORY A

Category A Channels		Total Budget	OR Test	Year
Salaries/Overhead	\$	725,000	\$	639,813
Bill inserts	\$	282,500	\$	249,306
Brochures/ Customer support Items	\$	125,000	\$	110,313
eNewsletter	\$	30,500	\$	26,916
Professional Services - Design & Writing	\$	100,000	\$	88,250
Website support/development	\$	30,000	\$	26,47
Postage	\$	85,000	\$	75,013
Media - Production	\$	200,000	\$	176,500
Media - IVR	\$	10,000	\$	8,82
Media - Telephone directory	\$	30,000	\$	26,47
Media - TV/Digital/Streaming	\$	475,000	\$	419,188
	Category A Totals \$	2,093,000	\$	1,847,07

CATEGORY A BUDGET SUMMARY

Expense Category		OR Test Year Budget	% of Total Budget
Salaries/Overhead	\$	639,813	35%
Professional Services (design, writing, editing, postage)	\$	366,238	20%
Communicaitons (TV, digital, streaming, print, email)	\$	841,023	46%
	Total \$	1,847,073	

UG 435 OPUC DR 274 Attachment 1 Total Cat B Budget 2 of 3

TOTAL CATEGORY B

Category B Channels		Total Budget	OR Test Year	
Salaries/Overhead	\$	274,000	\$	241,805
Bill inserts/Brochures	\$	75,000	\$	66,188
Professional Services - Design & Writing	\$	50,000	\$	44,125
Postage	\$	75,000	\$	66,188
Community Events	\$	50,000	\$	44,125
Public Safety Awareness Program & Materials	\$	375,000	\$	330,938
Media - production	\$	125,000	\$	110,313
Media - TV, digital, streaming	\$	200,000	\$	176,500
Category B Tota	als \$	1.224.000	\$	1.080.180
Category B Tota	als \$	1,224,000	\$	1,080,180
	als \$	1,224,000 OR Test Year Budget		1,080,180
TEGORY B BUDGET SUMMARY	als \$ 			
TEGORY B BUDGET SUMMARY Expense Category		OR Test Year Budget		f Total Budget
TEGORY B BUDGET SUMMARY Expense Category Salaries/Overhead	\$	OR Test Year Budget 241,805		f Total Budget

UG 435 OPUC DR 274 Attachment 1 Total Cat C Budget 3 of 3

TOTAL CATEGORY C

Category C Channels		Total Budget	OR Test year		
Salaries/Overhead	\$	100,000	\$	88,250	
Professional Services - Design & Writing	\$	150,000	\$	132,375	
Community events	\$	150,000	\$	132,37	
Media - Production	\$	80,000	\$	70,600	
Media - TV, digital, streaming	\$	200,000	\$	176,500	
Cat	egory C Totals \$	680,000	\$	600,10	

CATEGORY C BUDGET SUMMARY

Expense Category	OR Test Year Budget	% of Total Budget
Salaries/Overhead	\$ 88,250	15%
Professional Services (design, writing, editing, postage)	\$ 202,975	34%
Communicaitons (TV, digital, streaming, print, email, events)	\$ 308,875	51%
Total	\$ 600,100	

Exhibit: Lobbying Coalition/408/Ryan

POLICY AND EMPLOYMENT MANUAL



Coalition/408 Ryan/2

Core Values	
Core Purpose	
HANDBOOK'S PURPOSE	
ENERAL AND ADMINISTRATIVE POLICIES	
Anti-Harassment Policies	
Attendance and Punctuality	
Bereavement Leave	
Bullying Policies	
Cell Phone While Driving Policy	
Code of Personal Conduct	
CONFLICTS OF INTEREST	
CONTINUATION OF HEALTH BENEFITS COBRA	
CREDIT CARD POLICY AND PROCEDURES	
Data Security Breach Policy	
Direct Deposit	
DISABILITY ACCOMMODATION	
Dress Code	
Email and Social Media	
EMPLOYMENT CLASSIFICATION	
EMPLOYMENT REFERENCES	
EQUAL EMPLOYMENT OPPORTUNITY (EEO) POLICY	
Housekeeping	
JURY DUTY	
Meal and Rest Periods	
OPEN DOOR COMMUNICATION	
Pay Days	
Personal Hygiene	
Performance Reviews	
PROBATIONARY PERIOD	
PROBLEM SOLVING PROCEDURE	
Religious Accommodation and Leave	
Safety and Health Policy	
SMOKE-FREE ENVIRONMENT POLICY	
STANDARDS FOR COMMUNICATIONS	
SUBSTANCE ABUSE DETECTION AND PREVENTION POLICY	
WHISTLEBLOWERS POLICY	
Workplace Violence Prevention	1
OMPENSATION	1
Flexible Spending Accounts (FSA)	1
401(k) Profit sharing Plan	
Incentives	
SALARY	
APLOYEE BENEFITS	
Educational Assistance Policy	
HEALTH BENEFITS	
LIFE INSURANCE	
Long-Term Disability Insurance	
Paid Holidays	
Personal Days	
Paid Vacation	
Sick Leave	
SHORE LET VERY SALARY CONTINUATION	

PROGRESSIVE DISCIPLINE AND TERMINATION	
Exit Interview	
Final Paycheck	
Progressive Discipline Policy	
Return of Association Property	
Voluntary Employment Termination	
APPENDICES	
Acknowledgment Employee Handbook Receipt	
NWGA Strategic Plan	
Substance Abuse Detection and Prevention Policy	
Credit Card Policy and Procedures Employee Acknowledgement	
Incentive Compensation Policy	41
Educational Assistance Policy	
Employment Forms	
Emergency Contact Form	

Welcome, Core Values and Purpose

Welcome to the Northwest Gas Association (NWGA) – we are glad to have you on our team. At NWGA, we believe that our employees are our most valuable assets. We hope that you will become a productive and successful member of the NWGA team.

Core Values

- **Integrity:** We are trustworthy and a credible source of information. We take responsible balanced positions and are open and willing to acknowledge alternative viewpoints.
- **Responsive:** We are timely and responsive to our members and stakeholders in an evolving context. We are proactive, while staying within the framework directed by our members.
- **Relational:** We value strong relationships. Facilitating networking and creating constructive coalitions are core to what we do. We put our relationships to work on behalf of the industry.
- **Stewardship:** We are judicious with and leverage the time, talent and resources entrusted to us by our members, in order to deliver maximum value for their sustained support of the NWGA. We leverage the work of other organizations.

Core Purpose

Advocate for the role of natural gas on behalf of the region's energy, economic and environmental needs.

The core values and purpose were adopted by the NWGA Board in November 2017. The current year's Strategic Plan can be found in the appendices.

Handbook's Purpose

The NWGA has established the following set of policies and practices for the mutual understanding between NWGA and employees. This employee handbook describes, in summary form, the personnel policies and procedures that govern the employment relationship between NWGA and its employees. NWGA reserves the right to amend, change or terminate any of these programs with notice to all employees. You may receive updated information concerning changes in policy from time to time, and those updates should be kept with your copy of the handbook. The handbook with the most current date supersedes all previous policies handbooks.

This handbook does not create a contract of employment between NWGA and its employees. All employment at NWGA is "at-will." This means that either you or NWGA may terminate this relationship at any time, for any reason, with or without cause or notice. Only the executive director or the Board of Directors (relating to the executive director) has the authority to enter into any agreement concerning the terms of employment that changes the "at-will" relationship or deviates from the provisions in this handbook, unless the change or deviation is in writing and signed by the executive director.

General and Administrative Policies

Anti-Harassment Policies

In providing a productive working environment, NWGA believes that its employees should be able to enjoy a workplace free from all forms of discrimination, including harassment based on race, color, religion, gender, national origin, age, disability, sexual orientation and any other status protected by law.

It is NWGA's policy to provide an environment free from harassment. Harassment includes verbal or physical conduct that defames, shows hostility towards another employee or is intended to create an intimidating, hostile or offensive working environment, and/or to adversely affect another's work performance or opportunities because of inclusion in any legally protected categories.

An employee who believes harassment has occurred should report the conduct immediately to the Executive Director, or to any NWGA officer.

A thorough and impartial investigation of all complaints will be conducted in a timely manner. Confidentiality will be maintained during the investigation to the extent possible without jeopardizing the thoroughness of the investigation. If the investigation concludes that an employee has harassed another employee in violation of this policy, the offending employee will be subject to disciplinary action up to and including termination. Retaliation against the individual reporting the harassment is expressly prohibited.

Attendance and Punctuality

You were hired to perform an important function at NWGA. As with any group effort, it takes cooperation and commitment from everyone to operate effectively. Therefore, your attendance and punctuality are very important. Good attendance is something that is expected from all employees.

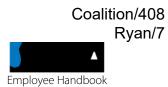
Excessive absenteeism and tardiness may be grounds for discipline up to and including termination of employment. Each situation of excessive absenteeism or tardiness will be evaluated on a case-by-case basis by the executive director.

Employees also must inform their supervisor of the expected duration of any absence. Absent extenuating circumstances, an employee must call in advance of his or her regular starting time on any day on which the employee is scheduled to work and will not report to work. Absences over 3 days may require documentation from the treating physician.

Bereavement Leave

Bereavement leave will be granted to full-time employees in the event of absence necessitated by the death of a family member, the employee will be granted three days off work with pay. Personal days or vacation days may be used if additional time off is needed. Requests for bereavement leave should be made as quick as reasonably possible to the executive director. If additional bereavement time is needed, employees are to schedule a meeting with the executive director. Bullying Policies

NWGA is dedicated to promoting a positive working environment free of physical or verbal harassment, "bullying", or discriminatory conduct of any kind.



Bullying Policies

NWGA is dedicated to promoting a positive working environment free of physical or verbal harassment, "bullying", or discriminatory conduct of any kind.

Specifically, NWGA prohibits employees from "bullying" one another, or engaging in conduct that is disrespectful or creates a hostile work environment for another employee. For purposes of this policy, "bullying" refers to repeated, unreasonable actions of individuals (or a group) directed towards an employee (or a group of employees), which is intended to intimidate and creates a risk to the health and safety of the employee(s).

Examples of bullying includes:

- Being treated differently than the rest of your work group;
- Being sworn at;
- Exclusion or social isolation;
- Being shouted at or being humiliated; and
- Being the target of practical jokes.

Every association employee, regardless of title or job held, is responsible for creating and ensuring an atmosphere free of bullying, discrimination and harassment. Further, all employees are responsible for respecting the rights of their co-workers and strictly adhering to the letter and spirit of this policy. All employees are encouraged to discuss this policy with the Executive Director or any officer of the Association.

Cell Phone While Driving Policy

NWGA prohibits employee use of cell phones for business purposes while driving; unless using a hands-free or similar device. This prohibition includes receiving or placing calls, text messaging, surfing the internet, receiving or responding to emails, checking for phone messages or any our purpose related to your employment.

Oregon law also prohibits the use of hand-held cell phones while driving, even if the driving is for work-related reasons. This policy is meant to ensure the safe operation of private vehicles and/or rental cars while employee is on work time. It applies to employee-owned cell phones and phones provided by NWGA. NWGA will not be responsible for any citations received. Citations will be the sole responsibility of the employee.

Code of Personal Conduct

NWGA respects the privacy interests of its employees and recognizes their right to conduct their personal lives free from interference from the association. Nonetheless, employees should keep in mind that, even while off-duty, they represent NWGA to the public and should strive to preserve its reputation. In addition, certain types of off-duty conduct may reflect poorly upon an employee's character and judgment and thereby influence their standing as an NWGA employee.

Therefore, employees who engage in unprofessional or criminal conduct or other serious misconduct off-duty may be subject to disciplinary action by NWGA, including termination of employment, if such conduct is determined by management to be harmful to the NWGA image, inconsistent with expectations of our employees or otherwise adversely affects our legitimate business interests.

Conflicts of Interest

NWGA requires that employees do not compromise the Association, its customers, partners or suppliers for personal gain. Employees are required to disclose all conflicts of interest to the executive director. Failure to do so may result in disciplinary action, up to and including termination.



Continuation of Health Benefits COBRA

Under the federal Consolidated Omnibus Budget Reconciliation Act (COBRA), a qualified employee who employment is terminated (for reasons other than gross misconduct on the employee's part) or who loses health and dental coverage due to a reduction in work hours may temporarily continue group health and dental coverage for him/herself, his/her spouse, and any covered dependent children at their own expense. COBRA eligibility normally extends for a period of eighteen (18) months from the qualifying date. More information about COBRA will be made available upon request.

Credit Card Policy and Procedures

After the probationary period, NWGA employees will receive a corporate credit card to expedite purchases of supplies, travel, and non-travel, business-related expenses. Without exception, NWGA does not allow cash advances on the Association's card. Employees will sign and return an acknowledgment of receiving credit card and agreeing to comply with this policy and procedure. Form can be found in appendices.

All purchases must be business related. No personal use of the Association's credit card is allowed. It will be the responsibility of the employee to repay any personal charges inadvertently made on a company credit card within 30 days.

Employees will complete a credit card reconciliation to be submitted with the original receipts and credit card statement monthly. Reconciliation must provide the date of purchase, account number, description (purpose the purchase), and amount of purchase. Employees will submit expense reports within three business days of receiving a monthly credit card statement. An employee may request an alternative completion date if unable to meet the deadline due to extenuating circumstances.

The Executive Director will review and approve monthly employee expense reports. The Executive Director's expenses will be reviewed and approved by an officer of the Association (typically, the NWGA Secretary-Treasurer).

Data Security Breach Policy

NWGA carefully safeguards sensitive data contained electronically in its information technology systems. "Sensitive data" includes but is not limited to information containing (a) the social security, driver's license, passport or account numbers of our employees, contractors or customers; (b) an individual's medical history, physical or mental condition, diagnosis or treatment; and (c) an email user name or email addressed accompanied by a password/security question that would permit access to an on-line account.

Employees with access to sensitive data must only view and use it for legitimate business reasons related to NWGA operations. NWGA employees must not be given (or given access to) sensitive data unless there is a specific and legitimate need for that person to have that information. If disclosure/access is necessary, there should be disclosure of/access to only the smallest amount of sensitive data necessary to accomplish the task. Sensitive data should not be disclosed to persons outside of NWGA without specific permission from the employee or the Executive Director in writing.

Any employee who learns (or suspects) that sensitive data might have been subject to unauthorized access or disclosed in violation of this policy must immediately notify the Executive Director. Any such reports will be promptly investigated, and corrective measures implemented as necessary.

Violation of this policy will result in discipline up to and including discharge.

Direct Deposit

NWGA provides employees with the direct deposit option. The business and operations manager will provide forms to new employees.



Disability Accommodation

Company is committed to complying fully with the Americans with Disabilities Act (ADA) and applicable state disability discrimination laws. We are also committed to ensuring equal opportunity in employment for qualified persons with disabilities.

Dress Code

We pride ourselves on hiring and retaining exceptional staff in all areas of our business. As such, endless details regarding personal hygiene and wardrobe are considered unnecessary. However, we interact with a wide variety of people of all ages, backgrounds, and professions. Therefore, it is essential that NWGA employees respect and dress appropriately for each situation and meeting.

Dress should be in accordance with a professional image and never disruptive or offensive to other employees or visitors. Employees who report to work inappropriately dressed may be sent home to change. Keep in mind that clothing with inappropriate content may violate the NWGA's anti-harassment policy.

Email and Social Media

NWGA provides e-mail and internet access to its employees to assist and facilitate business-related communications and activities. Employees should use a personal email address for personal purposes. Inappropriate use or abuse of email and internet privileges may result in disciplinary action, up to and including employment termination and/or legal action. This policy also relates to the use of social media, which includes social networking websites such as Facebook and LinkedIn, blogs and Twitter, online multi-user virtual worlds (which may include chat and instant messaging) and video-sharing websites such as YouTube.

NWGA prohibits the disclosure of any of its confidential, trade secret or proprietary information on any social media sites. Employees should not mention NWGA in any postings, unless for approved business purposes. Employees should not post or blog during business hours, unless for approved business purposes. Employees are asked to use good judgment regarding posts, blogs and remarks as these postings are easily discovered. NWGA has an anti-harassment policy and reminds employees not to use email, the internet or social media for any purposes that would violate said policy.

Employment Classification

NWGA classifies employees as follows:

1. **Regular Full-time:** are employees that have completed 90 days of consecutive employment in an established position requiring at least 40 hours per week. Only full-time employees are eligible to participate in the NWGA's benefit programs.

2. **Regular Part-time:** Employment requiring less than 40 hours of work per week. Normally a part-time schedule, such as portions of days or weeks, will be established. Occasional workweeks of over 40 hours will not constitute a change in statute from part-time to full-time. Part-time employees are not eligible to participate in NWGA's benefit programs.

3. **Temporary:** Employment in a job established for a specific purpose, for a specific period, or for the duration of a specific project or group of assignments. Participation in benefits programs for temporary employees is limited to eligibility for workers' compensation. Temporary employment can either be full-time or part-time.



Additionally, all employees are defined as either:

1. **Exempt:** Those employees who are employed in an executive, administrative, or professional capacity, or other legally exempted categories of employees, and who are not covered by the federal or state minimum wage and maximum hours laws; or

2. **Non-Exempt**: Those employees who are not employed in an executive, administrative, or professional capacity, or other legally exempted categories of employees, and whom the federal or state minimum wage and maximum hours law cover.

All employees, regardless of employment classification, are subject to all NWGA rules and procedures.

Employment References

Due to confidentiality considerations, NWGA does not provide employment references for former employees; only dates of employment and positions held will be provided.

Equal Employment Opportunity (EEO) Policy

NWGA provides equal employment opportunity to all qualified employees and applicants without unlawful regard to race, color, religion, gender, sexual orientation, national origin, age, disability, genetic information, marital status, or any other status protected by applicable federal, state, or local law. This EEO policy applies to all aspects of the employment relationship – including but not limited to, recruitment, hiring, compensation, promotion, demotion, transfer, disciplinary action, layoff, recall, and termination of employment.

All employees are expected to comply with Company's EEO policy. Any employee's failure to do so may result in discipline, up to and including, termination.

Housekeeping

Maintaining an orderly, clean and professional work environment is a team effort. All employees are expected to keep their work areas clean and organized. Employees are expected to work together to keep common areas such as the conference table and kitchen area clean, orderly and sanitary, to clean up after meals and to dispose of trash properly.

Jury Duty

NWGA will grant employees time off for mandatory jury duty and/or witness duty. A copy of the court notice must be submitted to the employee's manager to verify the need for such leave. The employee will receive his or her normal salary or wage for each day of jury duty for the length of jury service.

The employee is expected to report for work when doing so does not conflict with court obligations, and when there is four or more hours left in a work day. It is the employee's responsibility to the executive director informed about the amount of time required for jury duty.

Meal and Rest Periods

Oregon State Law requires non-exempt employees to take at least a 30-minute unpaid meal period when the work period is six hours or greater.

State Law also requires non-exempt employees to take a rest period (paid be employer) of not less than 10 minutes for every four hours worked in one period. This time must be taken in addition to and separately from required meal periods.



Meal and rest periods are mandatory for non-exempt employees and may not be taken together as one break. Meal and rest periods may not be "skipped" in lieu of leaving early. An employee who fails to abide by these policies and laws may be subjected to discipline, up to and including termination. Mandatory meal and rest periods do not apply to exempt employees as defined in Oregon State Law.

Open Door Communication

NWGA believes that issues are best addressed through informal and open communication. Everyone is encouraged to talk over their work-related concerns informally with each other and/or the executive director as soon as possible after an event that causes concern.

NWGA is also interested in employees' constructive ideas and suggestions for improving our business. Employees are encouraged to express their ideas and suggestions.

Pay Days

Pay days are mid-month and last day of each month. If a pay day falls on a holiday or weekend, payday will be moved to the prior business day.

Personal Hygiene

All employees shall maintain a personal cleanliness of clothing and body, which presents a professional and nonoffensive appearance

Performance Reviews

All NWGA employees will receive periodic performance reviews. Your review will be conducted by the executive director who will discuss it with you. Your first performance evaluation will be after completing 90 days of employment. After that review, performance evaluations will be conducted at least once a year. The Executive Director will receive an annual performance review led by the Executive Committee to coincide with the NWGA Annual Meeting.

Your performance evaluation may include factors such as the quality and quantity of your work, your attendance record, and your knowledge of the job, your initiative, your work attitude, and your attitude toward others. The performance evaluation is designed to help you to become aware of your progress, areas of needed improvement, and objectives or goals for future work performance. Positive performance evaluations do not guarantee increases in base compensation, incentives or promotions.

Probationary Period

New employees are required to complete three months (90 days) probationary period. This time is to give you and NWGA an opportunity to evaluate your interest in the job and ability to perform the work required. An orientation program will be conducted during this time to give you a clear understanding of what is expected. Also, during this time, your supervisor will closely monitor your performance. After successful completion of the probationary period, eligible employees receive additional benefits described in the benefits section of this handbook.

If at any time your work is unsatisfactory, or you don't appear to be suited to the position, your status will be reviewed with you by the executive director. Upon successful completion of the introductory period, NWGA will review your performance. If NWGA finds your performance satisfactory, your status will be changed to that of a regular employee and, and you will be advised of any improvements expected from you.

New employees are not guaranteed employment after the three month (90 day) probationary period; both you and the NWGA may terminate the employment relationship during the introductory period for any or no reason. Further, completion of the introductory period or continuation of employment after the introductory period does not entitle you to remain employed by NWGA for any definite period. Both you and NWGA are free to terminate the employment relationship, at any time, with or without notice and for any reason not prohibited by law.

Problem Solving Procedure

NWGA is concerned with any situation affecting the employment relationship and is committed to correcting any condition or situation that may cause unfairness or misunderstanding. It is inevitable that problems and misunderstandings may occur. Therefore, NWGA has provided an orderly manner for an employee to voice an opinion or discuss a problem with management without prejudice or fear of retaliation.

If an employee has a problem or complaint, the employee should first try to solve it between parties involved. If employee is unable to resolve problem or complaint, they are to discuss it with the executive director. If the problem is not satisfactorily resolved or the problem is with the executive director, the employee has the right to discuss it with any member of the executive committee as defined in the Association's bylaws. The executive committee will conduct its own investigation of the situation and correct unlawful or unethical activity.

Not all complaints can be resolved to everyone's satisfaction. However, in each case, the reason for the decision will be clearly explained to the parties involved.

No one may criticize you, penalize you or treat you differently in any way for using this procedure.

Religious Accommodation and Leave

The NWGA respects the religious beliefs and practices of all employees. The NWGA will make, upon request, an accommodation for such observances when a reasonable accommodation is available that does not create an undue hardship on the Association's business. Employees may use vacation or unpaid time for religious holy days or to participate in a religious observance or practice.

Safety and Health Policy

Safety is everybody's business. Every employee is responsible for his or her own safety as well as for others in the workplace. Safety must be a primary concern in every aspect of planning and performing all NWGA activities. We want to protect our employees against preventable injury or illness in the workplace to the greatest extent possible.

All injuries (*no matter how slight*) must be reported immediately to the executive director. NWGA will not discriminate or retaliate against any employee for reporting a workplace injury. Below are some general safety rules.

- Avoid overloading electrical outlets with too many appliances or machines.
- Use flammable items, such as cleaning fluids, with caution.
- Ask for assistance when lifting heavy objects or moving heavy furniture.
- Smoke only in designated smoking areas.
- Keep cabinet doors and file and desk drawers closed when not in use.

Smoke-Free Environment Policy

The building in which NWGA Is located is tobacco-free. Smoking during work hours is prohibited. If you wish to smoke during your lunch break or other breaks, you must do so outside in the designated smoking areas. Smoking



is not allowed near the building entrances; Oregon law prohibits smoking within 10 feet of building entrances and other openings, including second-story windows.

Standards for Communications

Employees should have no expectation of privacy in any e-mail that they create, send, or receive or for internet usage using equipment and accounts provided by the NWGA for business purposes. NWGA reserves the right to monitor, review, and disclose all employee e-mail and internet usage.

Communications via any electronic media may not be used in any manner that would be discriminatory, harassing or obscene, or for any other purpose which is illegal, against NWGA's policy or not in the best interest of the Association. Communications made using the Association 's electronic equipment, facilities or services should be professional and respectful and should not contain:

- Vulgar, offensive or harassing language;
- Sexually explicit images, cartoons, jokes or messages;
- Indecent remarks, proposals or materials;
- Copyrighted materials, which the Association is not authorized to use;
- Any other activity that could adversely affect the NWGA.

Information and Communication Inspection and Monitoring

All information and communications in any format, stored by any means on the NWGA's electronic equipment, facilities or services are subject to inspection at any time without notice. Personal passwords may be used for purposes of security, but the use of a personal password does not affect the Association's ownership of the electronic information or the Association's right to inspect such information. The NWGA reserves the right to access and review electronic files, messages, email, voicemail and other such material to monitor the use of all the Association's electronic equipment, facilities and services, including all communications and internet usage and resources visited. Passwords are required to be submitted at request of NWGA and if it becomes necessary to do so for any reason.

Inappropriate Websites

The NWGA's electronic equipment, facilities or services must not be used to visit Internet sites that contain obscene, hateful or other objectionable materials.

Violation of Communications Standards

Employees who violate this policy, or otherwise misuse the electronic equipment, facilities or services, or who engage in defamation, copyright or trademark infringement, misappropriation of trade secrets, discrimination, harassment or related actions will be subject to disciplinary action up to and including immediate termination.

Substance Abuse Detection and Prevention Policy -Adopted July 2002.

The full policy can be found in the appendices and below is a summary of the policy. Review the full policy and return the signed agreement and return to the operations and business manager.

NWGA is committed to providing a safe and productive work environment. We also expect employee to report to work each day fit to perform their jobs. To meet these objectives, as well as our obligations under applicable federal and state laws, we must take a firm and positive stand to ensure a drug-free work environment for the benefit of our employees and members.



Whistleblowers Policy

It is the intent of Association that the organization and each of its employees adhere to all laws and regulations that apply to the organization. It is further contrary to the Association's values to retaliate against any person who in good faith reports information about actual or suspected unethical or unlawful conduct including but not limited to financial dealings, health, safety, welfare or environmental protections.

The cooperation of all employees is necessary to achieve compliance with applicable laws and regulations. This policy is intended to encourage and enable employees and others to raise concerns internally so that the Association can address and correct unlawful or unethical conduct and actions.

Association employees who believe that some policy, practice, or activity of the Association or one of its employees is in violation of state or federal law or of Association's ethical standards are strongly encouraged to bring the information they have to the executive director so that the Association can investigate the situation and correct any unlawful or unethical activity. The Association will consider all reports, including anonymous reports, but encourages employees to come forward so that it is able to conduct a full investigation. If the issue in question involves the Executive Director, an employee may contact any member of the Association's Executive Committee.

The Association will not retaliate against any employee for making a good faith protest or report or complaint about any unlawful or unethical conduct.

Workplace Violence Prevention

NWGA has adopted a "zero tolerance" policy regarding violence in the workplace. NWGA will not, under any circumstances, tolerate workplace violence, threats, harassment or intimidation. NWGA will assume that any threat by an employee to harm someone else was serious and intended.

An employee should immediately report any acts of violence observed on NWGA property or any threats to commit harm that they hear at work. All such reports should be made to the Executive Director or any NWGA Officer as defined in the NWGA bylaws (i.e. President, Vice President, Secretary-Treasurer).

NWGA encourages employees to seek assistance in addressing personal issues that could result in inappropriate workplace behavior, including violence. Any employee, who believes that he or she needs assistance in handling anger, or dealing with violent tendencies, should contact the executive director for the appropriate referral. All requests for assistance will be treated confidentially.

Compensation

Flexible Spending Accounts (FSA)¹

NWGA maintains an FSA plan allowing employee to contribute, on a pre-tax basis, up to \$2,650 per year to an account in your name, which is then reimbursed to you as you incur and pay for qualified health care expenses. NWGA has a dependent care account with can be used to pay for child care, qualified babysitters and custodial or elder care on a pre-tax basis with a maximum personal contribution of \$5,000 per year.

401(k) Profit sharing Plan

The Northwest Gas Association sponsors a 401 (k)-profit sharing for all eligible employees. Under the plan, employees may elect to make contributions to the plan through salary deferral. The terms of the plan and eligibility requirements are set out in the written plan document and summary plan description issued to employees. NWGA contributes 8% of an employee's annual salary, regardless of the employee's personal contribution.

Incentives – Adopted April 2016, Amended June 2021.

NWGA recognizes and rewards performance by its employees through an incentive compensation plan (ICP). Employees are eligible to receive an annual incentive for meeting or exceeding expectations. Full policy is in the appendices.

Salary

Salaries may be adjusted by the Board of Directors at the annual meeting. These adjustments take effect in January with the implementation of that year's budget, unless otherwise directed by the Board of Directors.

¹ IRS rules should be consulted year to year for contribution amounts; those stated above rules apply to 2019.

Employee Benefits

Educational Assistance Policy

The Northwest Gas Association (NWGA) encourages and supports employee development and continuous learning. To that end, educational assistance is available to permanent full-time employees who have completed 12 months of employment at the NWGA.

This program applies to courses, seminars or other learning opportunities that lead to a recognized certificate, diploma or degree program. Conferences, workshops, or individual skills training courses directly related to an employee's current job responsibilities are separately administered through, and require prior approval of, the Executive Director. Full policy in the appendices.

Health Benefits

NWGA maintains medical, dental and vision insurance benefits program. New employees are eligible for coverage the first of the month in which hired. Detailed information describing these benefits is available upon request. The NWGA pays 100% of the health insurance premium for employees and eligible dependents. The NWGA may periodically change plans and associated benefits.

Opt-Out: For employees that choose to forego health coverage will not be provided a cash pay-out.

<u>Termination</u>: Benefits under our medical and dental plans cease on the date your employment with the Association terminates. However, the Consolidated Omnibus Budget Reconciliation Act (COBRA) gives separated employees and their qualified beneficiaries the opportunity to continue health coverage at their own expense under the company's health plan for a specified period. Details of COBRA coverage and how to apply for it will be provided by NWGA at the time of separation.

Life Insurance²

After employee's probationary period, the Association will provide full-time, regular employees with life insurances at no cost to the employee. Life insurance will be obtained with a benefit of three times the employee's annual salary up to a maximum of \$300,000.

Long-Term Disability Insurance²

After employees' probationary period, long-term disability insurance will be obtained which pays a monthly benefit 60% of salary after a 90-day elimination period. Insurance will be obtained through the Association's choice of provider at no cost to the employee. If employee feels inclined, they may purchase additional insurance at their own cost; which will be deducted from employee's salary. Employee may be required to provide proof of insurability.

² The following benefits were reviewed by the Executive Committee and acknowledged by the Board of Directors in September 2018. All employee benefits will be reviewed by the Executive Committee with recommendations of changes submitted to the Board of Directors for consideration at least every three years.

The NWGA provides a sick leave benefit and a short-term salary continuation benefit as described below. These benefits work together to provide income protection in case of illness, injury or disability through the Long-Term Disability elimination period for full-time employees of the Association.

Paid Holidays

The following holidays shall be recognized and observed as paid holidays each year: New Year's Day, Martin Luther King Jr. Day, President's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving and day after, Christmas Eve, Christmas and employee birthday. If a holiday falls on a Saturday, it will be observed on Friday. If it falls on Sunday, it will be observed on Monday.

Personal Days

After one year of employment, employees are given three (3) days leave with pay annually for personal, religious holidays, etc. These days will be noted on the employee's time sheet. Days not taken will not be carried forward into the subsequent year, have no cash value and will not be paid out upon termination.

Paid Vacation

NWGA to provides each full-time employee with paid vacation time. The amount of vacation to which an employee becomes entitled is determined by the employee's length of service. Employees are strongly encouraged to use vacation in the year accrued. For full-time employees, vacation accrues as follows:

0 – 1 years	Pro-rated – after 90-day probationary period.
2 – 5 years	15 days
6 – 10 years	20 days
11 – 15 years	25 days
16 – 20 years	30 days
21+ years	35 days

Vacation time is considered earned with the beginning of the calendar year. Earned vacation must be taken and employees are not entitled to pay in lieu of taking time off for vacation.

Employees may only carry forward <u>10</u> unused vacation days into the next year. It is strongly encouraged that vacation be used in the year in which it is earned, and unused vacation earned more than this amount at yearend will be forfeited.

The maximum amount of vacation leave paid to a terminating employee will be the amount of leave carried forward from the subsequent year (not to exceed 10 days), plus the amount of unused vacation of the terminating year.

Sick Leave²

After completing the 90-day probationary employment period, full-time employees will be provided 10 days of paid sick leave each calendar year. Sick leave is to be used for the occasional illness and/or health-related care of the employee or an immediate family member for reasons such as:

- For an employee's personal mental or physical illness.
- To care for a family member with an illness, injury or care for a child.
- For reasons related to domestic violence, harassment, and sexual assault or stalking.

The employee must notify the Executive Director (ED) of the need for sick leave as soon as practical and provide an estimate of the duration of leave required. For planned leave such as appointments or procedures, the employee will strive to avoid scheduling sick leave during peak work hours, when work is time-sensitive or mandatory meetings are scheduled. Sick leave may be used in half day increments. If an employee uses more than three consecutive workdays of leave or if NWGA suspects abuse, the Association may request reasonable documentation verifying the employee's need for sick leave.



Short-Term Salary Continuation²

After one year of continuous employment, an employee may access up to 60 paid days (84 calendar days) of shortterm salary continuation per the calendar year in the event they are unable to work due to prolonged illness, injury or disability (*including pregnancy*). Short term salary continuation leave does not accrue from year to year, has no cash value and is not paid out upon separation of employment.

Paid short term salary continuation leave may accessed after an employee has used all available temporary sick leave. Short term salary continuation leave will typically be used in five paid day increments. Shorter increments of short-term salary continuation leave may be accessed with the executive director's prior approval.

An employee will request paid short-term salary continuation leave by consulting with the executive director as soon as reasonably possible. Short-term salary continuation leave requires acceptable documentation of one's inability to work including:

- proof that the employee is under the regular care of a physician;
- physician's attestation that the employee is unable to perform his/her duties;
- physician's estimate of when the employee might be expected to return to work;
- restrictions/limitations the employee may have once cleared to return to work.

Paid short-term salary continuation leave is not available for a disability that originates prior to one full year of employment or is caused by or results from commission of a felony for which the employee has been charged under state or federal law.



Progressive Discipline and Termination

Exit Interview

At the time of termination, we will request an exit interview. You have the right to decline the interview should you so desire. The purpose of the exit interview is to gather details of your separation, provide information regarding your insurance coverage options and to explain other information relative to your employment separation.

Final Paycheck

Employees who voluntarily or are involuntarily terminated will be given their final paycheck via direct deposit within three days of separation.

Progressive Discipline Policy

Employees are always expected to perform to the best of their abilities. There may be occasions, however, where employees perform at an unsatisfactory level, violate a policy or commit an act that is inappropriate.

When performance or conduct does not meet Association standards, NWGA will endeavor to provide the employee a reasonable opportunity to correct the deficiency. Discipline may take the form of verbal or written warnings, a written work plan, probation, suspension or other disciplinary action, including termination.

Notwithstanding this policy, the NWGA is an at-will employer. That means your employment may be terminated at will by you or by the NWGA at any time with or without cause. The NWGA further reserves the right to proceed directly to a written warning or termination for misconduct or performance deficiency, without any prior disciplinary steps, when the Association deems such action is appropriate.

Return of Association Property

Upon termination of employment, an employee must immediately return all Association property including all files, documents, equipment, keys, access cards, software or other property belonging to the company that are in the employee's possession, custody or control, and provide a list with all passwords required to conduct association business.

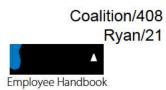
Voluntary Employment Termination

If you choose to terminate your employment, we ask that you provide us with a minimum notice of two weeks as a courtesy and to facilitate a smooth transition. Unless otherwise determined, it is our expectation that you will work the final two weeks of your employment; that you will not use vacation, personal or sick leave in lieu of completing your final two weeks of employment with the Association. This request in no way alters the employees at will employment relationship with the Association.

If your decision to terminate employment with the Association is based on a situation that could be corrected, the employee is encouraged to discuss it the executive director, or an executive committee member before making a final decision.



APPENDICES



Acknowledgment Employee Handbook Receipt

NWGA Employee Handbook

I acknowledge that I have received and will read a copy of the Association Employee handbook. I also understand that a copy of the NWGA Employee Handbook is available to me at any time to review.

I understand that the NWGA Employee Handbook is only a set of policies and practices for mutual understanding between NWGA and employees. This employee handbook describes, in summary, form, the personnel policies and procedures that govern the employment relationship between NWGA and its employees.

I acknowledge this does not create a contract of employment between NWGA and its employees. All employment at NWGA is "at-will." This means that I may, or NWGA may terminate this relationship at any time, for any reason, with or without cause or notice.

I understand that NWGA complies with all applicable laws regarding equal employment opportunity and provides a workplace free from unlawful harassment and discrimination. I will bring any questions or concerns regarding equal employment opportunities, discrimination, retaliation, or harassment to the NWGA executive director or executive committee.

During my employment with NWGA, I understand that it is my responsibility to remain informed about the policies as revisions, updates, and new policies.

I have read this acknowledgment carefully before signing.

Employee Signature

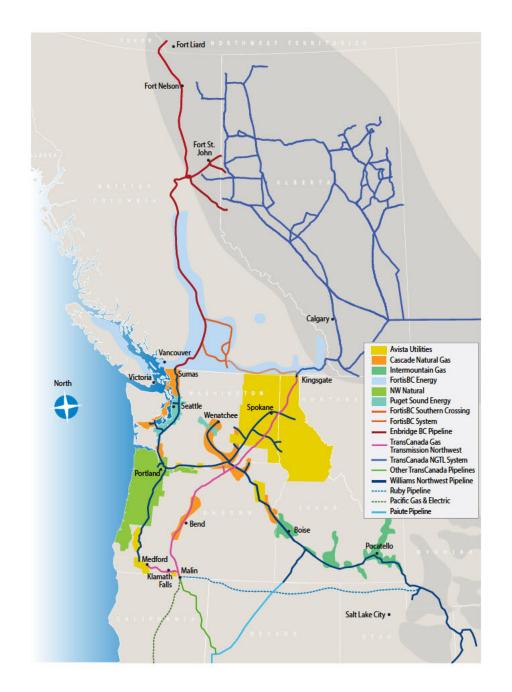
Date

The original of this document will be kept in the Employee's personnel file. A copy will be provided to the Employee upon request.



NWGA Strategic Plan





2018 Strategic Plan Northwest Gas Association



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1. Core Values

Integrity

We are trustworthy and a credible source of information. We take responsible balanced positions and are open and willing to acknowledge alternative viewpoints.

Responsive

We are timely and responsive to our members and stakeholders in an evolving context. We are proactive, while staying within the framework directed by our members.

Relational

We value strong relationships. Facilitating networking and creating constructive coalitions are core to what we do. We put our relationships to work on behalf of the industry.

Stewardship

We are judicious with and leverage the time, talent and resources entrusted to us by our members, in order to deliver maximum value for their sustained support of the NWGA. We leverage the work of other organizations.

2. Core Purpose

Advocate for the role of natural gas on behalf of the region's energy, economic and environmental needs.



3. Situation Assessment

Preface

On the West Coast, energy policy today is being driven predominately by climate change concerns. Public policy initiatives for accelerated "Deep Decarbonization" in order to achieve significant long-term GHG reductions are gaining momentum, even if only sometimes aspirational in nature.

NWGA sees climate change as a legitimate societal concern and supports economic and reasoned approaches of addressing it. This overarching issue can be both a threat and opportunity to NWGA's members, depending on how it is translated into specific legislation and regulatory requirements.

Key Challenges (Threats)

The existential challenge currently facing the industry's members is the emerging zero fossil fuel paradigm. This zero tolerance for fossil fuels, including natural gas, dismisses alternative Deep Decarbonization pathways that could be achieved at lower cost and with less disruption to consumers. By painting with such a broad brush, the "electric only" paradigm ignores the PNW's northern heating climate and renewable energy sources.

Emerging policy initiatives include:

- "Electrification" of residential and commercial space and water heating end-uses based on the assumption that this is the <u>only</u> pathway to Deep Decarbonization. This would restrict the use of natural gas in utility core markets.
- Growing "leave it in the ground" and anti-fracking campaigns and legislation.
- Potential doubling of the existing carbon tax in British Columbia. Institution of either a carbon tax or a cap & trade system is a strong possibility in both Washington and Oregon.
- Tightening building codes, often accompanied with incentives for high efficiency electric heat pumps, are making it difficult for gas to compete.
- Growing anti-fossil fuel policy positions that do not differentiate natural gas environmentally from the dirtier fossil fuels of coal and oil.
- Advocates for consideration of upstream GHG emissions in major industrial and pipeline related permits.

This key challenge is exacerbated by the low energy "literacy" of the general public and policy makers.

- There is little appreciation for the essential work horse role that natural gas currently plays in the economy and people's lives.
- There is not a clear understanding between the "truths and myths" in perceptions of natural gas.
- Much of the thought leadership on Deep Decarbonization is flowing out of California. Potential solutions applicable to California and a desert SW climate are inapplicable to a northern climate in terms of heating demand profile, renewable supply sources and seasonal energy storage requirements.

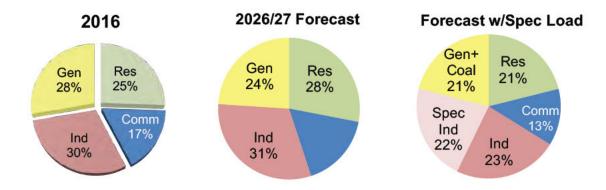


Traditional utility load growth has slowed and is forecasted to remain relatively flat	it over the long-term.
--	------------------------

CAGR by Sector	1998-2007	2007-2016	2017/18- 2026/27
	1556-2007		· · · · · · · · · · · · · · · · · · ·
Residential	2.1%	-0.8%	0.9%
Commercial	1.0%	-0.7%	0.8%
Industrial	-4.1%	-1.9%	0.6%
Generation	5.2%	1.8%	1.1%

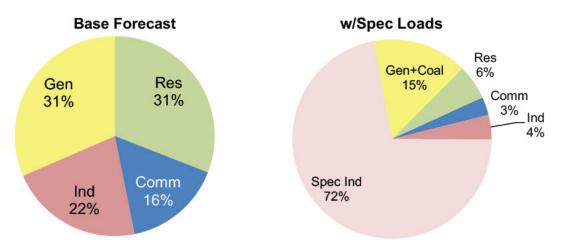
Any infrastructure growth will be driven by wholesale demand sources – power generation, industrial petro-chemicals and LNG exports.

- Further development of additional natural gas generation, as proposed in recent electric utility IRP's, is being opposed.
- Industrial petro-chemical and LNG export projects are site specific and "all-or-nothing" prospects; there is not sustainable underlying organic growth.



Load Composition

Contribution to Forecast Growth by Sector:





Key Opportunities

The NWGA has the opportunity to play a dynamic and compelling advocacy role within the greater PNW:

- Credible industry information source.
- Pulling together a coordinated regional communication plan.
- Collective lobbying and advocacy organization.
- Educating on energy matters; addressing "truths and myths".

Articulate a united and forward-looking PNW gas industry position on the essential long-term role of natural gas within a prospective low carbon regional economy.

- Role of renewable natural gas (RNG) in reducing the carbon intensity of the pipeline gas stream. Champion consideration of non-fossil based gas sources.
- Advocate for affordability in prioritizing carbon reduction strategies.
- Utilization of existing regional gas infrastructure in serving seasonal energy and heating demands. Avoid the doubling of regional electric infrastructure that "Electrification" would imply.
- Develop package for cities/communities and regional forum.

Leverage the abundant, low cost natural gas supply to communicate its benefits to consumers and society.

- Natural gas commodity prices today are lower today than they have been since the 1990s.
- There are several generations worth of natural gas supply projected to be available in North America.





Key Strengths

NWGA is a trusted credible industry voice.

- Respected as an industry expert.
- Reliable information source on behalf of the industry.
- Robust network of regional and national relationships
- Strong member base.

It facilitates relationship and network building.

- Organizes forums for the sharing of perspectives.
- Organizes events for networking.

Is an information and educational source for the region.

• The Annual Outlook is a go-to document.

Key Weaknesses

Resource constrained.

- Limited human resources given the number of issues.
- Limited outreach beyond the region.

Diversity of member interests can make gaining alignment difficult.

- Where there may be potential competitive issues or different customer impacts.
- Lack of alignment on how to deal with renewable natural gas.

May be perceived as having a self-serving bias on behalf of the industry.



4. Vision

The NWGA is the regional voice of the PNW gas industry. The industry today is at a crossroads – caught between the market-oriented paradigm of abundant, low-cost supply and the policy-oriented paradigm of zero tolerance for fossil fuels of any kind. The NWGA and its members will need to articulate an alternative vision that persuasively makes the case for the important long-term role of natural gas in supporting the public policy objective of deep reductions in societal GHG emissions. To respond to this challenge, the NWGA executes a pivot. This pivot has several dimensions:

First, it is a shift from a collegial educating style to an assertive advocacy style. This reflects what it will take in order to win the public debate on carbon policy. NWGA is the "tip of the spear" in tackling public policy issues. In doing so, it will continue to act respectfully in its interactions, even where there may be disagreements.

Second, it is a shift from relying on factual information towards placing greater emphasis on the heart, in the public battle for the "hearts and minds". Psychological research indicates that people first make their value judgments via intuition and emotion. They then as a second step search for the reasons to support this judgment. Climate policy is being primarily driven by competing ideologies and intuitions (e.g. the heart). To be successful, NWGA will need to first develop relationships and speak to the heart, before it can expect people to listen to its rationale "truths".

Third, it is a shift from broad gas industry promotion towards a clear prioritization on evolving and growing local end-use markets. While shale gas can be an economic growth engine for North American gas producing states and provinces, their primary growth markets are power generation, LNG export and petro-chemical industrial development. NWGA will take a relatively neutral posture in these areas, leaving it up to project sponsors to make their case. Its focus will be on evolving regional core space and water heating markets and in supporting the development of local niche end-use markets, such as heavy-duty vehicles and marine transport.

The NWGA is known for creating value for its members in four primary ways.

1. The NWGA effectively influences public policy. It understands the issues and recruits experts to assist in the debate. To do so, it finds the right balance between assertiveness and collaboration – to influence others, the association must also be open to what others have to say.

In its advocacy, NWGA focuses on issues that affect all of its members. It is careful to not be drawn into project specific advocacy. Examples of these broader industry issues include fracking and supply abundance.

The NWGA effectively aligns its members on coherent and persuasive messages that harmonize the competing paradigms of climate policy and industry supply abundance. The messages are tailored to the specific PNW region in which we live.

 Coalition development is a core competency of the NWGA. Its members look to it as new opportunities/threats arise that are more than a single company can effectively take on. The NWGA maintains a lean operation and is effective in marshaling the resources of others. The NWGA's coalition building occurs in both the political and commercial spheres of activity, as directed.



- 3. The NWGA is a "go-to" information resource in multiple dimensions the aggregation of regional gas industry information (e.g. the Annual Outlook), emerging technologies (e.g. heavy duty NGV's) and sensitive industry issues (e.g. fracking). It is a trusted and credible source of information. The NWGA projects a balanced and reasonable point of view. It is sensitive to and acknowledges differing perspectives while maintaining its role as an unapologetic advocate for the industry.
- 4. The NWGA is a recognized leader and a model for how an industry can coalesce around a focused brand identity that is influential in shaping its political and business environment. It maintains its focus on advocacy, education and coalition building. The NWGA leverages and amplifies the work of others without duplicating efforts.



5. Strategies

To win, NWGA must aid its members in both:

- 1. Strengthening market position in core markets, which are threatened by potentially extreme climate policies.
- 2. Pro-actively attacking emerging niche market opportunities in the region.

In assisting its members, NWGA plays three key roles:

- Advocacy
 - Description: Persuasively telling the industry's story in forums focused on members interests.
- Coalition Builder
 - Description: Proactively organize and develop natural and strategic allies around key industry issues/interests.
- Information Resource
 - Description: Maintain credibility and be seen as a "go-to" resource.

In order to accomplish its mission, the NWGA will focus its resources on activities that most effectively support the advocacy message by implementing the following strategies:

- 1. Persuasively tell its members' story about the long-term role of gas in meeting society's low carbon policy goals. Win the policy battle.
 - Argue the counter message to the "zero carbon" and "Electrification mandate" movements. Articulate a pathway to Deep Decarbonization that leverages the benefits of natural gas.
 - Raise the awareness and appreciation for the value of low-cost long-term supply availability.
 - Build regional support for a Renewables and Natural Gas partnership as an effective strategy for the PNW region in addressing climate change.
- 2. Translate this story into specific lobbying forums to influence public policy in practical ways as directed by its membership.
 - Pro-actively introduce legislation as guided by NWGA's members.
 - Represent members' collective position on prospective carbon pricing legislation.
 - Intervene to take advantage of public policy driven funding and subsidies that benefit NWGA's members.
- 3. Build and manage coalitions that are key to the industry's future.
 - In the regional transportation market: heavy-duty and fleet natural gas vehicles; marine.
 - Renewable natural gas and Power-to-Gas technologies.
 - Upstream production methane reductions.
- 4. Be a credible information resource, which can strengthen the voice of the organization.
 - Continue and expand the comprehensiveness of the Annual Outlook.
 - Be selective in producing briefing papers and fact sheets that focus on issues and technologies of prioritized interest to NWGA's members.
- 5. Create and sustain member alignment on key industry issues.
 - Develop and manage a member policy process.
 - Develop "rules of engagement" for how NWGA can assertively move on issues that are:

 supported by a critical mass of its members without always requiring unanimous consensus; or
 high priority to an individual member that other members are relatively more agnostic on (e.g. do not object).

6. Action Plan

1. More emphasis on utilizing staff as facilitators/enablers of member-driven, member-led initiatives

2. Critical to identify/recruit right people for initiatives/task forces (leadership development opportunity?)

3. Cash reserve available for one-time, project oriented expenses, subject to Board approval

4. Do we need to raise additional revenues to ensure success?

5. Board alignment with Strategic Plan and Action Plan. Are Board members in a position to equip NWGA for success?

6. Board action item liaisons

UNDER REVIEW - UNDER REVIEW

0.	board action item haisons			
	Action Item	Accountability	Board Liaison	Timeframe
1)	Tell the Members' story			_
	 a) Convene Communication Task Force (CTF) i) Draft/adopt CTF Charter ii) Leverage/supplement research from members, AGA, ICF, etc. iii) Identify regionally relevant messages with emotional triggers. 	CTF/Staff		2018-2019
	 b) Develop Communications Plan Execute pivot from information resource to tip-of-the-spear advocate Define/prioritize audience (public, key influencers, etc.) Prioritize Channels Outreach Earned/paid media Social/digital media presence iv) Identify/Develop Resources Develop/vet customizable "Industry Story" PowerPoint Evaluate need for additional resources (e.g. consultant, staff, etc.) 	CTF/Staff		Q2 2018
	c) Execute Communications Plan	CTF/Staff		2018-19
	 d) Identify, prioritize and actively solicit presentation opportunities. i) NWGA Lunch & Learns ii) Industry events iii) Member-driven presentations iv) Community groups 	CTF/Staff		2018-19

6. Action Plan

Π	Action Item	Accountability	Board Liaison	Timeframe
2)	Advocate		• 	
	 a) Develop/advocate NWGA common climate action principles Meet with key WA/OR legislators during 2018 Session Engage in carbon policy discussions/negotiations as directed Comment on bill drafts/testify in public hearings Media outreach (editorial boards, op-eds, LTE, etc.) b) Be prepared to lobby as directed by member-driven policy process VW Settlement allocation Other (e.g. renewable natural gas, natural gas transportation, regulatory processs, etc.) 	PPTF/Staff		2018-2019 (Q1 2018)
3)	Build and manage coalitions	•		
	 a) Facilitate Regional Natural Gas Transportation Coalition (NGTC) i) Ascertain level of support/commitment ii) Develop agenda and work plan commensurate with available resources 	NGTC/Staff		2018-2019 (Q1 2018) (Q1 2018) (ongoing)
	 b) Develop inventory of natural allies (e.g. AWB, OBI, industry groups, etc.) i) Establish/strengthen connections 	Staff		2018-2019 (Q2 2018)
	 c) Identify/assess potential strategic allies (e.g. moderate ENGOs) i) Reach out to assess interest/receptivity 	Staff		

6. Action Plan

	Action Item	Accountability	Board Liaison	Timeframe
4)	Be a credible information source			
	a) Utilize Outlook Work Group (OWG) to Publish 2018 Outlook	OWG/Staff		Q3 2018
	 b) Develop upstream methane emissions inventory and report i) Convene analytical expertise (Emissions Task Force or ETF) ii) Assess report feasibility iii) Identify content/structure iv) Gather data v) Draft report vi) Publish report 	ETF/Staff		2018-2019 (Q1 2018) (Q1 2018) (Q1 2018) (Q2 2018) (Q3 2018) (Q4 2018)
	 c) Convene technical capabilities around strategic issues/messages i) As needed or requested by member companies 	Staff		2018-2019
	d) Investigate and report on value of establishing an educational foundation	Staff		Q1 2018
5)	Create and sustain member alignment			
Π	a) Develop Board guidelines for policy adoption	Ex Comm/Staff		Q1 2018
	 b) Establish member-driven policy process i) Establish Public Policy Task Force (PPTF) ii) Draft/adopt PPTF charter iii) PPTF to develop/recommend process for annual policy agenda 	PPTF/Staff		2018-2019 Q4 2018

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UNDER REVIEW - UNDER REVIEW

NWGA Strategic Plan Implementation Dashboard – Q1 2018

(to be updated quarterly)

Action Item	Accountable	2018 Milestone/Measure	Progress
Tell the Members' Story (Communication Plan)	-		
Establish Communication Task Force (CTF)	Dan	 Identify/recruit participants including chairs 	
		 Meet in Q1 to review/adopt charter; develop work plan 	8
Develop Communication Plan	Staff/CTF	 Compile/review relevant opinion research Propose/conduct additional research 	
		 Identify/prioritize key story elements, audiences, channels 	
Execute Communication Plan	Dan/Staff	 Conduct requisite research/analysis to support story elements 	
		 Develop/distribute collaterals that support story elements 	
		 Identify/prioritize and solicit presentation opportunities 	-
Advocate	_		_
Climate Action Principles	Dan/Connor	 Share and advocate as directed by member company lobbyists 	1
VW Settlement	Connor	 Advocate NGT Access to VW Funding (ID/OR/WA) 	-
Legislative Outreach	Dan/Connor	 Meet with key legislators during session 	
Coordinate members	Dan	Bi-weekly GR teleconference to share updates and information	196
Prepared to weigh-in	Dan/Connor	As directed by members	
Build and Manage Coalitions			
NG Transportation Coalition (NGTC)	Connor	 Coalition formed/funded w/specific 2018 objectives & plan 	
Identify and reach out to natural allies	Judy/Connor	 Develop inventory of natural allies 	
	200-2	Investigate collaboration	
Identify/assess potential strategic allies		 Develop inventory of issues and possible allies 	
Be a Credible Information Source			
2018 Outlook	Dan/Staff	 Convene Outlook Group Debrief 2017; identify 2018 themes Set 2018 data submission deadline 	
Develop methane emissions inventory/report		Convene working group Define scope/structure of report	
Investigate value of educational foundation	Dan/Judy	 Report to Board at Q1 in-person meeting 	
Create and Sustain Member Alignment			
Board guidelines for policy adoption	Dan	 Adopt at Q1 in-person Board meeting 	

Coalition/408 Ryan/37



Substance Abuse Detection and Prevention Policy



Northwest Gas Association

Substance Abuse Detection and Prevention Policy

July 2002 Updated July 2015



I. GENERAL STATEMENT

The Northwest Gas Association is committed to providing a safe and productive workplace environment for employees. Accordingly, the Northwest Gas Association hereby prohibits the illegal use and/or abuse of drugs and the use of alcohol in the workplace by all employees and prospective employees. Likewise, the Northwest Gas Association hereby mandates that all employees and prospective employees not be using or under the influence of alcohol or illegal drugs in the workplace or while on Association business.

The Northwest Gas Association has adopted policies and procedures for the testing of its current employees and prospective employees for the use and/or abuse of illegal drugs, alcohol and the abuse of prescription drugs. The following is a summary of the substance abuse detection and prevention policy.

II. DEFINITIONS

- A. For purposes of the policy: "Alcohol" means ethyl alcohol or ethanol.
- B. "Drug" means a controlled substance included in Schedule I or II, as defined in section 802(6) of Title 21 of the United States Code, the possession of which is unlawful under Chapter 13 of that Title. These drugs include, but are not limited to, narcotics, hallucinogenic, cocaine, opiates, amphetamines, phencyclidine (PCP), quaaludes, barbiturates, and methadone. The term "illegal drug" does not mean the use of a controlled substance pursuant to a valid prescription, drugs legal in state of residency or other uses authorized by law.³
- C. "Employee" means an individual who is paid wages or salary by the Northwest Gas Association.
- D. "Prospective employee" means any individual tentatively selected for employment with the Northwest Gas Association.
- E. "Random Testing" means a system of drug testing imposed without individualized suspicion that an individual is using illegal drugs or alcohol and may be either:
 - 1. Uniform-unannounced testing of employees occupying a specified department or position;
 - or
- 2. A statistically random sampling of such employees based on a neutral criterion, such social security numbers.
- F. "Reasonable suspicion" means observable use, possession or symptoms, a pattern of abnormal conduct or errat c behavior, knowledge of a drug-related investigation, arrest or conviction, information provided from credible sources, and/or newly discovered evidence that the employee has tampered with a previous drug test.
- G. Sample" means a sample of urine, breath, saliva, or hair provided by an employee in a quantity and in a manner sufficient enough to allow for drug or alcohol testing.

³ Revised in accordance with ORS 475B, legalization of marijuana for recreational use.

III. PROHIBITED CONDUCT

- A. Use, possession, manufacture, distribution, dispensation, or sale of illegal drugs whether on or off Association premises and whether during working hours or non-working hours.
- B. The abuse of controlled substances, including prescription drugs whether on or off Association premises and whether during working hours or non-working hours.
- C. Storing any illegal drug in a locker, desk, vehicle, or other repository on Association premises.
- D. Being under the influence of an illegal drug or engaging in controlled substance abuse on Association premises, or while engaged in Northwest Gas Association business, or in Northwest Gas Association-supplied vehicles, or during working hours.
- E. Testing positive for illegal drugs, alcohol or controlled substances without a legal basis for use.
- F. Switching or adulterating any urine sample submitted for testing or submitting a false sample for testing.
- G. Use, possession, sale, or distribution of alcohol, or being under the influence of alcohol on Northwest Gas Association premises, or in Northwest Gas Association-supplied vehicles, whether during working hours or non-working hours.
- H. Refusing consent to testing or refusing to submit a sample for testing when required by a Northwest Gas Association representative or by representatives of any Association customer, vendor, or supplier.
- I. Failing, when requested by the Northwest Gas Association, to enroll in any alcohol or other drug treatment or counseling program and failing to adhere to the requirements of the program.
- J. Being convicted under any criminal drug statute for a violation occurring in the workplace.
- K. Failing to notify the Northwest Gas Association of any conviction under any criminal drug statute within 5 days of the event.
- L. Failing to comply with rules and regulations promulgated under any testing programs maintained by the Northwest Gas Association pursuant to its rules and regulations.

IV. DRUG AND ALCOHOL TESTING

- A. The Northwest Gas Association will establish a testing program for illegal drugs and controlled substances for all employees and will, in its sole discretion, determine and may at any time change the requirements, extent, and frequency of employee testing. The Northwest Gas Association drug-testing program will be implemented specifically to maintain the safety of the Association's employees or the general public, and to maintain productivity, the quality of products and services, and the security of the Association's property and information.
- B. The Association will test all prospective employees, whether new employees or rehires. Each offer of employment will be conditioned upon the successful completion of a test for illegal drugs, alcohol and controlled substances as prescribed by the Association. Any prospective employee who tests positive will be rejected for employment and will be ineligible for to reapply.



- C. Whenever the Association has reasonable suspicion that an employee has used illegal drugs or engaged in controlled substance abuse, whether during working hours or nonworking hours, on or off Association premises, the Association may require the employee to submit a sample for testing, as prescribed by the Association.
- D. Alcohol and/or drug screening may be required following any work-related accident or any violation of safety precautions or standards, whether an injury resulted from such accident or violation. The Northwest Gas Association will initiate testing under circumstances where there is a death or employee injury requiring immediate medical attention and/or where there is damage to property in excess of \$500.
- E. The Northwest Gas Association will randomly test all employees based on neutral criteria established by the entity selected by the Association to administer its substance abuse policy.
- F. The Northwest Gas Association will test employees to determine fitness for duty following a positive drug test and return to work after completion of an Association recognized rehabilitation program. These individuals will also be subject to unannounced follow up testing for a period of up to two years.
- G. The Northwest Gas Association will establish and maintain any and all additional testing programs and requirements that may be necessary or appropriate to comply with applicable rules and regulations of all Government agencies.

V. TESTING PROCEDURES

- A. The collection of samples will be conducted in reasonable manner which affords the employee or prospective employees as much privacy as possible and in a manner calculated to prevent substitutions or interference with the collection or testing or reliable samples.
- B. The procedure for documenting samples will include labeling of samples to reasonably preclude the probability of erroneous identification of test results.
- C. Employees and prospective employees must, prior to testing, sign an approved form agreeing to the testing and authorizing the release of test results to an authorized Association representative.
- D. Sample collection, storage and transportation to the place of testing will be performed to reasonably preclude the possibility of sample contamination or adulteration.
- E. Sample testing will conform to scientifically accepted analytical methods and procedures. Testing will include verification or confirmation of any positive test result by gas chromatography/mass spectrometry assay or other confirmatory test approved by DHHS.
- F. Management employees will be tested under the same circumstances as all other employees.
- G. The Northwest Gas Association will pay the costs for implementation and administration of this program.
- H. Each positive sample will be reviewed by a Medical Review Officer.



VI. OPPORTUNITY TO JUSTIFY A POSITIVE RESULT

- A. An employee or prospective employee whose test result is positive will have the right to discuss the test result with a medical review officer ("MRO") designated by the Association. The employee or prospective employee may submit a valid prescription or written verification from the employee's physician verifying a valid prescription to the MRO. If a positive test result is justified it will not be deemed a positive test for purposes of initiating disciplinary action or enforcing these policies and procedures.
- B. An employee or prospective employee whose test result is positive will have the right to request a second test be performed at a different certified laboratory. The request for a second test must be made to the MRO within 72 hours of the employee or prospective employee being informed of the positive test. The cost of the second test will be paid by the employee or prospective employee; however, the Association will reimburse these costs if the result of the re-analysis is negative.

VII. VOLUNTARY DISCLOSURE

Employees who voluntarily admit to a substance abuse problem before being selected for a random test will be asked to successfully complete a drug or alcohol rehabilitation program or other counseling as prescribed by a licensed practitioner. Employees will be given a leave of absence for this treatment and will be required to use any accrued vacation or sick leave time during the leave of absence. Upon successful completion of the program, employees will be reinstated to their same or similar position, will be required to submit to and pass a drug and alcohol test prior to returning to work and will be subject to testing on a more frequent basis for two years after they return to work.

- A. An employee or prospective employee whose test result is positive will have the right to discuss the test result with a medical review officer ("MRO") designated by the Association. The employee or prospective employee may submit a valid prescription or written verification from the employee's physician verifying a valid prescription to the MRO. If a positive test result is justified it will not be deemed a positive test for purposes of initiating disciplinary action or enforcing these policies and procedures.
- B. An employee or prospective employee whose test result is positive will have the right to request a second test be performed at a different certified laboratory. The request for a second test must be made to the MRO within 72 hours of the employee or prospective employee being informed of the positive test. The cost of the second test will be paid by the employee or prospective employee; however, the Association will reimburse these costs if the result of the re-analysis is negative.

VIII. CONSEQUENCES OF A VIOLATION OF SUBSTANCE ABUSE POLICY

- A. Terminate the employment relationship;
- B. Require the employee to enroll at his or her own expense in an physician approved rehabilitation, treatment or counseling program, which will include additional controlled substance or alcohol testing as a condition of continued employment;
- C. Refuse to hire a prospective employee;
- D. Other disciplinary measures in conformance with the Association's usual policies and procedures, including any collective bargaining agreement.



X. RECORDKEEPING

The Northwest Gas Association will retain the reports indicating negative test results for a minimum of two years. The Northwest Gas Association will retain the reports indicating positive test results for a minimum of five years.

IX. CONFIDENTIALITY

The Northwest Gas Association will take all steps necessary to ensure confidentiality and to fulfill the requirements of the law. To this end, all information received by the Association pursuant to this policy will be collected and maintained on separate forms in a separate file and will be treated as confidential. The Northwest Gas Association will designate a specific employee or employees who will have access to this information and reveal the information only as required.

XI. INSPECTIONS TO ADMINISTER AND ENFORCE POLICY

In order to promote a safe, productive, and efficient work place, the Association reserves the right to inspect employees, as well as any articles and property in their possession. The Association also reserves the right to inspect lockers, desks, boxes, Association vehicles, employee vehicles on Association property, packages, lunch boxes, containers, articles in such areas, and other objects brought onto Association property that might conceal alcohol, illegal drugs, and/or other inappropriate materials.

XII. NOTICE

The drug and alcohol testing policy shall be distributed to all employees and made available for review by all applicants for employment.

XIII. MISCELLANEOUS

- A. The Northwest Gas Association, in its sole and absolute discretion, may revoke or revise the policy at any time. If the Association so elects, such revocation or revisions shall apply prospectively only.
- B. This policy does not create a contract for continued employment or in any way alter the at-will nature of the relationship between the Association and its employees.
- C. The provisions of this policy shall apply in addition to and shall be subordinated to any requirements imposed by applicable federal, state, and local law. Any provisions that may be unenforceable are deemed deleted and do not affect the enforceability of the remaining provisions.
- D. No one has the authority to alter or waive the terms of this policy, except for the Association's Board of Directors.

The Northwest Gas Association adopted the foregoing Substance Abuse Detection and Prevention Policy on the 2nd day of July 2002.

Demark

N. Charles Hedemark Vice President



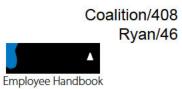
Substance Abuse Detection and Prevention Policy

Employee Acknowledgement

I acknowledge that I have received a copy of the Northwest Gas Association's substance abuse detection and prevention policy. I further acknowledge that I am expected to read, understand, and adhere to the policy. If I have questions or do not understand any of the terms contained in this policy, I understand that it is my responsibility to ask my manager or supervisor to explain them to me. The provisions of the drug policies and procedures are conditions of my employment and I agree to abide by them.

Employee Signature

Date



Credit Card Policy and Procedures Employee Acknowledgment

NWGA Employee Handbook

I hereby acknowledge that I have received a copy of the NWGA's Credit Card Policy and Procedure Policy. I have read this policy and procedure and clarified any questions regarding its provisions. I understand that all purchases must be business related. No personal use of the Association's credit card is allowed. It will be the responsibility of the employee to repay any personal charges inadvertently made on a company credit card within 30 days.

I agree to comply with all the requirements contained therein and understand that appropriate disciplinary action will be taken if I am found in violation of the policy.

Please sign and return to the business and operations manager.

Name

Signature

Date



Incentive Compensation Policy

Amended - JUNE 9, 2021

EMPLOYMENT POLICY

Incentive Compensation Plan

The Northwest Gas Association (NWGA) recognizes and rewards performance by its employees annually through an incentive compensation plan (ICP). Employees become eligible to participate in the ICP on a pro rata basis after one full year of service.

STRUCTURE

- ICP awards are based on a target percentage of base salary that is weighted between personal and organizational performance, with a performance multiplier determined and applied to each performance component.
- ICP = Target X [(Personal Weighting X Multiplier) + (Organizational Weighting X Multiplier)]

TARGET, WEIGHTING and MULTIPLIERS

- Targets:
 - Staff Target: 10% (20% potential with maximum multipliers)
 - Executive Director (ED) Target: 15% (30% potential with maximum multipliers)
- Weightings: 0
 - Staff: 75% personal performance; 25% organizational performance
 - ED: 50% personal; 50% organizational
- Multipliers range from 0 to 2: 0
 - <0.5 Unsatisfactory: Performance consistently fails to meet minimum position requirements. Employee lacks or doesn't utilize necessary skills and fails to demonstrate capacity or willingness to improve.
 - 0.5-0.8 - Improvement required: Performance is inconsistent; meets some, but not all position requirements. Employee displays ability and desire to improve.
 - 0.9-1.2 Proficient: Performance consistently meets position requirements.
 - 1.3-1.6 - Highly Effective: Performance frequently exceeds position requirements and is superior. Employee is motivated to provide value to Association members.
 - 1.7-2.0 Exceptional: Consistently exceeds position requirements. Realizes unusual . achievement. Actively seeks and contributes to continuous organizational improvement.

ORGANIZATIONAL AND PERSONAL PERFORMANCE ELEMENTS

- Organizational Performance Metrics Adopted by Board during Annual Meeting for subsequent year
- Linked to Organizational Objectives:
 - Persuasively promote the long-term role of gas infrastructure in meeting the region's low carbon policy goals.
 - Influence public policy in practical ways as directed by NWGA membership.
 - Build and manage coalitions that are key to the industry's future.
 - Strengthen the voice of the organization by being a credible information resource.
 - Create and sustain member alignment on key industry issues.



1914 Willamette Falls Drive, Suite 260 West Linn, Oregon 97068 t: 503.344.6637 f: 503.344.6693 www.nwga.org Twitter: @nwgas Amended - JUNE 9, 2021

• Organizational performance survey as an input, not a determinant, to evaluation

- Board retains discretion in determining organizational multiplier
- Organizational multiplier applies to staff and ED equally

• Personal Performance Objectives

- Staff
 - At discretion of ED
 - Awarded annually
 - Based upon periodic goal setting and reviews with ED
 - Work responsibilities
 - Personal development
- ED Personal Performance Expectations
 - As outlined in ED performance survey (an input, not a determinant, to evaluation)
 - Reviewed annually; revised at Board's discretion
 - Special expectations developed/communicated prior to program year
 - Board retains discretion in determining ED's personal multiplier



Educational Assistance Policy

Coalition/408 Ryan/51

EMPLOYMENT POLICY

Educational Assistance

The Northwest Gas Association (NWGA) encourages and supports employee development and continuous learning. To that end, educational assistance is available to permanent full-time employees who have completed 12 months of employment at the NWGA.

1914 Willamette Falls Drive, Suite 260 West Linn, Oregon 97068 t: 503.344.6637 f: 503.344.6693 <u>www.nwga.org</u> Twitter: @nwgas

NORTHWEST GAS ASSOCIATION

This program applies to courses, seminars or other learning opportunities that lead to a recognized certificate, diploma or degree program. Conferences, workshops, or individual skills training courses directly related to an employee's current job responsibilities are separately administered through, and require prior approval of, the Executive Director.

The Executive Director (ED) will work directly with each NWGA employee to identify educational opportunities that promise to develop the skills and knowledge necessary to:

- Enhance the employee's contribution to the NWGA's mission and objectives; and
- Enrich the employee's work experience.

The NWGA Board authorizes funding for educational assistance annually when it adopts the Association's annual budget. The amount for educational assistance made available by the NWGA Board may change from year-to-year or be discontinued. Educational assistance is awarded at the discretion of the ED. Approval for educational assistance is based on a variety of factors including the role of the employee, the needs of the Association, the employee's job performance and the employee's development goals.

General Criteria and Requirements for Educational Assistance:

- All courses and/or programs are to be pre-approved by the ED.
- The employee will initially pay all costs associated with an approved program. Employees must achieve a passing grade as defined by the institution or program to be eligible for reimbursement.
- If the employee does not achieve a passing grade in the course or program, s/he will not be reimbursed for outstanding expenses and will be required to repay course-related costs already paid by the NWGA.
- Approved courses are generally taken outside an employee's regular work hours and course work must not conflict with normal work hours or assignments, unless otherwise authorized by the ED.
- Eligible expenses include non-refundable application or registration fees, tuition, required textbooks, lab or exam fees.
- Any travel expenses over 30 miles, meals or overnight accommodations required by the course or program must be pre-approved by the ED.
- Local travel (30 miles or less), meals, lodging and other incidental expenses are not eligible for reimbursement.
- An employee who voluntarily terminates employment within one (1) year of program completion has a repayment obligation to reimburse the NWGA a pro-rated amount for educational assistance received. The amount will be calculated as follows:
 - The total number of full and partial months remaining in the one-year term divided by 12 months, multiplied by the original amount of education assistance paid to the employee under this policy.



Employment Forms



Employment Eligibility Verification

USCIS Form I-9

Department of Homeland Security U.S. Citizenship and Immigration Services

Form 1-9 OMB No. 1615-0047

OMB No. 1615-0047 Expires 10/31/2022

START HERE: Read instructions carefully before completing this form. The instructions must be available, either in paper or electronically, during completion of this form. Employers are liable for errors in the completion of this form.

ANTI-DISCRIMINATION NOTICE: It is illegal to discriminate against work-authorized individuals. Employers CANNOT specify which document(s) an employee may present to establish employment authorization and identity. The refusal to hire or continue to employ an individual because the documentation presented has a future expiration date may also constitute illegal discrimination.

Section 1. Employee Information and Attestation (Employees must complete and sign Section 1 of Form I-9 no later than the first day of employment, but not before accepting a job offer.)

			9-9					
Last Name (Family Name)	st Name <i>(Family Name)</i> First Name <i>(Gi</i> v)	Middle Initial	Other L	.ast Name	es Used <i>(if any)</i>
Address (Street Number and Name)			Apt. Number City or Town			State	ZIP Code	
Date of Birth (mm/dd/yyyy)	U.S. Social Security Nun	Employ	ee's E-mail Addr	ress	E	mployee's	Telephone Number	

I am aware that federal law provides for imprisonment and/or fines for false statements or use of false documents in connection with the completion of this form.

I attest, under penalty of perjury, that I am (check one of the following boxes):

1. A citizen of the United States			
2. A noncitizen national of the United States (See instructions)			
3. A lawful permanent resident (Alien Registration Number/USCIS Num	iber):		
4. An alien authorized to work until (expiration date, if applicable, mm/d	d/yyyy):		
Some aliens may write "N/A" in the expiration date field. (See instruction	ons)		
Aliens authorized to work must provide only one of the following document r An Alien Registration Number/USCIS Number OR Form I-94 Admission Nur			R Code - Section 1 lot Write In This Space
1. Alien Registration Number/USCIS Number: OR			
2. Form I-94 Admission Number:			
OR			
3. Foreign Passport Number:			
Country of Issuance:			
		L	
Signature of Employee	Today's Date (mm/	dd/yyyy)	
Preparer and/or Translator Certification (check one): I did not use a preparer or translator. A preparer(s) and/or translator (Fields below must be completed and signed when preparers and/or	or(s) assisted the employee in completer	ting Section	g Section 1.)
Preparer and/or Translator Certification (check one):	or(s) assisted the employee in completer	ting Section	g Section 1.)
Preparer and/or Translator Certification (check one): I did not use a preparer or translator. // A preparer(s) and/or translator // A preparer(s) and/or //	or(s) assisted the employee in comple translators assist an employee ir oletion of Section 1 of this form	ting Section	g Section 1.) to the best of my
Preparer and/or Translator Certification (check one): I did not use a preparer or translator. A preparer(s) and/or translato (Fields below must be completed and signed when preparers and/or I attest, under penalty of perjury, that I have assisted in the com knowledge the information is true and correct.	or(s) assisted the employee in comple translators assist an employee ir oletion of Section 1 of this form	ting Section completin n and that	g Section 1.) to the best of my
Preparer and/or Translator Certification (check one): I did not use a preparer or translator. A preparer(s) and/or translator (Fields below must be completed and signed when preparers and/or I attest, under penalty of perjury, that I have assisted in the complex the information is true and correct. Signature of Preparer or Translator Last Name (Family Name)	or(s) assisted the employee in completer translators assist an employee ir pletion of Section 1 of this form Today	ting Section completin n and that	g Section 1.) to the best of my

STOP



Employment Eligibility Verification Department of Homeland Security

U.S. Citizenship and Immigration Services

USCIS Form I-9

OMB No. 1615-0047 Expires 10/31/2022

Section 2. Employer or Author (Employers or their authorized representative must physically examine one document from of Acceptable Documents.")	e must complete and sign Se	ction 2 within 3 bus	iness days of the en List B and one docu	ument from List C as listed on the "Lists		
Employee Info from Section 1	me (Family Name)	First Name (Gi	iven Name)	M.I. Citizenship/Immigration Status		
List A Identity and Employment Authorizatio		_ist B dentity	AND	List C Employment Authorization		
Document Title	Document Title		Docume	nt Title		
Issuing Authority	Issuing Authority		Issuing A	Authority		
Document Number	Document Number	Document Number D		Document Number		
Expiration Date (if any) (mm/dd/yyyy)	Expiration Date (if an	Expiration Date (if any) (mm/dd/yyyy)		Expiration Date (if any) (mm/dd/yyyy)		
Document Title		and the second secon				
Issuing Authority	Additional Information	ation		QR Code - Sections 2 & 3 Do Not Write In This Space		
Document Number						
Expiration Date (if any) (mm/dd/yyyy)						
Document Title						
Issuing Authority						
Document Number						
Expiration Date (if any) (mm/dd/yyyy)						

Certification: I attest, under penalty of perjury, that (1) I have examined the document(s) presented by the above-named employee, (2) the above-listed document(s) appear to be genuine and to relate to the employee named, and (3) to the best of my knowledge the employee is authorized to work in the United States.

The employee's first day of employment		(S	ee ins	structions	s for exe	mptions)		
Signature of Employer or Authorized Representa	Today's Date (mm/dd/yyyy) Title o			Title o	of Employer or Authorized Representative			
Last Name of Employer or Authorized Representative	Employer or	Authorize	d Represent	ative	Employer'	's Busines	s or Organization Name	
Employer's Business or Organization Address (S	nd Name)	City or	Town			State	ZIP Code	
Section 3. Reverification and Rehire	s (To be con	pleted and	l signed	by employ	yer or	authorized	d represe	entative.)
A. New Name (if applicable)					E	B. Date of F	Rehire (if a	pplicable)
Last Name (Family Name) Firs	First Name (Given Name)			Middle Initia	al [Date (mm/o	nm/dd/yyyy)	
C. If the employee's previous grant of employme continuing employment authorization in the space			, provide	the informa	ation fo	r the docun	nent or rec	ceipt that establishes
Document Title			Document Number Expiration Date (if any) (mm/dd/yyyy)				Date (if any) (mm/dd/yyyy)	
I attest, under penalty of perjury, that to the the employee presented document(s), the t	e best of my k locument(s) l	nowledge, have exam	this em ined ap	ployee is a pear to be	authoi genu	rized to we	ork in the relate to	e United States, and if the individual.
Signature of Employer or Authorized Representative Today's D			dd/yyyy)	Name	of Emp	oloyer or Au	uthorized F	Representative

LISTS OF ACCEPTABLE DOCUMENTS All documents must be UNEXPIRED

Employees may present one selection from List A or a combination of one selection from List B and one selection from List C.

	LIST A Documents that Establish Both Identity and Employment Authorization	DR	LIST B Documents that Establish Identity AM	1D	LIST C Documents that Establish Employment Authorization
2.	U.S. Passport or U.S. Passport Card Permanent Resident Card or Alien Registration Receipt Card (Form I-551) Foreign passport that contains a temporary I-551 stamp or temporary I-551 printed notation on a machine- readable immigrant visa Employment Authorization Document that contains a photograph (Form		 Driver's license or ID card issued by a State or outlying possession of the United States provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address ID card issued by federal, state or local government agencies or entities, provided it contains a photograph or information such as name, date of birth, gender, height, eye color, and address 	2.	by the Department of State (Forms
5.	I-766) For a nonimmigrant alien authorized to work for a specific employer because of his or her status: a. Foreign passport; and b. Form I-94 or Form I-94A that has the following: (1) The same name as the passport;		 School ID card with a photograph Voter's registration card U.S. Military card or draft record Military dependent's ID card U.S. Coast Guard Merchant Mariner Card 	3. 4. 5.	certificate issued by a State, county, municipal authority, or territory of the United States bearing an official seal
	and (2) An endorsement of the alien's nonimmigrant status as long as that period of endorsement has not yet expired and the proposed employment is not in conflict with any restrictions or limitations identified on the form.		 8. Native American tribal document 9. Driver's license issued by a Canadian government authority For persons under age 18 who are unable to present a document listed above: 	6. 7.	Identification Card for Use of Resident Citizen in the United States (Form I-179) Employment authorization document issued by the Department of Homeland Security
6.	Passport from the Federated States of Micronesia (FSM) or the Republic of the Marshall Islands (RMI) with Form I-94 or Form I-94A indicating nonimmigrant admission under the Compact of Free Association Between the United States and the FSM or RMI		 School record or report card Clinic, doctor, or hospital record Day-care or nursery school record 		

Examples of many of these documents appear in the Handbook for Employers (M-274).

Refer to the instructions for more information about acceptable receipts.

NW Natural°

250 SW Taylor Street Portland, OR 97204 503-226-4211 nwnatural.com

September 2021

Dear Valued Customer,

Today's energy landscape has become increasingly complex and there are critical decisions on the horizon – including some that impact you as a customer of NW Natural. I believe that part of my job is to keep our customers informed about these issues, so that you have an opportunity for your voice to be heard. That's why I'm writing today. **Please sign up at the link below to stay informed and share your thoughts.**

We are engaged in a number of fronts to reduce carbon emissions, improve energy efficiency and transition more of our supply to renewable energy. Our **Low Carbon Pathway** strategy introduces renewable energy for the pipeline with affordability, dependability and resilience in mind. At the same time, we are monitoring Oregon Governor Kate Brown's executive order to reduce carbon emissions, which is being designed now by state agencies, as well as monitoring proposals from some groups for bans on new natural gas hookups. These important topics are another reason why I'm asking for your engagement.

At NW Natural, we believe a collaborative effort will lead to the most promising energy future. Our key principles are:

- All forms of renewable energy are needed in a balanced, low-carbon future. NW Natural is committed to renewable natural gas gases captured from organic waste streams clean hydrogen and our vision of a carbon-neutral pipeline by 2050. We are exceeding our 2035 carbon savings goal that starts us down the path toward this vision.
- Families and businesses should have a choice of energy options to meet their needs. This is not a decision that should be mandated.
- Communities with natural gas have greater energy reliability. We need a dual energy system – gas and electric– to prepare for what we know is a future of more extreme weather events. Homes and businesses with gas service can have energy even when the power is out.

Consulte el reverso para obtener más información

Hãy xem mặt sau để biết thêm thông tin

有关详细信息,请参阅背面

Информация о помощи в переводе - на обороте

REGISTER HERE Tell us what's important to you by taking a short survey. Sign up today so your ideas are taken into consideration for public policy decisions: **nwnatural.com/registerOR**.

• Affordability and leveraging our existing modern system is our priority. We will seek options that ensure a renewable energy future without undermining long-term affordability, dependability and choice.

I encourage you to share your thoughts on these issues so that we can continue to improve our programs and services to meet your needs. Working together, we know the right balance can be achieved.

Sincerely,

David H. Anderson President & CEO

REGISTER HERE Tell us what's important to you by taking a short survey. Sign up today so your ideas are taken into consideration for public policy decisions: **nwnatural.com/registerOR**.



A NW Natural le gustaría conocer su opinión sobre el cambio climático. Si le interesa saber más sobre lo que estamos haciendo y cómo puede darnos su opinión, envíenos su información de contacto y su idioma preferido a **nwnatural. com/register-translation**.

NW Natural đánh giá cao việc lắng nghe ý kiến từ quý vị về biến đổi khí hậu. Nếu quý vị quan tâm tới việc tìm hiểu thêm về những gì chúng tôi đang thực hiện và cách thức gửi phản hồi cho chúng tôi, vui lòng gửi cho chúng tôi thông tin liên lạc của quý vị và ngôn ngữ yêu thích của quý vị tại địa chỉ **nwnatural.com/register-translation**.

NW Natural希望听到您关于气候变化的信息。如果您有兴趣了解有关我们正在做什么以及如何向我们提供反馈的更多信息,请通过 nwnatural.com/register-translation 将您的联系信息和首选语言发送给我们。

NW Natural хотели бы узнать ваше мнение по поводу изменения климата. Если вы хотите узнать больше о том, что мы делаем и как связаться с нами, отправьте нам свою контактную информацию и предпочитаемый язык на странице nwnatural.com/register-translation.

Begin forwarded message:

From: NW Natural Public Affairs Team <<u>publicaffairs</u>-<u>RE@nwnatural.com</u>> Subject: Take action now for Oregon DEQ climate rules Date: September 29, 2021 at 8:40:30 AM PDT To:

?

Take action now for Oregon DEQ climate rule

Climate change requires urgency and involvement by all of us, including elected leaders, utilities and community members. Today we are inviting you to participate in a statewide process that will help determine what Oregon's response will be.

In March of 2020, Governor Kate Brown issued an executive order requiring state agencies to meet specific emission reduction goals. This is one of the most sweeping executive orders ever issued by a governor because it impacts every energy user in Oregon.

NW Natural supports the goal of reducing carbon emissions, but the draft rules do not ensure such reductions or calculate the true costs of the program. We believe these critical issues need to be addressed.

Because this is a regulatory process, there is opportunity for public comment.

Click here to share your comments with us by Oct. 4, 2021, by 10 a.m.

The input from people who use the natural gas system is also important for decision makers to consider when they are presented with proposals that could discourage renewable energy innovation and force communities to exclusively depend on the electric grid for all energy needs. We believe there is a better way, and that working together on pragmatic solutions will lead to the most promising energy future. Key principles that should be considered:

- All forms of renewable energy including renewable natural gas and renewable hydrogen - are needed in a balanced, low-carbon future.
- Families and businesses should have a choice of resilient and dependable energy options to meet their needs.
- Affordability and reliability must remain priorities of Oregon's energy system.

This is our view. We hope you will lend your voice to the discussion.

Thank you for taking a moment to provide your input into this process.



250 SW Taylor Street | Portland, OR 97204 503-226-4211 | <u>nwnatural.com</u> To unsubscribe <u>click here</u>

From:	Greer Ryan
To:	Greer Ryan
Subject:	FW: Take action now for Oregon DEQ climate rules
Date:	Tuesday, October 5, 2021 3:20:00 PM

From: NW Natural Public Affairs Team <<u>publicaffairs-RE@nwnatural.com</u>> Subject: RE: Take action now for Oregon DEQ climate rules Date: October 2, 2021 at 6:00:59 AM PDT To:

?

This week we invited customers to <u>participate in a statewide process</u> for Oregon's response to climate change. It's one of the state's most sweeping executive orders ever issued and it will impact every energy user in Oregon.

Your feedback is important for decision makers to consider. And now the Oregon DEQ is extending its deadline to allow additional opportunity for **comments by Oct. 25, 2021**, by 4 p.m.

Learn more below or <u>click here for additional information</u>, like our <u>Frequently Asked Questions</u>.

Take action now for Oregon DEQ climate rule

Climate change requires urgency and involvement by all of us, including elected leaders, utilities and community members. Today we are inviting you to participate in a statewide process that will help determine what Oregon's response will be.

In March of 2020, Governor Kate Brown issued an executive order requiring state agencies to meet specific emission reduction goals. This is one of the most sweeping executive orders ever issued by a governor because it impacts every energy user in Oregon.

NW Natural supports the goal of reducing carbon emissions, but the draft rules do not ensure such reductions or calculate the true costs of the program. We believe these critical issues need to be addressed.

Because this is a regulatory process, there is opportunity for public comment.

Click here to share your comments with us by Oct. 25, 2021, by 10 a.m.

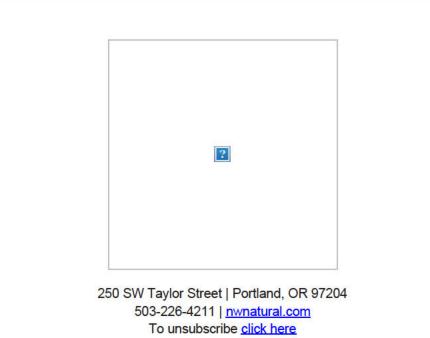
The input from people who use the natural gas system is also important for decision makers to consider when they are presented with proposals that could discourage renewable energy innovation and force communities to exclusively depend on the electric grid for all energy needs.

We believe there is a better way, and that working together on pragmatic solutions will lead to the most promising energy future. Key principles that should be considered:

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- Families and businesses should have a choice of resilient and dependable energy options to meet their needs.
- Affordability and reliability must remain priorities of Oregon's energy system.

This is our view. We hope you will lend your voice to the discussion.

Thank you for taking a moment to provide your input into this process.



Coalition/408 Ryan/62

From:	<u>Heiting, Kim</u>
To:	GHGCR2021 * DEQ
Subject:	Rulemaking Comment
Date:	Monday, October 25, 2021 2:27:18 PM
Attachments:	DEQ Feedback Submission.pdf

October 25, 2021

Oregon Department of Environmental Quality Attn: Nicole Singh 700 NE Multnomah St., Room 600 Portland, OR 97232-4100

Re: Public Comment Period for Greenhouse Gas Emissions Program 2021 Rulemaking

Dear Ms. Singh,

In support of the Oregon Department of Environmental Quality's (DEQ) effort to gather public input on the Greenhouse Gas Emissions Program 2021 Rulemaking (GHGCR2021) which proposes to establish a new Climate Protection Program (CPP), NW Natural respectfully submits the attached customer comments.

Direct outreach to customers on climate policy issues and on NW Natural's transition to carbon neutrality is ongoing; we are continuously learning from our customers' perspectives. We know that some NW Natural customers submitted comments directly to DEQ on the CPP, and we look forward to learning from those comments as well as they become part of the public record.

Attached are comments we received from customers who requested we share their comments with the DEQ during the public comment period for the GHGCR2021. The comments are presented in the order they were received and include the first initial and last initial of each customer. Per customer approval, personal details are limited in the submission, but should the agency need additional information to verify comments, please let us know. All comments related to CPP rulemaking, regardless of the position taken, have been included with a few exceptions: comments that included vulgarities, were not related to the CPP rulemaking process or customer status could not be verified. We will provide staff with the opportunity to review these additional comments separately.

Should you have any questions, please do not hesitate to contact me via the information below.

Thank you for your attention to this matter.

Sincerely,

Kim Heiting NW Natural - SVP of Operations kheiting@nwnatural.com <u>nwnatural.com | Twitter | LinkedIn | Facebook | YouTube | Instagram</u> C.M. Aloha, OR

This is normal climate variance. Do not do anything that requires price increases!!!

K.R. Tigard, OR

The latest IPCC report does not indicate we are in a "climate crisis", Governor Brown needs to follow our democratic process and quit utilizing executive orders to govern.

A.S. Beaverton, OR

Stop raising the cost of our utilities. We cant afford these increases and the costs hurt the poorest among us. Do not make our energy costs more expensive.

M.K. Portland, OR

All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. The State simply should not regulate choice when it comes to how we are heating our home and cooking our food. No doubt the next target will be outdoor grilling and campfires. Affordability and reliability must remain priorities of Oregon's energy system. And where is the exploration of nuclear energy? How much climate changing emissions are the result of nuclear energy vs. other sources? If Governor Brown continues on her current path, she is going to regulate people out of the state. Given all the current crises throughout the state (COVID, homelessness, violence) the ongoing, ineffectual regulations are simply making Oregon an undesirable place to live. Given our onerous, and poorly used, income tax, certainly not a desirable place to retire. But she certainly does like to make decisions for other people — clearly she believes that we are simply not smart enough to decide for ourselves.

M.B. Albany, OR

Small sustainable changes.dont make us have rolling blackouts and massive energy bills like California....

V.B. Warren, OR

Natural Gas is a renewable resource that is more effective than electricity and should not be limited or reduced because of Kate Brown or her short-sighted executive orders

J.S. Salem, OR

It is irresponsible to make rules and rate changes when the true costs of the Climate Protection Program cannot be calculated. It is irresponsible to make people rely on the electrical grid when it has failed in the past. Natural gas is clean, economical and serves the public as a reliable alternative source of heating and cooking. The goals set by the Governor do not appear to be set on any science and appear arbitrary. It is not in the public's best interest to make this change. In addition, these changes hurt low income and minorities as there seems to be no mechanism for cost control and reliability. Arbitrary regulation is not in the best interest of the public and puts the health and safety of the most vulnerable population at risk.

J.Z. Sheridan, OR

The idea that our government can limit our power choices sickens me. This is purely political and should be trashed.

M.G. Keizer, OR

I have lost confidence in Gov. Brown's aggressive, radical hard-Left E.O.s which lack common sense and harm our state. Decades ago Oregonians were convinced to convert to Natural Gas. We are all invested in clean gas. What is wrong with these people?

M.B. Banks, OR

We'll as I see it they want to eliminate the use of natural gas in homes. If this is true I will be forced to relocate to another state. I use and will only use gas to cook on and heat my home. Electricity for cooking is terrible and to heat my home with it would bankrupt me as it is waaayyyy to expensive. I hope this does not happen as gas is very clean.

J.S. Hillsboro, OR

Energy users should have a choice of which energy source they use and above all residential costs should not rise above the cost of natural gas.

A.L. Canby, OR

I belive regulations are unwarranted. They will dramatically increase energy costs to families in Oregon.

S.H. Keizer*,* OR

Please reconsider this process. We need to come to together to develop more pragmatic solutions that take into account all the possible options as well as the economic implications on our families and communities.

M.W. Eugene, OR

I use natural gas in my home and have for many years as a energy saving tool. Now it is having a variety of methods of heat that concern me. Which I have both electric and gas. I have a gas fire place, kitchen stove, clothes dryer and outside on demand gas hot water heater. These have keep my utilities low in cost and energy use as well as low carbon usage. My home is not well suited for solar because of the neighborhoods trees. It is important to keep many methods of energy in play.

J.R. Sherwood, OR

I hope we can do this, setting a standard for a 45% reduction from 1990 greenhouse gas emission levels by 2035 and an 80% reduction by 2050

J.K. Monmouth, OR

I THINK KATE BROWN NEED TO KEEP HER NOSE OUT OF WHAT IS GOING ON WITH CARBON EMI SSIONS. THERE ARE A MORE IMPORTANT MATTER FOR HER TO FOCUS ON THAN THAT. AS FOR CARBON EMISSIONS THAT NEEDS TO BE ADDRESS WITH LARGER COUNTIES THAT ARE THE BIGGEST PROBLEM LIKE, CHINA AND INDI A. IF WE ARE JUST GOING TO WORRY ABOUT LITTLE OREGON OR THE NORTH WEST FORGET IT. THIS IS A MUCH BIGGER PROBLEM THAN THAT.

WE WILL ALL BE GONE AND BE DUST AND THE PROBLEM WILL STILL BE HERE. THANK YOU

V.M. Astoria, OR

Do what ever it takes to combat the warming crisis at the local level.

D.C. Vernonia, OR

Natural gas is usually cleaner than electricity because of where we get our electricity.

S.G. Philomath, OR

I agree with and support the key principles as outlined by Northwest Natural. I do not support the content of the governors executive order nor the manner in which the order was initiated. Effective change will only be successful thru collaboration, not by unilateral orders.

S.H. Milwaukie, OR

I like using gas for cooking, water heating and heating. Of course there is no heat once the power goes out as the gas furnace has electric ignition and fans to move the heated air. It seems we need to be on a course to get off fossil fuels and look to renewable energy, like solar and reduce the usage. It seems the old adage "You can't have your cake and eat it too." We'll have to adjust and reduce waste.

L.S. Silverton, OR

DEQ continues to practice governmental overreach when it comes to carrying out their duties. Costs associated with driving cars, construction projects, heating/cooling our homes continue in an exponential trend upward while the cost-of-living continues to trend slowly upward or even stagnate. The sources of energy need to continue to be clean, energy efficient, and monetarily affordable. The end user always gets hit with the cost. In a state where homelessness, single-parent households, and low-income housing are commonplace, we need assurance that we will have affordable options for energy sources and not be forced to rely solely on an inefficient and costly solar, wind, electric grid.

L.W. Philomath, OR

We do not agree with this executive order as written. Too extreme and unobtainable.

B.H. Hillsboro, OR

Natural gas has served my family well for a number of years, has been reliable and affordable. My concern is that Oregon will restrict choices for heating, hot water, and cooking. Increases in energy costs will divert family resources from other important obligations and needs without a quantifiable benefit to the family. In addition, climate impacts as a result of restricting the use of natural gas by Oregon families/households will be negligible.

V.P. Albany, OR

Affordability and reliability must remain priorities of Oregon's energy system. No proposal should discourage renewable energy innovation.

J.W. Corvallis, OR

I am more confident in the DEQ right now, than NW Natural. I believe that there are numerous things NW Natural could do to improve efficiency. I believe that all gas lines leak and the the line right up to my house leaks everyday and all day. I can smell it every time I walk up my front steps and have had NWNatural out three times and they say they don't detect it. While all of my friends and visitors say, "Wow, you have a gas leak." NW Natural should spend some time and money fixing all of the seals, junctions, and lines to conserve direct methane leaks.

Also, Gas rates should be tiered for low income and middle income and high income usage with lowest prices for low income and marginalized customers. No one should have to choose between food, prescriptions, or heat. And while I support the "Heat" programs, having to apply for a handout is stressful and difficult and not equitable. What about just starting with a tiered system?

If I had a choice, I would never use fracked gas. Fracking is one of the biggest mistakes the industry has made. Again, the leaks and the failure of the seals and caps is criminal.

I believe that the DEQ should be encouraging NW Natural and other fossil fuel based energy companies, to shift their industry to truly renewable sources as fast as possible. I believe that NW Natural is creative and innovative and can come up with excellent and precise solutions provided the lines are drawn with a narrow and single minded scope— to decrease the methane leaks and carbon pollution of it's own industry.

I do not believe that it is a true statement that we cannot depend on the electrical grid as stand alone energy source. We need to recreate the grid and make it smaller in some areas and more secure using batteries and the giant fusion reactor in the center of our solar system. I believe that we can use natural gas and should over the long haul, but we cannot use it at the present rate. The consequence is too much greenhouse gas emissions for our natural life support systems of the planet to absorb. The result is huge plant, animal and human die-off due to drought, disease, and famine.

I encourage the DEQ to use science and sound economics to draw a firm boundary around all fossil fuel and energy companies. Restrictions can focus a company and make it better. A diamond become a diamond under pressure.

E.A. Dallas, OR

Tax incentive on high-efficiency gas furnaces. Reduced or no cost for residential solar power equipment. Properly equipped vehicles to have unmodified emission control systems in working order. Regulation on emission efficient off-road vehicles. Factory emissions regulations.

R.H. Sweet home, OR

I believe there is a better way for us to be working together on climate change to secure are energy future

D.W. Milwaukie, OR

Keep natural gas available to us.

J.S. Beaverton, OR

I depend on my natural gas to cook, heat my water and my house.

A.R. Corvallis, OR

Don't get rid of natural gas

K.R. Albany, OR

I am in agreement with NW Naturals position on balanced energy sources. There will always be a place for gas, oil, wood, coal, etc. as fuels for meeting our energy needs. The doesn't always shine, the wind doesn't always blow, rain doesn't always fall to fill our reservoirs to produce electricity. There must be a variety of options. In my opinion, all houses (and many other buildings) need more than one source of heat/energy to survive disruptions.

C.Q. Sherwood, OR

We all agree we need plans and regulations to achieve our mutual goal of cleaner and cost effective energy solutions. The obvious legacy coal and petroleum need viable replacements. I am unclear on why our natural gas company seems so concerned that they too will be pushed down the energy chain, so it would be helpful to see what the facts are from an environmental standpoint and an economic as well.

I am in favor of the move towards the shift towards electric powered vehicles, but am questioning if our grid has the capacity we will need [we already have brown outs during heat waves here in Oregon]. Are natural gas powered transit vehicles also on the block? whatever plan is created must address both the environment and the financial considerations and work in concert with the federal government's national planning.

R.M. Damascus, OR

Carbon emissions need to be reduced With a deliberate, and Well-thought-out process. Natural gas Needs to be an integral part Of this process. Moving forward with current technology The loss of natural gas as an option would be financially devastating to businesses and homeowners.

C.R. Junction City, OR

I support the governor's executive order.

J.S. Happy Valley, OR

Kate Brown what you are mandating does not make sense. Do your homework. We need all forms of renewable energy in this state for a low-carbon Oregon.Going purely to electric will put us in the same state of affairs as California where there are rolling outages. Families and businesses should have a choice of dependable energy options. And these energy options should be affordable and reliable. We need natural gas in addition to electric. It is clean and they are working on keeping it clean. I am so frustrated with the Governors changes to this great state of Oregon. Many including ourselves plan to leave the state because of these ill informed policies without the data and science behind it. Mandates have nothing to do with actually trying to fix problems, ordering people to do something without all the information and a good plan does not work. It's sad to see what this state where I was born and raised has turned into. Oregonians are leaving and they will continue due to these poor plans and mandates. Looking back over the ice storm in February this past year and the deaths in Oregon from it, this will be a common scenario for Oregonians if electricity is our only option. Electricity can not power all of Oregon.

G.H. Eugene, OR

Please put this household on record as thinking that banning natural gas as a source of energy in Oregon is a BAD IDEA. If electricity is to replace it, how will that electricity be generated? We are already talking about taking down hydro power dams on the Snake and Klamath rivers to help save the salmon. If we agree that is a good idea, what will make up the gap? Hasn't PGE already agreed or is in progress to convert it's Boardman generating plant from coal to natural gas? If natural gas is the new evil energy source, will we be able to replace it with wind and solar? At what cost and level of reliability in the winter? Do you want to completely sink Oregon's chances of some kind of economic recovery in the future? What business or industry will locate here with such restrictions? I am all in favor of tightening rules for efficiency standards and if necessary implementing a carbon tax to offset the use of carbon based energy sources as long as it is affordable for senior citizens and low income. But, banning the use of a fuel is not the answer to energy efficiency, security or climate protection. Especially now with Covid 19 and the economic hardships that it has imposed on your residents, do you really need to slam us with another expensive pie in the sky, feel good initiative that will have absolutely no overall effect in the grand scheme of things other than to make your residents lives more expensive and difficult? If it gets too expensive to use natural gas, who's going to help me convert my oven, range water heater and furnace to something else? If that cost is on me, count me out and I'll move somewhere else out of state. Then your initiatives will be negated somewhere else. It's getting harder and harder to remain here.

R.C. West linn, OR

We appreciate Our NW Natural, and prefer NOT to support DEQ's plan.

M.R. Sherwood, OR

As someone with a family and small business owner I appreciate and enjoy the comfort, dependability, and minimal financial burden natural gas offer to me, my family and business throughout the year. Personally, cooking on natural gas and heating out home is far better in quality and reliability. It would be irresponsible for Oregon to have only one or minimal monopoly mandatory option(s), particularly when there is no empirical evidence that all our varying communities would survive on an all electric grid. Let us be diversified in our energy sustainability, let us reduce carbon emissions, AND continue to encourage innovative ways to use all forms of renewable energy, from natural gas to hydrogen to electric. Ways to reduce carbon emissions needs to take into account our varying families and businesses needs that includes compassion to financial means and the need for energy that is dependable and reliable based on pragmatic solution options, needs and financial capabilities.

E.P. Tigard, OR

Families and households rely on natural gas as a cost effective energy source for heating and cooking. Eliminating natural gas as an energy source would be devastating to many, many Oregonians. If natural gas were eliminated as an energy source, Oregon better be ready to shell out hefty payments to any house or apartment with natural gas – for fireplace, stove and furnace replacement. Hard-working Oregonians already pay large sums of taxes to the state of Oregon, and they cannot be expected to pay to replace natural gas in their homes without severe consequences (financial ruin, bankruptcy). I urge leaders in Oregon to establish renewable natural gas as an excellent addition to electrical grid power.

N.S. Hood River, OR

What if Dr. Keeling was right? In the 1930s Dr. keeling projected the current state of increasing temperatures with uncanny accuracy. He said we'd have a period of linear growth and then it would become a self perpetuating feedback loop which would then turn exponential. This summers heat dome was exactly what he was talking about. Next year it will probably reach 125°. When are we going to stop pretending that we still have 10 years to solve this problem? It's probably already too late but we should at least try to do something about it to make our kids feel a little better about us. NW Natural needs to do something about this by complying with the emissions restrictions.

G.H. Beaverton, OR

I read through the Program Options to Cap and Reduce Greenhouse Gas Emissions Report. It reads like bureaucratic BS that adds up to nothing. If the EQC's authority is so constrained as mentioned in Sec 3.2, why are you wasting everyone's time with this exercise that is guaranteed to go nowhere. At the snails pace Climate Change is being addressed we're all dead while your still defining "underrepresented." Also the goals of 20% below 2015 levels by 2030 and 25% by 2035 are pitiful and weak. We'll be well above the 1.5 degree global temperature increase by then. Try something meaningful that will require us all to make sacrifices so humanity can survive.

Regarding DEQ: DEQ testing stations are dated and a total waste of time. Vehicle emissions should be monitored by vehicle's computer (like everything else). Excessive emissions would trigger vehicle's Check Engine light requiring immediate fix. Currently cars can pollute up to two years (in theory) before DEQ diagnoses (plus leave an unnecessary carbon footprint while wasting an entire afternoon driving across town and idling in line with dozens of other cars).

E.C. Eugene, OR

The shocking of detail as to the source of energy and the amount that can be produced that will replace fossil fuels for the growing northwest is beyond comprehension. It smacks of the governor playing to her base, knowing full well she will not be around to answer for the disastrous consequences. We are making our plans to leave Oregon before this all blows up.

S.C. Hillsboro, OR

It seems irresponsible to me to have a climate protection program put in place without clear language regarding the true costs and without rules that ensure the reduction goals will happen. I am in favor of innovative ideas to improve existing, or create new, renewable energy sources. I think it's a disastrous plan to solely depend on the electric grid for all energy needs.

Y.B. West linn, OR

Absolutely agree with your view that we need PRAGMATIC solutions that would actually improve people's lives while promoting better stewardship of our planet and inspiring innovation.

C.P. Damascus, OR

leave the natural gas out of the climate insanity.we don't need another Texas fiasco.

C.Y. Hood River, OR

In order to be carbon neutral we need to stop burning fossil fuels. This includes not using gas appliances in the home. While I am personally deeply saddened to give up my gas range, it is a necessary consequence of the mess that short sighted corporations and corrupt government has created.

As a customer of NW natural, I am also cognizant of the work that they do and the fact that their employees are my neighbors. However they, like the rest of us, live in a world governed by physics. Burning natural gas is not a carbon free activity, and thus will not be sustainable. NW natural, like the rest of us, will need to find ways to adapt to the new world or perish.

S.G. Salem, OR

Mandates are not the way to go...Give us our options to choose from and let us decide which energy source fits our individual needs. Right now Natural gas is #1 and all other available options cost more. I would like to be green but do not feel I should be forced to pay more by some new rule or mandate. Our cost of living expenses, fees and taxes have been escalating faster and faster. Taxpayers/customers do not have unlimited resources!! Secondly, a Carbon tax would be a disaster for the Oregon ratepayer/taxpayer. Our State leaders are on a path that will destroy the Oregon economy. Costs are spiraling out of control...

S.B. Hillsboro, OR

I really feel that if we are to remove one form of energy, we need to have a fully ready system to take up the slack. We currently do not have that. If we remove natural gas, more will be depending on electricity. However, the NW is removing coal plants as well, which puts a strain on the electricity grid. We have no backup plan ready. Wind and solar will take decades to get up to the capacity needs of removing coal. Natural gas is very clean, is very readily available, is easy, is inexpensive, and is a no-brainer to keep until the end, when are fully capable of supporting the extra demands. KEEP NATURAL GAS!

K.B. Portland, OR

The government can't set goals for clean energy without comprehending cost and reliability — because it could cripple Oregon's economy. We also need to reconsider alternative energy sources like nuclear power — they are being proven to be successful and very safe.

C.M. West linn, OR

I am opposed to regulations that aim to impose new taxes and costly hurdless on businesses, especially in this case, because they intend to implement cap and trade policies whose corporate and transnational origins are designed specifically to destroy competition from small and medium sized business owners. These unknown but presumably impactful burdens and costs will naturally be passed down to consumers who are already struggling with inflation, at a time when global supply chains are the weakest they've been in decades. With all the covid lockdowns/state orders that have shutteres business over the last year and a half, imposing new taxes that setup unfair competitive advantages against small and medium businesses who have been most impacted is unthinkable. The unintended consequences of interfering with market dynamics will almost certainly be counteractive in hindsight. Instead we should be focused on supporting local business, not making business operation more difficult. These regulations will hamper the capability of the open market to produce eonomically viable solutions to climate change that would otherwise manifest organically. This is not the time for implementing devisive political doctrines in the State of Oregon considering the national political atmosphere and will result in at least one vote against gov. Kate Brown by me in the upcoming election cycle.

S.K. Lake Oswego, OR

I am against the executive order and all the it states and implies. I am in favor of natural gas, coal and the pipeline.

C.F. Astoria, OR

On the coast we have periodic power outages. Without natural gas cooking and heating, we would not survive.

E.N. Woodburn, OR

Our governor and her enablers are going down a slippery slope and taking us with them. It is not well thought out as to what the results will be, but I believe the results will not be good for any of the people.

C.N. Portland, OR

All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability must remain priorities of Oregon's energy system

J.J. Aumsville, OR

Depending exclusively on an electric grid for energy puts everyone at risk of being without needed resources during a natural disaster/ storm; like the ice storm we all saw at the beginning of 2021. Without a source of natural gas or renewal gas the only people that would have access to any source of significant heat (that did not have a wood burning option), hot water or a way to cook would be the people that were able to find/ have a generator (which also requires gasoline) or those with an alternative living option. I do not believe that an electric grid as the sole source of energy is the correct call for the people of Oregon.

R.S. Milwaukie, OR

First lets be sure that there is enough renewable energy available before we cut off all the natural gas that is being used today. Most of the coal assets have been shut down and wind energy has certain limitations and even our natural resource of water energy has certain limitations. This mandate is ill thought out or is not thought out in enough detail at this time to be mandated by the Governor. The DEQ Climate Rules needs to be a long term process and as a reliable renewable resource comes on line then cut back an equal amount on those energy uses that currently produce greenhouse gasses. This should be a no brainer. To come up with a wild guess standard of 45% and 80% without having an equal amount of on-line natural assets available is not smart. You can't cut it off and then come up with an alternative. The cost factor for these wild guesses will be borne by the consumer and that cost is going to be extremely high and needs to be determined before implementation. "Don't put the cart before the horse".

W.P. Gearhart, OR

I take serious issue with setting arbitrary percentage cuts as goals! My long experience as a home owner (50 years) in Oregon suggests that natural gas is the most efficient and cost effective way to heat an Oregon home. With the continued improvement in cleanliness and efficiency of gas heating appliances, I think it would be very foolish to force people to discontinue the use of this abundant home heating fuel. Certainly, that should not be even considered until alternate energy supplies from electricity can be provided TOTALLY free of fossil-fuel generation and in lower cost abundance. The subtraction of the minimal contribution of CO2 from natural gas home heating certainly won't make up for the expense and CO2 contribution of the electricity generation needed to replace it under present circumstances. If Oregon gets into a winter heating situation like Texas recently did, and we have homeowners FROZEN OUT of their homes due to lack of heating energy, the State's home owners will certainly not forget which governor and administration put us into such an unhappy situation.

D.S. Salem, OR

Natural gas is a clean burning resource for many uses. When electrical power goes out (which is often) I can always rely on natural gas appliances to continue working. I currently use natural gas for cooking, central heating and a fireplace. Its important to have alternatives to energy. Don't restrict or eliminate the use of natural gas.

T.H. Scappoose, OR

Please don't take my Natural Gas away. My bills are cheaper because of natural Gas and I like the instant heat I get. Let the consumer choose Natural Gas.

P.R. Albany, OR

We need a better process or clear visibility to the downstream effects of this change. This generalization approach will be costly and ineffective.

S.B. Wilsonville, OR

No more regulations. Enough money is wasted on this ridiculous BS of climate change. It is just more money and power grabbing by the government. You want to help the environment, start by forcing the most polluting countries to do their part. Fine China, India, Russia and others to pull their weight. Hell, the ozone hole has closed. Stop stealing our money to solve what other countries refuse to do. Keep your hands out of my pockets!

J.K. Keizer, OR

I absolutely oppose queen Kate's mandate regarding climate change. It's a power grab from the left, nothing more.

J.C. Beaverton, OR

Natural gas is already a clean fossil fuel and relatively cheap. Many low income households rely upon it. To only depend on electricity for all energy needs would be very expensive, and cause high electric bills that most families could not afford.

A.K. Hillsboro, OR

Green energy is good for society but not yet ready for mass society. We need a balanced approach where other energy sources such as natural gas are used while we bring more green energy online. Natural gas, and hydrogen, are low pollution energy sources and readily available today. As someone who has worked for a long time in green energy, lithium ion batteries, I do not see a rapid transition to green power at this time. We can learn from the mistakes of California, Germany, Texas, in not having enough energy which lead to grid failures and loss of power during peak need. It is easy to just say "I make it so!" without looking at the necessary steps to have a clean and somewhat pain free transition. Remember, the poor are most impacted with rate hikes that occur and but removing natural gas as a heating source of both home and water you end up with is being electric which is more expensive and taxes the grid even more.

M.M. Eugene, OR

This executive order is nonsense. The one thing we Seniors have going for us financially, is natural gas. But our legislators don't care and don't listen.

K.T. Dundee*,* OR

What Kate Brown has done by executive order is both outrageous and reckless when not supported with well documented scientific facts and well studied calculated cost estimates. This action by the governor should be challenged by all your legal and expert resources. I am completely fed up with our "out of control" governor taking careless actions without caution or respect for who she serves. Actions that have long term consequences for me, my adult children, and my grandchildren.

C.G. Salem, OR

Natural gas is already a clean energy source. We don't want to increase costs or rely heavily on electricity. Last year the ice storm proved just how necessary natural gas is. Homes could still be heated via fireplace , and gas ranges allowed for cooking. We had no power for over a week but used natural gas everyday. Had we had the right setup a small generator could have powered the gas furnace blower and given us full heat. Natural Gas is very efficient at heating and should not be penalized due to being a fossil fuel. With added red government tape it could drive energy prices even higher at a time when the economy is already over saturated with inflation.

R.M. Tigard, OR

DEQ needs to do a true cost calculation before any more rules are made. These goals impact every energy user in the State. These decisions are for the voters of Oregon, not just one persons ideals. There needs to be choices on how we decide to lower the carbon footprint. And any choices for redecutions that are approved by the Voters needs to ensure the reductions are real.

W.V. Dallas, OR

It borders on lunacy that regulatory changes would be issued BEFORE a robust cost analysis would be performed. Inflation is at its highest level now and we haven't even seen the tax increases coming at the end of this year. Although I support the general climate change philosophy I am not willing to be cold in the winter or hotter in the summer because I can't afford the energy rate increases driven by climate change regulations hidden costs.

P.H. Portland, OR

Oregon needs to find a path to convert to truly renewable energy to cut our net CO2 (and other GHG) emissions to zero or near-zero. Natural gas does not meet that goal without CO2 capture, which is near-impossible in any non-industrial setting. Hydrogen may be useful for energy storage, but the large losses in the generation and use of hydrogen as fuel should preclude it from being considered as a replacement for residential heating purposes. Heat pumps are clearly the best choice where no other natural gas replacements (or renewably generated "natural" gas) are available.

C.O. West linn, OR

We should not accept the banning or forced reduction of the use of natural gas until adequately tested and reasonably affordable alternatives exist. Expanding the use of natural gas may even be required so as to reduce reliance on more harmful sources of energy like coal and heating oil while newer but not-yet-practical sources are developed.

A.D. Aurora, OR

I depend on natural gas for heating, cooking, and heating water. I think natural gas is clean and affordable method along with electricity generated by our dams. Solar and wind solutions may be part of the solutions but they are more expensive and not reliable. It is interesting that now the state now can issues such mandates without peer review of the science.

M.R. Aumsville, OR

I believe that any restrictions placed on energy need to contain affordability, reliability, and cost. We can't just pull the plug by a certain date. Let's work together.

D.D. Sherwood, OR

Restricting access to proven and increasingly clean energy options such as natural gas/propane is asinine and a power grab by our increasingly tyrannical state leaderships. (Oregon/Washington/California/etc.) Pulling access to gas and confining everyone to an all electric power grid that CANNOT support the demand nor the future demand of wildly uncontrolled population growth to the PNW is dangerous and a dereliction of responsibility. All electric technologies are a great field of study and that industry increasingly shows new development. BUT there is no current way to sustain a push to all electric power consumption. Wind farms only produce power on average 1/3 of the day, and have been falling short of their supposed useful life for years now. Solar farms are expensive, are mostly made out of the country benefitting others that don't care about emission control in the manufacturing/shipping process; and in the cloudy/ weather prone PNW they do not yield sustainable levels of power. Both of these options have no cost effective power storage option either. Gas is incredibly clean, safe, and established. It should be utilized as long as possible until it is proven to truly be a superseded technology.

S.C. Hillsboro, OR

I am definitely in favor of responding to climate change and reducing greenhouse gases. Part of that involves bringing new, renewable energy sources (hydrogen, fusion, wind, solar) into large scale use so we rely less on carbon based fuels. However, maintaining both electricity and natural gas as energy sources at a residential level is important for resiliency (being able to cook or have hot water when electricity goes out, for example), compatibility (many currently installed appliances run on natural gas), and economic reasons (it is less expensive to heat with gas than electricity).

K.K. Beaverton, OR

I believe global warming is a huge, complicated, and complex situation that needs careful thought and a bipartisan response. Specifically regarding the use of natural gas: all forms of energy have their direct and indirect, costs and benefits. In our planning we must understand the long term societal impact of each decision that is made. Transparency, pragmatism and long term thinking does not exist in political leadership. Rather, we see partisan wrangling, powerful lobbying, and therefore tainted goal setting that springs forth from the wrangling and lobbying. The response to global warming, regardless of whether one believes it is man induced or is occurring naturally requires a different approach because it is a slow moving event that those alive today have never experienced before. It's not like the economic cycles that we see periodically in our lives. Even those lessons are often soon forgotten and hard lessons are learned all over again.

D.J. McMinnville, OR

Climate change is cyclical in nature. A single volcanic eruption produces more toxic gases & abrasive particles then mankind produces over decades. Most fossil fuels have become much cleaner to burn due to technological improvements. I oppose everything Kate Brown has burdened our great state with during her time in office. She's been wrong in handling everything from Covid to police & from schools to timber. The big scam of climate change is to make the leaders richer. There is no proof we have an electrical grid robust enough to handle electric cars in every household. Studies have been published showing net miles per dollar spent increases three times over what it will cost to drive a gas powered car. NW Natural has done a great job so far in keeping my natural gas bill affordable. Keep it up! I oppose changes proposed by the Government.

T.W. Clackamas, OR

This will be disastrous for anyone that is middle income. Those who can no longer afford the price of energy due to this unreasonable mandate will no doubt, in the Oregon way, have subsidies provided to them by the state, at the expense of middle income families. Once again this will lower the standard of living for those WHO ARE WORKING the hardest to make ends meet. The government of Oregon can then sleep well at night thinking they have done their good deed, while also cementing their legacy as a politician who accomplished something, no matter how many people it harmed.

A.C. Dundee, OR

The consumer loves, natural gas, and all the benefits it has, non- comparable to electric or other sources of energy. We should have a right to choose what's best for our family and not let the political agenda to dictate how to live our lives.

S.T. Beaverton, OR

New Climate Protection Program to reduce greenhouse gas emissions and address the effects of climate change.

K.T. Portland, OR

Exclusive dependence on the electrical grid is essential. Natural Gas produces toxic emissions. Human survival is more important than profit here.

K.R. Keizer*,* OR

Need more information. Depending on electric grid is aok with me but costs for solar are outrageous to have placed resulting in costs \$30,000. We need more information about the costs and if there are any financial breaks with it.

D.S. Junction City, OR

With Oregon wanting to clean and save everything, like removing water power dams natural gas is a lot cleaner. Then the alternative electric energy. In our colder weather areas we lose power offen a simple generator supplies power for a fan to run my gas heat. Many of my neighbors wish they would of opted to go for gas heat. It still cleaner then electric and solar is still just as bad battery used for storage are costly and only good for so many years then they are costly to disposal. Wind generator are costly and noisy and they still need batteries for storage and your at the mercy of good old mother nature.

N.S. Portland, OR

Kate Brown has made it clear that she can't be trusted with executive powers. If action needs to be taken and it will impact the people in the great state of Oregon, it needs to be put to a vote. The citizens need to be presented with facts and data and how it will impact us. Please stop making decisions on our behalf with executive orders.

M.M. Corvallis, OR

"I think NW Natural's call for submissions is predatory in language and demonstrates blatant disregard for the necessary climate action. By using statements such as "force communities to exclusively depend on the electric grid for all energy needs

S.K. Wilsonville, OR

I am concerned that affordable natural gas will be banned or greatly reduced. Oregon has a high cost of living and banning natural gas will have financial consequences for already struggling citizens of this state. Please tread carefully on making decisions that will have lasting consequences. N.M. Hillsboro, OR

You are going to cripple so many people by thoughtless applications and rules. You will destroy all the small businesses by setting up guidelines they cannot possibly logistically and financially adhere to. I am disgusted by the arrogance of the financially classist leadership.

D.N. Springfield, OR

There will always be something that doesn't seem "fair" or doesn't calculate the "true costs". The true long term costs of taking baby steps and preserving some form of business fairness are way too severe to contemplate doing anything less than what Governor Brown is doing. If anything, she and other business and governmental leaders should be doing much more, reflecting the true urgency of the climate-change situation. As a responsible participant in the energy service world, and as responsible members of the human race, YOU should be doing more! I totally support Governor Brown. Stop whining and get to work as a critical part of the solution, not the problem.

B.W. Aloha, OR

If climate change is a real problem, we need to building more dams. We will need the additional water. Yet that is not a priority (why?). Hydroelectric is one of the most efficient means of generating power. Next up is nuclear, yet that isn't being discussed, why not? Why is only the fraud solar (which enriches China) and wind, which is totally unreliable the only options being discussed? And why isn't the solution presented at https://brilliantlightpower.com/ being investigated. It would greatly outperform solar and wind. The state should be doing everything to encourage the cheapest solution, so people are not wasting money on "overhead" costs.

R.B. Corvallis, OR

To DEQ: NW Natural asked me to send in my thoughts. I think natural gas is a problem and its use must be diminished. I am on gas but will need to convert. The state should pour money into real renewables (gas IS NOT one of them) and help users transition. Subsidies for homes to convers to solar, wind, wave and others should be supported. Subsidies for new solar / wind / wave should be expanded and enhanced and be very generous. If anything, these actions are late to the game . We need ACTION and aggressive action. NW Natural needs to decrease investment in gas and transition to an energy company that includes solar and wind. Damn the cost. I think the 45% reduction by 2035 and 80% by 2050 is too low but is a start. It should be faster.

To NW Natural: Sure, there are problems to be solved. Amendments to this rule making may be needed in the future. You need to be part of the solution, not the problem. Sure there are costs....big ones. It will not be easy or convenient. Rate payers will be impacted. Investors may take a beating for a while. We will struggle to get there. But struggle we must. Either move to a real renewable energy company or suffer the consequences. Yes, rate payers, commuters, residents, industries, households, government agencies and absolutely everyone is going to have to pay the price. You also. It is what it is.

T.S. West Linn, OR

Businesses and individuals should have freedom and choice when it comes to energy sources in Oregon. Having a diversity of energy sources helps reduce costs and provides homes with alternatives for power and heating when certain sources fail (e.g. electricity). Natural gas is an important and relatively clean sources of energy for homes and businesses and I would strongly prefer to see policies and political support for this vital and efficient energy sources. In addition, our home was a huge benefactor of having natural gas for heating and hot water during times of power loss, where our electrical grid is compromised and any source providing electricity is effectively useless for days until power lines are restored. Freedom of choice and a diverse array of energy sources are critical to improve our energy resilience and maintain individual rights in Oregon. J.W. Forest Grove, OR

This is extremely cost prohibitive and will put a huge financial burden on low income, middle income, small business owners, and the entire state. PLEASE DO NOT PASS THIS LAW!!! We can transition to cleaner programs, but this is TOO DRASTIC!

K.R. Canby, OR

During the February 2021 ice storm, I was able to 'shelter at home' ONLY because I had a gas fireplace, a gas stove, and a gas hot water heater. Any other energy source, and I would have been a burden on community shelters. My neighbors' daughter had to bring her infant and toddler daughters to the neighbor's house, as they were without power for over ten days. The safety aspects of natural gas are immense. The climate consequences can be managed by good usage

M.T. The Dalles, OR

We totally understand how important renewable sources are and completely agree with the careful and reasonable position Northwest Natural Gas has presented to us in this communication. We believe the Governs request is short sided. It ignores the importance of balance... especially in cost and innovation.

J.N. Eugene, OR

DEQ Commissioners,

NW Fracked gas is correct that we need to reduce our carbon emissions so I urge you to include the six fossil fuel generating energy plants in your greenhouse gas emission inventory. We will not achieve the goals of the Governor's Executive 20-04 if DEQ does not take into effect these carbon emissions. Furthermore, residents of Oregon need to fuel switch from gas appliances to electric in order to curb the effects of global climate reduction by phasing out the burning of fossil fuels.

I hope NW Fracked gas makes my comments available for the community and decision makers to see. Thank you for your attention.

K.E. Tigard, OR

I have lived in Tigard Oregon for 16 years at the same address. We really enjoy having gas. Having a gas and electric home. I can tell you that NW has been really reliable especially during the winter weather. It is nice that our home is heated with gas during power outages. While everyone around us is calling to complain about not having heat to cook with or heat in their home we are always at ease knowing that we don't have to suffer. Thanks NW has we appreciate your service.

O.G. Lake Oswego, OR

I think having a natural gas option is very important! A grid can run into issues and batteries do not last forever . There are also sooo many appliances that run on natural gas and cannot he converted to electric -those cannot all just become trash? What a huge waste that would be !! The landfill and earth impact would be huge if all of those products became trash.

S.V. Warrenton, OR

I believe we need more than one power/fuel source, particularly in the event of an electrical power interruption. Also, if there is a massive shift to battery powered vehicles, can the existing generating and disbribution systems meet the demand?

S.H. Salem , OR

We need to improve the way we care for the planet. Taking steps that are too big too fast will only cause problems for us and our future. It is unwise to fix systems that we have in place without having solid plans to replace the old. These plans need to include what cost of the new plan; what is the cost of using wind, hydro and solar? Cost to the customer, cost to the companies? What is the cost of these things on the environment? We can not take energy from the system of our environment without it impacting that environment. We need to know what that impact will be and will it actually be worth it? Also what are other alternatives, why can't we continue using gas and improve on what we already have? That may be cheaper and just as good for the planet as other renewable resources. If these questions are not answered to the public then there is no plan it is a goal. And if we are a community, and state take action to work twoards a goal with no plan, that is gambling with a lot money, businesses and livelihoods. That is not a worthy gamble and we do not elect officials to gamble with such important aspects of our lives. Show us the plan, show us the evidence and the proof that it is a good plan that it is a doable, show us the cost and how that cost will be covered (because any increase in cost will only come from the people) show us that the plan will make a difference and that it will be worth the cost. AFTER we know all the these things and we can agree it is a good plan, then we can take action. Anything less is unwise and asking for more problems than we currently face.

S.S. Beaverton, OR

Please move forward calculating the true costs of the DEQ's Climate Protection Program, which will impact every energy user in Oregon. I am very concerned about the cost increase impact on consumers. We cannot afford to have services reduced or prices raised. Inflation on food & gasoline costs is bad enough now & getting worse. Please do not increase energy costs as well.

F.S. Portland, OR

We all want a clean earth with fresh air. As the sun keeps losing heat the earth has obsorbed lots of it and will keep getting warmer like a stone oven. Unless the whole earth (China, Russia, India etc.) is in on it, we barely will not make a difference in global warming and pure air and water. In regards to our Great State of Oregon, the governance should see global warming with a grain of salt or more. The governance is executing research and development and is using real people's lives as ginny pigs. The fact is, our dinosauric forms of clean energy is just that, dinosauric. An example is in solar panels where we only use a very little percentage of the 100% energy it gets from the sun. We should better our technology before putting disastrous clean air plans into effect. And use arithmetic to understand it takes a whole bunch of natural gas to create a less amount of electricity. And by all means, look at the future, charging electric cars, reducing electric generating plants, which spells brown out galore. We love our State as we do our Country but arithmetic tells me there's a problem with \$3.5T will cost \$0. Removing the best energy to date cannot be equal to more energy. Tell governance to stop using us as Ginny pigs. I hope people still know arithmetic.

Thank you for the opportunity to express my thoughts.

D.C. Gladstone, OR

We are all screwed under Democrat leadership, does no good to fight it. Wait to Tina Kotek is governor, it will be worse.

J.T. Cornelius, OR

I strongly oppose the draft Climate Protection Program (CPP) rules. If natural gas suppliers turn to fuel rationing in order to remain in compliance, it will have a devastating impact on communities by forcing customers to pay higher bills. These customers include the most vulnerable among us: low-income households, renters, communities of color, and others who are unable to make expensive electrification upgrades. D.N. Tigard, OR

Natural Gas is essential for homes because when mire people charge electric vehicles or there are rolling blackouts to prevent forest fires, natural gas can be used for heat, cooking, hot water and other needs. One airplane makes twice the pollution that cars do in a day, yet we have watched 4 different carriers planes fly over all bound for Reno etc 5 minutes apart. Why not limit the amount of flights to full flights by less carriers every day.

P.L. Aloha, OR

We seem headed toward the same problem as is shutting down industry in China: But as China tried to shift to renewable energy, a severe drought hit the hydropower center of Yunnan province. Water-generated power declined year-on-year in July and August by more than 4% each month, according to the National Development and Reform Commission. Wind-generated power has also slowed its growth, rising 7% in August from a year ago, down from 25.4% growth in July, the commission said.

D.J. Salem, OR

I support this bill. It works well in other states, and will help keep Oregon the healthy and nature-minded green state it is. Moving forward with the right changes to continue these values is paramount.

B.G. Beaverton, OR

It is frustrating to have a governor who ignores the needs of her constitutes and solely focuses on her own agenda. I hope we could find a middle ground where the impact on families would not be so traumatic And we would be able to reduce our carbon footprint. Unfortunately it seems very clear that Brown is only interested in virtue signaling, as she has not pushed for logical and effective emission reduction practices, and instead just declares mandates. (I sure would hate to be part of her family~) I think it is time to flush Brown down and give Oregon a better and less oppressed future J.S. Salem, OR

I've noticed that nearly everything Brown does is an executive order. I would like to see debate. I request this go through the normal process. I want representation.

L.K. Albany, OR

This seems to be a drastic effort in such short time. The community has been in turmoil and uncertainty since March 2019 with the covid-19 pandemic with no real end in sight. We should deal with more local issues and not such global concerns at this time. Gov. Brown needs to focus on the people and stay on top the issues Oregon faces locally. What would such a drastic change effect? Does it help the people who have not worked in the last 2 years or does it add stress for unpaid bills? Gov Brown needs to stay home and concentrate on the community the people and the issues of Today.

D.W. Tigard, OR

I agree with NW Natural's assessment that All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. That families and businesses should have a choice of resilient and dependable energy options to meet their needs. That affordability and reliability must remain priorities of Oregon's energy system. I believe we need to know the true cost of the DEQ Protection Program so that it can be evaluated if it is too costly and may need to be modified.

J.M. Milwaukie, OR

I fully support the DEQ emissions targets. There is no other way to avoid catastrophic climate change than to act quickly and aggressively. Of course the changes will be hard, but we have to be ready to make hard choices now if we want to avoid even harder choices tomorrow.

G.L. Albany, OR

Changes to use of heating and lighting energy must be considered with respect for the impact caused to fixed-income and low-income users. The mandatory change in levels of use has no science basis and thus is a poor choice for just "feeling good." Not all can afford non-science-based mandates. It is not "evident" that Oregonians across the state do agree. Good science is needed as a basis.

M.M. Beaverton, OR

Natural gas is a clean and renewable source of energy. We must not "put all our eggs into one basket", and focus solely on electricity for our energy needs. There are not enough reliable methods of generating electricity without burning of fossil fuels (at least for now). Increasing electricity needs will only further tax the existing system needlessly, and increase costs for all of us.

J.E. Milwaukie, OR

As was proven in the state of Texas total dependency on the Electric Grid is not a good strategy to follow if Oregon really cares about the public.

J.B. West linn, OR

It is difficult to believe the government take over of the lives of American people under the guise of climate change. Natural gas has been one of the major bounties for people given that it is clean, safe and affordable. We finally become energy independent and our government shuts down the Keystone pipeline. Kate Brown and liberal Democrats are taking this state and this country down an unsustainable future. If you don't like what you are are paying for your energy now, just wait. Somehow though China is the biggest polluter, Americans are being led down a ridiculous path that only leads to economic hardship. "It's our fault" We live in a state that does not allow people the opportunity to make meaningful change because control of the vote is with Liberal Democrats. They have ruined Oregon. I do not know what the answer is but to pack up and go to a state that has reasonable leadership.

D.B. Portland, OR

Your anti-regulatory bias is showing, NW Natural. :(I've been a fan of natural gas cooking and heating (water and home) for many decades, but this push to slow the progress of a move to ACTUALLY renewable energy sources is unseemly and works against you, in the long run...not to mention working against the well-being of our children, grandchildren, and planet.

M.F. Springfield, OR

I believe it is a mistake to put onerous rules on the people in the name of "Climate change". I support NW Natural Gas as a very responsible energy form. There should be no rules that, in effect, limit our options for energy resources.

J.T. Milwaukie, OR

We appreciate having both gas and electric coming to our home. During power outages we still have our gas stove for cooking and our gas fireplace for warmth. We wisely have both services so we are able to stay in our home during outages.

D.A. Hillsboro, OR

In my opinion I feel the whole green energy push is a sham which is very likely making a few folks very rich. Our vehicles today are very efficient and we have figured out how to limit their emissions. Instead of subsidizing solar panels placed on roofs & heavily promoting AND subsidizing electric cars, why don't we focus on managing our forests? No one ever seems to mention all the CO2 that wildfires pump into the atmosphere. We are being duped....

C.S. Salem, OR

Natural gas is both reliable and economical. In many areas, electricity is neither, while incomplete thinking regarding requiring greater dependence on the electric grid, such as major pushes toward electric vehicles (batteries need to be recharged) will leave us short. We must maintain access to all reliably available forms of energy until such time as speculative sources and systems are proven and exist to the point of surpluses that can be maintained in reserve.

My wife is severely disabled. This last February, when the ice storm knocked out our electric power for an extended time, we still had hot water and use of our gas range for cooking. Local food service was next to totally unavailable and if forced to seek housing elsewhere, there are few options that could have accommodated my wife's special needs.

Setting goals for reduction of emissions is a good thing, but limiting the availability of proven sources of energy before building out replacements, and before analysis of the complete costs of doing so, or ignoring another preventable major source of "greenhouse gases" (mismanagement of millions of acres of federal forestlands resulting in unprecedented wildfires) is foolhardy.

V.M. Cornelius, OR

I want the right to choose the form of energy I will use. I don't object to devloping alternate energy sources, but this extreme reduction by executive order is not the way to implement them and it's unrealistic to set a mandatory completion date. I agree with NW Natural's points.

S.H. Oregon City, OR

I believe there is a better way, and that working together on pragmatic solutions will lead to the most promising energy future. Key principles that should be considered: All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability must remain priorities of Oregon's energy system.

J.A. Albany, OR

Instead of crippling our economy and gaining very little to fight climate change when the major polluters (China & India) do little, concentrate on efforts which mitigate the effects of climate change.

S.S. Happy Valley, OR

We need more focus on renewable energy at an affordable cost.

L.G. Astoria, OR

I believe Kate Brown's emissions rules will cause widespread economic and livability hardships for Oregonians across the board with no actual emissions reduction. Further, her decisions will cause inordinate hardships for the poorest and middle class residents who are living paycheck to paycheck. If the Governor is seriously wanting to reduce emissions she would be seriously exploring nuclear power, as well as a blend of several energy sources.

K.W. Keizer*,* OR

This is a disastrous regulation. Keep our clean natural gas affordable for consumers!

J.T. Hillsboro, OR

Natural gas is very efficient and clean. It's also warmer in the winter than using electric. Kate Brown apparently doesn't have to worry about that, because she uses our tax dollar to stay warm irregardless! I guess she wants to use up all of our land for solar panels, wind farms and hydroelectric that kills a lot of our fish. So I guess we're going to have to eliminate fish too. Did she ever explain how much it costs the taxpayers to dispose of wind turbines that have broken down or worn out? K.B. Aurora, OR

Natural gas is a crucial piece to future energy production and residential/commercial use (heating, water heating, cooking, etc.). It is also one of the cleanest fuels available. It also consists of approx 50% of electric generation. How do you replace all that electric generation with solar or wind? You don't. Natural gas is also dependable, reliable, safe and affordable. Renewable natural gas is an even better option as it removes green house gases from the atmosphere and can then be used in our existing pipelines.

D.C. Portland, OR

Electric heating for home and water is far less efficient than natural gas. This is compounded by the additional cost if only using "green" generated electricity. This will be a huge financial burden for lower income families. Most would not be able to afford to convert their homes to electric heat. Demand for "green" energy will drive costs higher as Oregon power companies work to fill the demand. Waste from wind turbine in the for of worn or damaged composite blades is a huge impact on the environment. There is very almost no way to recycle the thousands of composite blades that will be created as the need for more wind turbines are needed.

J.P. Wilsonville, OR

I know my opinions are worthless to our government. They allow for us to comment but they really don't care about us. Natural gas is cheap, efficient and clean energy that we MUST keep if we want to continue to allow people to stay warm in the winter. Our government has gone mad.

G.F. Gervais, OR

While I wholeheartedly agree we need to work towards reducing emissions overall. I don't believe that putting all energy/fuel sources for residential usage on the power grid is the way to go in reducing emissions. When we lost power in the Ice Storm of 2021, our gas water heater was what allowed us to take a hot shower when our home couldn't be kept warm enough. I know this to be true for many people that experienced long term power outages during that storm, in addition to people that rely on natural gas to power their generators in such instances as well. In addition, the added expenses of getting homes upgraded to more efficient equipment is not a burden every homeowner/property owner can shoulder the burden of – while we must care about our environment we also must care for the communities our state supports – people are already suffering enough under the increased housing prices and inflation in the cost of goods. I believe when it comes to reducing our emissions and aiding in the fight of climate change we have other sources we can utilize, like encouraging true regenerative farming practices (see the documentary "Kiss The Ground" on Netflix for more information), finding ways to recycle our water usage in more efficient ways, work to take better care of our forests (maybe actually listen to experts in how we should be addressing the care for our forests and allowing for timber to be thinned as needed – maybe not entirely clearcut though) and get large corporations to find more efficient ways to reduce their own emissions, pay their fair share in taxes and guit wasting our precious natural resources. For example, Google and other big tech companies that utilize our waterways to cool their computer/server systems are only adding to environmental impacts that have damaging effects to other resources. Another is the bottled water industry – quit giving them water rights when we have communities suffering during the Summer droughts we have been facing and will continue to face until we make a change. We have ONE chance to get this right and it's time we stop listening to big money/corporations and special interest groups and prioritize our citizens and the environment first and foremost.

A.L. Milwaukie, OR

Natural gas uses an infrastructure that is in place and generally delivers energy at reasonable cost. Jeopardizing that for unproven and expensive "solutions" and unreasonable mandates is irresponsible and poses an economic hardship on the lower income citizens. Please reconsider the draconian mandates set out by Gov. Kate Brown.

B.M. Albany, OR

Initiatives this sweeping and potentially costly in many undetermined ways should be done via the legislative process, not by regulatory action. To my mind, the logic driving this initiative is flawed. We need practical, proven methods to achieve the goals, and we need realistic, achievable (engineering based) goals.

C.D. Beaverton, OR

There isn't anything we can do that would make a significant difference. Most of the world is worried about basic necessities and pollutes in excess cancelling out anything we could contribute. Your data needs to be more inclusive of all points of view which clearly it isn't. Please stop overregulating and taxing the citizens of Oregon.

F.W. Aloha, OR

The need for heat and electricity are basic human needs. I feel the governor is very shortsighted on what her policies would do. Especially to the lower income and needy. Also the switch to all electricity for cars and heat will tax the grid and guarantee blackouts. If we are going to do something about climate change, it needs to be gradual and include countries like China and India.

D.N. Happy Valley, OR

I understand the reducing carbon emissions for our future generations is ultimately the goal however a balanced plan that weighs costs to the supplier and the end user needs to be included with these orders/plans. Renewable electric energy has its own pitfalls, wind power turbines that are disposed of due to life span are filling landfills. Solar has come a long ways and there is potential with this energy source however it may not be efficient during our winters in Portland. Overall I support reducing greenhouse gas emissions and want to play my part. C.R. Salem, OR

My biggest concern is the cost to us(me) the end user. I have no issues with the climate adjustments/regulations, but it needs to be realistic also. Some of us have limited income due to disabilities and can't shell out large amounts of money to fix or change things. Somewhere a cap/allowance needs to be in place that says X will not exceed Y until this date. At this date in time we will offer program/alternatives that will be available for other parties or companies. Because if Natural gas goes up and my bill changes from X to ZZYZY, I need an alternative, provided by the company or GOVERNMENT to assist in meeting the abilities to heat my home.

A.M. Albany, OR

Until we have a bi- partisan agreement on impacts of this bill on consumers who depend on affordable energy; I would ask that the legislature not just blindly pass a bill that will hit consumers in the pocketbook when they need it least.

J.S. Canby, OR

We have enough renewable energy sources in this state. It sickens me when I drive down I84 and see all the windmills that barely produce a fraction of the electricity needs of the state. If our political leaders were truly serious about zero emissions then instead of wasting millions or billions on windmill farms and solar farms they would be going door to door and install solar panels on residential and business properties for free to the owners, using those same million and billion dollars, to not only get the same result but a better outcome than taking up and destroying vast amounts or Oregon great lands. A.U. Keizer, OR

Now is not the time to make any changes that would make a financial impact on the residents of Oregon. We have been put through too much. Our economy has been shut down and we have suffered huge financial losses. This is not the time. Let us heal and recover. We need to spend our "energy " in restoring jobs, not crushing the ones we have left. This would put a financial burden on Oregon residents that we do not need right now.

J.K. Monmouth, OR

As I said before, Kate Brown needs to stay out of this and do other things. But I also stated until we get the bigger counties like China to step-up and help out this is a no win fight. We still need to get take a very long look at the so call battery operate cars which cost so much but they are worthless. We as human are headed in the wrong direction. We have lots of resources that are good to our environment but we do not use them right.

D.W. Mt. Angel, OR

The DEQ should not interfere with the publics access to safe, clean and affordable natural gas.

P.D. Newburg, OR

All forms of renewable energy including renewable natural gas and renewable hydrogen are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. The affordability and reliability of energy both renewable and electric must remain priorities of Oregon's energy system. If there have been no calculation of the true costs of the program, which could have widespread impacts, who does Kate Brown plan on writing this blank check to pay for her changes? There are proposals to the draft rules that will discourage renewable energy innovation in the Pacific Northwest and force communities to exclusively depend on the electric grid for all energy needs. It has been shown that the current electric grid can not support the needs that will be placed on it. There has to be a better balance between renewable energy and electric resources S.L. Salem , OR

Quit with the restrictions. This isn't what's causing the problems we face.

A.N. Lincoln City, OR

Ascertain that the draft rules ensure such reductions, make the process pragmatic and costeffective for businesses and calculate the true costs of the program. Families and businesses should have a choice of resilient and dependable energy options to meet their needs at the end. Affordability and reliability must remain priorities of Oregon's energy system because it impacts everyone

S.M. Clackamas, OR

We need diversity of fuel resources, including gas and we need the state to incentivize the gas company to transition to renewables but in a cost-effective way that protects all customers and citizens by ensuring we have a safe, resilient and reliable system. It makes no sense to create an energy system that only incentivizes one source—electricity. Finally, we need to protect consumers right to choose their fuel source rather than have state, counties or municipalities dictate our choice by edict, or increased fees and taxes intended to force us to choose electric service—that is no real choice.

T.Z. Lake Oswego, OR

I totally support the direction of reducing carbon emissions, while how fast we should move towards that direction needs to be a a balance of technology advancement and economy affordability.

M.J. Portland, OR

Our government is mandating that we make a switch to fuels that are more expensive and does not currently sustain our needs. The government is yet again arrogant in their agenda and will once again cost consumers while enriching the government. Natural gas needs to be maintained and grown rather than curtailed.

M.B. Hillsboro, OR

We have a right to use gas, solar and electric ! LET US HAVE CHOICES!

S.R. Salem, OR

When the ice storm happened, thousands of residents were out of power for days with no way of heating their homes. Our family was thankful to have a gas fireplace that we were able to gather around to survive the cold. We were also thankful to have hot water from our gas water heater. It is not wise to put all our eggs in one basket. Our resources should be diversified. Completely eliminating natural gas seems foolish. Surely there's a balance that could be pursued. Thank you for your consideration.

N.H. Lake Oswego, OR

I would like to continue the use of natural gas. The state needs provide money and assistance if they want citizens to switch to electric appliances. I do not think our electrical grid is ready for such an immediate change.

J.R. Silverton, OR

"Climate Change" is an anti-science religion. CO2 does not drive climate, it is mostly irrelevant except as plant food. It's the sun. Current levels of CO2 are almost 20 times (7500ppm compared to 400 ppm) lower than in the past. Current temperatures are lower than about 95% of the Holocene era in which we live. The Medieval Warm Period was 2-5 C warmer than present and humanity thrived. The starting point chose for this current hysteria (1850) was perhaps the coldest year in the last 10,000. If you wanted to foolishly attempt to lower CO2 emissions, then natural gas is your best solution. That or nuclear. So called "Green energy" is nonsensical, inefficient and expensive waste of tiem and money. See Michael Moore's movie 'Planet of the Humans', they all result in a net increase in carbon output. Get politics out of science before you seek solutions.

D.S. Salem, OR

There is no need to go green this hard were they escaped to get heat for the winter so dump and not calculated Process. They need to find different way to doit

D.L. Keizer*,* OR

The biggest waste of petroleum are gas burning vehicles. They are also the largest body of carbon producers. We need to reduce carbon emissions where we can. I need to see people embracing electric vehicles before I get too excited about converting to electric cooking. Everybody needs to do their part. Don't wait for the other guy to get the job done!

C.H. West Linn, OR

Natural gas is cheaper for me to use. I would prefer to co to use to use natural gas, rather than switch to all electric.

J.K. Oregon City, OR

Please reopen the planning phase with a more robust attempt to allow public and corporation comment including utilities. It seems this potential plan is missing some critical steps to be considered including gas usage being included.

Z.F. Portland, OR

Climate change is a part of nature. Changing what humans do will not effect it. Stop wasting money and making things more expensive to appease the hippie freaks in downtown Portland.

W.S. Beaverton, OR

I do not agree that communities should "depend on the electric grid for all energy needs." It's always good to have an alternative source and option for consumers. What about all the equipment that run with gas in almost every household now, will they be obsolete?

R.B. Hillsboro, OR

I strongly oppose any rules or legislation that would force communities to depend on the electric grid for all energy requirements. The grid is already stressed and relying on a single source of energy delivery is a sure way to put our well being at risk if even a minor event should disrupt the distribution.

K.R. Oregon City, OR

Natural Gas is a reliable and effective energy, and kept us warm when electricity was out during the ice storm of 2020. Use common sense when making policy for customers needs. Only one choice is a monopoly, and that is not smart or wise. Having more than one energy source is smart and effective. Looking at the whole picture of energy supply, are coal burning plants still providing electricity? That's not green is it? Let's get it right this time and focus on the best long term solutions, dual power source is smart.

R.S. Portland, OR

It seems that an effective method to develop a "climate protection program" should include representatives from a reasonable representation of those companies, agencies, and private individuals who could mostly impact the reduction positively. Another concern would be whether the efforts made to realize these reductions could result in additional pollution in the manufacture or production of alternate energy methods or products.

D.T. Newberg, OR

This proposed mandate is strictly a liberal political vehicle, not aligned with actual science nor appreciation of the wonderful resources God has blessed us with. People need to be given choices and allowed to utilize what best fits their specific needs. Do we so soon forget the not to recent failed solar project (SoloPower) US, California Energy Commission and Oregon taxpayers funded just a few years back? We use natural gas for our heating, appliances and boiler, not to mention vehicles and farm equipment. To be mandated to use what one person and a few others think is not a democracy. And last I checked, natural gas and coal are needed to help run and power electrical plants. This is not an affluent state. Electric, solar and wind options have always been more expensive than natural gas. Our taxes here are bad enough, now they want to take away even more from folks that are struggling to get by?

J.A. Salem, OR

in difficult financial times for so many, mandating policies and structures that are sure to pass significant costs along to every person is a severe lapse in judgement. there can be plans and procedures implemented that reduce emissions, but this mandate is not it.

R.R. Springfield, OR

I agree with NW Natural. We must have access to clean and renewable energy options other than electricity. There must be balance, and R & D and advancement of natural gas and hydrogen fuel should continue.

M.S. Depoe Bay, OR

Oregon must do everything it can to address the climate crisis. I support the Governor's Executive Order and hope the legislature enacts any required budget or other legislation to support it. This will no doubt raise the cost of energy to all of us. I would hope that, while maintaining the economic incentives to reduce use, provide funding for less financially secure home owners and rental unit owners to address heating and cooling issues with their properties (insulation, high efficiency heat pump HVAC and water heaters, more efficient windows, etc). This is a true crisis and we need to take it seriously all while protecting our most vulnerable among us.

J.F. Salem, OR

This mandate will cause my family like every low income family a extreme financial hardship with high cost unsustainable electricity that we see every year with rolling blackouts every summer because there's not enough electricity for everyone trying to cool there homes and thousands die from heat related blackouts now they want us all heat with electricity and it will overload the systems even more and will cause blackouts in severe cold weather Americans will freeze to death. Americans are held to the highest climate laws when there are larger producers of green house gases and Americans are the only people that have these extremist socialist politicians that fly around it polluting planes and multiple vehicle convoys that our taxes pay for every one of these extreme laws will put millions of American families further in debt or reliant on the socialist systems and unable to keep there families from freezing and in many cases homeless for the inability to afford high cost unsustainable electricity these politicians don't listen to the majority of Americans that just want to live free like our constitution and Declaration of Independence grants Americans when does the socialist administration be held accountable for the cause of millions of Americans losing there low cost means of heating

J.F. Lincoln City, OR

I prefer natural gas and don't want the method of how I heat my house taken away. Natural gas is reliable, in my area, and more affordable. Electricity is neither. Taking this vital resource away puts low income families in difficult situations with the excessive costs of living. Gas is the way to go.

S.M. Silverton, OR

I believe it's important and crucial that we take action on climate change and starting reducing greenhouse gases. But we need to do this in a responsible way and explore all options. We need to be actively and aggressively exploring and pursuing any and all alternative renewable energy sources. We should not limit ourselves to any one source like electric, but combine all of our energy sources along with new alternative renewable energy sources to achieve our goals to reduce greenhouse gases. Putting all our eggs in one basket would be detrimental to our environment and our economy.

M.L. Salem, OR

Please keep natural gas an option. As our landfills over flow, make garbage composting a source of renewable energy. Invest in things that will never run out, sun, wind, rain and garbage.

S.D. Salem, OR

Who do we think we are that we can control the climate? Count the cost before mandating sweeping expenses! Who starts a project before having a clear idea of the cost? We have to be able to afford our utility bills & lets not push the expense onto our children & grandchildren.

P.S. Salem , OR

We need to take every action possible to protect against climate change.

S.P. Salem, OR

I do not wish to see us lose our access to gas at affordable prices in a rush to move to "Green Energy". Europe is a effect example of what happens when you shut off or reduce the continued allowance of energy commodities such as natural gas too soon and then have to deal with spiking prices. I am opposed to the manner in which Gov. Brown is trying to implement her clean energy policy. Please stand firm and let our voice be heard. Thank you.

J.F. West Linn, OR

Before any changes are made in regard to new climate rules the true cost should be shared with the customers who will be paying for the increased fees.

B.F. Beaverton, OR

I like having natural gas for heat and hot water. The higher cost in winter is offset by the quite a bit higher cost of air conditioning in the summer. I have a small house and my furnace sits outside. I don't think an electric furnace would work at all. Also, my house is 75 years old. I would probably have to rewire at \$20-25,000. I can't afford to do that. All electric is not the way to go. We need a mix of fuel available.

P.F. Salem, OR

Please do all that you can to switch to renewable and clean energy sources as soon as possible and be a leader in doing more than the govt is suggesting to really address the dire circumstances of climate change and be a positive change maker.

A.M. Aurora, OR

All Energy Providers voices count!! This is not political, this is creating a plan together for our children's children. Time to be smart about this.

R.B. Grand Ronde, OR

We believe there is a better way, and that working together on pragmatic solutions will lead to the most promising energy future. Key principles that should be considered: All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability must remain priorities of Oregon's energy system.

R.L. Dallas, OR

I currently use both electric and natural gas in our home. Natural gas is much preferred for cooking and heat. In the event our electric power grid goes down...which happens from time to time, we can still rely on natural gas for cooking and to keep us warm. Keep natural gas...

M.B. Keizer*,* OR

Natural Gas is abundant and affordable. In most cases, Natural Gas is not subject to loss of function during major weather such the ice storm Oregon experienced this past winter. Natural Gas haa shown that it is not subject to loss of function caused by overload like we experience with the aging electric power grid.

Requiring a phase out of Natural Gas is reckless and irresponsible. Singling out electricity as a "clean energy" source is flawed and untruthful. The amount of carbon that will be released into the atmosphere due to mining and processing of ore, the manufacturing of renewable electricity components, abd the transportation and installation of such components will be huge. Additionally there will be a great impact to our planet from these activities beyond carbon. Where are the environmental and econonic studies associated to these activities? You might say mining minerals and Ore in developing countries help those countries develop economies on the world stage; while true, it only shift carbon and pollution to these countries with less regulated environmental protection.

Lastly, the cost associated with replacing existing gas appliances with electric models will be huge. The high cost associated with electricity, vs that of very affordable natural gas, will be devastating for our communities; especially loow income and elder individuals. How many deaths will the great State of Oregon cause due to the In-affordability of electricity or because the electrical grid gets overloaded due to high use?

I do not support the plan as Presented by Oregon!

P.G. Sandy, OR

I appreciate that natural gas is a much cheaper way to heat my home. It would be a poor decision to have more people depend exclusively on electricity on a already overloaded system. I have depended on pge to heat and provide electricity for my home in the past. In the winter the bills were so incredibly high, more than \$300 a month. It created a major hardship for my family and I. Incredibly expensive.

K.P. Hillsboro, OR

We support the use of natural gas and oppose this rule based on the lack of clarity.

M.P. Lake Oswego, OR

Any action you take must be quantifiable as to how goals will be measured in a real time fashion. And, in my opinion, the public should have real time (monthly, quarterly) access to info on how the process is working so that modifications can be made by energy providers to increase their efforts as necessary. Finally, someone, a specific person, should be a credible and consistent face of these efforts so the public can have a point person to whom to direct comments, suggestions and complaints.

J.A. Newberg, OR

Governor Brown is not the ruler of Oregon, only of herself. She has been elected to serve and lead the citizens of Oregon, not to rule and create orders that we don't have a choice to decide what to do. Creating executive orders for these changes is not correct leadership principles, these are for dictators. We have the freedom to choose and she has taken that away from us with this executive order. Why would you create an order to which you have no clue of what goals to create, how to get the citizens vested in the need to change our direction and goals, and to work together to reach those goals. She doesn't take into account any costs this might in debt the state and more importantly the citizens if effects the most, the citizens of this state and especially the low income families. She needs to stop living in her little far left liberal circle and reach out to all citizens of the state and find out what their needs are and how they can help with this plan. M.H. Gladstone, OR

I don't agree the governor should have the authority to make such a huge decision on such a broad topic without input from the people. I agree with the position of NW Natural. I quote the following points...

"All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future."

"Families and businesses should have a choice of resilient and dependable energy options to meet their needs. "

"Affordability and reliability must remain priorities of Oregon's energy system."

P.C. Sherwood, OR

I would support the conversion of my home's heating and stove to electric if (a) some subsidy is provided to mitigate the cost of conversion and (b) I can be sure the electricity used is coming from at least 80% renewable sources.

T.M. Portland, OR

No more brown mandates

R.J. Myrtle Point, OR

I agree with NW Natural that Oregon should work on reducing carbon emissions but only logically and effectively, not bureaucratically. Gov. Brown is looking for a platform for her own agenda and can not be trusted to do what is right for Oregon. We should be looking at the carbon emissions from automobiles first like Washington state where you have to have your vehicle tested every other year to the vehicle is not causing undo pollution. When a lifetime bureaucrat is preparing to move on in government they always throw something out that is only to assist in their personal rise in government and not what is best for the people! This is what Brown is doing, she should be shut down now before it is too late! R.R. Otis, OR

Renewable energy is essential for survival on this planet.

M.E. Corvallis, OR

I do not support making natural gas and gasoline more expensive without first developing effective replacements that are cheaper and cleaner. Please do not move forward with a new rule that will increase costs and unknown amount with no reasonable alternative.

R.W. Beaverton, OR

I agree that sacrifices need to be made by all and am willing to do my part to protect the climate. I am glad our leaders are working towards this goal and am excited to hear about progress and change being made to improve the health of the planet.

C.A. Oregon City, OR

It is absolutely ridiculous to expect people to rely solely on electricity!!! Natural gas supplies countless homes energy at a reasonable price and is RELIABLE!

D.C. Newberg, OR

As a senior citizen, the financial impact of this sweeping legislation needs to be calculated. Those of us on a fixed income need energy sources that are affordable. Gas has always been one of the most affordable energy resources in the northwest. I do not support the climate protection program as it exists now. I believe there are other innovative ways to reduce carbon emissions, please take the time needed to flush out all options. R.J. Damascus, OR

I believe climate change is overrated. Of course, climate changes every day but not necessarily to the detriment of society. The best way to address energy concerns is to be good stewards of our existing resources. We should be utilizing our environmental resources that are available to us to generate energy/power, i.e., oil, gas, sun, wind, water, etc. Instead of trying to find ways how not to use these resources or to limit there use we should be looking for ways to use them for our benefit. They are God-given resources and we just need to be smart enough to know how to use them wisely. They are here to be used reasonably and not to waste which we are by not using them.

A.S. Hood River, OR

Totally ludicrous.. The dominant culture (mostly white people) believe that actions are going to slow down what they already put into motion. By 2035, let alone 2050, the world will be much different than today. Most of the global warming is caused by the shift of the polar axises.. Just ask any commercial airline pilot if magnetic north is where it used to be. You should've listened to us indigenous people a long time ago. You will come to us for solutions and it will be what we told you many years ago. Humanity needs to relearn how to live in HARMONY with Mother Earth once again. There will be a day of reckoning.. We told you so.

A.A. Tigard*,* OR

Reducing carbon emissions can be effectively achieved by eliminating polluting diesel and gasoline vehicles that are not efficient. The oil industry has consistently thwarted the development of the highest efficiency engines over the years as it would reduce their profits. Stop the stranglehold of the oil and coal industry on our nation! Natural gas is very efficient and cost effective.

J.B. Salem, OR

While I absolutely believe that we all need to be good stewards of the resources made available to us, I am NOT on board with the popular belief that we must transition completely away from fuels such as natural gas and others to combat climate change. The Climate Protection Program sounds like yet another program that may "look good" to the woke, but ends up hurting actual consumers, both in costs and in availability of fuels to help them in their daily lives. If reductions are the goal, then the rules need to be clear and set reasonable actions that can be taken without hurting consumers or burdening them with yet more costs and regulations. The reductions need to be measurable and show that an actual difference can be made while benefiting those here in our state.

P.S. Harrisburg, OR

Solar, wind and other forms of "Green Energy" have been complete failures and have contributed to warming up the planet even further. If South America refrained from turning their jungles into strip mining and agricultural landscapes and we continued to use fossil fuel and electricity as our energy source exclusively, we wouldn't have global warming. Please stop strip mining for metals used to power the batteries in wind mills and electric cars. It's accelerating our demise. Please watch Michael Moore's "Planet of the Humans." It's free on youtube. https://youtu.be/Zk11vl-7czE

G.L. Lebanon, OR

I am happy using gas to heat my home. I only wish more of my home was gas. I support any changes that reduce carbon emissions.

H.B. Portland, OR

In light of the wildfire season the last few years, lawsuits faced by energy providers, and enormous cost associated with rebuilding a community it is imperative that Oregonians have energy sources that do not rely solely on the grid. Oregon has always been a leader in sustainability and Oregonians want that to continue. However, it must continue responsibly and with respect to costs to communities. The pandemic has hit many communities very hard and the expensive or possibly impractical nature of the proposed Climate Protection Program is not what these communities need. We need a Climate Protection Program that clearly outlines costs and benefits to communities, energy providers, and consumers. I urge the DEQ and the Governor to return to the drawing board, solicit more input from stakeholders, and then diligently develop a plan that sustainability meets the needs of both the climate and consumers. Oregonians deserve a well developed and better costed plan that one that is currently being proposed.

C.O. Albany, OR

I agree with NW Natural's stated position on the CPP. I also, want the questions detailed by NW Natural concerning efficacy and costs of the program under the current draft rules to be fully addressed. (Refer to Climate Protection Program Frequently Asked Questions)

R.W. Beaverton, OR

Natural gas provides a efficient, affordable and reliable heating solution for my home. Natural gas is the cleanest carbon out there! Proposing drastic carbon reduction measures with no realistic and affordable means is blatant pandering and propaganda.

K.H. Hillsboro, OR

I do not know the details of the executive order but I am concerned about only having electricity to heat my house , food and water. I know the nw Natural Gas is working on some innovative programs and I don't want those to be discounted. I do not want my house to be all electicity. I want to have a choice. I love my gas over electricity.

D.P. Lake Oswego, OR

Oregon's energy system should provide a versatile mix of sources for renewable energy. Renewable hydrogen and renewable natural gas are two such energy sources for a balanced and low-carbon future. Having dependable, flexible, and strong energy options are crucial. Due to the underground nature of distributing renewable natural gas, it is less likely to see outages we experience with electrical power. We should not put all our eggs in one basket. We need to encourage ALL forms of renewable energy and its innovation.

K.G. Seaside, OR

We just built a new home in Seaside and made the floor hydronic radiant heating powered by natural gas. The floor is wonderful under foot, with no ducts blowing (allergies), and the cost is so affordable. Our highest bill for a 2700 sq ft home heated and cooking with gas was just \$110. The home we rented while waiting for our home to be finished was all electric ,1500 sq ft and the electric bill was sometimes over \$400. But mostly, we are concerned about the environment and the future of our grandchildren. We need renewable energy now, not ten years from now, it'll be too late. I don't have the solution, but I can't believe anyone wouldn't be for it.

D.F. Salem, OR

There will be cost. We must face that fact. However, how cost is managed is key. There need to be more incentives for those that can't afford and that's not necessarily based on income or individual business/corporate profits. Just because someone makes over \$100K doesn't mean they aren't putting 4 kids through college. We need to start thinking out of the box so that more can begin consuming energy in a responsible way. I'm no scientist or engineer and I hope there are more ingenious ways to create a natural gas that doesn't harm the environment or the planet, I don't know. And, we need to let go of our caveman mentality and divisive thinking that "well, it's my rilight to burn coal and kill the planet for future humanity, animals, and the planet itself!" This pandemic has taught us that in America, people don't necessarily choose the wisest, most loving and compassionate option. We'll choose something based on their side's talking points and a bunch of fake crap on the internet meant to keep people stirred up. I'm done with that. It seems the only answer is to "make it hurt" (just a little bit) because the only thing that influences people more than "their side" is money. Green electric, including the outfitting of our homes, needs to be more affordable and gas/oil/coal need to be more expensive. We're humans, we're always going to choose the cheapest, even over "our side says...". If we can come up with a sustainable solution to natural gas, I'm not against that. Heck, my home uses natural gas, and it's quite affordable! But I'm a human and guess what, I'll continue to choose what I can afford (even though I'm willing to pay a little more) because I can't afford to upgrade my home and as of yet, I don't know that there are alternatives widely in use for the masses yet, like recyclable natural gas or gas made from plants, that I read about recently. I also don't know if those emit harmful toxins in the air either though.

S.A. Beaverton, OR

We need to move completely away from fossil fuels as fast as possible. The targets proposed are, if anything, too conservative. New construction should be built with fully electric heat, water, and appliances – zero additional use of natural gas. There should be incentives to defossilize existing homes and other structures, install solar panels, and purchase electric vehicles. The state should massively invest in upgrading the electric grid by decentralizing it through localized solar farms and batteries that can sustain homes and neighborhoods. Building the infrastructure to support electric vehicles should be a top priority. Companies like NW Natural should take the lead in these efforts and help Oregon transition to a carbon-free future rather than trying to undermine urgently needed new standards by saying there is "no consensus" and sowing anxiety.

B.W. The Dalles, OR

Natural gas is most certainly a renewable, low emission energy source, one that is utilized by many individuals and businesses out here in the Columbia River Gorge. I believe in my right to choose how I heat my home and maintain that we ALL should have affordable choices for energy. In addition to affordability, the reliability of natural gas comes to mind. With the ever-pressing threat of black and brown-outs, there is a real fear of losing hot water and heat in the dead of winter; things get a little chilly east of the Cascades. In summation, those that govern Oregon are either misrepresenting or failing to represent the average tax-payer. While we all agree that changes need to be made to further reduce our carbon emissions, the drastic proposals on the table are likely to devastate already struggling families. I would explore that these governing bodies take half a minute to LISTEN TO THE PEOPLE (and not just those in their inner circle).

S.I. Salem, OR

I am opposed to the implementation of the DEQ's Climate Protection Program due to the lack of evidence that the programs will in fact reduce emissions and that the proper data has yet to be considered by all effected parties.

B.M. Albany, OR

I am NOT in favor of Gov Brown's executive order!!!

K.C. Aloha, OR

As an environmentalist I appreciate the need to reduce our carbon emissions. However, in doing so I believe we should all have the choice as to which source of power makes sense for our families and communities, as opposed to the standard being dictated — and yet not entirely accounted for — by our government. That will lead to a single option, electric energy, which then leads to its own problems of needing to source that energy from somewhere too. That's why options, at least and until we have more evidence as to how to best reduce carbon emissions (which is beyond just an energy issue), should always be kept and respected. Thank you for your time and consideration.

L.T. Tigard, OR

Natural gas is a fossil fuel and our dependence in it needs to be reduced. Wind and solar can contribute to the electrical grid which reduces emissions from fossil fuels. Also leaks in the production cycle of natural gas need to be eliminated. Please take these things into cinsideration.

E.K. Salem, OR

with the current inflation, this is NOT the time to worry about issues that will add to the current burden on families with the added cost of energy this will bring..

Y.K. Happy Valley, OR

I'm in support of renewable resources and climate change.

J.T. Portland, OR

The proposed rules SHOULD NOT BE IMPLEMENTED! The judicious use of natural gas and all petroleum products is the only sensible way forward. Alternative energy sources including hydro, nuclear, coal, wind and solar should all be used as long as they are economically viable and do not require taxpayer subsidies either directly nor indirectly.

D.H. Salem, OR

In 2018, the estimated total human contribution to the net annual atmospheric CO2 increase was 0.0016% of which the US was responsible for 18% (0.0003%); and, CO2 isn't even the primary 'greenhouse gas', water vapor is. Also, when temperature and CO2 levels increase, plants flourish as global satellite imagery is confirming. Planting trees would be far more effective at reducing the net annual CO2 emissions by increasing the amount of CO2 that is absorbed; that's assuming we even want to reduce greenhouse gasses in advance of the anticipated severe solar lull.

Z.S. Tigard, OR

I was directed by multiple e-mails from NW Natural to portal-nenatural.nationbuilder.com to share comments about the Climate Protection Program. I can't help but notice that is not a state website, and NW Natural appears to be acting as a middle-man for the comments they are soliciting. As a natural gas distributor, NW Natural's entire business model is unethical, untenable, and wholly unacceptable going forward in light of methane's major contribution to Global warming, which is THE challenge of our time and a true existential threat not only to our society and lifestyle, but the survival of our species. I encourage the State of Oregon in the strongest possible terms to ignore the company's propagandic non-sense about 'renewable' methane and to enact strict, sweeping, and necessary regulation to limit green house gas emissions as quickly as possible. Any efforts to support the needs of the community MUST come in the form of helping individuals and small businesses convert to zero emission energy solutions, and helping employees of no-longer-needed businesses find new work — NOT propping up untenable business models. I encourage the state to regulate on this issue with no regard to NW Natural's desires, and to assist NW Natural employees in finding work as part of the solution rather than the problem. I look forward to seeing if the state receives my feedback. Thank you.

C.W. Happy Valley, OR

The conception of renewable fossil fuels, like "renewable natural gas", is an oxymoron. Fossil fuels are not, by definition, renewable. They are formed over millions of years by forces of nature that are not repeatable. Our dependance on non-renewable, fossil fuel resources is not sustainable and must, necessarily, change to a primary dependance upon truly renewable, and environmentally sustainable, fuel resources. Thank you for this opportunity to comment. Please consider it, and share it responsibly with those whom you are seeking to influence, even though it does not support your contention.

S.M. McMinnville, OR

In considering a response to climate change, please consider all options, including clean burning natural gas and nuclear energy. Relying exclusively on wind power is not yet practical because of the limitations of power generation and storage. Large solar farms are harmful to the environment and wildlife. I come from California where we have had rolling blackouts because of an over-reliance on wind and solar. Until technology advances, the cost of solar and wind is prohibitive and detrimental to the poor and BIPOC from a cost standpoint.

D.C. Dallas, OR

The earth has been experiencing climate change since the beginning of time. The Climate Change pitch is just another name for Global Warming, a term that didn't go very far. Where do these percentage goals come from, out of thin air or is there some scientific data upon which to rely? Just what carbon emissions are in question? From my perspective, the true costs to "reduce carbon emissions" will never be known until it's too late. This is just another political power move by an incompetent governor flexing her political muscles.

J.M. Dallas, OR

It would be foolish to not explore absolutely every possible avenue to ensure affordable, reliable, sustainable, and clean energy for Oregon residents.

G.B. Warrenton, OR

Natural Gas is clean and abundant. Restricting access to this resource will be devastating to a huge population that enjoys a warm home a low cost. Natural Gas is a perfect resource to generate electricity cleanly and cheaper than other sources that require mass land use or block waterways and fish habitat. How are we going to charge all these electric vehicles in the future when the demand for electrical power will exponentially in an infrastructure that will not handle the immediate future demand. Have you honestly considered the fact that electric vehicles take more power to charge than an average home's maximum usage. Where is that power going to come from. The state needs to quit tying the hands of energy providers, especially clean energy (Natural gas carbon output is 60% less than coal!) Ways of sourcing natural gas is evolving too that provides methods to reduce say trash in landfills! The population isn't getting any smaller in this state. The proposal to restrict natural gas will have devastating effects on the population, commerce and quality of life. All of these effect the economy which greatly effects revenue that the legislature is so thirsty for. Please reconsider the whole effects of this proposal as apposed to a myopic view of carbon reduction. Use of Natural gas can actually help to reduce carbon, why take away this tool?

T.C. West Linn, OR

I think the survival of the planet, and particularly humans, is dependent on us phasing out CO2 emitting fossil fuels, including natural gas within the next decade, or so. I have replaced my natural gas fired furnace with a high efficiency heat pump, I drive an electric car, and I have solar panels. I am fortunate to have the means to do this, and I am willing to financially support incentives for others to do so as well.

A.B. Newberg, OR

Electric heating is the most wasteful use of electrical energy, because the efficiency to convert gas to electricity is (by physics) limited to ~40%, while converting gas to heat can be done at 95% efficiency. The sensible turn-over point to convert heating from gas to electrical is when 80 – 100% of the electricity generation is done by renewables, which is either many decades away or not feasible given the current cost of electricity storage. Eventually the market will decide whether homes will be heated by gas or electricity. Until it becomes clear how we generate enough clean electrical energy, the market should not be disrupted by government mandates or heavy subsidies.

N.C. Eugene, OR

The cost isn't the issue here. We need renewable sources of power or we will end up like Texas, with an overload at exactly the wrong time. If we aren't investing in solar or wind, this is all a moot discussion. If we depend on electricity alone, what will happen during an earthquake if the dams break? Where will we be in a state of emergency? I really don't think depending on one source is prudent, though I also don't think continuing to install natural gas systems in big warehouse type buildings or large complexes is prudent either. I'm not an engineer, so I don't know all the ramifications, though I know something radical must be done, but I also don't know the particulars of this executive order. I'm only suggesting that a diverse answer to this situation seems to be a much needed approach.

E.C. Salem, OR

From what I have researched on the climate change proposals, there is considerable government overreach. I do not support their proposals due to a lack of vigorous debate between the supposed science and those true scientists who have found the findings fraudulent. As with the debate over Covid 19 protocols, the true science has been banned from the public square. Any attempt to cancel the voice of those who do not support the main stream narrative us a clear signal to cancel the whole discussion until both sides are allowed to voice their findings in the public square.

D.F. Milwaukie, OR

I am concerned that the cart is in front of the horse again. Who can tell me the benefits of electricity of natural gas from an emissions perspective and what is the condition of the electrical grid. Let's slowdown and figure out a projected cost and impact to users. This feels like the Metro Homeless Bill over again! Take the time and do it right first time

E.G. Hood River, OR

All forms of renewable energy including renewable natural gas and renewable hydrogen are needed in a balanced, low-carbon future. Affordability is a priority for our family.

M.M. Lebanon, OR

I think you should go for what you're good at. The governor is not well versed in things so makes a lot of one-sided decisions that don't actually cost the real count/cost. And hurts Oregonians rather than helps. Thank you

T.M. Canby, OR

Natural gas is the cleanest available. Leave it alone!

J.G. Beaverton, OR

It seems as though your response isn't so different from the governor's. I mean why did it take a mandate from the governor to prompt this discussion. Have you offered responsible reduction or alternative methods? I find it difficult to support issues that point out negatives without providing responsible alternatives. That's my initial response. Changes do need to be made. What are the specifics of the changes you would offer?

H.N. Newport, OR

Actions to retard climate change through greenhouse gas reductions are critically important. Government initiatives to effect reductions in GHG emissions levels should be grounded in engineering and science, economics, and public safety considerations. Let me elaborate. Regulations must have a foundation of knowledge of future generation, infrastructure, and cost implications: A broad shift to electrification of energy end-uses such as transportation, home heating, cooling, and cooking should begin by determining the source of replacement electricity. The Pacific northwest does not have a year round excess of electrical energy from just hydroelectric sources. Additional hydroelectric development is questionable. While various forms of solar generation can be very cost-effective, and are now a well established technology, substantial additional solar and renewable generation will require a corresponding increase in electricity storage, either utility scale at the point of generation or consumer scale at the point of use. At this time storage technologies are expensive but may be cost-effective depending on the time varying cost of electricity generation. Furthermore, the very brittle electrical power grid will need substantial improvement, as well as distribution level substations due to increased end use demand.

Let the market decide: Many governments, such as the State of California, are achieving substantial GHG emissions by establishing reduction targets, assigning a cost to emissions, and allowing emitters to decide how best to reduce emissions. For example, an emitter may reduce emissions by improving emitting equipment, changing processes to reduce use of fossil fuels, replacing transportation equipment to lower emission fuel sources (e.g., shifting from gasoline to CNG to achieve a 15-18% reduction in tailpipe GHG emissions), or by investing in actions which achieve reduced GHG emissions. Since Climate Change is a global problem, all solutions regardless of the point of implementation have a global effect. Planting trees in deforested areas such as the Amazon Rainforest or other actions outside the immediate Pacific Northwest may be a very cost-effective way to achieve the Public Policy goal of a net reduction in GHG emissions. The recent, and likely future, massive forest fires in the Pacific West offer another effective way to sequester significant quantities of carbon from the atmosphere: replant the forests. Verifiable GHG reduction actions should be allowed, even encouraged, regardless of location to achieve the greatest GHG reductions per invested dollar. Public Safety is also important:

As a resident of the Oregon Coast, power outages are a way of life. While the frequency of power outages has dropped significantly over the last quarter century, they continue, particularly in the winter. My house has electric baseboard heaters AND a natural gas fueled room heater centrally located in the main living area. The natural gas heater and my natural gas cook top both continue to function during electrical power outages. Thank you for your consideration.

E.B. Vernonia, OR

Inflation is taking its toll already natural gas is a clean affordable heating and cooking source for our home. Adding more sources of clean energy are fine but do not make the cost of heating and cooking so unaffordable for the average person by doing so. I believe legislation is getting out of control.

D.O. Saint Helens, OR

I think there needs to be some accountability for how much this will cost the people of Oregon. Kate Brown has a long history of major mistakes costing Oregon millions of dollars with nothing to show for it. She is unfit to pass any mandates and this should be decided by the voters of Oregon not her.

D.B. Philomath, OR

Very opposed to this action from the Governor. If memory serves this has been presented multiple times in legislation that the voters (myself included) have voted down. Certainly not the will of the people.

A.G. Hood River, OR

I am not opposed to reducing carbon emissions and being good stewards of the earth. Having said that, I am opposed to sweeping mandates that are not well thought out or fully understand the considerations and consequences that they will cause. I believe that those in the energy sector should be part of the process and consideration on how best to achieve the goal of carbon emissions reduction. Often these types of mandates result in unforeseen, or even foreseen but ignored, consequences that cause more harm than good. If there is undo burden to bear because a mandate is too strict or swift, that should cause pause by all involved. These changes should be data driven and not driven by politics or a particular political party's belief or ideology. This can be done well and done intelligently, but it will require that those in charge listen so experts and those on the front lines of the energy industry, allowing them to share their perspectives and insights on how to best get us there. Cost and dependability are very important and cannot be sacrificed on the alter of climate change. I believe all can be achieved, it will just take hard work and actual diligent problem solving rather than just throwing a sweeping mandate across the entire energy sector. Unless a plan is fully endorsed and supported by those in the energy industry and is actually realistic and achievable I am not in support of a sweeping mandate that will ultimately result in Oregonians bearing additional cost burdens and dependability issues. Thank you.

C.T. Beaverton, OR

I do not support changes that will negatively impact my family. We conserve, recycle and volunteer in the local community. These changes are not in keeping with freedom I have enjoyed thus far. Natural Gas is more reliable than electricity. I have lost power hundreds of times over the past 40 years of my sadult life but never lost Natural Gas. Do not push the voter or the pushback will be fast and furious. We are not gonna take it anymore!!!

B.J. Independence, OR

Any rules that significantly encourage abandonment of one clean energy resource in favor of another should be amended. Dependence creates damage, should that energy source become unavailable or significantly difficult to obtain or transport (such as the mass electricity outages western Oregon experienced from the freezing rain, etc). Clean energy in any form should be encouraged over clean energy of a particular type. Mass conversion from gas to electric or electric to gas needs to be avoided.

R.B. St. Helens, OR

Before the state legislators cut energy for any source they need to make sire it can be replaced. If not we will unnecessary consequences, possibly even deaths. In the future there may not be enough energy to even keep your house warm or cool. Let alone power your electric vehicle to be able to escape wild fire or a natural disaster. Please look to the Future at the possibility of harm this requirement can have.

I.D. Springfield, OR

There are more useful things that can be done about climate change than limiting residential use of natural gas.

P.H. Newberg, OR

I need natural gas, what if electricity is withheld for some unknown reason. How will I heat my home. We need both gas and electricity. Get a grip !!

J.S. Hillsboro, OR

I use natural Gas in the house I bought and the house is built in 1979. It has a Gas furnace and gas hot water heater. I plan in helping reduce my house C02 Emissions by removing the Hot water heater and putting in an Electric Tankless. The house Electrical Panel can not support turning gas furnace to electric. Will cost me a lot to run new lines from Street for Electrical and new 200 amp Panel. These house over there only has 125 amp panels. Its odd people do not think about your house as an CO2 pollution only cars. Stop building these house in Hillsboro area by TV highway with not telling people you have an option to go all Electric for Furnace and Hot water heater. We need both Natural Gas but not as much as now. 80 reduction by 2050 is so reachable. NW gas company says they support Emissions but they don't propose a device on a house to filter the C02 from the houses they supply gas too. Come on you guys. Plenty of time to put a Water Exhaust scrubber, like Intel uses, on future houses to reduce emissions on houses. Make a deal with NW to invent one or I can work with them and make it happen. Keep politics out of this and work together like humans stuck in the same bubble.

K.A. Hood River, OR

We have recently seen our electricity bill skyrocket even though our usage has remained the same as previous years. We have been through some difficult financial times due to pandemic and either raising natural gas prices or limited the access to natural gas would be a huge blow. Please think of those who rely on natural gas to cook and keep their houses warm. Changing resources would cost thousands that we cannot afford.

S.W. Salem, OR

Do not eliminate natural gas as a home heating source. Last winter showed the need for heat separate from the electrical grid. My parents and my family both lost power for many days. We both have gas fireplaces and stoves in addition to gas heat. The gas stoves allowed us to continue to cook and eat and the gas fireplaces continued to keep our homes warm. Climate change is an issue but Natural gas should never be eliminated as part of the climate change solution. It is too valuable as a secondary source of heat and the ability to cook or boil water. Thank you

C.C. Eugene, OR

I oppose limiting consumer energy choice to electricity exclusively. I believe it is preferable to maintain options for multiple energy sources, depending on each individual community's (or region's) situation and needs.

C.R. Happy Valley, OR

I have reviewed Gov. Kate Brown's executive order (which specifies reduction of greenhouse gas emissions). I believe they are appropriate. I have also reviewed NW Natural's position in the newsletter pdf document "CPP_FAQ_OCT2021.pdf". NW Natural seems to be in agreement that climate change must be addressed. However, they raise some concerns about cost impact to consumers. I generally agree that natural gas cost will go up. However, that is to be expected. Since the whole point for climate action is to move away from fossil fuels.

K.G. Philomath, OR

All forms of renewable energy including renewable natural gas and renewable hydrogen are needed in a balanced, low carbon future. Families and businesses, EVERYONE, should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability MUST remain priorities of Oregon's energy system.

R.B. Wilsonville, OR

We do not want to follow California and create a fiscal and climate mess. Like CA much of Oregon's energy comes from out of state. In state mandates can cause unintended harm by limiting or over pricing those outside sources. Until we have nationwide or at least regional sources equal to or exceeding our needs, ALL sources of energy should continue to be made available.

A.M. Tigard, OR

I'm not saying I'm against creating a better future, however, I would prefer we hold off on measures like this until we have a more exact cost to taxpayers and businesses. In a normal world I'm sure the cost would be minimal but we aren't in a normal world. Most of us have been torn apart by the impacts of the pandemic, my concern is that even a little more strain could be too much for Oregon. To the very least I'd like to postpone moving forward with these plans.

N.H. Dallas, OR

I support Governor Brown.

R.M. Saint Helens, OR

Cooking and heating with gas is both clean and efficient. Hydro and Nuke are also very clean and efficient sources of energy. Wind and solar are good, but the tech is not at the point that during inclement weather these can be relied upon. The idea that not allowing natural gas to be used in new construction is ridiculous, the gas will still be burned at the gas fired electricity plant. Changing everything to electricity is over looking that the electricity has to be generated. Covering the earth with massive solar and wind farms will be proven to also be damaging to the environment.

T.A. Silverton, OR

We have diversity in our classrooms, work places and relationships. Surely by now we understand the need for diverse options in energy as well. One size DOES NOT fit all, one system doesn't either.

A.D. Salem, OR

Isn't this mandate part of The Great Reset, Build Back Better, and/or Agenda 2030? This train is speeding down the tracks without allowing anyone to tap the brakes. Please go to the World Economic Forum's website for a complete understanding of their plans. Please consider getting off this track and instead choose this option: "If you confess with your mouth Jesus is Lord, and believe in your heart that God raised Him from the dead, you will be saved; for with the heart a person believes, resulting in righteousness, and with the mouth he confesses, resulting in salvation. " Romans 10: 9-10. Liberty is from God, taking away choices for power and control is not.

L.L. Beaverton, OR

It sounds like you want people to support you in not providing ways to reduce emissions. You seem to think someone else needs to figure out the problem and the exact correct solution. Why don't you find and implement a solution rather than simply pushing the responsibility onto others

C.C. Salem, OR

DEQ needs to consider all forms of renewable energy. We cannot expect electricty to do everything, especially when that is largely based on dams, and river levels are getting lower by the minute. A multiple pronged approach is vital. If natural gas is renewable and emissions can be controled, which they can, natural gas should be part of the plan moving forward. Thank you.

M.J. St. Helens, OR

this is a political power grab by the democrats to force us onto a single seller of electricity. This will vastly increase rates and decrease available power in the are if all of Oregon is on one supplier. PGE sends a great quantity of the power they product to California and this will create power shortages here for their Oregon customers. The Oregon governor will be known as brownout Brown if this is allowed to proceed but she and others like her will not suffer, just us common folk....

L.W. Tigard*,* OR

Our climate problems can not be reversed faster than it took to destroy it. It will take time and money. Moving too fast may not improve our climate as fast as depleting everyone's bank accounts. We need to move forward at a steady pace and make certain what we are doing is working and not creating more problems.

D.S. Oregon City, OR

Great Job. Fixing things isn't free. I applaud Governor Brown. Thank you NW Natural for helping me share how important the environment and our future is.

S.S. Beaverton, OR

While I wholeheartedly support efforts to reduce carbon emissions to battle global warming, I also firmly agree with NW Natural that all forms of renewable energy must be included in a low carbon future. I also believe that proceeding with an overly aggressive strategy of transition to a low carbon goal will cause instability and result in increased energy prices, which will be most harmful to low income citizens

M.P. Philomath, OR

Natural gas is a legitimate source of energy and there are not any calculations showing the true cost of the DEQ's climate protection program. Natural gas should not be eliminated as a source of energy.

D.S. Oregon City, OR

After the last ice storm and electrical grid damage it became apparent that we absolutely positively need back up power systems and strategies. Natural gas for cooking and a gas or ng or propane back up generator allowed us to heat and cook during the week we were without power. Without natural gas the problems we had would have been much worse. We can not depend 100% on electricity it is a part of a green plan but not the only piece. We also could not charge our electric car during the outages.

S.B. Seaside, OR

Here on the coast we get high winds and driving rain. Our electrical power grid has proven to be unreliable. Power outages are common in the storm season. Our natural gas service has been 100% reliable. When we were without power for seven days, it was comforting to be able to heat our house, have hot water, and cook our food with our gas appliances. It is a mistake, and an overreach of government, to push electricity as the only option.

J.M. Hillsboro, OR

NW Natural is more than capable of making realistic reductions in carbon emissions without more government overreach.

D.G. Salem , OR

Decreasing the use of natural gas for power generation and home heating would be unwise and it will hurt poor and middle class the most. If the intent is to decrees CO2 than stop removing hydro generation

L.L. Clackamas, OR

Raising natural gas costs for families will be detrimental to working families. Inflation is already awful, and renting an apartment is now nearly 2,000 a month minimum for two bedrooms. Please do not add more expenses to families that can barely make it now. You already nickel and dime us to death.

A.M. Albany, OR

I understand that there is a need to look into renewable resources and make smart decisions for our lives today and for future generations. I also believe that affordability should be a high priority. People are facing incredible financial challenges with the current state of our state and country making high utility charges unsustainable for Oregonians. From what I understand Natural Gas is a clean burning fuel source compared to some of the other processes that are being used for so called "sustainable". I do not believe that Governor Brown has the best interest of Oregon or Oregonians in mind with her draconian measures across all subjects. The lack of transparency has been unacceptable and we need to hold the governor and her regulatory agencies accountable to show Oregonians and businesses what direction they are headed and ensure there are no hidden agendas that will cripple our state or cause our state to collapse. They work for the people of Oregon and it's it's high time that we stand up and remind them of this fact! Please continue to do what you can to keep rates affordable for Oregonians who are facing extreme financial hardships. H.C. Molalla, OR

I feel specific costs should be presented in the rule making, as well as how much it is going to be effecting the people paying for it. Also, Kate Brown sucks.

A.P. Beaverton, OR

Climate change isn't the cause of the severity of our local wildfires; it's a lack of city planning in the timely clearing of trees. Active management can promote healthy vegetation, change the way wildfire moves across a landscape, or reintroduce fire as part of the natural ecosystem. I do not support anything that will raise costs to consumers or businesses, or a plan that doesn't actually ensure that the goals of the plan will be met. Kate Brown should be more concerned with helping business owners and dealing with the rampant homelessness and drug use happening on Portland streets before she worries about what kind of car people are driving.

T.D. Corvallis, OR

There are practical things that all of us can do in our homes to reduce energy usage beyond just turning down the the thermostat. Not using the dryer in the summer during the day is one of them. What about hanging out laundry then fluffing in the dryer? Why not list retractable laundry lines on the NW Natural news letter? How about room darkening blinds instead of sheer curtains or thicker insulated curtains for poorly insulated windows? Partner with these companies for some type of incentive. I know these sound like small things but if each one of us does something small it adds up right? We can't all afford solar panels (not yet) and many people rent apartments or homes but there are 'old fashioned' and practical ways to reduce energy. There needs to be ways to articulate that to the general public. Especially the younger population who didn't grow up in the 20th century when there were many years of high energy cost. People want to do something. They just don't know in what small practical way that they can. Many were not taught any methods of saving energy because they never had too worry about it.

R.G. Corvallis, OR

I'm not a denier of climate change. Please consider the environmental impact of forcing thousands of Oregonians to switch from using relatively clean and extremely efficient (our furnace is 98% efficient!) natural gas. As more electric cars come online, the impact on our current grid will be enormous. If you additionally include more electric heat and cooking appliances switching to electric, that alone will be disastrous. On top of that, think of the impact of thousands of expensive, good, working appliances that will be forced into the landfill (as well the unnecessary manufacture of new appliances) this will at best give only a short term benefit and at worst actually cause a severe increase in global use of precious resources because of these short-sighted policies. This is not a recipe for the kind of climate leadership a state like Oregon should be promoting.

G.B. Portland, OR

Totally support Gov Brown's exec order and an deeply disappointed by NW Natural attempt to mobilize its users to oppose.

J.D. Junction City, OR

To the representatives at the Oregon DEQ, referencing the Climate Protection Program. As a lifelong resident of Oregon, the sustainability of our natural landscape is of utmost importance to me. I utilize it for my recreation all year round. I have no problem doing my part to help preserve and protect it. However I find it alarming that these broad objectives can be mandated without any public vote. As an engineer and project manager by trade, the complexity of the undertakings required for these changes cannot be understated. You are playing with the livelihood of the state – and by association all of its residents. This should not be left to your purview to make broad strokes reform to the economic foundations that private industry has provided this state. Incentivize breakthroughs in energy options, and encourage with subsidies adoption of new technologies if you must, but leave it to the private citizen how to best make inroads towards energy efficiency. If the state continues to make heavy handed adjustments to its livelihood, I fear that we will continue to experience an exodus like California is currently undergoing. Seniority in a public department does not transfer the right of rule. Oregonians deserve support and information from their government, not edicts that destroy livelihoods.

L.S. Happy Valley, OR

I do not approve of any decision that will not allow my use of natural gas instead of electricity especially concerning home heating. I am appalled how the government is constantly trying to take away my choices and decisions for my family and our lives.

N.T. Portland, OR

1) Environmental impacts are important, but greenhouse gases are only part of the equation. We need to be careful that "carbon" considerations are NOT the only issues being considered. For example, technologies used in many aspects of the electric chain are toxic or have environmental impacts in their production. 2) It is important that we maintain multiple energy sources for tactical and strategic redundancies. Switching to an entirely electric system could result in severe difficulties during an event such as a large windstorm since the electric distribution network is more fragile than the natural gas network. (We have many power outages in Portland – we almost never have gas outages.) 3) It is important to set targets but let experts make recommendations and plans to meet those targets. Furthermore, targets should be open to discussion and debate. If we can achieve 80% of a target reduction in GHG reduction with a tactic that would cost only 10% of reaching the full target, we should consider phasing that target in more slowly.

B.T. Wilsonville, OR

The energy policy as set forth by the legislators in the State of Oregon is a recipe for disaster. The writing on the wall is clear, and the trajectory of everything good about Oregon will continue its downward trend. I'm leaving the State of Oregon and taking my tax dollars with me.

N.D. Lake Oswego, OR

I strongly oppose the governor's order and the DEQ program but am confidant that my voice will be ignored by the zealots in Salem.

J.C. St. Helens, OR

I would like to comment on this program.

When making decisions that will so drastically impact all Oregonians and our financial future, as well as the environment, I would hope the DEQ would be as wise as possible and base all decisions on sound science rather than on emotion and political persuasion. I would like to suggest the following:

Cap costs. We have seen that carbon regulation programs can be very expensive. There must be a balance between realistic cost and benefit. It doesn't do anyone any good to develop a program that is not financially feasible, no matter how well intended. Therefore, I propose a cost cap on regulations.

Limit beaurocracy and waste. A community climate investment is a nice idea, but I think we should be realistic about how the level of expertise and experience these groups have. Creating a group to give input just for the sake of creating a group to give input is wasteful. If a group is to be organized to give input, each member should have expertise and education in the area of energy and emissions. There also needs to be a cap on spending for this group and a requirement to show benefit of their proposals. Otherwise, there is no accountability to show improvement and keep changes realistic.

Allow verified carbon offsets as a way of meeting the regulations. ALL methods of achieving lower emissions should be realistically considered, not just the most expensive or politically popular ones. This is the way to be responsible and accountable.

Require data based decisions. The idea to move solely to electrification is not a data driven proposal. All aspects of any decision must be taken into account. This includes not only emissions, but cost and reliability as well. Natural gas is an inexpensive and reliable source or energy. Before any changes are made to take natural gas off the table, the DEQ needs to have strong evidence that it will not hurt Oregonians while also having significant impact to the environment. Again, decisions should not be made based on political climate and emotion. Rather, decisions need to be backed up by sound data and fact.

Thank you for your consideration.

K.D. North Plains, OR

I believe all of us can agree that we must be good stewards of the environment. But, the highest priority must remain a 100% reliable transmission of energy to all Oregonians in all weather conditions. One only has to look at recent problems in California and Texas to see the ramifications of decisions that did not keep the above-stated goal as the top priority. I cannot find anything in eo_20-04.pdf, nor in ORS 468A.205(1)© which quantifies or justifies the 45% and 80% numbers stated in executive order section 2. More problematically is that there is no cost estimates associated with such figures. Please continue to work with private corporations to create a healthy environment for all of us to enjoy. I encourage you to more fully quantify the ramifications of goals that are created and clearly & concisely share this information with the public.

M.C. Tualatin, OR

Natural gas is a reliable energy source, and clean. Wind and solar energy result in high prices, and lengthy brownouts. I don't want to follow Europe's mistakes. Or California's either. Most green energy measures turn out to be boondoggles, and will make no difference to our planets future if China and India keep up or increase their coal fired plants, etc. Let NW Natural Gas plan what we need to do for our energy needs. Please don't fall prey to what California has already experienced.

L.B. Sherwood, OR

As an Oregonian I support having many different energy choices. Energy affordability for the average family is huge. If energy costs become too high it will affect all of us. It will especially affect the vulnerable low income working families that might not qualify for assistance. Please look at the whole picture and the ramifications it will have on so many working class families!

T.S. Portland, OR

Any action is better than no action as we progress through this climate crisis. By insisting on changes to energy source and usage, we are going to force transitions in major companies to care about more than their stockholders' next quarterly earnings. Think long term and work to support greenhouse gas emissions.

W.L. Tualatin, OR

I do Not support Governor Brown's policies on Climate Change and will be glad when she is out of office... While some individuals believe consumers should be all-electric, when researching the process of manufacturing all-electric cars, for example, it becomes evident that the manufacturing process itself does not benefit the environment... Even John Kerry said that zero emissions in the US wouldn't make a difference in climate change... I am reminded of the devastation that Oregon's logging industry experienced after so-call environmental experts put the Spotted Owl on the endangered species list... causing it to become attractive prey to a larger, more aggressive Barred Owl, which moved into the protected territory and nearly ate the Spotted Owl into extinction in the NW... Then, in a failed effort to solve the problem, the Fish & Wildlife Dept experimented with ways to get rid of the Barred Owl, including shooting them... Oh what a tangled web...

J.G. Hillsboro, OR

You shouldn't have just one supplier of energy as the supply will decrease when demand increases as well as cost. Not to mention the costs of switching over to electric for heat as example. People cannot offord this cost. Even if government says they'll pay for it as a tax credit to reimburse them it's still an upfront cost no one can afford as the demand will sky rocket with the price and will have a negative inventory.

W.M. Beaverton, OR

Taking action on climate change is urgent and necessary. So long as objections are done with intent of proposing alternatives then I say explore them. But if objections are attempts to delay action, then they are misplaced. More work could be done to insulate homes that are heated with gas or other fuels. Help to make our usage of fossil fuels more efficient.

I.H. Eugene, OR

I support the Climate Protection Program!

K.B. Woodburn, OR

I am very concerned about our affect on our globe's well being. I am a customer who uses both electric and natural gas and am concerned about the thought of loosing the option of natural gas. The winter of 2020 was a good example for the need of options. I was without electricity for 10 days and if it wasn't for natural gas I wouldn't have been able to stay in my home. I have pets which makes leaving my home for extended periods not an option. Gas is always reliable and in the 30+ years that I have been a customer of NW Natural Gas I have never had an outage but PGE is guaranteed to have an outage at least once a year. Electricity is necessary but their mode of delivery is faulty and unreliable. With the extremes that nature is capable of, I do not believe taking away our choices is not the answer.

R.F. Beaverton, OR

This is sadly typical of much "legislation " that we've seen since 2008 and that is, "Pass the bill and you can read it later." Nothing should even be considered unless and until every detail including costs and long term impacts on the tax payer are in writing. C.S. Hillsboro, OR

I have been an Oregonian and lived in this state for my entire life of 65 years. We need to step back and evaluate the cost of changing our fuel sources until the costs are what we all can afford. We have an abundance of Natural gas that will last for decades in this state. Natural gas is a much cleaner source of fuel than oil and coal. Lets let our country develop new fuel types and reduce the cost before we take on this huge endeavor of changing our fuel type. When it becomes available at a reasonable price i believe that Hydrogen is the true fuel of the future...

C.S. Beaverton, OR

I am vehemently opposed to any limitation restricting the use of Natural Gas in our economy. The current administrations cuts to our oil and natural gas production have already led to dramatic increases in our nations energy costs and have sabotaged our countries recently obtained, and now gone, independence from foreign sources. This is not a good thing and will only lead to a further destruction of American standards of living.

L.C. Brownsville, OR

Natural Gas is the most efficient fuel to heat my house, heat my water and cook my families food. Our gas bill for all these is the most economic for my household. Our electric bill is always a lot higher than our gas bills which sometimes has a very hard impact on our households food and prescriptions monies available.

H.D. Oregon City, OR

I believe less government and control in our lives is better. There is no need to oversee every single little thing in citizens lives. When it comes to the climate the US/Oregon is not going to solve the worlds problems. It will take everyone (Countries) not just a few.

S.K. Hillsboro, OR

Governments artificially restricting markets to hit arbitrary climate goals is always an issue. The Climate Protection Program is more of the same. If the state of Oregon was serious about green energy, they would be supporting nuclear as the primary driver of green energy. Without nuclear, we have no reasonable alternative (currently) to fossil fuels for much of our energy needs. Fossil fuels are a necessary part of modern life until battery technology and other 'green' energy solutions are developed enough to supply Oregon with the energy we need. Let the market decide when alternative fuel sources are ready for prime time.

K.C. Springfield, OR

I support our government in working towards preventing climate change. Changes will not be successful if we make them too difficult or too costly to achieve. Businesses will either relocate or pass on the costs to their customers and ultimately Oregon citizens. Oregon needs to utilize all forms of renewable energy. The program also needs to include carbon offsets. Some processes are nearly impossible to change to reduce carbon emissions but those sources could be doing other work in other areas to help reduce carbon emission to offset what they are doing. We need to conduct a reliable study on what the true cost of the proposed rules are to businesses and individuals. If we make things too difficult and costly for business we will put companies out of business and cause job losses which hurts all of our state citizens. I would like to see Oregon work on a balanced approach that looks at all of the options. This program appears to be directed completely at businesses and if we are really going to reduce emissions we need to also start looking at individuals which is much harder. Vehicle emissions are a huge source of greenhouse gases and if we really want to reduce our state greenhouse gases we need to start thinking about how we can work to reduce vehicle emissions. I was disappointed to find that you actually have increased registration fees for lower emission vehicles. I would suggest that you find a different source of funding for roads than gas and encourage people with incentives to move towards lower emission vehicles. You can keep the gas tax but understand that it will not supply the full funding needed for road maintenance.

J.C. Salem, OR

As Kate Brown doesn't work in the energy sector she needs to realize she has little to no knowledge on the subject of natural gas production. The admission of there not being a true cost assigned to these emission reduction goals shows that the 45% and 80% reduction numbers are arbitrary numbers that might not even be possible to achieve regardless of the cost. If reducing emissions was so simple to implement then NW Natural and other gas companies would make the changes necessary on their own without governor dictates.

A.B. Sherwood, OR

We cannot be solely dependent on the electric grid for our energy needs, therefore natural gas is essential to having flexibility in our energy generation. This fact is true during times that renewable energy is not able to function. The winter storm crisis that affected Texas in February 2021 is a prime example of needing multiple methods of energy generation. Wind turbines were frozen and the electric grid was unable to provide enough energy to warm people in a desperate situation. Even in Oregon, we have nearly depleted the natural gas supply during very cold days in winter. Whether or not they are low in green house gas emissions is not as critical a concern as the concern for providing for humans to survive. People are more important than executive orders that may hamper innovation in the future. The legislative process exists for creating legislation that may be needed for energy companies to do their jobs. I am in no way an expert on natural gas, and would not presume to be. Yet, I do know that natural gas is a relative newcomer to the scene as far as utilities go for homes and businesses. The reality exists that something else may come along to provide effective energy in the same way. That possibility can only occur if innovation is not stopped before it can begin.

L.E. Beaverton, OR

We need affordable natural gas! Please fight this government overreach now and protect your customers!!

A.L. Springfield, OR

let orgonians heat their homes and produce electricity with natural gas we must stop produceing electricity with coal and oregon should ban wood as a source of heat in a home

K.N. Tigard*,* OR

I feel that reducing our greenhouse gas emissions are clearly an important topic, but also fee there is a cost assessment needed to determine how we proceed and how quickly we proceed. These costs will be felt by the citizens of Oregon through taxes and that has to be a concern for everyone with our economy doing so poorly and with the rising costs of inflation and energy costs. Please proceed with a realistic plan that takes all of those factors into account.

B.M. Oregon City, OR

I strongly believe that Oregonians deserve and need a diverse approach to energy resources. We need hydroelectricity, natural gas, and solar options, in addition to whatever else is available in the future. For example, we will have will need options in the winter when solar may not be a viable alternative. Additionally, some sources of energy are far more efficient than others, so consumers should have options.

S.H. Portland, OR

Go for it, Kate Brown. Please continue to use executive orders to limit carbon emissions by regulating the use of resources like natural gas. Natural resources belong to all of us, not to companies that make profit from them.

C.S. Portland, OR

I am retired and on a fixed income. I was surprised to learn that our electricity was being produced in a coal-fired plant in central Oregon and installed a solar system to reduce my electricity draw from the grid. I heat my home with clean burning Natural Gas and initiatives that increase the cost of Natural Gas would impose a hardship on my wife and me.

M.C. Portland, OR

NWNatural is very wrong on this issue. We need to swiftly move to a de-carbonized future. While I'm not surprised that the gas company has problems with this plan, that doesn't mean that you, our regulators, need to listen to them.

A.K. Tigard, OR

Please do not kill the natural gas business. We need more than one choice to fuel our world. The governors way is the wrong way.

T.S. Portland, OR

We wholeheartedly support Governor Brown's goals for reducing greenhouse gas emissions. My children feel despair about climate change and want adults to act more quickly to reduce greenhouse gas emissions. We would be willing to pay higher rates to support NW Natural's transition to hydrogen and renewable methane energy sources. Your statements in reaction to Governor Brown's order don't sit well with our family and it makes us feel like we would want to go to all electric in our house. Please, please, please take up the challenge and be aggressive in making change, don't waste energy fighting the executive order. Thank-you. J.D. Gresham, OR

We've lived in an all electric house several years ago. The heat was cold and expensive. When power goes out due to Oregon weather everyone freezes. We lost power for 10 days due to ice storms and power outages and were lucky enough to have a wood stove that we moved our family in front of to stay warm, and we didn't have any hot water. What would be the cost of turning homes into electric only now that we have gas? If we lose power in our current home, at least we have hot water and a gas fireplace. Our electric grid cannot accommodate everyone turning to electricity. We will turn into a mess like California with brownouts. We do not want to live in an all electric home again.

M.C. Portland, OR

Having choices always benefits the consumer. New forms of energy have been added to the list like wind and solar, but we have not yet found the golden ticket. Over-regulating will slow innovation. Who knows what we can accomplish! Forcing everyone onto the same platform makes us vulnerable and will hurt poorer communities the most.

R.T. Lake Oswego, OR

The plan must identify exactly how many degrees of temperature the climate will be reduced by the proposal, and when. The estimated cost of that degree savings can then be compared to that gain in climate: \$10 trillion for 0.25 degrees? And then what is the probability of meeting that goal given that all the planned events actually do occur?

T.W. Portland, OR

I've learned that the natural gas coming into the home is typically not properly ventilated and presents an unnecessary and consistent hazard to the health and well being of humans, pets, and plants. I do not believe there is a justification for increasing or including increases in natural gas use in buildings.

R.W. Gresham, OR

I do not see the regulations working as expected as it does not consider the broader human and economic system behind this. Keep in mind, the US has been lowering its greenhouse footprint for more than ten years and its accelerating through just people wanting to minimize their impact an need to lower their cost which drives less greenhouse output. Second, this regulation would severely impact the lowest income where natural gas is more cost effective and has a low greenhouse footprint versus other sources.

J.B. Portland, OR

I completely support phasing out natural gas, which contributes to greenhouse gases much more than solar, wind, tidal, hydro, and other renewables that can be used to power the electric grid. I urge DEQ to encourage reliance on the electric grid, which, despite what NW Natural says, allows plenty of flexibility. I am disgusted with NW Natural's attempts to frighten its customers with false claims about what would happen if natural gas was phased out.

M.S. Portland, OR

This needs to be balanced, tiered , across the board. Accounting for socio economic status. There should be options for redundancy (ie. not solely electric), multiple available sources of fuel, and provide incentives for cleaner energy. Not everyone can afford the latest and greatest. Electric means of heating a home are more closely than gas currently.

S.W. Portland, OR

Please remove the EPA policy of emission requirements as requisite for renewing registration on privately owned vehicles. Mandating upgrades/repairs to underperforming vehicles is only a financial burden for people who already can't afford better cars, and it is the sole reason for the widespread catalytic converter theft in Portland. Put the burden for clean emissions on corporate polluters, where it will make a difference. Not on negligible yet financially devastating penalties for the poor, which creates more crime and hardship than it solves. Thank you. H.D. Portland, OR

I love me gas appliances!! Please don't make me change!! Better to have both gas and electricity when faced with a storm disaster or some other type of natural disaster. Make the appliances more efficient if you want to use less fossil fuel. Dont cut your nose off just to appear environmentally conscious.

H.E. Portland, OR

The electric grid in my neighborhood will intermittently go out through the year. I do not believe the grid can provide the required reliable energy year round and should not be the only source.

B.L. Portland, OR

I want options. When there are numerous sources of energy there is competition. Competition drives innovation and brings cost to the consumer down. Dependence on one or even just two sources of energy is exactly that, dependance. No single energy source is 100% renewable or can one sustain demand. Energy sources are also dependent on other energy sources to make or collect them. Nothing in life is free but competition in the energy market can keep it affordable for all.

E.H. Scapposse, OR

Baby steps

F.T. Portland, OR

I strongly disagree with Kate Brown's executive order. Yes, GHG emissions need reducing. Energy policy should focus primarily on providing cleaner, LT base load power, not an arbitrary GHG reduction number. An energy crunch is just around the corner. Look at California (amongst many states/counties) as an example. Renewables can't provide enough base load electricity. Moving energy production to greater amounts of lower GHG sources and away from coal/oil is a sound policy. Eliminating them will be a disaster. Biden has just recently encouraged oil and gas producers to increase production due to rising prices and shorter supplies. How ironic.

J.T. Portland, OR

I share NW Natural's concerns about CPP in it's current form particularly: include a cost cap and Require a Full Analysis of Electrification Impacts

B.S. Gresham, OR

Natural gas is essential for our future I currently have gas for heat and water its efficient and affordable who is going to pay to switch to all electric ? And where is the extra power coming from with all the dam closures . our current leadership has their heads in the sand .

L.K. Portland, OR

As a current natural gas user and someone deeply concerned about climate change, I am willing to make sacrifices and pay more if necessary to reduce my use of fossil fuels. This is an emergency situation!

C.A. Fairview, OR

I believe natural gas is good source of energy. Do not take this away as a resource for our country.

J.H. Portland, OR

I support the Climate Protection Program and NW Natural should comply and make no attempt to delay or change the outcome.

Y.W. Portland, OR

Seems like natural gas is coming under fire lately. I'm certainly fine with paying more to clean things up, but I think those making the profit need to pay a substantial amount whether their stake holders like it or not. Profit does not come ahead of a clean environment for our children and grandchildren!

M.M. Clackamas, OR

I agree with NW Natural's stance on gas and other renewable energy. "All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability must remain priorities of Oregon's energy system." While I do support use of alternative electric sources like wind and hydro, it is not and cannot be the end-all, be-all for our power sources. Consumers deserve to continue to have a choice in the matter, not have it dictated by one person. Gas is efficient and inexpensive and needs to especially be available to low-income households. It is also a source of heat and cooking when there are power outages. K.B. Portland, OR

In a time that we are required to follow the Science it is imparitive that the State of Oregon prove the need for this potentially crippling action on such a needed energy source. While many are concerned about losing their homes our State is going to take drastic measures with certain unintended circumstanses.

W.H. Beaverton, OR

The DEQ needs to slow down and plan properly. It needs much more input from stakeholders and must not sacrifice cost at the altar of green. Western Oregon has one of the highest costs of living in the nation. Rising energy costs could have a powerful negative impact on our economy.

C.N. Portland, OR

Communities everywhere are already experiencing electricity shortages and outages. Hydro power is great, but with water shortages in reservoirs, dams aren't able to produce electricity on demand as they have in the past (see California). With more and more electric vehicles being built and sold, that will only exacerbate the problem even more. Server farms and bitcoin trading are gobbling up electricity faster that I ever have as a consumer. As climate change continues to worsen weather events & produce bone-chilling winters, I worry that, as a couple in our late 70s, there will not be sufficient electricity to keep us warm and feed us hot foods in our own home. We now have a natural gas fireplace and stove. They will work even if electricity goes out. They will be what saves us in winter. I strongly disagree with community/political decisions to "go all-electric". Putting all your eggs in one basket is a really bad idea—that goes for energy solutions as well. Only a variety of sources will provide everyone with energy in this changing climate. I'm glad I have natural gas alternatives and I argue that solar, wind and other so-called "green sources" have their own carbon footprint. As I drive in the Columbia Gorge and see the HUGE windmill blades being driven on huge trucks, accompanied by two more "warning" trucks, I know that that's just part of wind's carbon footprint. What about their manufacture? Is it zero-carbon? I don't think so. Please be sure that abundant natural gas remains a part of a consumer's choice for warmth and cooking in winter. Everyone gets older and needs that guarantee of warmth and hot food. Everyone, young or old, deserves to be able to rely on reliable energy sources. Natural gas is a smart solution and should be kept available as an option!! Thank you.

Re: Public Comment Period for Greenhouse Gas Emissions Program 2021 Rulemaking / Submitted by NW Natural October 25, 2021; see cover letter for detail

L.V. Dallas, OR

In response to Kate Brown's executive order regarding climate change, I believe the following: All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future; Families and businesses should have a choice of resilient and dependable energy options to meet their needs; Affordability and reliability must remain priorities of Oregon's energy system. Please consider how this will affect Oregonians and how affordable and doable the proposed changes will be. This is not the time to go forth with a drastic green energy bill.

N.P. Portland, OR

NW Natural, the solicitor of this citizen comment, and other members of the fossil fuel industry have had more than enough time to come to terms with their role in the climate crisis, and plan for the future of its business. Its naked attempt to forestall the inevitable clean energy transition—necessary to save lives and ensure a future for our grandchildren—by encouraging citizen comment in favor the terminal status quo is insulting, dangerous, and frankly pathetic. It's emblematic of an organization prioritizing self-protection, even over the ongoing livelihood of its own customer base. The clock is ticking, NW Natural. If you ask me (oh, hey, you did) the organization should be atoning. Count up the known damage you've caused. Take a look beyond box-ticking and state-mandated compliance. Real talk. Come clean. Then start to transition your business model toward decarbonization. To save the planet, your sector has to shrink 72%, as estimated by McKinsey (which is surely doing the research on behalf of its petrochemical / LNG clients). Plan for that inevitability, and lead the way with innovations designed to cope with less, and to use your powers for innovation to capture rather than emit harmful greenhouse gases. [https://www.mckinsey.com/industries/oil-and-gas/ourinsights/the-impact-of-decarbonization-on-the-gas-and-lng-industry]. I strongly encourage the DEQ to set the most aggressive timelines conceivable for the decarbonization of the state of Oregon, and to trust in the ingenuity and resolve of her citizens to protect the future, with or without the fiends who delivered us to this lamentable present. (CC DEQ main comment page)

C.P. Portland, OR

This is not the kind of comment you are soliciting, but here is it: climate change is the most fundamental problem facing our world today. NW Natural, you should be ashamed for resisting absolutely essential reforms. Get with the program, guys: innovate, find new ways to make money. We don't have to dilly-dally on this!

T.G. Portland, OR

I believe that we need to make drastic cuts in carbon emitting now. We need start the tech that will be needed. Going at it piecemeal isn't going to help.

G.H. Gresham, OR

I changed from electricity furnace and water heater to natural gas, because it is more efficient. I am glad that we did make the change. Why can't we have both electricity and natural gas? It seems that Windmills are an eye sore and they haven't proved their usefulness in the long run. Solar is still not a perfect fix in the northwest, although it helps. Remember when the government wanted to take out all of the dams? Now we are relying on those dams a lot today. Also Kate Brown is taking out all of the coal plants in Oregon. Is that smart when other source of energy are still somewhat in the infant state? Again will the Windmills and Solar be able to generate enough energy if we get rid of all the coal plants and natural gas? Let's keep them all and continue to work on improving the rate of the emissions. What happens to all of those used up batteries, solar panels, wind mill blades, etc. (Batteries are recycled, but what cost and what space? Solar panels, the remaining components are thrown away or burned! Used Windmill blades are sawed up and placed in landfills! Interesting!) Natural Gas makes about 117 CO2, Coal around 200 CO2, Propane around 140 CO2, Diesel and gas around 160 CO2 all per million BTU, so gas is still more efficient. I have trees and plants that take out a lot of CO2 around my home. How much emissions does a wood furnace system make? Will Kate Brown outlaw wood furnace energy items? All of these items can be improved, but Natural Gas is the least issue. Why can't Kate Brown help China with their emissions?

C.S. Portland, OR

Natural Gas is one of our nations greatest resources. We must slowly improve the regulatory process considering the needs of the poor and senior citizens as they will suffer if prices rise too swiftly.

T.C. Tualatin, OR

The state's plan is horrible. Electricity is not the answer for everything. I am in plumbing wholesale and there are many reasons for homes to need a quick recovery water heater. A gas water heater can provide that and an electric can not. California has tried to go to using more electricity and the power grid can't handle it. Oregon would have the same problem. The electrical power grid will struggle with the already becoming more popular electric cars. And let's not forget the problem if there is a power outage during winter. What is the state going to do if the electricity is out and the temps are in the 30's. I want two sources of power available to me and my family! Natural gas gives me that.

D.N. Philomath, OR

Before we make energy more expensive and unreliable, it would be good to know that Global Warming computer models are statistically valid for extrapolation. The current models are worse than predicting a fair coin toss (a fair coin toss prediction is has a 50% chance of being correct, the climate models are significantly worse than this).

M.L. Portland, OR

What to do? Keep energy clean. If it involves more potential harm, don't do it. Have subsidies for any and all green technologies – solar incentives, geo-thermal, etc. If it harms 7 generations in the future, don't do it. Those are the how's I have. We owe it to ourselves, it's our atonement to past generations, and our gift/promise to future generations to do better. Businesses need to take a hard stance and JUST DO IT.

L.H. Portland, OR

Please provide a substantiated estimate to implement the program and cost to consumers. Include how the estimated costs were created, what data used, etc.

V.K. Portland, OR

We need Natural gas as a part of the solution at least until renewable energy storage becomes economical

R.W. Portland, OR

How does this impact me as a consumer?

D.D. Portland, OR

NW Natural has emailed me no less than three times asking me to leave comments. I do not believe their intentions are pure, and this should cease.

J.O. Portland, OR

The affordability and reliability of energy must remain priorities of Oregon's energy system. Require a Full Analysis of Electrification Impacts! D.B. Portland, OR

Natural gas is not renewable energy. You are part of the problem and the planet is more important than your profit.

L.K. Portland, OR

Together we can do solve pollution. It doesn't matter what it costs, let's reduce pollution immediately, there is no excuse for it anymore. We have the scientific advances, technology, and dire need, so let's get it done. Let's look at what other countries are doing, use our imagination, and work together to find solutions. No more excuses. Let's fund it through taxes and by the making the companies that polluted the world pay to clean it up. Enough is enough. The planet is dying, and so are we. We need to take action now, not in 2050. Now.

L.G. Portland, OR

All forms of energy including natural gas need to be embraced. If you want to do something to help reduce the pollution then reduce the frequency of nearly new vehicles having to go to a DEQ station check the statistics it's a waste of time and money for cars with less than 100,000 miles in less than 10 years old to be up at the DEQ

Have an 800 number that really works so that somebody can call And get attention when a gross polluter is seen. Regulate gas powered lawn equipment get them to convert to electric they are polluting more than houses burning natural gas or the cars per unit Stop wood burning fireplaces in metro areas again worse than cars or natural gas

J.W. Portland, OR

All fossil fuel use must cease and be replaced by clean energy immediately, or else none of us have a future.

J.Z. Portland, OR

Any change in laws that affect the taxpayers should be passed by out legislators, not an executive order by an overly aggressive governor! Natural gas is a safe way for us to heat our homes, cook our food, & do less harm to the environment. If the concern is CO2, perhaps Governor Brown should enact a limit on breathing, since human expiration is a huge contributor to this greenhouse gas!!!

P.B. Portland, OR

Please ban all natural gas in Oregon. I'm a NW natural customer and I can't wait to disconnect from the hazardous gas lines in my house. They are a fire hazard, and indoor air quality risk, and just aren't as efficient as electric alternatives.

R.B. Portland, OR

I believe that DRASTIC reductions need to take place to reduct carbon emissions. I support Governor Brown's executive order. Will it be easy? No but this state and country need to make changes and it may hurt but it won't hurt as much dying in a wildfire or from thirst or starving from a lack of food due to droughts.

E.M. Portland, OR

Natural Gas is a legacy fuel that should be phased out. There are objectively better sources for water, heat and appliances that can be 100% renewably sourced and are both safer and easier to use. So DEQ .. go to it! Help save us from the climate disaster and make our homes safer and more efficient too!

K.S. Portland, OR

I am in support of the efforts by the state of Oregon to reduce carbon emissions. I support rules that ensure such reductions. Further, I support increased efforts toward renewable energy innovation across the state. I am not in favor of requirements that would force particular communities to exclusively depend on the electric grid for all energy needs. As a community member who relies on natural gas to fuel our boiler that heats our home through radiators, to fuel our stovetop, our water heater, and our fireplace, I want to retain the option to utilize that heat source: natural gas.

M.E. Portland, OR

Energy has vastly improved the lives of people the world over. We have enough regulations as it is, and people are already overburdened with government overreach and taxes. I do not support those elected to serve us once again making it more difficult to provide for my family – period.

L.S. Portland, OR

To the DEQ: Eliminating the use of fossil fuels in all forms is vital for preventing further climate damage. Many experts agree that the best solution is to electrify everything and figure out how to make clean electricity— this seems like a great solution. Any ideas like "clean" or "renewable" natural gas/coal/oil should be met with the greatest skepticism. Thank you very much for your attention to this critical issue, and I look forward to following our state's progress towards a carbon neutral (or carbon negative!) future.

D.E. Columbia City, OR

Wind & solar energy are not so economical, earth or climate friendly. They leak toxic fluids into the soil, panels can produce heat, raising earth temperatures and the huge windmill blades are not recyclable! We need natural gas & hydroelectric power. We must stop importing our energy materials, transformers, meters and make our products in the USA. It has been proven that natural gas, hydroelectric and our oil pipelines are very economical, make our country self sufficient and strong. Our politicians need to get on the Low Carbon Pathway by getting rid of their airplanes, yachts, mansions and ride a bus or train IF they care so much about climate change.

M.S. Portland, OR

Affordability and reliability must remain priorities of Oregon's energy system.

A.B. Beaverton, OR

As proven by the electric grid failures in Texas this past year, electrifying Oregon is a dangerous and short sided decision that will only put all Oregonians in danger. Direct use of fuels are and have always been the most efficient use. Oregonians should maintain their rights to choose the fuels that best suit their needs and DEQ should not take that away from them. In addition, Oregon's total GHGs are 0.01% of total GHG emissions for the entire country. Implementation of the CPP will have de minimis impacts to national and global GHG reductions. Imposing these broad reaching and economically debilitating regulations on Oregonians will impose drastic costs increases for energy, transportation, and everyday life. This is not something that Oregon should be on the forefront of, at the very least Oregon should be the last to adopt GHG reduction regulations. At the very least these regulations should go to a public vote and not be implemented by an executive order via a governor who has lost her way and continues to show that she's no there for the people and only there for her and her party's interests. N.C. Portland, OR

Oregon should consider greater investments in wind (inland and offshore), solar, hydrothermal, and nuclear.

L.G. Gresham, OR

Anyone that has any form of Gas, Oil, Electric power should not have to pay for our governor's negligence on a proper way to help the emission issues. By paying more, it can make it harder for families to pay their bills and support their families.

E.C. Gresham, OR

I agree that we should have a balanced energy program that uses and innovates multiple sources of energy that considers cost to users as well as climate concerns

M.R. Portland, OR

Thank you Gov. Brown for prioritizing climate change regulations. We must eliminate fossil fuels.

M.B. Lebanon, OR

I agree that all industry's need to be pro-active in lowering greenhouse gases! We see the evidence of not setting higher emission standards world wide years ago. I feel that natural gas is a safer use of fuels and NW Natural is pro-active in their efforts and making progress in newer clean burn fuel! I also feel that we see technology changing and making more efficiently progress every day however we're at a time in history that it doesn't seems fast enough! Lastly, Governor Kate Brown has used executive orders to implement unrealistic and unattainable guidelines that our technology cannot to meet at this time. Our governor seems to live in an unrealistic world and is advised by idiots that rarely see the outside of an office cubical.

Hopefully she and many of her staff will be replaced at the next election with representatives that have hands on working practical experience, reverse or change Brown's executive orders and set realistic and obtainable goals!

D.C. Portland, OR

Inslee, Brown and Newsome seem to be in a contest to see who can outdo each other in destroying these Democrat stronghold States by destroying jobs of low and middle income workers with their insane and ridiculous claims regarding climate change, i.e Newsom's ban on gas powered lawn mowers in California. Until they are voted out of office and true Republicans get their act together, these states are doomed.

C.S. Portland, OR

I would like us to move to 100% renewable as fast as possible. It still feels like the current energy providers outside of the renewable space are kicking and dragging their collective feet. We need change now.

J.R. Portland, OR

I support the goal of reducing carbon emissions but I don't want to be forced to depend on electricity for everything, especially heating and air conditioning, which are currently very affordable with natural gas. We need to keep working to develop renewable energy solutions that are affordable and compatible with people's heating devices or other household systems that require natural gas.

C.T. Gresham, OR

I believe there is a better way, and that working together on pragmatic solutions will lead to the most promising energy future. Key principles that should be considered: All forms of renewable energy – including renewable natural gas and renewable hydrogen – are needed in a balanced, low-carbon future. Families and businesses should have a choice of resilient and dependable energy options to meet their needs. Affordability and reliability must remain priorities of Oregon's energy system

R.D. Portland, OR

We need to reduce carbon emissions, encourage renewable energy innovation, and diversify how we meet energy needs.

S.D. Portland, OR

Climate will always be changing and shifting. It has done it for many thousands of years. Leave it alone. Natural gas is very clean source of energy. And is still affordable to population. We need it and depend on it to keep our houses warm! Please keep it flowing to our homes at affordable prices!

M.H. Portland, OR

Accommodations (ie: reduced rates) for seniors who live on fixed incomes should be part of any and all new costs associated with governmental mandates for energy programs that cost more.

J.D. Portland, OR

I agree with NW Natural's position on the CPP: 'all forms of renewable energy — including renewable natural gas and renewable hydrogen — are needed in a balanced, low-carbon future'

N.B. Portland, OR

Include cost cap. Clarify Community Climate investment. Expand Compliance. Require full analysis of electrification impacts

C.C. Portland, OR

Don't take away my natural gas

K.D. Portland, OR

Right now and for the foreseeable future, electricity remains a 'fossil fuel' – generated in part from power plants fired with coal and natural gas (in the Northwest electrical grid subregion). Our reliance on hydroelectric power, a great baseload source, is challenged by drought and salmon impacts. Our other primary renewable sources – solar and wind – are wildly intermittent, making it challenging to maintain a reliable electrical grid. Meanwhile, natural gas currently provides an enormous portion of the energy needed in Oregon. As a recent article in The Economist articulates ("The first big energy shock of the green era"), cutting carbon emissions from our energy system should leverage all of our resources and encourage decarbonizing both our "wires and pipes". That way we can reach climate goals with the least cost and disruption while maintaining the resiliency that comes from power lines above and gas mains below. I urge the DEQ to engage all means to decarbonize our energy systems. While simple slogans like "electrify everything" are compelling, reality is always more complex and nuanced than any slogan can be. There are many paths to decarbonization – take them all!

B.S. Portland, OR

I want everything possible done to reduce greenhouse gas emissions to the greatest extent possible, as soon as possible, in Oregon. State agencies play a significant role in this, and set a precedent for private companies. I want to know there is a future where I will continue to enjoy fresh air to breathe, and an environment to share with others and with the plans and animals around me that is safe.

C.B. Portland, OR

Great, waste more of our money on unquantifiable, virtue signalling BS. This is a progressive, corporate welfare initiative that allows Kate Brown and big government to steal more tax money from taxpayers, while NW Natural hikes up the rates on it users. I vote NO!!

W.M. Portland, OR

I support the governor's greenhouse gas reduction goals as currently stated and would like for accommodations to be made to subsidize the increase in costs for those who cannot afford it. The costs of continuing to kick this down the road are too high. The summer of 2021 was brutal and it will only be getting worse, with the costs to our society being very high if immediate action is not taken.

J.C. Portland, OR

Since these draft rules of the DEQ Climate Protection Program do NOT ensure reduction of carbon emissions, nor calculate the true COST of the program, these issues need to be addressed. We agree what is proposed could DISCOURAGE renewable energy INNOVATION and force communities to exclusively depend on the electric grid for all energy needs! ALL forms of renewable energy, including renewable NATURAL GAS and renewable HYDROGEN, need to be considered. Families and businesses should have the CHOICE of dependable energy options. AFFORDABILITY and RELIABILITY must be priorities for Oregon's energy system.

S.A. Portland, OR

Climate change is real and must be addressed. However, the natural gas infrastructure is critical to the stability of our society. We must include research and incentives for renewable and or carbon free energy that leverages this valuable infrastructure. Thank you.

D.J. Tualatin, OR

Please do not reduce use of Clean Burning Natural Gas in hopes of an alternative, as yet unknown, source of energy.

B.L. Portland, OR

Please let us keep the ability to choose the source of our energy. I do not support restrictions that would force me to use electricity for all my energy needs.

K.E. Gresham, OR

I feel gas is more reliable , affordable and cleaner then electric. I use it for heat , water , fireplace and I'd like to change my electric stove to gas. Think it's also safer then electric during storms .

B.O. Gresham, OR

We do not need stricter regulations at this time. Oregon is crippled by our high taxes and government overreach already. We need to help our businesses and taxpayers to try to survive the inflation we are experiencing and the recent losses due to pandemic shutdowns, not tightening the noose tighter on our people. We already have clients and neighbors moving out of Multnomah County and Oregon for states with more balanced leadership.

W.K. Portland, OR

I support the use of renewable natural gas. I think that requiring all homes and businesses to rely on electricity is not responsible. There is already too much reliance on that system and when we have weather events it often causes days and sometimes weeks of outages. We should, as consumers have a choice. I have used natural gas for years now and have been pleased with the reliability and substantial savings over heating my home. I hope you will listen to consumers like myself and not limit us to using only electricity. I truly believe that system is already overwhelmed.

C.C. Albany, OR

I would like to provide my support for the continued use of natural gas for cooking, heating, power generation and all of its other many uses. Restrictions or limits placed on the use of natural gas will require a massive expansion in electrical generation and transmission capacity, as well as stress the capacity of the electrical grid at the neighborhood level. Such changes would require extremely expensive upgrades to the electric grid that would be passed on to Oregon residents. In addition, natural gas provides a safe, existing, alternative and parallel energy distribution system that actually supports the electric grid by proving energy via pipeline instead of the electrical grid, allowing the grid to provide service to demands that only electricity can provide (lighting, electric motors, etc.). This is especially important during peak energy loads during hot summers and cold winters. Natural gas is also very reliable and is available all year round regardless of weather conditions, which is not the case for renewable sources of electricity such as wind and solar (which therefore need to be backed up with nonrenewable generation sources or expensive and limited battery storage systems). The use of natural gas for electrical generation by itself often can reduce carbon dioxide emissions when used to replace existing coal power plants. In addition, non-carbon related pollution is less for natural gas compared to coal due to its clean burning properties (no fly ash or mercury), higher energy content, and impacts related to management of coal during transportation and stockpiling on-site. In conclusion, natural gas should continue to be part of Oregon's energy system into the future to benefit both Oregon residents and the environment.

R.S. Portland, OR

To Oregon DEQ Climate Protection Program: We are very much in favor of protecting the climate and reducing fossil emissions. We are in our middle to late 70's and have gone through the destructive environmental changes of the last 50 decades with great concern as the fossil fuel industries have increasingly polluted the planet. So we are, with all other thinking and aware humans, most concerned about the future of our children and grandchildren and the habitat of our earth. Having said that, we also want to note that there are complicated nuances in how to go forward with the reduction of carbon dioxide and methane generation that need to be dealt with as we move forward into an electric based energy world. We lived for years in coastal based homes in California and Washington states that were all electric. The best situations were situations where the electricity was generated from geothermal and/or solar sources (Sonoma County California), or hydroelectric sources (Puget Sound area of Washington). But please note that even in those situations, there were some real limitations that we had to deal with, namely:

1. When power went out due to storms, downed trees, fire danger, etc., we had to rely on large battery backup UPS systems for light and minimal refrigeration, and in California a wood based fireplace insert for minimal heating in one room. We also had to have a Coleman stove for heating water and minimal food preparation since it was too expensive to convert our whole home to solar. And we had emergency backup provisions for water and food. But this was California and the temperature rarely went below 40-50 degrees and the electric lines were mainly underground.

2. In Washington, because it could get much colder and the electric lines were all on poles subject to trees coming down, we had to install a 250 gallon propane tank with a Generac home generator system so that we could live through an extended power out.

We recently bought a home in SE Portland to be near needed services and live close to our children. We very much appreciate having natural gas in our home here. We upgraded our home to have a new and very efficient gas stove and removed our old wood burning fireplace with a very efficient glass enclosed gas fireplace with a fan. We fully insulated our walls and roof and replaced our old wooden single pane windows to high efficiency double pane windows and insulated doors. We are going to add some additional solar systems as well.

Along with these improvements we have a good feeling about NWNaturals as a company. We feel they are working hard to offset the use of fossil fuels for their gas provision by including waste conversions and other technologies. And we are not sure where Oregon's electric supply is going. If it is still primarily oil or coal based energy, then we think it is not ready yet for a massive conversion away from natural gas. And even if it does go in that direction, please keep in mind that the infrastructure for poles, wires, long transmission lines, service people, and all that is necessary to keep electricity going in our cold and wet climate needs to be a part of the considerations when you estimate the value of our natural gas energy here in Portland.

L.C. Portland, OR

If the State of Oregon forces home and business owners to ONLY use power from the electric grid, this will be just one more (of MANY more) reasons for the current population to leave the State and for businesses to either leave or not start new businesses in the State of Oregon. I have been a natural gas customer for nearly 50 years and find it to be dependable, reliable, affordable and a clean energy. Those building new construction should have a choice of what type of power should be used for commercial and residential buildings and not be forced into only one choice. Try dealing with the electrical power being out and not having an alternate form of energy to at least run your gas fireplace to keep you reasonably warm or heat up your cooktop so you can eat hot food. Not to mention those who use propane for energy and can avoid being solely dependent on the electric grid. While reducing carbon emission is extremely important I feel the State of Oregon has gone way overboard in the stance on this issue so long as it affects non-electrical energy and there are far, far more immediately important items this State should be dealing with. I would list them but this is not the forum for that.

G.M. Portland, OR

NW Natural – you and all energy companies in the U.S. have resisted significant (and necessary) changes to reverse climate change. Human effect on our environment has been known science for WAY too long – there is no excuse for your delayed response. Stop pretending "we support... but..." and DO SOMETHING PROACTIVE to actually significantly reduce carbon and other climate altering emissions. If this OR executive order 20-04 is a kick in the proverbial "butt" of utilities and energy companies, then bring it on. You've had more than enough time to act – so act. You in the energy industry are at at the center of Climate Change causes (along with transportation.) Stop waiting for others and trying to rally the public to anger at the Oregon Governor. If I have to change my natural gas appliances, so be it. People are dying and experiencing extreme impact right now from climate change. Our convenience, or even our business, is not an excuse to cause others death and suffering. Be the solution. NOW!

E.R. Troudale, OR

I use natural gas to heat my home and hot water. My bill is about 100 dollars per month in the winter along with electricity, which is 100 to 150 per month. This is affordable. I already choose the renewable option for electricity source. I would not be able to afford more than this, our water bill has already gone up 20 percent per month this past year. I am for renewable sustainable energy but right now is not the time to make increases to people's basic necessities. My husband has not been able to work more than part time the past year and a half due to my child having virtual schooling and needing flexibility in the event there's an exposure at school he would have to stay home. Things are tight as they are.

J.W. Milwaukie, OR

I would like to know where all the electricity is going to come from. There is always a large energy loss in transporting electricity where as there is little to no loss in transporting natural gas. Right now the cost of heating water by electricity is almost twice the cost of heating water with natural gas and that is not counting what electricity will cost when they go to total green energy. What do they plan on using for backup generation to wind and solar? Do they even have a plan?

T.B. Portland, OR

We are very lucky here in Oregon to have such amazing access to natural gas AND affordability of those vital resources. We should continue forward with any plans the state government deems necessary to maintain air and water quality as long as the impact to the environment is kept to a minimum and low or no cost to Oregon citizens.

T.S. Harrisburg, OR

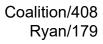
Natural gas is an important component of any roadmap to a reduced reliance on oil and coal based energy. Setting goals to reduce carbon emissions is not an appropriate action for a governor to take by executive order. A governor is a temporary state employee. This type of action should be taken by the legislature, which in theory represents the entire state, as opposed to our current governor who was primarily elected by the citizens of Portland and Eugene.

M.P. Portland, OR

Costs be damned! If we don't solve the impending climate crisis we'll all be dead or worse. Better to pay for it now when it's solvable then later when it'll cost way more and be less effective. I fully support aggressive legislation and rule making on this issue.

M.N. Portland, OR

Dear Oregon DEQ decision makers: We'd like to express our concern as our family uses natural gas system. Heating using electricity is very expensive. Climate change requires changes but please consider renewable natural gas and other forms of renewable energy. Thank you for your time and consideration.







January 2022

City of Eugene Highlights from a Survey of Voters on Natural Gas and Renewable Natural Gas Policy Options

From November 6-14, 2021, DHM Research conducted a survey of voters in NW Natural's service territory – which includes the Willamette Valley, most of coastal Oregon, Clark County, WA, and the Columbia Gorge – to assess their opinions about proposals to ban new natural gas hookups. The survey consisted of 2,150 voters and took approximately 15 minutes to complete. The survey oversampled several cities in the service territory, including Eugene. Service territory results have a margin of error of +/- 2.1%. The Eugene-specific survey consisted of 350 voters; its margin for error is $\pm 5.2\%$. The highlights have been reviewed and approved by John Horvick, Senior Vice President of DHM Research.

- **Only 29% say Eugene is moving in the right direction 56% say it is on the wrong track.** This is a standard context question, and the wrong track results are exceptionally high.
- When asked an open-ended question about the most important issue that voters want elected officials to do something about, 42% say homelessness. No other issue even approaches that level of concern: 9% mention COVID-19, 5% affordable housing and 5% public safety. Among a dozen other issues below 5%, 4% mention climate change.
- **70% of Eugene voters oppose a ban on new natural gas hookups in all homes and buildings.** Moreover, most voters (53%) go further and are "strongly opposed" to a ban. Only 23% support a ban.
- 75% of voters agree that families and businesses should have a choice of energy options to meet their needs and not have their choices mandated by city councilors. Only 21% thought otherwise.
- 76% of voters agree that all forms of renewable energy **hydro**, **wind**, **solar and renewable natural gas** are needed in a balanced, low-carbon future.
- 78% of Eugene voters support city council encouraging the use of renewable natural gas.
- When asked how decisions should be made about proposals to ban new gas hookups, **84**% **believe it should be decided by a public vote.** Only 10% think the city council should act on its own.

Similar surveys were conducted in 2020 and 2019. Generally, Eugene voters want to reduce carbon emissions within the context of choice, reliability, affordability and transition to renewable sources of energy, including renewable natural gas. Majority opposition to a ban on new gas hookups is increasing, as is the intensity of the opposition.

DHM Research has been providing opinion research and consultation throughout the Pacific Northwest and other regions of the United States for more than 40 years. The firm is nonpartisan and independent and specializes in research projects to support public policy making. Its clients include media, governmental agencies, environmental organizations, business associations and corporations.

From:	Heiting, Kimberly
Sent:	Monday, April 4, 2022 2:30 PM
То:	Nelsen, Eric
Cc:	Linver, Tamy; Sigurdson, Ryan
Subject:	FW: [External]NWN Survey

From: Heiting, Kimberly
Sent: Tuesday, December 21, 2021 5:52 PM
To: MEDARY Sarah J <SMedary@eugene-or.gov>
Subject: RE: [External]NWN Survey

Hi Sarah,

Here is an overview of the research and key findings:

- A survey of registered voters in Eugene was conducted by DHM Research for NW Natural from November 6-14, 2021. DHM is a highly regarded, 40+ year old, nonpartisan and Oregon-based firm that routinely conducts surveys for the media, governmental agencies, environmental and social justice organizations and corporations. Some of the general results are very relevant to the City.
- For example, in the standard Right Direction/Wrong Track question in the November 2021 survey, only 29% of voters think Eugene is headed in the right direction and 56% think it is on the wrong track. In 2020, voter sentiment was about evenly split, and in 2019 it was almost completely reversed much more positive.
- When asked what the most important issue that voters want elected officials in Eugene to do something about, 42% say homelessness, 9% Covid 19, 5% affordable housing, 5% public safety and among a dozen other issues below 5% 4% are most concerned about climate change.
- Here are key results from the most recent research relating to City/NW Natural discussions:
 - 78% support local government encouraging the use of renewable natural gas.
 - 70% oppose banning new natural gas hookups in homes and buildings. (Only 23% support a ban on new hook ups, and 7% are undecided.)
 - o 84% think a ban should be decided by a vote of the people rather than by the city council.
- Based on this and the previous surveys in 2019 and 2020, it is clear that the vast majority of Eugene voters do not support a gas ban.

I'm open to figuring out a way to share more of this information with you and the council if it would be useful. We are beginning to share it with our customers and the community.

I'm heading out for vacation but will be back Jan. 3. Thanks.

From: MEDARY Sarah J <<u>SMedary@eugene-or.gov</u>> Sent: Wednesday, December 15, 2021 11:55 AM To: Heiting, Kimberly <<u>Kimberly.Heiting@nwnatural.com</u>> Subject: [External]NWN Survey

CAUTION: This email originated outside NW Natural. Please do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Kim,

Several weeks ago the City Council received an email from a constituent that suggested they had been interviewed/surveyed about natural gas. I was later asked by one of our City Councilors if NWN had done that and if I had access to it. I committed to following up and asking you and am a little late on that follow through. If NWN did do a survey, is that something you would be willing to share with me? I'd like to share it with the City Council if that's possible.

Thank you for considering, Sarah

Sarah Medary | City Manager Pronouns: she/her/hers

From:	Heiting, Kimberly
То:	Saathoff, MardiLyn; Williams, Kathryn; Yocom, Jennifer; Linver, Tamy; Rosenbaum, Kat; Week, Stefanie; Kloor, Jonathan R.
Cc:	Anne Marie Levis; Brian Gard
Subject:	FW: Corrections for the Record
Date:	Wednesday, March 3, 2021 6:59:49 PM
Attachments:	NWN RecordCorrection.pdf

Sent.

From: Heiting, Kimberly

Sent: Wednesday, March 3, 2021 6:56 PM

To: 'smedary@eugene-or.gov' <smedary@eugene-or.gov>

Subject: Corrections for the Record

Hello.

Given the misstatements we have heard and continue to hear, in and around Council public

meetings, we felt it important to provide you this letter.

Thank you for your consideration.

Best regards, Kim.

Kim Heiting

NW Natural - SVP of Operations 503.220.2366 <u>nwnatural.com | Twitter | LinkedIn | Facebook | YouTube | Instagram</u>







February 8, 2022

Portland Public School Board 501 N Dixon Street Portland, Oregon 97227

RE: Portland Public School Climate Crisis Response Policy

Chair DePass and school board members,

NW Natural appreciates the opportunity to provide comments on Portland Public Schools' climate crisis response policy. NW Natural is a local distribution company (LDC) that provides conventially sourced and renewable natural gas directly to end users in Oregon and Washington and has been operating in Oregon since 1859. It currently provides natural gas to over 750,000 customers in the region, with a large percentage of those customers residing in Multnomah County. We recognize along with the school board, that there is a climate imperative, and that we must work together to address this future, and it is in this light that NW Natural submits these comments to the record, which are supported by our company Vision 2050, the outline of NW Natural's plan to become the first carbon neutral utility by 2050.

In light of this commitment, we enter in to the record this following:

NW Natural supports:

- 1. Portland Public Schools' proactive work to combat climate change, protect frontline communities, focus on community resiliency and climate adaptation
- 2. Decarbonizing the energy system economy wide from wires to pipes, to drive down emissions safely, financially responsibly and reliably
- 3. Investing in the most efficient and effective equipment using renewable energy

NW Natural has:

- Protected the integrity of the energy grid, especially when stressed by weather, fires, and/or natural disasters providing a reliable source of energy to our communities contributing to a more resilient energy system for the communities we serve, especially for institutions that need reliable back up resources for emergencies
- 2. Used bold conservation strategies to reduce natural gas utilization over the past years our customers are using less year over year
- 3. One of the most modern pipeline systems in the US with extremely low system loss or risk
- 4. Sourced and procured natural gas from natural gas providers with the lowest fugitive emissions and that follow scientific best practices <u>ONE Future Working to Reduce Methane Emissions</u>

NW Natural is:

- 1. Currently delivering Renewable Natural Gas (RNG) directly to our customers with larger percentages being added every day, for those organizations and businesses who want to farther, faster, we are pursuing options for these entities to increase the amount of RNG they can purchase to achieve deeper emissions reductions
- 2. Actively developing innovative hydrogen solutions to minimize CO2 emissions and provide long-term reliable low carbon energy solutions to the energy grid in Oregon, as we are currently testing 5% hydrogen blend at our Sherwood Facility

- 3. Pursuing federal policy to accelerate decarbonization of the natural gas system
- Complying with the Governor's Climate Protection Plan under which we will reduce our customers greenhouse gas emissions from the use of our product by 50% by 2035 and 90% by 2050 or NW Natural's more aggressive Vision 2050. VISION 2050 Destination Zero - NW Natural
- 5. Investing in carbon capture pilot projects for institutional customers to reduce carbon emissions from boilers

In accepting these facts, we ask that Portland Public Schools consider the following document that we submitted last December (attached below) that the committee may not have had the time to consider in their draft Climate Crisis Response Policy. We look forward to working with the policy committee in the next several weeks on this important policy.

We are proud to be a company headquartered in Multnomah County and look forward to meeting the district's renewable energy needs for the next 162 years and partnering with Portland Public Schools to ensure environmentally sustainable, affordable, safe, and resilient communities for all students, staff, and residents.

Sincerely,

Nina Carlson, NW Natural, Government Affairs

Proposals for Portland Public Schools Draft Climate Action Plan

Pillar 1, Goal 1.1, Item 2:

Original:

Prohibit the installation of fossil fuel infrastructure (gas-fired equipment) in all new buildings and major modernizations from here on out. Phase out fossil fuel infrastructure (gas-fired equipment) in all existing buildings by 2050.

Proposed:

Couple the installation of renewable fuel appliances in all new buildings and major modernizations from here on out with appropriate emissions reductions – energy efficiency measures, offsets, green fuel tariffs, carbon capture, etc. Establish and follow an emissions reduction plan for all energy sources serving PPS buildings. -Achieve net zero direct and indirect GHG emissions in all existing buildings by 2050.

Reasoning:

NW Natural has worked with PPS to convert boilers from fuel oil to natural gas at 16 schools in the last 10 years, driving down fuel costs and emissions for the District. We'd like to continue to be a positive partner in that effort. Decarbonization and greenhouse gas emissions reductions are the goals, both short and long term. There are many pathways to achieve this cost-effectively. Allow flexibility to choose the energy solution that provides the least carbon intensity, with the most affordable cost for the needed application, while preserving resilience and reliability.

Pillar 1, Goal 1.1, Item 3:

Original:

Increase energy efficiency and minimize the indirect use of fossil fuels.

Proposed:

Increase energy efficiency to minimize the direct and indirect use of fossil fuels, with the focus of relying more exclusively on renewable energy - reducing economy-wide emissions. Develop a renewable fuels portfolio for all energy consumption and emissions reduction plans using efficiency, green tariffs, carbon capture, and new technologies.

Reasoning:

Efficiency is a primary cornerstone of addressing climate concerns, as you don't have to decarbonize the energy you don't use. Sourcing renewable fuels are also a key instrument. is. Renewable energy sources should be relied upon for energy needs in increasing amounts.

Pillar 1, Goal 1.1, Item 4:

Original:

Limit the quantity of refrigerants used.

Proposed:

For existing equipment, actively address refrigerant leaks; phase out refrigerants with global warming potential (GWP) > 1 by 20?? Ensure that refrigerants are appropriately disposed of. For new equipment, source with lower GWP refrigerants or those with GWP = 1 (or less).

Reasoning:

Refrigerants are among the most potent and persistent greenhouse gases. HFCs spare the ozone layer but have 1,000 to 9,000 times greater capacity to warm the atmosphere than carbon dioxide. Project Drawdown puts both <u>Refrigerant Management</u> and <u>Alternative Refrigerants</u> in the top 10 most important solutions to address the climate imperative.

Pillar 1, Goal 1.1, Item 6 and 7

Original:

6. Design buildings to recover quickly from climate impacts (fires, floods, landslides, heat).

7.Design, renovate, and construct new facilities to maximize resiliency to heat, smoke, flooding, and storms to protect district assets and provide community respite during climate related emergencies.

Proposed:

Design buildings to recover quickly from climate impacts (fires, floods, landslides, extreme heat, and cold weather events).

Design, renovate, and construct new facilities to maximize resiliency to extreme heat and cold weather events, smoke, flooding, and storms to protect district assets and provide community respite during climate related emergencies.

Reasoning:

As the world adapts to climate change and extreme weather events, resiliency to high and low temperatures will be important. As this past year has shown, improper resiliency planning for extreme weather events can have deadly consequences.

Pillar 1, Goal 1.5, Item 1:

Original:

Where feasible, divest banking investments from fossil fuel industries.

Proposed:

Where feasible, divest banking investments from fossil fuel industries, <u>and</u> invest in emissions-reducing projects such as solar, wind, renewable natural gas, hydrogen, carbon capture and new technologies.

Reasoning:

Help advance the clean energy revolution. The Intergovernmental Panel on Climate Change advises that we need zero-emission energy sources PLUS carbon removal to address global warming.

Pillar 3, Goal 3.1, Item 1 and Goal 3.4, Item 5

Original:

Goal 3.1, Item 1: Identify and monitor climate trends and impacts on district families, especially groups vulnerable to impacts of extreme heat and poor air quality.

Goal 3.4, Item 5: Update school emergency response plans to address climate-related hazards, including flood, extreme heat, landslides, and wildfire. Plans should emphasize protecting and serving low-income populations, communities of color, and people with disabilities.

Proposed:

Goal 3.1, Item 1: Identify and monitor climate trends and impacts on district families, especially groups vulnerable to impacts of extreme heat or cold and poor air quality.

Goal 3.4, Item 5: Update school emergency response plans to address climate-related hazards, including flood, extreme heat, extreme cold, landslides, and wildfire. Plans should emphasize protecting and serving low-income populations, communities of color, and people with disabilities.

Reasoning:

As stated above, resiliency and emergency response planning should incorporate both extreme heat and extreme cold weather events for the safety of students and the community.

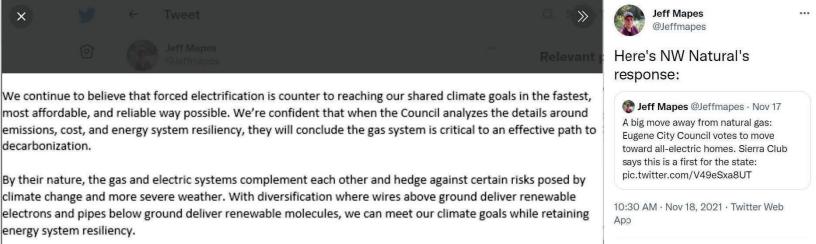
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Thank you,

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 69

69. Please state whether NW Natural seeks recovery of costs related to its FERC Account No. 930.2 in this rate case, Docket No. UG 435, and if yes please describe NW Natural's justification for seeking recovery of these costs.

Response:

Yes, NW Natural does seek to recover costs related to FERC Account No. 930.2 in this rate case.

This account includes the cost of labor and expenses incurred in connection with the general management of the utility not provided for elsewhere, which primarily include costs for research and development expenses and Directors' fees and expenses.

FERC 930.2 also includes costs related to the Stockholder's meeting and annual reports, and other miscellaneous expenses, and is used to capture COVID-19 related savings used against the deferral. Regarding Industry Association dues for company memberships, only a small portion of those dues are accounted for FERC Account No. 930.2, while the majority of those costs are accounted for FERC Account No. 921.

The research and development expenses (R&D) are included for recovery as R&D has proven to be an important initiative that benefits the customer and the general public by supporting the safe and efficient delivery and utilization of natural gas by contribution to operational efficiency and safety improvement in designing, constructing, inspecting, maintaining, and repairing utility assets, as well as the safe and efficient utilization of natural gas in end-use applications. The company has been able to utilize the Operations Technology Development (OTD) and Utilization Technology Development (UTD) funding model to co-invest with other utilities on operations and utilization R&D activities.

The Board of Director's fees and expenses represent the fees of the NW Natural's Board of Directors. The fees are included for recover as the Board's interest is in ensuring a strong, stable, and efficient natural gas utility that serves its customers in a safe, reliable, and affordable manner. NW Natural's Board of Directors has a proven

UG 435 Coalition DR 69 NWN Response Page 2 of 2 track record of effectively balancing the Company's central interests, and their continued oversight, governance, and guidance is both beneficial and necessary by law.

Industry association dues are reasonable business expenses that provide a benefit to NW Natural's customers, as these organizations keep employees informed and trained, and also in many cases directly take on issues that benefit customers.

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 70

70. Please provide all documents related to industry association dues paid for by NW Natural.

Response:

The Company objects to this data request under 860-001-0500 because the request for "all documents" is burdensome, overly broad and not commensurate with the needs of this case, the resources available to the parties or the importance of the issues to which the discovery relates. Notwithstanding this objection, pursuant to pursuant to discussions between counsel for NW Natural and the Coalition that took place on April 12, 2022, NW Natural understands that the Coalition is seeking information showing the amount the Company has paid in dues to industry association during the Test Year. Accordingly, NW Natural provides the following information:

As noted in response to UG 435 Coalition DR 71 there are three industry organizations of which NW Natural is a member--the American Gas Association, Northwest Gas Association, and the Western Energy Institute

All dues and memberships, including the above industry association dues, are included in UG 435 OPUC DR 138.

The transactional data for the 2021 dues in the base year are summarized as follows. There was not a 2021 Western Energy Institute membership charged in the 2021 base year.

Industry Asso	ciation Dues					
Cost Element	Cost element name	Val.in rep.cur.	Cost Center	Aux. acct assignment_1	Name	Period
501900	DUES/MEMBERSHIP	101,131.25	83030	ORD 921-01505	American Gas Association	1
501900	DUES/MEMBERSHIP	101,131.25	83030	ORD 921-01505	American Gas Association	4
501900	DUES/MEMBERSHIP	101,131.25	83030	ORD 921-01505	American Gas Association	7
501900	DUES/MEMBERSHIP	101,131.25	83030	ORD 921-01505	American Gas Association	10
501900	DUES/MEMBERSHIP	101,750.00	52010	ORD 921-01505	NORTHWEST GAS ASSOCIATION	1
		0		none in 2021	Western Energy Institute	

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision <u>Data Request Response</u>

Request No.: UG 435 Coalition DR 96

96. Please describe whether NW Natural seeks recovery in this rate case, Docket No. UG 435, for costs and incidental expenditures related to correspondence with the City of Eugene, and if so, please provide a justification for recovery of these expenditures.

Response:

Pursuant to discussions between counsel for NW Natural and the Coalition that took place on April 14, 2022, the Coalition has agreed to narrow its request to cover costs and incidental expenditures related to correspondence with the City of Eugene regarding Eugene's climate action plan. NW Natural seeks to recover all costs and incidental expenditures related to correspondence with the City of Eugene that are incurred during the normal course of business or in response to requests by the City of Eugene. Climate action plans may relate to or affect NW Natural's provision of a public utility service, and the outcome of such plan can directly impact our customers. As such, it is important for NW Natural to engage in the public process that could have affect NW Natural's public utility service.

NW Natural notes that customer advocacy communications regarding the City of Eugene's climate action plan are not requested for recovery in this rate case.

UG 435 Coalition DR 146 Attachment 1 Page 1 of 3

EXECUTIVE SUMMARY

NW Natural is committed to a low-carbon energy future and our role in reducing greenhouse gas emissions. This document illustrates the potential for us to achieve carbon neutrality by 2050 for the energy services we provide to the roughly 2.5 million Northwest residents we serve every day.

So how do we ramp up our existing decarbonization efforts with a goal to achieve carbon neutrality by mid-century?

We start by re-assessing how we will transition our current energy deliveries to a target of carbon neutrality while serving future growth projected for the region. That begins with more aggressive energy efficiency actions, coupled with new equipment technologies that reduce energy consumption while maintaining safety, reliability, and customer satisfaction.

From there we look for lower-carbon energy sources to displace our conventional natural gas supplies. These include renewable natural gas captured and converted from organic waste, as well as clean hydrogen that can be distributed in a dedicated pipe network, blended at certain amounts directly into our system or combined with waste carbon dioxide and converted to synthetic natural gas—all providing climate benefits similar to wind and solar energy. Finally, we look to emerging models for deep carbon reductions that align with our skills and services, such as carbon capture, utilization and sequestration (CCUS).

Over the past several years, we've taken several actions that have made this vision of a carbon neutral future possible. In 2016 we established a Low Carbon Pathway as a cornerstone of the company's strategic plan, setting a voluntary goal of 30% carbon savings by 2035 (using a 2015 customer and company operations baseline). Most recently, this includes investments to develop and procure renewable natural gas, made possible by Oregon's landmark SB 98 (2019) legislation—a first-of-its kind bill.

We've formed partnerships with like-minded utilities to facilitate the adoption of clean hydrogen into our system and supplies. And we're working across the value chain on market transformation of advanced heating equipment such as natural gas-fired heat pumps that can achieve better than 100% efficiency at any temperature, or hybrid heating systems that combine electric heat pumps with a gas furnace for optimal performance.

This report evaluates scenarios using a range of options by which we can realize our vision for a carbon neutral gas utility.

Key Decarbonization Principles

- Helping customers use less is the fastest and cheapest way to reduce emissions. We are dedicated to continuing to help customers conserve energy, save money, and reduce emissions through more efficient buildings and equipment.
- All forms of renewable energy are needed in a balanced, low-carbon future. We are committed to displacing conventional natural gas over time with renewable natural gas—gases produced from organic waste streams—and clean hydrogen.
- Communities served by the gas system have greater energy reliability. We need a dual energy system—gas and electric—to handle peak energy loads and to prepare for a future with potentially more extreme weather events. Homes and businesses with gas service can have energy even when the power is out, providing a resiliency benefit for our communities.
- Leveraging our existing modern system in new ways is our priority. We are seeking paths that ensure a renewable energy future without undermining long-term affordability and dependability.
- Families and businesses should have a choice of energy options to meet their needs. Energy system diversification and competition provides the best opportunity for accelerated innovation.
- We must drive toward carbon neutrality in a way that leaves no one behind. We are committed to pursuing policies and approaches that provide fair and equitable support for our most vulnerable customers.

Coalition/408 Ryan/196 Attachment 1

UG 435 Coalition DR 146 Attachment 1 Page 2 of 3

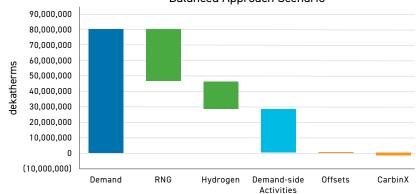
Working with internal teams of subject matter experts and resource planners, we have developed three scenarios that demonstrate it's possible to achieve the goal using different views of the future. All three draw on proven approaches to emissions reductions that are already technically viable. In some instances, such as energy efficiency programs or renewable natural gas procurement, these efforts are in progress at NW Natural now. For some others, such as clean hydrogen or carbon capture, we incorporate lessons from early adopters in Europe and Canada, where favorable policies and market conditions have enabled progress on those innovations sooner.

- Scenario 1 Balanced Approach: Includes a balanced mix of renewable supply and demand-side measures and does not employ offsets in 2050
- Scenario 2 Moderate
 Offsets: Utilizes offsets in
 conjunction with a mix of
 renewable supply and demand side activities
- Scenario 3 RNG Constrained: Utilizes far less RNG and no offsets in 2050 while emphasizing demand-side activities and clean hydrogen

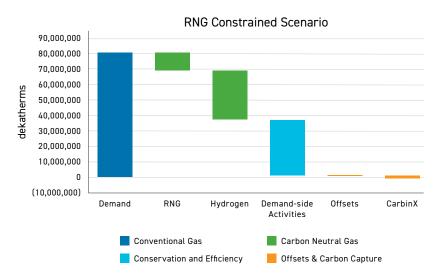
Our 2020 sales deliveries total nearly 80,000,000 dekatherms of conventional natural gas. To decarbonize, those supplies and the associated GHG emissions must be replaced with carbon neutral alternatives.

Each scenario incorporates the following components: energy efficiency and conservation through building shell improvements, deep retrofits, and advanced heating equipment; lower-carbon fuels such as renewable natural gas and clean hydrogen; technology that extracts carbon alongside natural gas combustion; and verified, quality carbon offsets.

These charts show how we expect these various measures, applied across three distinct scenarios, could achieve carbon neutrality by 2050.



Moderate Offsets Scenario 90,000,000 80,000,000 70,000,000 60,000,000 dekatherms 50,000,000 40,000,000 30,000,000 20,000,000 10,000,000 ۵ (10,000,000) Demand-side Demand RNG Hydrogen Offsets CarbinX Activities



¹ For a discussion of potential cost implications of decarbonizing the gas system relative to electrification of building heat, see the E3 report Pacific Northwest Pathways to 2050: https://www.ethree.com/wp-content/uploads/2018/11/E3_Pacific_Northwest_Pathways_to_2050.pdf.

UG 435 Coalition DR 146 Attachment 1 Vision 2050 Technologies & Meeastres

30F	PLY SIDE M	LASONES		
	YEAR	BALANCED APPROACH Scenario	MODERATE OFFSETS Scenario	RNG-CONSTRAINED Scenario
Decarbonized gas supplies (dekatherms)	2050	52.2M	47.4M	35.2M
Renewable Natural Gas		34.2M	34.2M	14M
Clean Hydrogen or Clean Hydrogen Derived Synthetic Gas		18M	13.2M	21.2M
DEM	AND SIDE N	IEASURES		
Natural gas heat pumps as a	2025	3%	4%	3%
percentage of natural gas space	2030	17%	12%	17%
heating equipment installed in year	2050	72%	55%	60%
Hybrid heating systems as a	2025	9%	8%	18%
percentage of natural gas space	2030	16%	8%	33%
heating equipment installed in year	2050	0%	0%	40%
Natural gas heat pumps for water heating	2025	7%	4%	7%
as a percentage of new gas-fired	2030	36%	15%	36%
water heating equipment installed in year	2050	91%	65%	91%
Industrial energy efficiency increase (percentage) beyond current Energy Trust of Oregon expectations	2050	23%	13%	30%
Percentage reduction in building heating requirements, due to building shell improvements	2050	21%	13%	30%
CARBON OFF	SETS AND	CARBON CAPTURE		
	2025	4.2%	7.1%	2.7%
Certified carbon offsets used to account	2030	7.5%	11%	8%

for conventional gas supply not yet decarbonized	2030	1.576	1170	070
······································	2050	0%	25%	0%
Natural gas supplies decarbonized	2025	38k	37k	38k
with CARBIN-X carbon capture	2030	0.8M	0.8M	0.8M
equipment (dekatherms)	2050	2.3M	2.8M	1.7M

This document illustrates a breadth of options for reducing emissions. It also makes projections nearly 30 years into the future and as such, is limited by future uncertainties around economics, policies, and innovations. And while we've relied on the same types of models and expertise that our resource planning team uses to develop our integrated resource plan, scenarios presented here have not been cost-optimized. So, while we presume that elements such as renewable natural gas supplies or energy efficiency savings acquired here will be done in the most cost-effective manner, we do not present any single pathway as a least-cost option.¹ We do believe, however, that our Vision 2050 provides an optimized approach to our shared energy future. Two energy systems, carrying renewable electrons along wires and renewable and clean molecules in pipes, provides greater resilience, reduces risks, and limits cost impacts for energy users. A concerted effort to decarbonize the gas system alongside the electric system offers synergies in meeting peak demands, redundancy, and long-term storage needs.

Through this document our intent is to show that it's possible and that we are committed to pursuing that future.

¹ For a discussion of potential cost implications of decarbonizing the gas system relative to electrification of building heat, see the E3 report Pacific Northwest Pathways to 2050: https://www.ethree.com/wp-content/uploads/2018/11/E3_Pacific_Northwest_Pathways_to_2050.pdf.

Kathryn Williams testimony, 1/18/22, Milwaukie:

Mayor Gamba and City Councilors – My name is Kathryn Williams. I'm the vice president of public affairs and sustainability at NW Natural, thank you for the opportunity to briefly address the council tonight the natural gas related resolution under consideration this evening. As your gas utility serving over 6,000 customers and employers in Milwaukie city, we are pushing to accelerate the energy transition we all agree must happen.

As we became aware of these proposals late last week, we have not had time to provide written comments, including answering any questions you might have about the details behind our 2050 Carbon Neutral work, adopted by leadership in 2021. This in-depth scenario analysis illustrates options to achieve carbon neutrality by 2050 for the energy services we provide to our existing - and future - sales customers. All scenarios incorporate varying applications of enhanced building energy efficiency measures, technologies, declining amounts of verified offsets and lower-carbon fuels such as renewable natural gas, clean hydrogen, and new technologies like carbon capture. The state's Climate Protection Program, that went into effect this month, requires natural gas utilities to drastically reduce emissions. We hope that will be included in any modeling the city undertakes as part of this resolution.

It is clear that Mayor Gamba and this council have led on climate issues. When I made the decision to join NW Natural a few years ago, it was in large part to assist a relatively small natural gas utility in the pacific NW, that had already been leading with its Low Carbon Pathway, Conservation tariff, Smart Energy program and methane reduction programs, accelerate the transition to a fully decarbonized utility—I'm very proud of the work we have completed thus far and know we have much more to do – we have legislative approval to buy a renewable energy, we have formed a renewables department and signed agreements with options to purchase or develop RNG totaling about 3% of annual sales volume in Oregon as RNG just to name a few.

I know the council and the city staff have a lot on their collective plates right now. Oregonians across our service territory are both concerned about the direction we are going and strongly support the direct use of natural gas, including renewable natural gas and hydrogen. This statement is supported by recent polling where 70% of voters across our service area are opposed to a ban on gas for new hookups, 54% strongly opposed).

If the city considers the views of its residents and analyzes data from balanced and objective sources about emissions, cost and energy systems and household reliability, you will conclude that forcing electrification in homes and businesses doesn't make sense. We hope any carbon reduction policy would incorporate *all* renewables and new technologies to decarbonize both the electric and gas systems.

Assuming "electric only" for future building codes is not in line with best available technologies and is not in line with what your constituents and businesses want.

Thank you for the opportunity to comment this evening; we look forward to working alongside utility partners, the community, and the City of Milwaukie to achieve these shared goals.

Thank you.

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 Coalition DR 146

146. Please provide all correspondence between NW Natural and the City Council of Milwaukie, Oregon made between January 1, 2021 through the date of your response to this request.

Response:

NW Natural objects to UG 435 Coalition DR 146 as burdensome in that it is not limited as to subject matter, and it is overly broad and not commensurate with the needs of this case, the resources available to the parties or the importance of the issues to which the discovery relates. Without waiving this objection, pursuant to discussions between counsel for NW Natural and the Coalition that took place on April 14, 2022, the Coalition has agreed to narrow its request to cover all comments and presentations between NW Natural and the City Council of Milwaukie regarding Milwaukie's climate action plan for the period January 1, 2020 to present. Accordingly, NW Natural provides the following response. Please see UG 435 Coalition DR 146 Attachments 1 and 2.

	ted from SDR 57 below - new columns have	e peen adde	ed in blue, a	ind the specifically	requested fields	b have the header highli	ignted orange.	FERC	OR Jurisdictional Rate Allocation Factor	ar.		Correlating expense - system	Correlating expense -	L				
Compan	y Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost Cost element	FERC	OR Allocation Allocation	Order	FERC Account Name/Internal	System \$	OR		Name of offsetting	Posting Document	Document Document Type	Name
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5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records. collections-gas svc-c, account name a/p - concur, description: ccc celebration committee, document header text: paul:celebration - decerr	nb	1	CTR 13400	CUST CONTACT CENTER	Amazon Prime	501900 DUES/MEMBE RSHIP				CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.9			A/P - CONCUR	1/4/2021 1012084626	ZC SAP Concur T&	Committe
5000	sap concur t&e - cost center name: environ mgmt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- office staf, account name: a/p - concur, description: environmental conference fee, document header tex mcdonald:december expense		1	CTR 51040	ENVIRON MGMT	PHEEDLOOP * REGJM4	501900 DUES/MEMBE RSHIP	5 93	5 89% Customer-All	935-01505	MAINTENANCE OF GENERAL PLANT-OFFICE STAF	96.8	0 86.6	232210	A/P - CONCUR	1/4/2021 1012084643	ZC SAP Concur T&	E Envirornm Conferenc
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: annual membership for vancouver chamber of commerc, document header text: nelson:december expenses	2021	1	CTR 52020	COMM & CIVIC AFFAIRS	Vancouver Chamber of Commerce	501900 DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	1/4/2021 1012084682	ZC SAP Concur T&	Vancouve commerc
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5000	sap concur t&e - cost center name: project office, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: rustica carlos description: support bacoe, documen header text: carlos:rustica carlos - i	, it	1	CTR 51060	OFFICE	IIBA	501900 DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	110.0			RUSTICA CARLOS	1/11/2021 1012114341	ZC SAP Concur T&	
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: annual dues, document header text: lancon:december expenses		1		NAL SAFETY		501900 DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	204.0			A/P - CONCUR	1/11/2021 1012114364	ZC SAP Concur T&	
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: annual membership dues, document header text: lancon:december expenses		1		OCCUPATIO NAL SAFETY	TINNITUS	501900 DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	50.0			A/P - CONCUR		ZC SAP Concur T&	dues
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: annual membership dues, document header text: lancon:december expenses	2021	1			HEARING C	501900 DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	220.0			A/P - CONCUR	1/11/2021 1012114364	ZC SAP Concur T&	E Annual m dues
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: internal audit professiona dues, document header text: humphrey:iia annual group		1	CTR 42010	ACCOUNTIN G	The Institute of Internal Auditors	501900 DUES/MEMBE RSHIP	E 92 [.]	1 88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	223.13	3 197.0	232210	A/P - CONCUR	1/11/2021 1012114554	ZC SAP Concur T&	E Internal A Profession

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5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual dues- eugene chamber of commerce, document header text: kloor.december expenses (2021	1 CTR 5	C	COMM & DIVIC AFFAIRS	Eugene Chamber of Commerce		DUES/MEMBE RSHIP	921	88% Customer-A	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		2,207.2	27 232210	A/P - CONCUR	1/14/2021	1012132378	ZC	SAP Concur T&E	Annual dues- Eugene Chamber of Commerce	Kloor:December Expenses (
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership dues- lebanon chamber of commerc, document header text: kloor:december expenses (2021		Α	CIVIC AFFAIRS	Lebanon Chamber of Commerce		DUES/MEMBE RSHIP	921	88% Customer-A	II 921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	1/14/2021	1012132378	ZC	SAP Concur T&E	Annual membership dues- Lebanon Chamber of Commerc	Kloor:December Expenses (
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual dues- springfield chamber of commerce, document header text: kloor:december expenses (م	COMM & CIVIC AFFAIRS	Springfield Chamber of Commerce	7	DUES/MEMBE				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN OFFICE STAFFING &				A/P - CONCUR		1012132378		SAP Concur T&E	Annual dues- Springfield Chamber of Commerce	Expenses (
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership dues- corvallis chamber of comme, document header text: kloor:december expenses (2021		c	CIVIC AFFAIRS	Corvallis Chamber of Commerce		UES/MEMBE SSHIP	921	88% Customer-A	921-01505	EXPENSE-OFFICE STAFFIN		882.3	91 232210	AP-CONCUR	1/14/2021	1012132378	20	SAP Concur T&E	Annual membership dues- Corvallis Chamber of Comme	Kloor.December Expenses (
5000	sap concur t&e - cost center name: corporate security, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: corporate security, document header text: harrisjerome harris	2021		s		MNGMT INT		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-HOMELAND SECUR	497.00			A/P - CONCUR		1012139407			Corporate Security	Harris: Jerome Harris
5000	sap concur t&e - cost center name: president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: tsbpa individual license renewal, document header text: anderson:2020 12_dec p-ca	2021	1 CTR 7		RESIDENT	TSBPA IND LIC RENE		DUES/MEMBE RSHIP	921	88% Customer-A	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	75.00	66.2	22 232210	A/P - CONCUR	1/20/2021	1012139646	ZC	SAP Concur T&E	TSBPA Individual License Renewal	Anderson:2020 12_Dec p-ca
5000	sap concur t&e - cost center name: it&s leadership team, cost element name: dues/membership, ferc accounting name: office staffing & expense-cybersecurity, account name: a/p - concur, description: leadership development, document header text: carlson:november expenses	2021	1 CTR4		T&S EADERSHIP 'EAM	AUDIBLE*3Y1H46 4J3		DUES/MEMBE RSHIP	921	88% Customer-A	II 921-04760	OFFICE STAFFING & EXPENSE- CYBERSECURITY	12.99	ū 11.4	47 232210	A/P - CONCUR	1/21/2021	1012139859	ZC	SAP Concur T&E	Leadership Development	Carlson:Novembe r Expenses
5000	sap concur t&e - cost center name: it&s leadership team, cost element name: dues/membership, ferc accounting name: office staffing & expense-cybersecurity, account name: a/p - concur, description: professional development, document header text: carlson:november expenses	2021	1 CTR 4		T&S EADERSHIP EAM	AUDIBLE*ZI1JW1 GM3		DUES/MEMBE	921	88% Customer-A	II 921-04760	OFFICE STAFFING & EXPENSE- CYBERSECURITY	8.99	7.9	94 232210	A/P - CONCUR	1/21/2021	1012139859	ZC	SAP Concur T&E	Professional Development	Carlson:Novembe r Expenses
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5000	sap concur t&e - cost center name: it&s leadership team, cost element name: dues/membership, ferc accounting name: office staffing & expense-cybersecurity, account name: a/p - concur, description: annual rif pnw membership, document header text: jensen;january 2021 p-car		1 CTR4		T&S .EADERSHIP 'EAM	SOCIETY FOR INFORM		DUES/MEMBE SSHIP	921	88% Customer-A	921-04760	OFFICE STAFFING & EXPENSE- CYBERSECURITY	8,850.00	7,813.7	73 232210	A/P - CONCUR	1/21/2021	1012140037	ZC	SAP Concur T&E	Annual RLF PNW membership	Jensen:January 2021 P-car

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5000	sap concur t&e - cost center name: network cntrl systms, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: 2021 common user group membership due renewal, document header text: jensen:january 2021 p-car	2021	1	CTR 13100		COMMON A USERS GRP	501900 DUES/MEMBE RSHIP	921			921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012140037	ZC		2021 Common User Group Membership Dues renewal	Jensen:January			
5000	sap concur t&e - cost center name: mist ugs, cost element name: dues/membership, ferc accounting name: distrb maintenance supervisior supervisi, account name: a/p - concur, description: reservoir and wells information, document header text: mann:january expenses (01	2021	1	CTR 11600	MIST UGS	SOC OF PETROL ENG	501900 DUES/MEMBE RSHIP	885	94% Cu	istomer-All	885-01630	DISTRB MAINTENANCE SUPERVISION-SUPERVISI	110.00	103.10	232210	A/P - CONCUR	1/25/2021	1012141016	S ZC	SAP Concur T&E		Mann:January Expenses (01			
5000	sap concur t&e - cost center name: vp pa & sustainabil, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership dues document header text: williams:january 2021 pca		1	CTR 75500	VP, PA & SUSTAINABI L	THE CAPITOL CLUB	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	392.44	346.49	9 232210	A/P - CONCUR	1/25/2021	1012141027	ZC	SAP Concur T&E		Williams:January 2021 Pca			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osb membership fees, document header text: chand:roselen- - december	•	1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	672.00	593.31	232210	A/P - CONCUR	1/26/2021	1012141583	ZC	SAP Concur T&E	OSB Membership Fees	Chand:Roselene - December			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osb membership fees, document header text: chand:roselen- - december		1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	617.00	544.75	232210	A/P - CONCUR	1/26/2021	1012141583	3 ZC	SAP Concur T&E	OSB Membership Fees	Chand:Roselene - December			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: subscription to amazon fc legal stationary order, document header text: chand:roselene - december		1	CTR 54010	LEGAL	Amazon	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99	11.47	7 232210	A/P - CONCUR	1/26/2021	1012141583	3 ZC	SAP Concur T&E	Subscription to Amazon for Legal Stationary Order	Chand:Roselene - December			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osb registration fees, document header text: chand:roselen - december		1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	617.00	544.75	232210	A/P - CONCUR	1/26/2021	1012141583	3 ZC	SAP Concur T&E	OSB Registration Fees	Chand:Roselene - December			
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5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: acc registration, documer header text: chand:roselene - december	nt	1	CTR 54010		ASSOC CORP COUNSEL	501900 DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012141583		SAP Concur T&E		Chand:Roselene - December			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osh membership fee, document header text: chand:roselen- - december	•	1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900 DUES/MEMBE RSHIP	921	88% (Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	617.00	544.75	o 232210	A/P - CONCUR	1/26/2021	1012141583	3 ZC	ISAP Concur T&E	OSB Membership fee	Chand:Roselene - December			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: acc registration, documer header text: chand:roselene - december		1	CTR 54010	LEGAL	ASSOC CORP COUNSEL	501900 DUES/MEMBE RSHIP	921	88% Cu	istomer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	385.00	339.92	2 232210	A/P - CONCUR	1/26/2021	1012141583	3 ZC	SAP Concur T&E	ACC Registration	Chand:Roselene - December			

Compan	V Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element F	ERC 0	R Allocation	Allocation	Order	FERC Account Name/Intern	al System \$	OR	Offsetting	5	Posting	Document	Document	Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: dues/membership, description: reimbursement for kat rosenbaum, document header text: chand:roselen - january		1	CTR 54010	Name (ADDED)	WESTERN ENERGY INS	Element 501900	name DUES/MEMBE RSHIP	921	88%	Factor Customer-All	921-01505	Order Name OFFICE STAFFING & EXPENSE-OFFICE STAFFI		Allocation (264.87	acct no.) 501900	account DUES/MEMBERSHIP	Date 1/26/2021	Number 1012141585	ZC	Description SAP Concur T&E	Reimbursement for Kat Rosenbaum	Text Chand:Roselene - January	text	Document	
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsba service fee, document header text: chand:roselen - january		1	CTR 54010	LEGAL	Washington State Bar Association (WSBA)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI	14.20 N	12.54	4 232210	A/P - CONCUR	1/26/2021	1012141585	ZC	SAP Concur T&E	WSBA Service Fee	Chand:Roselene - January			
5000		9	1	CTR 54010	LEGAL	Washington State Bar Association (WSBA)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI	N 115.00	101.53	3 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	WSBA Attorney Registration for K Rosenbaum	Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsba service fee, document header text: chand:roselen - january	9	1	CTR 54010	LEGAL	Washington State Bar Association (WSBA)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI	2.88 N	2.54	4 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	WSBA Service Fee	Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osb registration fee - mardi, document header text: chand:roselene - january	2021	1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI	N 759.00	670.13	3 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	OSB Registration fee - Mardi	Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: osb registration for eric nelsen, document header text: chand:roselene - january		1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		544.7	5 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	OSB Registration for Eri Nelsen	c Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: washington registration - kat rosenbaum, document header tex chand:roselene - january	9	1	CTR 54010	LEGAL	Oregon State Bar (OSB)	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		501.45	9 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	Washington Registration Kat Rosenbaum	i - Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: colorado registration - s kelly, document header text: chand.roselene - january	2021	1	CTR 54010	LEGAL	Colorado Registration - S Kelly	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		114.78	3 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	Colorado Registration - 5 Kelly	S Chand:Roselene - January			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon subscription fees for legal, document header text: chand.roselene - january	÷	1	CTR 54010	LEGAL	Amazon	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		11.4	7 232210	A/P - CONCUR	1/26/2021	1012141585	zc	SAP Concur T&E	Amazon subscription fees for Legal	Chand:Roselene - January			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership, document header text: reiten:december expenses		1		COMM & CIVIC AFFAIRS	MCMINNVILLE AREA CHAMBER	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		618.04	4 232210	A/P - CONCUR	1/27/2021	1012151303	ZC	SAP Concur T&E	Chamber Membership	Reiten:December Expenses			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership, document header text: reiten:december expenses		1		COMM & CIVIC AFFAIRS	SALEM AREA CHAMBER	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFI		2,648.72	2 232210	A/P - CONCUR	1/27/2021	1012151303	ZC	SAP Concur T&E	Chamber Membership	Reiten:December Expenses			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element	FERC 0		Order	FERC Account Name/Internal		OR		Name of offsetting	Posting	Document		t Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	1	CTR 46010	Name (ADDE CORP	D) National		name DUES/MEMBE	921	Factor 88% Customer-All	921-01505	Order Name OFFICE STAFFING &		Allocation 698.66		account A/P - CONCUR	Date 1/27/2021	Number 1012151359	type ZC	Description SAP Concur T&E	Addition of Nathan	Text Filippi:January	lext	Document	
5000	corp secretary, cost element name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: addition of nathan partair & karen lee to nacd mem, document header text: filippi:january expenses	e 1		011(40010		(NACD)		RSHIP	521		321-01303	EXPENSE-OFFICE STAFFIN	191.32	050.00	5 2322 10		112112021		, 20		Partain & Karen Lee to NACD Mem	Expenses			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: facilities purchases, document header text: fuller:december expenses		1	CTR 16100	FACILITIES MGMNT	AMAZON PRIME*7U6RP	501900	DUES/MEMBE RSHIP	935	89% Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99	11.62	2 232210	A/P - CONCUR	1/27/2021	1012161211	I ZC	SAP Concur T&E	Facilities Purchases	Fuller:December Expenses			
5000	sap concur t&e - cost center name: internal auditing, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: isaca/cisa certification renewal, document header text: kadourah:zeyad kadourah e		1	CTR 72500	INTERNAL AUDITING	ISACA	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	210.00	185.4	1 232210	A/P - CONCUR	1/28/2021	1012161526	3 ZC	SAP Concur T&E	ISACA/CISA Certification Renewal	n Kadourah:Zeyad Kadourah E			
5000	sap concur t&e - cost center name: cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: a/p - concur, description: wall street journ suscription for mas, document heade text: lange:january expenses (0	- al	1	CTR 11325	CUST SEG SRVC	Wall Street Journa	501900	DUES/MEMBE RSHIP	908	88% Customer-All	908-04660	CUSTOMER ASSISTANCE EXPENSE-MAJ ENERGY S	149.97	131.74	4 232210	A/P - CONCUR	1/28/2021	1012162423	3 ZC	SAP Concur T&E	Wall Street Journal suscription for MAS	Lange:January Expenses (0			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: cust accts op - supervision-supervision, account name: a/p - concur, description: conference, document header text: proby;january p-card stat	2021	1	CTR 13400	CUST CONTACT CENTER	Western Energy Institute	501900	DUES/MEMBE RSHIP	901	88% Customer-All	901-01630	CUST ACCTS OP - SUPERVISION- SUPERVISION	249.00	219.72	2 232210	A/P - CONCUR	1/29/2021	1012163427	7 ZC	SAP Concur T&E	Conference	Proby:January P- Card Stat			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name a/p - concur, description: ccc celebration committee, document header text: paul;january celebration	:	1	CTR 13400	CUST CONTACT CENTER	Amazon Prime	501900	DUES/MEMBE RSHIP	903	88% Customer-All	903-04280	CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99	11.4	8 232210	A/P - CONCUR	1/29/2021	1012163428	3 ZC	SAP Concur T&E	CCC Celebration Committee	Paul:January Celebration			
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-veh safety mgt, account name: a/p - concur, description: oregon truckers association membership, document header text:		1	CTR 51010		O Oregon Truckers Y Association	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01700	OFFICE STAFFING & EXPENSE-VEH SAFETY MGT	919.00	811.3	9 232210	A/P - CONCUR	1/29/2021	1012163503	3 ZC	SAP Concur T&E	Oregon Truckers Association Membership	Rempfer:January Expenses			
5000	rempfer;january expenses sap concurt & e. cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-veh safety mgt, account name: a/p - concur, description: ota dot education, document header text: rempfer;january expenses	2021	1	CTR 51010		O OTA DOT Y Education	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01700	OFFICE STAFFING & EXPENSE-VEH SAFETY MGT	279.00	246.3	3 232210	A/P - CONCUR	1/29/2021	1012163503	3 ZC	SAP Concur T&E	OTA DOT Education	Rempfer:January Expenses			
5000	remper jandary expenses sap concur K& - cost center name: renewables, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: conference, document header text: lieberman;josh liebermar	e	2	CTR 43012	RENEWABI S	E AMERICAN BIOGAS CO	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	150.00	132.44	4 232210	A/P - CONCUR	2/3/2021	1012196374	4 ZC	SAP Concur T&E	Conference	Lieberman:Josh Lieberman			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: invoice for annual membership & sponsorship, document header text: nelson:january expenses (e:	2	CTR 52020	COMM & CIVIC AFFAIRS	TUALATIN CHAMBER	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,000.00	882.9	1 232210	A/P - CONCUR	2/6/2021	101219752	7 ZC	SAP Concur T&E	Invoice for annual membership & sponsorship	Nelson:January Expenses (
5000	expenses (sap concur t&e - cost center name: legacy env. program, cost element name: dues/membership, ferc accounting name: maintenance of general plant-office staf, account name: a/p - concur, description: professional license annual fee, document header text: wyatt:january expenses (0		2	CTR 15502	LEGACY ENV. PROGRAM	DOL - PROFESSIONAL	501900	DUES/MEMBE RSHIP	935	89% Customer-All	935-01505	MAINTENANCE OF GENERAL PLANT-OFFICE STAF	100.00	89.4	7 232210	A/P - CONCUR	2/6/2021	1012197533	3 ZC	SAP Concur T&E	Professional License Annual Fee	Wyatt:January Expenses (0			

Compan	y Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Organization	Cost	Cost element FE	ERC (Order	FERC Account Name/Internal	System \$ Value	OR		Name of offsetting	Posting Date	Document Number	Documen type	t Document Type	Name	Document Header Text	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name: ee&labor relations, cost element name: dues/membership, ferc accounting name: office staffing &	2021	2	CTR 31300	Name (ADDED) EE&LABOR SHRM RELATIONS	Element 501900	name 0 DUES/MEMBE RSHIP	921	Factor 88% Customer-All	921-01505	Order Name OFFICE STAFFING & EXPENSE-OFFICE STAFFIN			n acct no. 9.57 232210	A/P - CONCUR		Number 101219777	-77	Description SAP Concur T&E	annual renewal of SHRM membership		IEXI	Document	
5000	expense-office staffin, account name a/p - concur, description: annual renewal of shrm membership, document header text: ewaniec:january expenses					50100			000 0	004 01505				77 000016		0/0/000	40404000	. 70		Designet May	Diamet			
5000	sap concur t&e - cost center name: corporate security, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: project management software annual fee, document header text: pipes.january expenses (0	2021 E	2	CTR 51050	CORPORATE SMARTSHEET SECURITY	501900	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	540.00) 47(3.77 232210	A/P - CONCUR	2/9/2021	101219805	8 ZC	SAP Concur T&E	Project Management Software Annual Fee	Pipes:January Expenses (0			
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: federal id, document header text: coiteux:february expenses	2021	2	CTR 51010	OCCUPATIO IDENTOGO- NAL SAFETY IDEMIA TS	501900	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	125.25	5 11	0.58 232210	A/P - CONCUR	2/12/2021	101219943	9 ZC	SAP Concur T&E	Federal ID	Coiteux:February Expenses			
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: assp membership, document header text: colteux;february expenses		2	CTR 51010	OCCUPATIO ASSP Membership NAL SAFETY	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	220.00	<u>)</u> 194	1.24 232210	A/P - CONCUR	2/18/2021	101220030	3 ZC	SAP Concur T&E	ASSP Membership	Coiteux:February Expenses			
5000	sap concur t&e - cost center name: ent architecture, cost element name: dues/membership, ferc accounting name: office staffing & expense-info mgmt, account name: a/p - concur, description: professional engineers annual membership for rs lu, document header text: lukosh:februar expenses	2021 Yy	2	CTR 41070	ENT Professional ARCHITECT Engineers annual URE membership	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-04710	OFFICE STAFFING & EXPENSE-INFO MGMT	299.00) 26	3.99 232210	A/P - CONCUR	2/19/2021	101220072	0 ZC	SAP Concur T&E	Professional Engineers annual membership for RS Lu				
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: linkedin subscription, document header text: whitley:january expenses		2	CTR 43010	BUSINESS LinkedIn DEVELOPME subscription NT	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99	2	5.48 232210	A/P - CONCUR	2/19/2021	101220086	1 ZC	SAP Concur T&E	LinkedIn subscription	Whitley:January Expenses			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: wsj subscription, document header text: whitley:january expenses		2	CTR 43010	BUSINESS WSJ subscription DEVELOPME NT	501900	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	<u>)</u> 3,	1.42 232210	A/P - CONCUR	2/19/2021	101220086	1 ZC	SAP Concur T&E	WSJ subscription	Whitley:January Expenses			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: subscriptions, document header text: whitley:december expenses	e:	2	CTR 43010	BUSINESS D J*WALL-ST- DEVELOPME JOURNA NT	501900	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	9 34	1.42 232210	A/P - CONCUR	2/19/2021	101220086	2 ZC	SAP Concur T&E	Subscriptions	Whitley:December Expenses			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: linkedin subscription, document header text: whitley:december expenses		2	CTR 43010	BUSINESS LinkedIn DEVELOPME subscription NT	501900	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99	9 20	3.48 232210	A/P - CONCUR	2/19/2021	101220086	2 ZC	SAP Concur T&E	LinkedIn subscription	Whitley:December Expenses			
5000	sap concur t&e - cost center name: vp & corporate secty, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: filippi ethisphere llo 2021 application fee, document header text wilcox:ethisphere applica	e: 9	2	CTR 73600	VP & Ethisphere LLC CORPORATE SECTY	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	3,000.00	2,64	3.72 232210	A/P - CONCUR	2/22/2021	101220117	7 ZC	SAP Concur T&E	Filippi Ethisphere LLC 2021 Application Fee	Wilcox:Ethisphere Applica			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: video hosting service for website, document header text: beck:beck_january_2021	-	2	CTR 11550	CONSMR INFO-INTNT SR	501900	0 DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	5.75	5 !	5.07 232210	A/P - CONCUR	2/22/2021	10122256	9 ZC	SAP Concur T&E	Video hosting service for website	r Beck:Beck_Janua ry_2021			

Company	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDE	Organization	Cost Element	Cost element name	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR	Offsetting acct no.	Name of offsetting account	Posting Date	Document Number	Document	t Document Type Description	Name	Document Header Purchase order Purchasing PO Vendor Name Text text Document
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advectising expenses-corporate image & m, account name: a/p - concur, description: url registration, document header text: beck:beck_january_2021	2021	2		CONSMR INFO-INTNT SR	WEB*REGISTER T WEBSIT	5019	RSHIP	913		913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	6.00) (5.29 232210	A/P - CONCUR		1012222569	ZC		URL registration	ry_2021
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: url registrations, document header text: beck:beck january 2021	2021	2	CTR 11550	CONSMR INFO-INTN SR	DNH*GODADDY. T OM EU	.C 5019	00 DUES/MEMBE RSHIP	913	88% Customer-All	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	253.28	3 223	3.52 232210	A/P - CONCUR	2/22/2021	1012222569	zc	SAP Concur T&E	URL Registrations	Beck:Beck_Janua ry_2021
5000	consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p - concur, description: lwc website hosting service, document header text: beck:beck_january_2021		2	CTR 11550		AMAZON WEB T SERVICE		00 DUES/MEMBE RSHIP		88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	97.21			A/P - CONCUR	2/22/2021	1012222569	zc	SAP Concur T&E	LWC Website hosting service	Beck:Beck_Janua ry_2021
5000	sap concur t&e - cost center name: const relations-evt, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-4th floor su, account name: a/p - concur, description: add new team member to membership, document header text: dolezal:february 2021 exp	2021	2	CTR 11540	RELATIONS EVT	TOTAL PARTY S- PLANNER	5019	00 DUES/MEMBE RSHIP	912	88% Customer-All	912-04765	DEMONSTRATION & SELLING EXP-4TH FLOOR SU	40.68			A/P - CONCUR	2/23/2021	1012244059	zc	SAP Concur T&E	Add new team member to membership	Dolezal:February 2021 exp
5000	sap concur t&e - cost center name: cust acq mrktg conv, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: 2021 nari membership annual dues, document header text: barrow:january 2021 expen	2021	2	CTR 11330	MRKTG CONV			00 DUES/MEMBE RSHIP				DEMONSTRATION & SELLING EXP-NEW CONSTRUC	600.00			A/P - CONCUR		1012248078		SAP Concur T&E	Annual Dues	2021 Expen
5000	sap concur t&e - cost center name: cust acq mrktg conv, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: nari monthly membership meeting, document header text: barrow:january 2021 expen	2021	2	CTR 11330	CUST ACQ MRKTG CONV	NARI	5019	00 DUES/MEMBE RSHIP	912	88% Customer-All	912-05015	DEMONSTRATION & SELLING EXP-NEW CONSTRUC	15.00	5 13	3.25 232210	A/P - CONCUR	2/24/2021	1012248078	zc	SAP Concur T&E	NARI Monthly membership meeting	Barrow:January 2021 Expen
5000	sap concur t&e - cost center name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: addition of 1 folder in diligent, document header text: filippi-february 2021 exp		2	CTR 46010	SECRETAR							OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	24.97			A/P - CONCUR		1012248080			Addition of 1 folder in Diligent	Filippi:February 2021 Exp
5000	sap concur t&e - cost center name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: addition of 3 committee folders in diligent, document header text: filippi:february 2021 exp	2021	2	CTR 46010	SECRETAR	Diligent YY	5019	00 DUES/MEMBE RSHIP	921	86% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	67.56				2/24/2021	1012248080	20	SAP Concur T&E	Addition of 3 Committee Folders in Diligent	Filippi:February 2021 Exp
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: stock image license for website, document header text: beck:february 2021		2	CTR 11550		CKO*WWW.ISTC T CKPHOT	5019	00 DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	65.00	5	7.36 232210	A/P - CONCUR	2/25/2021	1012250410	ZC	SAP Concur T&E	Stock image license for website	Beck:February 2021
5000	sap concur t&e - cost center name: consmr info-intnt srr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p - concur, description: web url registration, document header text: beck:february 2021		2	CTR 11550	CONSMR INFO-INTN SR	WEB*REGISTER T WEBSIT	5019	00 DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	6.00	<u>,</u> ,	5.30 232210	A/P - CONCUR	2/25/2021	1012250410	zc	SAP Concur T&E	Web URL registration	Beck:February 2021
5000	sap concur t&e - cost center name: consmr info-infnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: less we can website hosting, document header text: beck:february 2021		2	CTR 11550		AMAZON WEB SERVICE	5019	00 DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	98.64	87	7.05 232210	A/P - CONCUR	2/25/2021	1012250410	zc	SAP Concur T&E	Less we can website hosting	Beck-February 2021

Company Code	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED	Organization		ost element F ame	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name		OR Allocation	Offsetting Nam acct no. acco		Posting Date	Document Number	Document type	Document Type Description	Name		chasing PO Vendor Name ument
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: stock image license for website, document header text: beck:february 2021	2021	2	CTR 11550	CONSMR INFO-INTNT SR	CKO*WWW.ISTO	501900 D	UES/MEMBE SHIP	909		909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR			66 232210 A/P -				ZC	SAP Concur T&E	Stock image license for website	Beck:February 2021	
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: video hosting service for website, document header text: beck:february 2021	-	2	CTR 11550	CONSMR INFO-INTNT SR	WISTIA, INC.		UES/MEMBE SHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	5.75	5.0	07 232210 A/P -	CONCUR	2/25/2021	1012250410	ZC	SAP Concur T&E	video hosting service for website	Beck:February 2021	
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: amazon prime subscription, document header text: fuller:january expenses (2021	2	CTR 16100	FACILITIES MGMNT	Amazon		UES/MEMBE SHIP	935	89% Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99	11.6	32 232210 A/P -	CONCUR	2/26/2021	1012251100	ZC	SAP Concur T&E	Amazon Prime Subscription	Fuller.January Expenses (
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: twic card, document header text: eversmeyer:february expen	2021	2		NAL SAFET) IDENTOGO- Y IDEMIA TS		UES/MEMBE SHIP	921			OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	125.25		58 232210 A/P -			1012251130		SAP Concur T&E	TWIC Card	Eversmeyer:Febru ary Expen	
5000	sap concur t&e - cost center name: vp cao, cont&treas, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: quarterly subscription fee to wsj, document header text: wilson:february 2021 expe	•	2	CTR 74500	VP, CAO, CONT&TRE/ S	WSJ A		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	134.97	119.1	17 232210 A/P -	CONCUR	2/26/2021	1012254043	ZC	SAP Concur T&E	Quarterly subscription fee to WSJ	Wilson:February 2021 Expe	
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name: a/p - concur, description: ccc celebration committee, document header text: paul:february expenses		3	CTR 13400	CUST CONTACT CENTER	Amazon Prime		UES/MEMBE SHIP	903	88% Customer-All	903-04280	CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99	11.4	18 232210 A/P -	CONCUR	3/1/2021	1012258823	ZC	SAP Concur T&E	CCC Celebration Committee	Paul:February Expenses	
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership dues, document header text: nelson:february expenses		3	CTR 52020	COMM & CIVIC AFFAIRS	BAY AREA CHAMBER		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,049.00	926.1	17 232210 A/P -	CONCUR	3/2/2021	1012262253	ZC	SAP Concur T&E	Chamber Membership Dues	Nelson:February Expenses	
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: hillsboro chamber annual membership & sponsorship, document header text: nelson:february expenses	2021	3	CTR 52020	COMM & CIVIC AFFAIRS	Hillsboro Chamber		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	984.00	868.7	78 232210 A/P -	CONCUR	3/2/2021	1012262253	zc	SAP Concur T&E	Hillsboro Chamber Annual Membership & Sponsorship	Nelson:February Expenses	
5000	sap concur t&e - cost center name: fir planning & budge, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: cadena, angela, description: professional membership, document header text: cadena:angela cadena	ə:	3	CTR 44010	FIN PLANNING 8 BUDGE	Association of Str		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	250.00	220.7	73 E096825 CAD	ENA, ANGELA	3/3/2021	1012275341	ZC	SAP Concur T&E	Professional Membership	Cadena:Angela Cadena	
5000	sap concur t&e - cost center name: gen admin staff, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: cassia carpio, descriptior: renewal of notary license application fee, document header text carpio:february expenses	•	3		GEN ADMIN STAFF	Renewal of Notary License Application Fee		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	40.00	35.3	32 E097680 CAS	SIA CARPIO	3/3/2021	1012282257	ZC	SAP Concur T&E	Renewal of Notary License Application Fee	Carpio:February Expenses	
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership dues, document header text: nelson:february expenses		3	CTR 52020	COMM & CIVIC AFFAIRS	Chamber Membership Dues		UES/MEMBE SHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	825.00	728.4	10 232210 A/P -	CONCUR	3/4/2021	1012282402	ZC	SAP Concur T&E	Chamber Membership Dues	Nelson:February Expenses	

Compan	y Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element F	ERC C		Order	FERC Account Name/Internal		DR		Name of offsetting		Document	Document	Document Type	Name	Document Header Purchase order Purchasing PO Vendor Name
Code 5000		Year 2021	3		Name (ADDED)	PROJECT MGMT		name DUES/MEMBE	921	Factor	021 04505	Order Name OFFICE STAFFING &	Value A	Allocation	acct no.		Date	Number	type	Description SAP Concur T&E	Penewal of profession 1	Text Document
5000	sap concur t&e - cost center name: project office, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: renewal of professional certification, document header text: zlatnik:pmp renewal		0	CTR 51060	OFFICE	INSTI	501900	RSHIP	921	oo7e Customer-All	1921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN					3/8/2021	1012283494		UNE CONCUT LAE	Renewal of professional certification	Zlatnik:PMP Renewal
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ojin monthly subscription fees, document header text: chand:roselene - february		3	CTR 54010	LEGAL	OJIN	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	195.00	172.17	232210	A/P - CONCUR	3/9/2021	1012283866	zc	SAP Concur T&E	OJIN Monthly Subscription Fees	Chand:Roselene - February
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: pacer monthly subscription fees, document header text: chand:roselene - february		3	CTR 54010		Pacer		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	86.20			A/P - CONCUR		1012283866		SAP Concur T&E	Pacer monthly subscription fees	Chand:Roselene - February
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon monthly subscription for legal, document header text: chand:roselene - february	y		CTR 54010		Amazon		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99			A/P - CONCUR		1012283866		SAP Concur T&E	Amazon monthly subscription for Legal	Chand:Roselene - February
5000	sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-employee, account name: a/p - concur, description: total reward: pdx annual corp. membership dues, document header text: jordan:februar, 2021		3	CTR 36000	ADMIN	Total Rewards PE Annual Corp.		RSHIP	926			EMPLOYEE PENSIONS AND BENEFITS-EMPLOYEE				A/P - CONCUR		1012284235		SAP Concur T&E	Total Rewards PDX Annual Corp. membership dues	Jordan:February 2021
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: assp membership, document header text: emerson:february expenses	2021	3	CTR 51010	OCCUPATIO NAL SAFETY	ASSP Membershi	ip 501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	200.00	176.58	232210	A/P - CONCUR	3/9/2021	1012284236	zc	SAP Concur T&E	ASSP Membership	Emerson:Februar y Expenses
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: dues, document header text: emerson.february expenses	2021 ,	3		OCCUPATIO NAL SAFETY	NATIONAL SAFETY CO	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	1,710.00	1,509.77	232210	A/P - CONCUR	3/9/2021	1012284236	zc	SAP Concur T&E	Dues	Emerson:Februar y Expenses
5000	sap concur t&e - cost center name: mid office, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: business information, document header text: fulps:february expenses (3			D J*DOWJONES NEWS		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR					Business information	Fulps:February Expenses (
5000	accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: subscription to accounting research tool, document header text: hayson;january expenses (g	3		G	DELOITTE USA LLP 5		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012284464		SAP Concur T&E	accounting research tool	
5000	sap concur t&e - cost center name: mid office, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: refund of business subscription, document header text: fulps:december expenses (9	3			FORTUNE MEDIA		RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	-32.29	()		A/P - CONCUR		1012284465		SAP Concur T&E	subscription	Fulps:December Expenses (
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership for regulatory-related publicati, document header text: lee-pella:february 2021 p	t	3		REGULATOR Y AFFAIRS	LINES UP, INC.	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	3,000.00	2,648.72	232210	A/P - CONCUR	3/12/2021	1012306154	ZC	SAP Concur T&E	Annual Membership for regulatory-related publicati	Lee- Pella:February 2021 P

	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element FI	ERC OR All		Allocation	Order	FERC Account Name/Inter		OR		Name of offsetting	Posting	Document		t Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name: regulatory affairs, cost element name:	Year 2021	3	CTR 53010	Name (ADDED) REGULATOR Y AFFAIRS	WF4WASBASSOC	501900	name DUES/MEMBE RSHIP	921		Factor Customer-All	921-01505	Order Name OFFICE STAFFING & EXPENSE-OFFICE STAFF		Allocation 10.33		account A/P - CONCUR	Date 3/12/2021	Number 1012306155	type ZC	Description SAP Concur T&E	Bar Dues	Text Sigurdson:Januar y Expense	lext	Document	
5000	dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: bar dues, document header text: sigurdson:january expense		2	OTD 52040					921	000/	Contonno All	024.04505	OFFICE STAFFING &			000040	A/P - CONCUR	2/42/2021	1010200155	70	SAP Concur T&E	Ourse Des Durs				
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: oregon bar dues, document header text: sigurdson:january expense		3		Y AFFAIRS	Oregon Bar Dues	501900	DUES/MEMBE RSHIP	921				EXPENSE-OFFICE STAF						1012306155		SAP CONCULTAE	Oregon Bar Dues	Sigurdson:Januar y Expense			
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - oncur, description: wa bar dues, document header text: sigurdson:january expense		3	CTR 53010	REGULATOR Y AFFAIRS	WA Bar Dues	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFF	468.00			A/P - CONCUR	3/12/2021	1012306155	ZC	SAP Concur T&E	WA Bar Dues	Sigurdson:Januar y Expense			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: virtual builder conference, document header text: hartzog:february expenses		3	CTR 11515	CUST ACQ MRKTG NEW	NATL ASSOC OF HOME	501900	DUES/MEMBE RSHIP	912	88%	Customer-All	912-05015	DEMONSTRATION & SELLING EXP-NEW CONSTRUC	249.00	220.03	3 232210	A/P - CONCUR	3/12/2021	1012306318	zc	SAP Concur T&E	Virtual Builder Conference	Hartzog:February Expenses			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues;membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership, document header text: kloor;january expenses (0	2021	3	CTR 52020	COMM & CIVIC AFFAIRS	SQ *GREENLANE SUST	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFF	50.00 FIN	. 44.15	5 232210	A/P - CONCUR	3/12/2021	1012306396	zc	SAP Concur T&E	Annual Membership	Kloor:January Expenses (0			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership, document header text: kloor;january expenses (0	2021	3	CTR 52020	CIVIC AFFAIRS	SQ *GREENLANE SUST		RSHIP	921				OFFICE STAFFING & EXPENSE-OFFICE STAFF				A/P - CONCUR		1012306396			Annual Membership	Kloor:January Expenses (0			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership, document header text: kloor;january expenses (0	2021	3	CTR 52020	COMM & CIVIC AFFAIRS	SQ *GREENLANE SUST	501900	DUES/MEMBE RSHIP	921				OFFICE STAFFING & EXPENSE-OFFICE STAFF	50.00	44.15	5 232210	A/P - CONCUR	3/12/2021	1012306396	ZC	SAP Concur T&E	Annual Membership	Kloor:January Expenses (0			
5000	sap concur t&e - cost center name: pipeline integrity, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision- pipeline, account name: a/p - concur, description: nace membership fee, document header text: vangordon:january expense		3	CTR 15505	PIPELINE INTEGRITY	NACE Membership Fee	501900	DUES/MEMBE RSHIP	885	94%	Customer-All	885-01514	DISTRB MAINTENANCE SUPERVISION-PIPELINE		271.81	232210	A/P - CONCUR	3/15/2021	1012309532	ZC	SAP Concur T&E	NACE Membership Fee	VanGordon:Janua ry Expense			
5000	sap concur t&e - cost center name: business analysis, cost element name: dues; Membership, ferc accounting name: office staffing & expense-office staffin, account name: renata g lasich, description: continuing professional education, document header text: lasich:cpe credit subscri	:	3	CTR 15508	BUSINESS ANALYSIS	CPE Solutions LLC		RSHIP	921				OFFICE STAFFING & EXPENSE-OFFICE STAFF	FIN			RENATA G LASICH		1012309601			Continuing Professional Education	Subscri			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: linkedin subscription, document header text: whitley:february expenses	:	3		BUSINESS DEVELOPME NT			DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFF	FIN			A/P - CONCUR		1012309935			LinkedIn subscription	Whitley:February Expenses			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsj subscription, document header text: whitley:february expenses	2021	3	CTR 43010	BUSINESS DEVELOPME NT		501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFF	38.99 FIN	34.42	2 232210	A/P - CONCUR	3/16/2021	1012309935	ZC	SAP Concur T&E	WSJ subscription	Whitley:February Expenses			

Compar	y Combine Description (ADDED)	Fiscal	Period	Cost Center		Organization	Cost	Cost element F	ERC OR Allocation	Allocation	Order	FERC Account Name/Internal S			setting Name of offsetti		Document		nt Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	3	CTR 54010	Name (ADDED) LEGAL	NY Bar		name DUES/MEMBE	921 88%	Factor Customer-All	921-01505	Order Name V: OFFICE STAFFING &		331.09 23	2210 A/P - CONCUR	Date 3/17/2021	Number 1012310330	type ZC	Description SAP Concur T&E	NY Bar Registration	Text Nakata:March	text	Document	
	legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: ny bar registration, document header text: nakata:march expenses (03	e						RSHIP				EXPENSE-OFFICE STAFFIN									Expenses (03			
5000	sap concur t&e - cost center name: regulatory affairs, cost element name dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: to maintain active bar license in or, document header text: kravitz:january expenses	9:	3		Y AFFAIRS		501900	DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	739.00		2210 A/P - CONCUR		1012310332	2 ZC		To maintain active bar license in OR	Kravitz:January Expenses			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: <i>a/p</i> - concur, description: wei energy webinar, document header text: fuller:february expenses		3	CTR 16100	FACILITIES MGMNT	WEI Energy webinar	501900	DUES/MEMBE RSHIP	935 89%	Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	199.00		2210 A/P - CONCUR		1012310416	3 ZC	SAP Concur T&E	WEI Energy webinar	Fuller:February Expenses			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: office purchases document header text: fuller.february expenses	/	3		FACILITIES MGMNT	PRIME*7U6RP		DUES/MEMBE RSHIP				MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99		2210 A/P - CONCUR		1012310416		SAP Concur T&E		Fuller:February Expenses			
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: pcar purchases, document header text: felix:march 1 report		3	CTR 51045	BUSINESS CONTINUITY	AMAZON PRIME*ML4RP	501900	DUES/MEMBE RSHIP	921 88%	Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.99	11.47 23	2210 A/P - CONCUR	3/17/202	1012310569) ZC	SAP Concur T&E	Pcard Purchases	Felix:March 1 Report			
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: pcar purchases, document header text: felix:march 1 report	2021 d	3	CTR 51045	BUSINESS CONTINUITY	AMAZON PRIME*ML4RP	501900	DUES/MEMBE RSHIP	921 88%	Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.99	11.47 23	2210 A/P - CONCUR	3/17/202	1012310569) ZC	SAP Concur T&E	Pcard Purchases	Felix:March 1 Report			
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: pcar purchases, document header text: felix.march 1 report	d				PRIME*ML4RP		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.99		2210 A/P - CONCUR		1012310569		SAP Concur T&E		Felix:March 1 Report			
5000	sap concur t&e - cost center name: cust acq mrktg conv, cost element name: dues/membership, ferc accounting name: customer assistance expense-conversion, account name: a/p - concur, description: pe license renewal, document header text: dobbs:december expenses (2021	3	CTR 11330	CUST ACQ MRKTG CONV	OSBEELS	501900	DUES/MEMBE RSHIP				CUSTOMER ASSISTANCE EXPENSE-CONVERSION			2210 A/P - CONCUR		1012311538	3 20	SAP Concur 1&E	PE license renewal	Dobbs:December Expenses (
5000	sap concur t&e - cost center name: purchasing, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: ism dues, document header text: gagner:march expenses (03	•	3		PURCHASIN G			DUES/MEMBE RSHIP				EXPENSE-OFFICE STAFFIN			2210 A/P - CONCUR		1012311785		SAP Concur T&E		Gagner:March Expenses (03			
5000	sap concur t&e - cost center name: v chf hr&dvry off, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: subscription, document header text: rogers:february expense sap concur t&e - cost center name: c	e es		CTR 77000 CTR 34000	HR&DVRY OFF	NW LABOR PRESS		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN OFFICE STAFFING &			2210 A/P - CONCUR		1012312363		SAP Concur T&E	Subscription	Rogers:February Expenses Mess:Overdue			
	& training, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: survey subscription, document header text: mess:overdue expenses	e			TRAINING	ZMO.CO		RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN			2210 A/P - CONCUR		1012312401		SAP Concur T&E		Expenses			
5000	sap concur t&e - cost center name: c & training, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: hbr subscription, document header text: mess:overdue expenses	e	3	CTR 34000	OD & TRAINING	HBR Subscription	501900	DUES/MEMBE RSHIP	921 88%	customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	120.00	105.95 23	22 TU AVP - CONCUR	3/23/202	1012312401	20	SAP CONCUL LAE	nation subscription	Mess:Overdue Expenses			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center		Organization	Cost	Cost element	FERC C		Allocation	Order	FERC Account Name/Internal		OR		Name of offsetting	Posting	Document		Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	3	CTR 11150	Name (ADDED) GAS ACQ &	NWGA Virtual		name DUES/MEMBE	870		Factor Customer-All	870-04415	Order Name TRNSMSN MAIN		Allocation 95.19		account A/P - CONCUR	Date 3/24/2021	Number 1012335452	type ZC	Description SAP Concur T&E	NWGA Virtual	Text Carl:Mar-21	text	Document	
	gas acq & pipe svce, cost element name: dues/membership, ferc accounting name: trnsmisn main supervision exp-gas acq & p, account name: a/p - concur, description: nvga virtual conference, document header text: cart:mar-21 expense repor				PIPE SVCE	Conference		RSHIP					SUPERVISION EXP-GAS ACQ & P									Conference	Expense Repor			
5000	sap concur t&e - cost center name: vp, strgy & biz dev, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description; quarterly wsj electronic subscription, document header text: palfreyman:march 2021 pca	2021	3	CTR 78000		Quarterly WSJ Electronic Subscription	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	116.97	103.27	7 232210	A/P - CONCUR	3/24/2021	1012336506	zc	SAP Concur T&E	Quarterly WSJ Electronic Subscription	Palfreyman:March 2021 Pca			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: alp - concur, description: albany area chamber 2021 membership dues, document header text: kloor.february expenses (2021	3	CTR 52020	COMM & CIVIC AFFAIRS	Albany Area Chamber 2021 membership dues		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	2,150.00	1,898.25	232210	A/P - CONCUR	3/25/2021	1012336748	ZC	SAP Concur T&E	Albany Area Chamber 2021 membership dues				
5000	sap concur t&e - cost center name: ops technical svces, cost element name: dues/membership, ferc accounting name: distrb maintenance field support, account name: a/p - concur, description: conference registration, document header text: cabatic:march expenses (0	2021	3	CTR 15510		WESTERN ENERGY INS	501900	DUES/MEMBE RSHIP	885	94%	Customer-All	885-01195	DISTRB MAINTENANCE FIELD SUPPORT	74.70	70.01	232210	A/P - CONCUR	3/25/2021	1012336749	ZC	SAP Concur T&E	Conference Registration	Cabatic:March Expenses (0			
5000	sap concur t&e - cost center name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: addition of new director karen lee, document header text: filippimarch expenses	2021	3	CTR 46010	CORP SECRETARY	NACD ONLINE	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	816.67	721.04	1 232210	A/P - CONCUR	3/25/2021	1012336750	ZC	SAP Concur T&E	Addition of New Director Karen Lee	Filippi:March Expenses			
5000		2021	3	CTR 51020	LAND OVERHEAD	WHITEPAGES	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99	26.48	3 232210	A/P - CONCUR	3/26/2021	1012338418	ZC	SAP Concur T&E	Search Engine Service	Walti:Walti Expense Repor			
5000		2021	3	CTR 52020	COMM & CIVIC AFFAIRS	Westside Economic Alliance		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	2,600.00	2,295.56	232210	A/P - CONCUR	3/27/2021	1012338784	ZC	SAP Concur T&E	Membership dues for Westside Economic Alliance	Nelson:March Expenses (03			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: sherwood chamber dues, document header text: nelson:march expenses (03	2021	3	CTR 52020	CIVIC AFFAIRS	Sherwood Chamber Dues		DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	3/27/2021	1012338784	ZC		Sherwood Chamber Dues	Nelson:March Expenses (03			
5000	comm & civic affairs, cost element name: dues/membership, fero accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: s: coast dev. council dues, document header text: nelson:march expenses (03	2021	3	CTR 52020	CIVIC AFFAIRS	S. Coast Dev. Council Dues		DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012338784			S. Coast Dev. Council Dues	Nelson:March Expenses (03			
5000	accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: utilities training for keeley flynn, document header text: hayson:march expenses (03		3		G	FAI ACCOUNTIN SEM		RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012339210		SAP Concur T&E	Keeley Flynn	Hayson:March Expenses (03			
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: utilities training for melissa naganuma, document header text: hayson:march expenses (03	2021	3	GTR 42010	G	FAI ACCOUNTIN SEM	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,995.00	1,761.40	9 232210	A/P - CONCUR	3/29/2021	1012339210	20	SAP Concur T&E	Utilities training for Melissa Naganuma	Hayson:March Expenses (03			

Compar	y Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization			RC OR Allocation	Allocation	Order	FERC Account Name/Internal		DR C		Name of offsetting	Posting	Document	Documen	t Document Type	Name	Document Header	Purchase order	Purchasing	PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	3	CTR 42020	Name (ADDED) TAX	Oregon Board of		name DUES/MEMBE	921 889	Factor % Customer-All	921-01505	Order Name Va 5 OFFICE STAFFING &		Allocation a 225.14 2		account A/P - CONCUR	Date 3/29/2021	Number 1012339211	type ZC	Description SAP Concur T&E	Oregon CPA License	Text Borgerson:March	lext	Document	
	tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: oregon cpa license renewal, document header text: borgerson:march 2021_borg					Accountancy (BOA)		RSHIP				EXPENSE-OFFICE STAFFIN									Renewal	2021_Borg			
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: professional training organization, document header text: borgerson:march 2021_borg	2021	3	CTR 42020	TAX	TAX EXECUTIVES	5 501900	DUES/MEMBE RSHIP	921 889	Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	275.00	242.80 2	232210	A/P - CONCUR	3/29/2021	1012339211	ZC	SAP Concur T&E	Professional training organization	Borgerson:March 2021_Borg			
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: cpa prof organization, document header text: borgerson:march 2021_borg		3	CTR 42020	TAX	AICPA *ORDER		DUES/MEMBE RSHIP	921 889	Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	285.00	251.63 2	232210	A/P - CONCUR	3/29/2021	1012339211	ZC	SAP Concur T&E	CPA Prof Organization	Borgerson:March 2021_Borg			
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: cpa professional organization, document header text: borgerson:march 2021_borg		3	CTR 42020	ТАХ	AICPA *ORDER		DUES/MEMBE RSHIP	921 889	K Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	285.00	251.63 2	232210	A/P - CONCUR	3/29/2021	1012339211	ZC	SAP Concur T&E	CPA professional organization	Borgerson:March 2021_Borg			
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: professional training organization, document header text: borgerson:march 2021_borg	2021	3	CTR 42020	ТАХ	TAX EXECUTIVES	501900	DUES/MEMBE RSHIP	921 889	% Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	275.00	242.80 2	232210	A/P - CONCUR	3/29/2021	1012339211	ZC	SAP Concur T&E	Professional training organization	Borgerson:March 2021_Borg			
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: professional training organization, document header text: borgerson:march 2021_borg		3	CTR 42020		TAX EXECUTIVES		RSHIP				5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012339211			Professional training organization	Borgerson:March 2021_Borg			
5000	sap concur t&e - cost center name: co supported actions, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffing & a/p - concur, description: dei event, document header text: carpio:dei event		3	CTR 34500	CO SUPPORTED ACTIONS	DEI Event		DUES/MEMBE RSHIP				5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	3/31/2021	1012339813	ZC	SAP Concur T&E	DEI Event	Carpio:DEI Event			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: virtuz builder conference, document header text: hartzog:march expenses (0		3	CTR 11515	CUST ACQ MRKTG NEW	Virtual Builder Conference	501900	DUES/MEMBE RSHIP	912 889	% Customer-All	912-05015	5 DEMONSTRATION & SELLING EXP-NEW CONSTRUC	-249.00	(220.03) 2	232210	A/P - CONCUR	3/31/2021	1012340203	ZC	SAP Concur T&E	Virtual Builder Conference	Hartzog:March Expenses (0			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name a/p - concur, description: ccc celebration committee, document header text: paul:march committee expe		4		CUST CONTACT CENTER	Amazon Prime		DUES/MEMBE RSHIP	903 889	% Customer-All	903-04280	0 CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99			A/P - CONCUR	4/6/2021	1012392922	ZC	SAP Concur T&E	CCC Celebration Committee	Paul:March Committee Expe			
5000		e:	4	CTR 11370	INTEG RESOURCE PLAN	AEC21* 2021 VIRTUA		DUES/MEMBE RSHIP	921 889	% Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00			A/P - CONCUR	4/6/2021	1012393130	ZC	SAP Concur T&E	Conference Registration	1 Doyle:NWGA Annual Energy			
5000	sap concur t&e - cost center name: director, customer I, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: wei custome connections conference, document header text: garcia:february expense:	er	4		DIRECTOR, CUSTOMER L	WEI Customer Connections Conference	501900	DUES/MEMBE RSHIP	921 889	% Customer-All	921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	199.00	175.70 2	232210	A/P - CONCUR	4/8/2021	1012398257	ZC	SAP Concur T&E	WEI Customer Connections Conferenc	Garcia:February e Expenses			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center Name (ADDEE	Organization	Cost Element	Cost element	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$	OR		Name of offsetting	Posting	Document Number	Document	t Document Type Description	Name	Document Header Purchase order Purchasing PO Vendor Name Text text Document
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: <i>a/p</i> concur, description: stock image license for website, document header text: beck:beck_march expenses	2021	4		CONSMR INFO-INTNT SR	STK*SHUTTERS OCK	50190	DUES/MEMBE RSHIP		88% Customer-All		INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	valuo	0 1,499.	37 232210	A/P - CONCUR	4/8/2021	1012398262	ZC	SAP Concur T&E	Stock image license for website	Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: web url registration, document header text: beck:beck march expenses	2021	4	CTR 11550	CONSMR INFO-INTNT SR	WEB*REGISTEF WEBSIT		DUES/MEMBE RSHIP		88% Customer-Al	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	6.0	5.	29 232210	A/P - CONCUR	4/8/2021	1012398262	zc	SAP Concur T&E	Web URL registration	Beck:Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intrut sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: stock image license for website, document header text: beck:beck_march expenses	-	4	CTR 11550	CONSMR INFO-INTNT SR	CKO*WWW.IST	50190	DUES/MEMBE RSHIP	909	88% Customer-Al	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	65.0	<u>0</u> 57.	36 232210	A/P - CONCUR	4/8/2021	1012398262	zc	SAP Concur T&E	Stock image license for website	Beck:Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: web url registration, document header text: beck/beck march expenses	2021	4	CTR 11550	CONSMR INFO-INTNT SR	WEB*NETWOR	S 50190	0 DUES/MEMBE RSHIP	913	88% Customer-All	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	37.9	9 33.	53 232210	A/P - CONCUR	4/8/2021	1012398262	ZC	SAP Concur T&E	Web URL registration	Beck-Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: <i>a/p</i> - concur, description: vide ohosting service for website, document header text: beck:beck_march expenses	-	4	CTR 11550	CONSMR INFO-INTNT SR	WISTIA, INC.	50190	DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	5.7	5 5.	07 232210	A/P - CONCUR	4/8/2021	1012398262	zc	SAP Concur T&E	video hosting service for website	Beck:Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: web url registration, document header text: beck/beck march expenses	2021	4	CTR 11550	CONSMR INFO-INTNT SR	WEB*REGISTEF WEBSIT	8 50190	0 DUES/MEMBE RSHIP	913	88% Customer-All	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	296.2	2 261.	41 232210	A/P - CONCUR	4/8/2021	1012398262	ZC	SAP Concur T&E	Web URL registration	Beck-Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: less we can website hosting, document header text: beck:beck_march expenses		4	CTR 11550	CONSMR INFO-INTNT SR	AMAZON WEB SERVICE	50190	DUES/MEMBE RSHIP	909	88% Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	92.1	8 81.	35 232210	A/P - CONCUR	4/8/2021	1012398262	zc	SAP Concur T&E	Less we can website hosting	Beck-Beck_March Expenses
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: web url registration, document header text: beck/beck march expenses	2021	4	CTR 11550	CONSMR INFO-INTNT SR	DNH*GODADDY OM	C 50190	DUES/MEMBE RSHIP	913	88% Customer-All	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	79.9	9 70.	59 232210	A/P - CONCUR	4/8/2021	1012398262	zc	SAP Concur T&E	Web URL registration	Beck-Beck_March Expenses
5000	Jeck Jeck, That in expenses sap concur ids - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: <i>up</i> - concur, description: professional subscriptions/dues, document header text: fuller:march expenses (03)		4	CTR 16100	FACILITIES MGMNT	AMAZON PRIME*7U6RP	50190	DUES/MEMBE RSHIP	935	89% Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.9	9 11.	62 232210	A/P - CONCUR	4/9/2021	1012400685	zc	SAP Concur T&E	Professional Subscriptions/Dues	Fuller:March Expenses (03
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: emergency management, document header text: fosdick:wei conference		4	CTR 51045		WESTERN Y ENERGY INS	50190	DUES/MEMBE RSHIP	921	88% Customer-Al	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	199.00	0 175.	70 232210	A/P - CONCUR	4/13/2021	1012403902	zc	SAP Concur T&E	Emergency Managemen	I Fosdick:WEI Conference
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: amazon prime membership, documer header text: felix:march expenses		4	CTR 51045	BUSINESS CONTINUIT	Amazon Prime Y	50190	DUES/MEMBE RSHIP	921	88% Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.9	9 11.	47 232210	A/P - CONCUR	4/20/2021	1012424600	zc	SAP Concur T&E	Amazon Prime Membership	Felix:March Expenses

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element	FERC OR AI		Allocation	Order	FERC Account Name/Internal			Offsetting Name of					Document Type	Name		r Purchase order	Purchasing	PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	4	CTR 53010	Name (ADDED) REGULATOR	NATL ASSN REG		name DUES/MEMBE	921		Factor Customer-All	921-01505	Order Name V OFFICE STAFFING &			acct no. account 232210 A/P - CO	Date NCUR 4/20/2				Description SAP Concur T&E	Online ratemaking	Text Walker:March	text	Document	
	regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: online ratemaking course, document header text: walker:march 2021 p-card				Y AFFAIRS			RSHIP					EXPENSE-OFFICE STAFFIN	.,								course.	2021 P-Card			
5000	sap concur t&e - cost center name: pipeline integrity, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision- pipeline, account name: a/p - concur, description: purchased standard for ongoing work, document header text: carabajal-johnson:april e	2021	4	CTR 15505	PIPELINE INTEGRITY	AMERICAN NATIONAL	501900	DUES/MEMBE RSHIP	885	94%	Customer-All	885-01514	DISTRB MAINTENANCE SUPERVISION-PIPELINE	60.00	56.24	232210 A/P - COI	NCUR 4/20/2	2021 10	12424802	ZC	SAP Concur T&E	Purchased standard for ongoing work	Carabajal- Johnson:April E			
5000	corporate security, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: corporate security management education, document header text: hansen:april expenses (04	2021	4		SECURITY	AUDIBLE*2L42171 10		RSHIP					OFFICE STAFFING & EXPENSE-HOMELAND SECUR	16.22		232210 A/P - CO			12424803			Corporate Security Management Education				
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon monthly subscription for legal, document header text: chand:roselene - mar/apr.	2021	4	CTR 54010		Amazon		DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99		232210 A/P - COI			12431695		SAP Concur T&E	Amazon monthly subscription for Legal	Chand:Roselene Mar/Apr.			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ojin monthy subscription fees, document header text: chand:roselene - mar/apr.	2021	4	CTR 54010	LEGAL	OJIN	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	65.00	57.39	232210 A/P - COI	NCUR 4/21/2	2021 10	12431695	ZC	SAP Concur T&E	OJIN Monthly Subscription Fees	Chand:Roselene Mar/Apr.	-		
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon monthly subscription for legal, document header text: chand:roselene - mar/apr.	2021	4	CTR 54010	LEGAL	Amazon	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99	11.47	232210 A/P - COI	NCUR 4/21/2	2021 10	012431695	zc	SAP Concur T&E	Amazon monthly subscription for Legal	Chand:Roselene Mar/Apr.	-		
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: linkedin subscription, document header text: whitley:march expenses (0	2021	4	CTR 43010	BUSINESS DEVELOPME NT		501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99	26.48	232210 A/P - COI	NCUR 4/21/2	2021 10	012431696	ZC	SAP Concur T&E	LinkedIn subscription	Whitley:March Expenses (0			
5000	sap concur t&e - cost center name: business development, cost element name: duess/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsj subscription, document header text: whitley:march expenses (0	2021	4		BUSINESS DEVELOPME NT			DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99		232210 A/P - COI			12431696		SAP Concur T&E		Whitley:March Expenses (0			
	sap concur t&e - cost center name: damage prevention, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision-office st, account name: a/p - concur, description: cga membership, document header text: lemke:march damage preven		4		DAMAGE PREVENTIO N			DUES/MEMBE RSHIP					DISTRB MAINTENANCE SUPERVISION-OFFICE ST			232210 A/P - COI)12431700			CGA Membership	Lemke:March Damage Preven			
5000	sap concur t&e - cost center name: cust field services, cost element name: dues/membership, ferc accounting name: distrb meter & house rgltr exp-supervisi, account name: a/p - concur, description: research tool, document header text: muirden:march expenses (0		4			INTERNATIONAL		DUES/MEMBE RSHIP					DISTRB METER & HOUSE RGLTR EXP-SUPERVISI	44.58		232210 A/P - CO			012431853		SAP Concur T&E		Muirden:March Expenses (0			
5000	sap concur t&e - cost center name: cash management, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name: a/p - concur, description: leca annual membership, document header text: minty:april expenses (04/		4	CTR 42030	CASH MANAGEME NT	IECA Annual Membership	501900	DUES/MEMBE RSHIP	903	88%	Customer-All	903-04280	CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	425.00	375.55	232210 A/P - COI	NCUR 4/22/	2021 10	12433475	ZC	SAP Concur T&E	IECA Annual Membership	Minty:April Expenses (04/			

Compan	y Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element F	FERC C	OR Allocation Allocation	Order	FERC Account Name/Internal	System \$ 0	OR	Offsetting	Name of offsetting	Posting	Document	Document	Document Type	Name	Document Header Purchase order Purchasing PO Vendor Name
Code 5000		Year		070 04000	Name (ADDED			name	001	Factor	001 01505			Allocation			Date	Number	type	Description	P 1 1 P	Text text Document
5000	sap concur t&e - cost center name: ee&labor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: continued education, document header text: ewaniec:april expenses (0	2021	4	CTR 31300	RELATIONS	Western Energy Institute	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	199.00	175.70	232210	A/P - CONCUR	4/22/2021	1012433662	ZC	SAP Concur T&E	continued education	Ewaniec:April Expenses (0
5000	sap concur t&e - cost center name: v chf hr&dvry off, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: world at work annual membership fee, document header text: st clair:april expenses (4	CTR 77000	VP, CHF HR&DVRY OFF	World at Work annual membership fee	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	265.00	233.97	232210	A/P - CONCUR	4/22/2021	1012433665	zc	SAP Concur T&E	World at Work annual membership fee	St Clair:April Expenses (
5000	sap concur t&e - cost center name: v & corporate secty, cost element nam dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: annual subscription dues for portland journal, document heade text: filippi:april 2021 expens	e: e	4		CORPORATE	Annual Subscription Dues for Portland Journa		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	90.00			A/P - CONCUR	4/22/2021	1012433707	zc	SAP Concur T&E	Annual Subscription Dues for Portland Journal	Filippi:April 2021 Expens
5000	sap concur t&e - cost center name: president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: alaska airlines lounge membership, document header text: anderson:2021 3_mar p-car	e	4		& CEO	Alaska Airlines Lounge Membership		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	300.00			A/P - CONCUR		1012433885		SAP Concur T&E	Membership	Anderson:2021 3_Mar p-car
5000	sap concur t&e - cost center name: strategic planning, cost element nam dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: surveymonkey subscription 2021, document header text: pan:april expenses (04/01	e	4	CTR 45010		Surveymonkey Subscription 2021	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	384.00	339.04	232210	A/P - CONCUR	4/22/2021	1012434703	ZC	SAP Concur T&E	Surveymonkey Subscription 2021	Pan:April Expenses (04/01
5000	sap concur t&e - cost center name: consr relations-evt, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-4th floor su, account name: a/p - concur, description: annual fee for event program, document header text: dolezal:april 2021	2021	4	CTR 11540	CONSR RELATIONS- EVT	TOTAL PARTY PLANNER	501900	DUES/MEMBE RSHIP	912	88% Customer-All	912-04765	DEMONSTRATION & SELLING EXP-4TH FLOOR SU	2,400.00	2,120.78	232210	A/P - CONCUR	4/22/2021	1012435517	zc	SAP Concur T&E	Annual fee for event program	Dolezal:April 2021
5000	sap concur t&e - cost center name: gas acq & pipe svce, cost element name: dues/membership, ferc accounting name: trnsmsn main supervision exp-gas acq & p, accoun name: a/p - concur, description: wei virtual conference, document header text: friedman:april expenses (nt	4	CTR 11150	GAS ACQ & PIPE SVCE		501900	DUES/MEMBE RSHIP	870	92% Customer-All	870-04415	TRNSMSN MAIN SUPERVISION EXP-GAS ACQ & P	199.00	182.14	232210	A/P - CONCUR	4/25/2021	1012437214	ZC	SAP Concur T&E	WEI virtual conference	Friedman:April Expenses (
5000	sap concur t&e - cost center name: environ mgmt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- office staf, account name: a/p - concur, description: renewal fee for professional license, document header text: raspone:april 2021 (rasp		4	CTR 51040	ENVIRON MGMT	OSBGE	501900	DUES/MEMBE RSHIP	935	89% Customer-All	935-01505	MAINTENANCE OF GENERAL PLANT-OFFICE STAF	155.00	138.68	232210	A/P - CONCUR	4/26/2021	1012437259	zc	SAP Concur T&E	Renewal fee for professional license	Raspone:April 2021 (Raspo
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-veh safety mgt, account name: a/p - concur, description: educational webinar - oregon truckin, assoc., document header text: rempfer:april expenses (0		4		NAL SAFETY	Educational Webinar - Oregon Trucking Assoc.	501900	DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-VEH SAFETY MGT	59.00			A/P - CONCUR	4/26/2021	1012437585			Educational Webinar - Oregon Trucking Assoc.	
5000	sap concur t&e - cost center name: it&s leadership team, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: reversal of incorrect transaction, document header text: thompson:new report	ə:	4	CTR 41050	IT&S LEADERSHIF TEAM	APPLE.COM/BILL	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	-102.83	(90.79)	232210	A/P - CONCUR	4/28/2021	1012440571	zc	SAP Concur T&E	reversal of incorrect transaction	Thompson:New report
5000	sap concur t&e - cost center name: it&s leadership team, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: incorrect charge, document header text: thompson:new report		4	CTR 41050	IT&S LEADERSHIF TEAM	APPLE.COM/BILL	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	102.83	90.79	232210	A/P - CONCUR	4/28/2021	1012440571	ZC	SAP Concur T&E	incorrect charge	Thompson:New report

Company Code	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center				Cost element name	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocatio	Offset on acct n	ting Name of offsetti o. account	ng Posting Date	Docume Number		t Document Type Description	Name	Document Header Text	Purchase order text	Purchasing Document	PO Vendor Name
	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: business journal subscription, document header text: beck:april expenses (04/0	2021	4	CTR 52040	CORPOR	ATE Business IICA subscrip	s Journal	501900 E	DUES/MEMBE RSHIP	921		Ali 921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	135.00			0 A/P - CONCUR	4/28/202	1 1012440		SAP Concur T&E	Business Journal subscription	Beck:April Expenses (04/0			
	sap concur t&e - cost center name: consmr info-infnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: stock image license for website, document header text: beck:april expenses (04/0	2021	4	CTR 11550	CONSMR INFO-INTI SR	NT CKPHO	WW.ISTO T		DUES/MEMBE RSHIP	913	88% Customer-	All 913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	115.00	D 10 [.]	1.49 23221	0 A/P - CONCUR	4/28/202	1 1012440	9638 ZC	SAP Concur T&E	Stock image license for website	Beck:April Expenses (04/0			
	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: url registration fees, document header text: beck:april expenses (04/0	2021	4	CTR 11550	CONSMR INFO-INTI SR		ODADDY.C		DUES/MEMBE RSHIP	913	88% Customer-	All 913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	71.88	8 6	3.43 23221	0 A/P - CONCUR	4/28/202	1 1012440	638 ZC	SAP Concur T&E	URL registration fees	Beck:April Expenses (04/0			
		2021	4	CTR 11550	CONSMR INFO-INT SR	AMAZOI NT SERVIC	N WEB E		DUES/MEMBE RSHIP	913	88% Customer-	Ali 913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	98.54	4 81	6.96 23221	0 A/P - CONCUR	4/28/202	1 1012440	1638 ZC	SAP Concur T&E	Web hosting for Less We	e Beck:April Expenses (04/0			
	Experises (0-47) sap concur t&e - cost center name: consmr info-inft sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p - concur, description: stock image license for website, document header text: beck:april expenses (04/0	2021	4	CTR 11550	CONSMR INFO-INT SR	CKO*W			DUES/MEMBE RSHIP	909	88% Customer-	All 909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	65.00	0 5	7.36 23221	0 A/P - CONCUR	4/28/202	1 1012440	1638 ZC	SAP Concur T&E	Stock image license for website	Beck:April Expenses (04/0			
	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: url registration fees, document header text: beck:april expenses (04/0	2021	4		SR	NT WEBSIT		F	DUES/MEMBE RSHIP				ADVERTISING EXPENSES- CORPORATE IMAGE & M	6.00			0 A/P - CONCUR			1638 ZC		URL registration fees	Beck:April Expenses (04/0			
	sap concur t&e - cost center name: consmr info-intht sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: url registration fees, document header text: beck:april expenses (04/0	2021	4		SR	NT OLUTIO)	F	DUES/MEMBE RSHIP				ADVERTISING EXPENSES- CORPORATE IMAGE & M	371.85			0 A/P - CONCUR			1638 ZC		URL registration fees	Beck:April Expenses (04/0			
	sap concur t&e - cost center name: consmr info-inth sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: video hosting service for website, document header text: beck: april expenses (04/0	2021	4		CONSMR INFO-INTI SR	NT		F	DUES/MEMBE RSHIP				ADVERTISING EXPENSES- CORPORATE IMAGE & M	5.75			0 A/P - CONCUR			1638 ZC		video hosting service for website	Expenses (04/0			
	sap concur t&e - cost center name: vp, pa & sustainabil, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual digital subscription to portland business j, document header text: carpio:portland business		4	CTR 75500		Portland ABI Journal			DUES/MEMBE RSHIP	921	88% Customer-	Ali 921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	95.00	0 8	3.88 23221	0 A/P - CONCUR	4/30/202	1 1012449	0094 ZC	SAP Concur T&E	Annual Digital Subscription to Portland Business J	Carpio:Portland Business			
	sap concur t&e - cost center name: sr vp & gen counsel, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: subscription to society of corporate compliance &, document header text: saathoff:april p-card (04	:	4	CTR 76000	SR VP & GEN COUNSEL	Corporat	ite		DUES/MEMBE RSHIP	921	88% Customer-	All 921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		0 28	6.94 23221	0 A/P - CONCUR	4/30/202	1 1012449	1095 ZC	SAP Concur T&E	Subscription to Society of Corporate Compliance &				
5000	sap concur t&e - cost center name: sr vp & gen counsel, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: law subscription service, document header text: saathoff:april p- card (04	:	4	CTR 76000	SR VP & GEN COUNSEL	Subscrip	otion		DUES/MEMBE RSHIP	921	88% Customer-	All 921-01505	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		8 1,324	4.26 23221	0 A/P - CONCUR	4/30/202	1 1012449	1095 ZC	SAP Concur T&E	Law subscription service	Saathoff:April P- Card (04			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization		RC OR Allocation	Allocation	Order	FERC Account Name/Internal Sy			etting Name of offsetting	Posting	Document	Documen	Document Type	Name	Document Header	Purchase order	Purchasing	PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	4	CTR 11325	Name (ADDED) CUST SEG	WSJ Subscription	 name DUES/MEMBE	908 88%	Factor Customer-All		Order Name Va CUSTOMER ASSISTANCE		Illocation acct 144.92 232	no. account 210 A/P - CONCUR	Date 4/30/2021	Number 1012449235	type ZC	Description SAP Concur T&E	WSJ Subscription	Text Lange:April	lext	Document	
	cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: a/p - concur, description, document header text: lange:april expenses (04/		_		SRVC		RSHIP		2		EXPENSE-MAJ ENERGY S									Expenses (04/			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: linkedin subscription, document header text: whitley:april expenses (0	91			BUSINESS DEVELOPME NT	subscription	DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99		210 A/P - CONCUR		1012454992			LinkedIn subscription	Whitley:April Expenses (0			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: wsj subscription, document header text: whitley:april expenses (0		5		BUSINESS DEVELOPME NT	WSJ subscription	DUES/MEMBE RSHIP	921 88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	34.42 232	210 A/P - CONCUR	5/3/2021	1012454992	zc	SAP Concur T&E	WSJ subscription	Whitley:April Expenses (0			
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: annual partnership dues, document header text: russell:travel oregon ann		5	CTR 11348	MAJ ACCT SERV TEAM		DUES/MEMBE RSHIP	903 88%	Customer-All		CUSTOMER RECORDS & COLLECTIONS-BILLING G	225.00	198.82 232	210 A/P - CONCUR	5/3/2021	1012455149	ZC	SAP Concur T&E	Annual Partnership Due	s Russell:Travel Oregon Ann			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name a/p - concur, description: ccc celebration committee, document header text: paul:celebration committ		5		CUST CONTACT CENTER	Amazon Prime	DUES/MEMBE RSHIP	903 88%	Customer-All		CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99	11.48 232	210 A/P - CONCUR	5/3/2021	1012455332	ZC	SAP Concur T&E	CCC Celebration Committee	Paul:Celebration Committe			
5000	sap concur t&e - cost center name: smart energy, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: north american carbon world conference, document header text: harney:april expenses (04	2021	5	CTR 11595	SMART ENERGY	North American Carbon World conference	DUES/MEMBE RSHIP	921 88%	Customer-All		OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	150.00	132.44 232	210 A/P - CONCUR	5/5/2021	1012473365	ZC	SAP Concur T&E	North American Carbon World conference	Harney:April Expenses (04			
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: conference participant fee, document header text russell.wei conference fo	&	5	CTR 11348	MAJ ACCT SERV TEAM	WESTERN ENERGY INS	DUES/MEMBE RSHIP				CUSTOMER RECORDS & COLLECTIONS-BILLING G	199.00	175.85 232	210 A/P - CONCUR	5/7/2021	1012483220	ZC	SAP Concur T&E	Conference Participant Fee	Russell:WEI Conference fo			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: <i>a/p</i> - concur, description: economic conditions meeting, document header text: hartzog:march expenses (0	2021	5	CTR 11515	CUST ACQ MRKTG NEW	WPY*WESTSIDE ECONO	DUES/MEMBE RSHIP				DEMONSTRATION & SELLING EXP-NEW CONSTRUC	10.00		210 A/P - CONCUR	5/7/2021	1012483372	ZC	SAP Concur T&E	Economic Conditions Meeting	Hartzog:March Expenses (0			
5000	sap concur t&e - cost center name: damage prevention, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision-pipeline, account name: a/p - concur, description: gold shovel annual membership dues, document header text: lemke:april dp expenses	9	5	CTR 15515	DAMAGE PREVENTIO N		 DUES/MEMBE RSHIP	885 94%	Customer-All		DISTRB MAINTENANCE SUPERVISION-PIPELINE	2,400.00	2,249.45 232	210 A/P - CONCUR	5/11/2021	1012492819	zc	SAP Concur T&E	Gold Shovel annual membership dues	Lemke:April DP Expenses			
5000	sap concur t&e - cost center name: damage prevention, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision-pipeline, account name: a/p - concur, description: wei operations conference 2021, document header text: lemke:april dp expenses	9			PREVENTIO N	WEI Operations Conference 2021	DUES/MEMBE RSHIP				DISTRB MAINTENANCE SUPERVISION-PIPELINE			210 A/P - CONCUR		1012492819		SAP Concur T&E	Conference 2021	Lemke:April DP Expenses			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership, document header text: kloor:april expenses (04/		5		COMM & CIVIC AFFAIRS	SQ *TRI-COUNTY CHA	DUES/MEMBE RSHIP	921 88%	Customer-All		OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.00	225.14 232	210 A/P - CONCUR	5/18/2021	1012511982	ZC	ISAP Concur T&E	Chamber membership	Kloor:April Expenses (04/			

Compar Code	y Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element F	FERC OR		Allocation Factor	Order	FERC Account Name/Internal S Order Name			Offsetting Name o acct no. account			Document Number	Document type	Document Type Description	Name	Document Header Text	Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: membership dues, document header text: kloor:april expenses (04/	2021	5			COTTAGE GRC AREA		RSHIP	921			921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN			232210 A/P - Co			1012511982			Membership Dues	Kloor:April Expenses (04/			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: gresham chamber dues, document header text nelson:april expenses (04		5	CTR 52020	COMM & CIVIC AFFAIRS	Gresham Cham Dues	iber 501900	DUES/MEMBE RSHIP	921	88% (Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	819.00	723.10 2	232210 A/P - C0	ONCUR	5/18/2021	1012512016	ZC	SAP Concur T&E	Gresham Chamber Due	 Nelson:April Expenses (04 			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wilsonville chamber annual membership, document header text: nelson:april	2021	5	CTR 52020	COMM & CIVIC AFFAIRS	Wilsonville Chamber annua membership		DUES/MEMBE RSHIP	921	88% (Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,200.00	1,059.49 2	232210 A/P - Co	ONCUR	5/18/2021	1012512016	ZC	SAP Concur T&E	Wilsonville Chamber annual membership	Nelson:April Expenses (04			
5000	expenses (04 sap concur t&e - cost center name: corporate security, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: corpsec informational materials, document header text: hansen:may expenses (05/0	2021	5	CTR 51050	CORPORATE	CorpSec Informational Materials	501900	DUES/MEMBE RSHIP	921	88% (Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	16.22	14.32	232210 A/P - C0	ONCUR	5/18/2021	1012512030	ZC	SAP Concur T&E	CorpSec Informational Materials	Hansen:May Expenses (05/0			
5000	sap concur t&e - cost center name: gas acq & pipe svce, cost element name: dues/membership, ferc accounting name: trnsmsn main supervision exp-gas acq & p, accoun name: a/p - concur, description: mvga viritual conference for kathy gilman, document header text: cart:may-21 expense repor		5	CTR 11150	GAS ACQ & PIPE SVCE	NWGA	501900	DUES/MEMBE RSHIP	870	92%	Customer-All	870-04415	TRNSMSN MAIN SUPERVISION EXP-GAS ACQ & P	104.00	95.19 2	232210 A/P - C	ONCUR	5/19/2021	1012515482	ZC	SAP Concur T&E	NWGA Virtual Conference for Kathy Gilman	Carl:May-21 Expense Repor			
5000	sap concur t&e - cost center name: gas acq & pipe svce, cost element name: dues/membership, ferc accounting name: trnsmsn main supervision exp-gas acq & p. accoun name: a/p - concur, description: nwga virtual conference for michael mott, document header text: carl:may-21 expense repor		5	CTR 11150	GAS ACQ & PIPE SVCE	NWGA	501900	DUES/MEMBE RSHIP	870	92% (Customer-All	870-04415	TRNSMSN MAIN SUPERVISION EXP-GAS ACQ & P	104.00	95.19 2	232210 A/P - CO	ONCUR	5/19/2021	1012515482	zc	SAP Concur T&E	NWGA Virtual Conference for Michael Mott	Carl:May-21 Expense Repor			
5000	sap concur t&e - cost center name: claims overhead, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: credit for wei conference, document header text: baxter:may 2021 s baxter		5	CTR 51065	CLAIMS OVERHEAD	Credit for WEI Conference	501900	DUES/MEMBE RSHIP	921	88% (Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	-300.00	(264.87) 2	232210 A/P - C0	ONCUR	5/20/2021	1012517235	ZC	SAP Concur T&E	Credit for WEI Conference	Baxter:May 2021 S Baxter			
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: pcard purchases, document header text: felix:may expenses	2021	5		BUSINESS CONTINUITY	AMAZON PRIME*ML4RP		DUES/MEMBE RSHIP	921	88% (Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.99	11.47 2	232210 A/P - C0	ONCUR	5/20/2021	1012518310	ZC	SAP Concur T&E	Pcard Purchases	Felix:May Expenses			
5000		2021 k	5		CUST CONTACT CENTER	Amazon Prime	501900) DUES/MEMBE RSHIP	903	88% (Customer-All	903-04280	CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99	11.48 2	232210 A/P - C(ONCUR	5/21/2021	1012520433	ZC	SAP Concur T&E	CCC Celebration Committee	Paul:May Celebration Expe			
5000	expe sap concur t&e - cost center name: pub policy & gvrm af, cost element name: dues/membership, ferc accounting name: office staffin, account name a/p - concur, description: supscription to daily astorian, document header text: brownlie:may expense	:	5	CTR 52010	PUB POLICY & GVRM AF	Supscription to Daily Astorian	501900) DUES/MEMBE RSHIP	921	88% (Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	135.00	119.19	232210 A/P - C0	ONCUR	5/25/2021	1012521769	ZC	SAP Concur T&E	Supscription to Daily Astorian	Brownlie:May Expense			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon monthly subscription for legal, document header text: chand:roselene- april/mar		5	CTR 54010	LEGAL	Amazon	501900	DUES/MEMBE RSHIP	921	88% (Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99	11.47 2	232210 A/P - C(ONCUR	5/25/2021	1012521782	ZC	SAP Concur T&E	Amazon monthly subscription for Legal	Chand:Roselene- April/May			

Compar	ny Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center	Organization		Cost element FE	RC OR Allocation	Allocation	Order	er FERC Account Name/Internal Syste Order Name Value			Offsetting Name of account	offsetting Post	~	Document Number	Document type	Document Type Description	Name	Document Header	Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name:	2021	5	CTR 54010	Name (ADDED) LEGAL	OJIN	501900	DUES/MEMBE	921		II 921-0	01505 OFFICE STAFFING &			32210 A/P - CO	Date			ZC		OJIN Monthly	Chand:Roselene-	IGAL	Document	
	legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ojin monthly subscription fees (x2 months), document header text: chand:roselene- april/may	9						RSHIP				EXPENSE-OFFICE STAFFIN									Subscription Fees (x2 Months)	April/May			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: pacer monthly subscription fees, document header text: chand:roselene- april/may		5	CTR 54010	LEGAL	Pacer		DUES/MEMBE RSHIP	921	Customer-A	II 921-0	01505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	77.80	68.69 2	32210 A/P - COI	NCUR 5/2	25/2021	1012521782	ZC	SAP Concur T&E	Pacer monthly subscription fees	Chand:Roselene- April/May			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: professiona service, document header text: downing:may 2021 expense	ə:	5	CTR 52040	CORPORATE COMMUNICA T	CHICAGO BOOK & JO		DUES/MEMBE RSHIP	921	38% Customer-A	II 921-0	01505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	41.00	36.20 2	32210 A/P - CO	NCUR 5/2	26/2021	1012522273	ZC	SAP Concur T&E	Professional service	Downing:May 2021 Expense			
5000	sap concur t&e - cost center name: res consumer service, cost element name: dues/membership, ferc accounting name: misc customer service-office staffing &, account name: a/p - concur, description: office supplies, document header text: downing:may 2021 expense	2021			CONSUMER SERVICE			DUES/MEMBE RSHIP				01505 MISC CUSTOMER SERVICE- OFFICE STAFFING &	99.00		32210 A/P - COI			1012522273		SAP Concur T&E		Downing:May 2021 Expense			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: wei energy webinar, document header text: fuller:april expenses (04	2021	5		FACILITIES MGMNT	webinar		DUES/MEMBE RSHIP				01295 MAINTENANCE OF GENERAL PLANT- MAINTENANCE	99.00		32210 A/P - COI			1012522366			WEI Energy webinar	Fuller:April Expenses (04			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: office purchases, document header text: fuller:april expenses (04	2021	5	CTR 16100	FACILITIES MGMNT	AMAZON PRIME*7U6RP	501900	DUES/MEMBE RSHIP	935	39% Customer-A	II 935-0	01295 MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99	11.62 2	32210 A/P - COI	NCUR 5/2	26/2021	1012522366	ZC	SAP Concur T&E	Office purchases	Fuller:April Expenses (04			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: social media tracking service, document header text: beck:may expenses (05/01/	e:	5	CTR 52040	CORPORATE COMMUNICA T	HOO*HOOTSUITI INC		DUES/MEMBE RSHIP	921	38% Customer-A	II 921-0	01505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	5.99	5.29 2	32210 A/P - CO	NCUR 5/2	27/2021	1012523087	ZC	SAP Concur T&E	social media tracking service	Beck:May Expenses (05/01/			
5000	sap concur t&e - cost center name: consmr info-intn sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: less we can website hosting, document header text: beck:may expenses (05/01/	2021	5	CTR 11550	CONSMR INFO-INTNT SR	AMAZON WEB SERVICE		DUES/MEMBE RSHIP	913	38% Customer-A	II 913-2	26000 ADVERTISING EXPENSES- CORPORATE IMAGE & M	97.12		32210 A/P - COI		27/2021	1012523087	ZC	SAP Concur T&E	Less we can website hosting	Beck:May Expenses (05/01/			
5000	sap concur t&e - cost center name: consmr info-intit sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: url registration fees, document header text: beck:ma expenses (05/01/	- Iy	5		INFO-INTNT SR			RSHIP				23000 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	6.00		32210 A/P - CO			1012523087			URL registration fees	Beck:May Expenses (05/01/			
5000	sap concur t&e - cost center name: consmr info-intit sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: video hosting service for website, document header text: beck:may expenses (05/01/			CTR 11550	INFO-INTNT SR	WISTIA, INC.		DUES/MEMBE RSHIP				26000 ADVERTISING EXPENSES- CORPORATE IMAGE & M	5.75		32210 A/P - CO			1012523087			video hosting service for website	Expenses (05/01/			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: media monitoring service, document header text: beck:may expenses (05/01/	9:	5	CTR 52040	CORPORATE COMMUNICA T			DUES/MEMBE RSHIP	921	38% Customer-A	II 921-0	01505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	79.00	69.75 2	32210 A/P - CO	NCUR 5/2	27/2021	1012523087	ZC	SAP Concur T&E	media monitoring servic	e Beck:May Expenses (05/01/			

Company	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADD	Organization	Cost Element	Cost element name	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation	Offsetting Nar acct no. acc	me of offsetting	Posting Date	Document Number	Document type	t Document Type Description	Name	Document Header Text	Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: stock image license for website, document header text: beck:may expenses (05/01/	2021	5	CTR 11550	CONSMR	T CKPHOT		DUES/MEMBE RSHIP	909		909-23000	ADVRT-UTILITY INFOR			6 232210 A/F			1012523087	-71		Stock image license for website			Document	
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-corporate image & m, account name: a/p - concur, description: url registration fees, document header text: beck:may expenses (05/01/	2021	5	CTR 11550		WEB*REGISTER T WEBSIT	50190	0 DUES/MEMBE RSHIP	913	88% Customer-All	913-26000	ADVERTISING EXPENSES- CORPORATE IMAGE & M	6.00	0 5.2	9 232210 A/F	? - CONCUR	5/27/2021	1012523087	ZC	SAP Concur T&E	URL registration fees	Beck:May Expenses (05/01/			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: lane hba membership dues, document header text: kloor:april expenses (04/	2021	6	CTR 11515		Lane HBA W membership dues		0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	750.00	0 662.1	8 232210 A/F	P - CONCUR	6/1/2021	1012523688	ZC	SAP Concur T&E	Lane HBA membership dues	Kloor:April Expenses (04/			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: wsj subscription, document header text: whitley:may expenses (05/		6	CTR 43010	BUSINESS DEVELOPI NT	WSJ subscription	50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	9 34.4	2 232210 A/F	P - CONCUR	6/1/2021	1012523733	zc	SAP Concur T&E	WSJ subscription	Whitley:May Expenses (05/			
5000	sap concur t&e - cost center name: internal auditing, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: renewal of cpa, document header text: elliott:june expenses (06		6	CTR 72500	INTERNAL AUDITING		50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.00	0 225.1	4 232210 A/F	P - CONCUR	6/8/2021	1012573952	zc	SAP Concur T&E	Renewal of CPA	Elliott:June Expenses (06			
5000	sap concur t&e - cost center name: strategic planning, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nwga annual conference, document header text: linver:april expenses (04	e.	6	CTR 45010		C NWGA Annual Conference	50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00	<u>0</u> 91.8	2 232210 A/F	P - CONCUR	6/8/2021	1012574000	zc	SAP Concur T&E	NWGA Annual Conference	Linver:April Expenses (04			
5000	sap concur t&e - cost center name: svp util & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: downgrade subscription to digital only, document header text: heiting:may p-card		6	CTR 73000		& D J*WALL-ST- JOURNA	50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	-29.04	4 (25.64	I) 232210 A/F	? - CONCUR	6/9/2021	1012575966	ZC	SAP Concur T&E	Downgrade Subscription to digital only	Heiting:May P- Card Expens			
5000	expens sap concur t&e - cost center name: syp util & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name dues/membership, description: downgrade subscription to digital only document header text: heiting:may p- card expens	,	6	CTR 73000		& D J*WALL-ST- JOURNA	50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	4.00	0 3.5	3 501900 DU	ES/MEMBERSHIF	P 6/9/2021	1012575966	zc	SAP Concur T&E	Downgrade Subscription to digital only	Heiting:May P- Card Expens			
5000	sap concur t&e - cost center name: internal auditing, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual aicpa professional membership, document header text: humphrey:q2 quarter-end p		6	CTR 72500	INTERNAL AUDITING		50190	0 DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	295.00	0 260.4	6 232210 A/F	P - CONCUR	6/14/2021	1012584456	zc	SAP Concur T&E	Annual AICPA Professional Membership	Humphrey:Q2 p Quarter-End P			
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: conference fee, document header text: russell:june expenses (06		6	CTR 11348	MAJ ACCT SERV TEA	AEC21* 2021 M VIRTUA	50190	0 DUES/MEMBE RSHIP	903	88% Customer-All	903-01010	CUSTOMER RECORDS & COLLECTIONS-BILLING G	104.00	91.9	0 232210 A/F	P - CONCUR	6/15/2021	1012595592	zc	SAP Concur T&E	Conference Fee	Russell:June Expenses (06			
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: conference fee, document header text: russell:june expenses (06		6	CTR 11348	MAJ ACCT SERV TEA	AEC21* 2021 M VIRTUA	50190	0 DUES/MEMBE RSHIP	903	88% Customer-All	903-01010	CUSTOMER RECORDS & COLLECTIONS-BILLING G	104.00	0 91.9	0 232210 A/F	- CONCUR	6/15/2021	1012595592	zc	SAP Concur T&E	Conference Fee	Russell:June Expenses (06			

Company Code	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element F	ERC OR		Allocation Factor	Order	FERC Account Name/Internal Order Name		R Offsett location acct no	5	Posting Date	Document Docu Number type	ument Document Type Description	Name	Document Header	Purchase order	Purchasing I Document	PO Vendor Name
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: conference fee, document header text: russell:june expenses (06	2021	6	CTR 11348		AEC21* 2021 VIRTUA	501900	DUES/MEMBE RSHIP	903			903-01010	CUSTOMER RECORDS & COLLECTIONS-BILLING G	104.00		A/P - CONCUR		1012595592 ZC	SAP Concur T&E	Conference Fee	Russell:June Expenses (06		Document	
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name: a/p - concur, description: conference fee, document header text: russell:june expenses (06	2021	6	CTR 11348	MAJ ACCT SERV TEAM			DUES/MEMBE RSHIP	903	88%	Customer-All	903-01010	CUSTOMER RECORDS & COLLECTIONS-BILLING G	104.00	91.90 23221) A/P - CONCUR	6/15/2021	1012595592 ZC	SAP Concur T&E	Conference Fee	Russell:June Expenses (06			
5000	sap concur t&e - cost center name: business continuity, cost element name: duess/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: emergency management, document header text: fosdick:refund- wei	2021	6	CTR 51045	BUSINESS CONTINUITY	WESTERN ENERGY INS	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR) A/P - CONCUR	6/16/2021	1012601131 ZC	SAP Concur T&E	Emergency Managemer	nt Fosdick:REFUND- WEI			
5000	sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-employee, account name: a/p - concur, description: w@w annual membership, document header text: jordan:may 2021	2021 I	6	CTR 36000	COMP & ADMIN	W@W Annual Membership		DUES/MEMBE RSHIP	926	93%	Customer-All	926-02200	EMPLOYEE PENSIONS AND BENEFITS-EMPLOYEE	265.00	246.36 23221) A/P - CONCUR	6/16/2021	1012601152 ZC	SAP Concur T&E	W@W Annual Membership	Jordan:May 2021			
5000	sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-employee, account name: a/p - concur, description: annual membership, document header text: jordan:may 2021	2021	6	CTR 36000	COMP & ADMIN	WORLDATWORK	501900	DUES/MEMBE RSHIP	926	93%	Customer-All	926-02200	EMPLOYEE PENSIONS AND BENEFITS-EMPLOYEE	265.00	246.36 23221) A/P - CONCUR	6/16/2021	1012601152 ZC	SAP Concur T&E	Annual Membership	Jordan:May 2021			
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: barron's subscription, document header text: sparley:spring expenses		6	CTR 48010	INVESTOR RELATIONS		501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	19.99	17.65 23221) A/P - CONCUR	6/16/2021	1012601197 ZC	SAP Concur T&E	Barron's subscription	Sparley:Spring Expenses			
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: barron's subscription, document header text: sparley:spring expenses		6	CTR 48010	INVESTOR RELATIONS	Barron's subscription		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	19.99	17.65 23221) A/P - CONCUR	6/16/2021	1012601197 ZC	SAP Concur T&E	Barron's subscription	Sparley:Spring Expenses			
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: barron's subscription, document header text: sparley:spring expenses		6	CTR 48010	INVESTOR RELATIONS			DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	19.99	17.65 232211) A/P - CONCUR	6/16/2021	1012601197 ZC	SAP Concur T&E	Barron's subscription	Sparley:Spring Expenses			
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing, expense-office staffin, account name: a/p - concur, description: barron's subscription, document header text: sparley:spring expenses		6	CTR 48010	INVESTOR RELATIONS	Barron's subscription		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	19.99	17.65 232211) A/P - CONCUR	6/16/2021	1012601197 ZC	SAP Concur T&E	Barron's subscription	Sparley:Spring Expenses			
5000	sap concur t&e - cost center name: mid office, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: market monitoring, document header text: fulps:may expenses (05/01		6			D J*WALL-ST- JOURNA		DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN			A/P - CONCUR		1012601199 ZC		Market Monitoring	Fulps:May Expenses (05/01			
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: annual dues, document header text: eversmeyerjune expenses	2021	6	CTR 51010	OCCUPATIO NAL SAFETY	AMERICAN SOCIETY O		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	220.00	194.24 23221) A/P - CONCUR	6/16/2021	1012601301 ZC	SAP Concur T&E	Annual dues	Eversmeyer:June Expenses			

Compar	ny Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost	Cost element FE	ERC 0	DR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name		OR		Name of offsetting	Posting Date	Document Number	Document	Document Type Description	Name	Document Header Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety saflexp, account name: aip - concur, description: acgin 2021 tiv book for library, document header text: eversmeyer;june expenses	2021	6		OCCUPATIO NAL SAFETY	ACGIH 2021 TLV book for library		DUES/MEMBE RSHIP	921	88% Customer-All		OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	35.17	31.0	5 232210	A/P - CONCUR	6/16/2021	1012601301	ZC	SAP Concur T&E	ACGIH 2021 TLV book for library	Eversmeyer.June Expenses	Document	
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: western conf naruc june 2021, document header text: siores:june 2021 energy c		b	CTR 53010		Western Conf NARUC June 202		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	295.00	260.4	6 232210	A/P - CONCUR	6/16/2021	1012601321	20	SAP Concur T&E	Western Conf NARUC June 2021	Siores:June 2021 energy C		
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nwga annual conference 2021, document header text: siores:june 2021 energy c	•	6		Y AFFAIRS	NWGA annual conference 2021		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00			A/P - CONCUR		1012601321		SAP Concur T&E	conference 2021	Siores:June 2021 energy C		
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nwec conference june 2021, document header text: siores:june 2021 energy c	•	6		Y AFFAIRS			DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	53.55			A/P - CONCUR		1012601321			NWEC conference June 2021	energy C		
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: <i>a/p</i> - concur, description: monthly membership, document header text: felix:june 2021 expense r		6			PRIME*ML4RP		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.99			A/P - CONCUR		1012604826			Monthly membership	Felix:June 2021 Expense R		
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: conference registration-virtual, document header text: felix;june 2021 expense r	2021	6			ENERGY INS		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-HOMELAND SECUR				A/P - CONCUR	6/21/2021	1012604826	zc		Conference Registration- Virtual	- Felix:June 2021 Expense R		
5000	sap concur t&e - cost center name: env policy and sustn, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffing account name a/p - concur, description: annual membership with organization to enable poli, document header text: moerlins:sustainability m	2021	6	CTR 55010	ENV POLICY AND SUSTN	IN *SUSTAINABL PU	E 501900	DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	6/21/2021	1012604883	ZC	SAP Concur T&E	Annual membership with organization to enable poli			
5000	sap concur t&e - cost center name: env policy and sustn, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffing account name a/p - concur, description: annual membership with american biogas council: m, document header text: moerlins:sustainability m	:	6	CTR 55010	ENV POLICY AND SUSTN	American Biogas Council	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	2,500.00	2,207.2	7 232210	A/P - CONCUR	6/21/2021	1012604883	ZC	SAP Concur T&E	Annual membership with American Biogas Counci RN			
5000	renewables, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: industry conference, document header text: lieberman:american biogas	2	6		RENEWABLE S	COUNCIL		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012606583			Industry Conference	Lieberman:Americ an Biogas		
5000	sap concur t&e - cost center name: sec reporting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: melissa naganuma, description: cpa renewal, document header text: naganuma:cpa renewal 6-30	a	6		REPORTING	Oregon Board of Accountancy (BOA)		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				MELISSA NAGANUN				SAP Concur T&E		Naganuma:CPA Renewal 6-30		
5000	sap concur t&e - cost center name: vr & corporate secty, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual renewal of new york times subscription, document header text: filippi:june expenses	e:	6		VP & CORPORATE SECTY	New York Times Subscription	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	650.00	573.8	9 232210	A/P - CONCUR	6/24/2021	1012613967	zc	ISAP Concur T&E	Annual Renewal of New York Times Subscription			

Compar Code	y Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element F	ERC OR Allocation	Allocation	Order	FERC Account Name/Internal S Order Name			Offsetting Name of offsetting acct no.	Posting Date	Document Number	Document type	Document Type Description	Name	Document Header Text	Purchase order text	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: a/p - concur, description: membership dues, document header text: lange:june expenses (06/0	2021	6		CUST SEG SRVC	WPY*OREGON APEM	501900	DUES/MEMBE RSHIP		8% Customer-All		600 CUSTOMER ASSISTANCE EXPENSE-MAJ ENERGY S	125.00	109.81	232210 A/P - CONCUR	6/24/2021	1012614024	ZC	SAP Concur T&E		Lange:June Expenses (06/0			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: materials for 250 taylor, document header text: fuller:may expenses (05/0		6	CTR 16100	FACILITIES MGMNT	AMAZON PRIME*7U6RP	501900	DUES/MEMBE RSHIP	935 8	9% Customer-All	935-012	295 MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99	11.62	232210 A/P - CONCUR	6/24/2021	1012614826	ZC	SAP Concur T&E	Materials for 250 Taylor	Fuller:May Expenses (05/0			
5000	sap concur t&e - cost center name: v strgy & biz dev, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsj online subscription, document header text: palfreyman;june 2021 pcar		6	CTR 78000	VP, STRTGY & BIZ DEV	WSJ Online Subscription	501900	DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	116.97	103.27	232210 A/P - CONCUR	6/26/2021	1012617983	zc	SAP Concur T&E	WSJ Online Subscriptio	n Palfreyman:June 2021 Pcar			
5000	sap concur t&e - cost center name: res consumer service, cost element name: dues/membership, ferc accounting name: misc customer service-office staffing &, account name: professional service, description: subscription, document header text: downing:june 2021 expense	2021	6	CTR 11410	RES CONSUMER SERVICE	HARVARD*BUSI ESS R	N 501900	DUES/MEMBE RSHIP	910 8	8% Customer-All	910-015	505 MISC CUSTOMER SERVICE- OFFICE STAFFING &	-99.00	(87.25)	505100 PROFESSIONAL SERVICE	6/26/2021	1012617986	ZC	SAP Concur T&E	subscription	Downing:June 2021 Expense			
5000	sap concur t&e - cost center name: res consumer service, cost element name: dues/membership, ferc accounting name: misc customer service-office staffing &, account name: a/p - concur, description: subscription, document header text: downing:june 2021 expense	2021	6	CTR 11410	RES CONSUMER SERVICE	HBRSUBSCRIPT ON	TI 501900	DUES/MEMBE RSHIP	910 8	8% Customer-All	910-015	505 MISC CUSTOMER SERVICE- OFFICE STAFFING &	99.00	87.25	232210 A/P - CONCUR	6/26/2021	1012617986	ZC	SAP Concur T&E	Subscription	Downing:June 2021 Expense			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: dc bar registration fee for missy, document header text: chand:roselene - june 202		6	CTR 54010	LEGAL	DC Bar Registration	501900	DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.72	225.78	232210 A/P - CONCUR	6/26/2021	1012618000	ZC	SAP Concur T&E	DC Bar Registration Fee for Missy	e Chand:Roselene - June 202			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: legal amazon subscriptio fees, document header text: chand.roselene - june 202	e	6	CTR 54010	LEGAL	Amazon	501900	DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.99	11.47	232210 A/P - CONCUR	6/26/2021	1012618000	zc	SAP Concur T&E	Legal Amazon Subscription fees	Chand:Roselene - June 202			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ojin monthly subscription fees, document header text: chand:roselene - june 202		6	CTR 54010	LEGAL	OJIN monthly subscription fees		DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	65.00	57.39	232210 A/P - CONCUR	6/26/2021	1012618000	zc	SAP Concur T&E	OJIN monthly subscription fees	Chand:Roselene - June 202			
5000	sap concur t&e - cost center name: integ resource plan, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: 2021 virtual energy conference, document header text: drennan:may expenses (05/		6	CTR 11370		2021 Virtual Energy Conference		DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00	91.82	232210 A/P - CONCUR	6/28/2021	1012618351	zc	SAP Concur T&E	2021 Virtual Energy Conference	Drennan:May Expenses (05/			
5000	sap concur t&e - cost center name: integ resource plan, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: annual energy conference registration fees, document header text: pandya:annua energy conf	2	6	CTR 11370	INTEG RESOURCE PLAN	Annual Energy Conference Registration fees		DUES/MEMBE RSHIP	921 8	8% Customer-All	921-015	505 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00	91.82	232210 A/P - CONCUR	6/28/2021	1012618352	ZC	SAP Concur T&E	Annual Energy Conference Registration fees	Pandya:Annual Energy Conf			
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: lourdes fosdick, description: emergency management, document header text: fosdick:amazon billing	2021	6	CTR 51045	BUSINESS CONTINUITY			DUES/MEMBE RSHIP	921 8	8% Customer-All	921-012	207 OFFICE STAFFING & EXPENSE-HOMELAND SECUR	129.00	113.90	E096812 LOURDES FOSDICK	6/28/2021	1012618406	zc	SAP Concur T&E	Emergency Managemen	nt Fosdick:Amazon billing			

Compan	y Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDE	Organization	Cost Element	Cost element	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation		Name of offsetting account	Posting Date	Document Number	Documen	t Document Type Description	Name	Document Heade	r Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: lourdes fosdick, description: emergency management, document header text: fosdick:amazon billing	2021	6	CTR 51045		Amazon		DUES/MEMBE RSHIP	921		921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR				LOURDES FOSDICK		1012618406	ZC		Emergency Managemen	10/11		Document	
5000	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: emergency management, document header text: fosdick:wei conference (r	2021	6	CTR 51045		WESTERN Y ENERGY INS	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	199.0	<u>)</u> 175. ⁻	70 232210	A/P - CONCUR	6/28/2021	1012618407	zc	SAP Concur T&E	Emergency Managemen	t Fosdick:WEI Conference (o			
5000	sap concur t&e - cost center name: president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: txcpa annual membershij renewal, document header text: anderson:2021 6_june p-ca	•	6	CTR 71000	PRESIDEN & CEO	T TXCPA annual membership renewal	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		0 260.4	46 232210	A/P - CONCUR	6/28/2021	1012618442	zc	SAP Concur T&E	TXCPA annual membership renewal	Anderson:2021 6_June p-ca			
5000	sap concur t&e - cost center name: president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: delta sky club membership, document header text: anderson:2021 6_june p-ca		6	CTR 71000	PRESIDEN & CEO	T Delta Sky Club Membership	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	845.0) 746.I	06 232210	A/P - CONCUR	6/28/2021	1012618442	ZC	SAP Concur T&E	Delta Sky Club Membership	Anderson:2021 6_June p-ca			
5000	sap concur t&e - cost center name: land overhead, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: insruance market update document header text: walti:rims annual virtual		6	CTR 51020		PAYPAL *OREGON RIM	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	75.0	<u>)</u> 66.:	22 232210	A/P - CONCUR	6/28/2021	1012629913	ZC	SAP Concur T&E	Insruance Market Updat	e Walti:RIMS ANNUAL VIRTUAL			
5000	sap concur t&e - cost center name: corporate security, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: daily journal of commerce subscription, document header text: pipes june expenses (06/0	c I	6	CTR 51050		TE Daily Journal of Commerce subscription	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		0 219.	34 232210	A/P - CONCUR	6/29/2021	1012630068	ZC	SAP Concur T&E	Daily Journal of Commerce subscription	Pipes:June Expenses (06/0			
5000	sap concur t&e - cost center name: renewables, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nwga annual conference, document header text: johnson:may expenses (05/	•	6	CTR 43012	RENEWABL S	LE NWGA annual conference	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.0	<u>)</u> 91.1	32 232210	A/P - CONCUR	6/29/2021	1012630273	ZC	SAP Concur T&E	NWGA annual conference	Johnson:May Expenses (05/			
5000	sap concur t& - cost center name: renewables, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: portland business journal access for year, document header text: johnson:may expenses (05/		6	CTR 43012	RENEWABL S	LE Portland Business Journal access for year		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		<u>)</u> 110.3	36 232210	A/P - CONCUR	6/29/2021	1012630273	zc	SAP Concur T&E	Portland Business Journal access for year	Johnson:May Expenses (05/			
5000	sap concur t&e - cost center name: pub policy & gvrm af, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: westside economic alliance, document header text: carlson:may expenses (05/	c	6	CTR 52010		Y Westside Economic Alliance		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	10.0	<u>)</u> 8.1	33 232210	A/P - CONCUR	6/29/2021	1012632288	ZC	SAP Concur T&E	Westside Economic Alliance	Carlson:May Expenses (05/			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: chamber membership, document header text: reiten:april expenses (04		6	CTR 52020	COMM & CIVIC AFFAIRS	Chamber Membership	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		. 618.0	04 232210	A/P - CONCUR	6/29/2021	1012632289	ZC	SAP Concur T&E	Chamber Membership	Reiten:April Expenses (04			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name a/p - concur, description: coc celebration committee, document header text: paul;june ccc celebration	\$:	6	CTR 13400	CUST CONTACT CENTER	Amazon Prime	501900	DUES/MEMBE RSHIP	903	88% Customer-All	903-04280	CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.9	5 11.4	48 232210	A/P - CONCUR	6/30/2021	1012632658	zc	SAP Concur T&E	CCC Celebration Committee	Paul:June CCC Celebration			

Compan	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Flement	Cost element F name	FERC C	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation		Name of offsetting account	Posting Date	Document Number	Document	t Document Type Description	Name	Document Header Purchase order Purchasing PO Vendor Name Text text Document
5000	sap concur t&e - cost center name: svp util & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wallstreet journal, document header text: heiting:june expenses (06	2021	6		SVP UTIL & CHF MKTG		i 501900	DUES/MEMBE RSHIP	921	88% Customer-All		OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	4.00	3.53	3 232210	A/P - CONCUR	6/30/2021	1012632701	žc	SAP Concur T&E	Wallstreet Journal	Heiting:June Expenses (06
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: linkedin subscription, document header text: whitley:june report	2021	7		BUSINESS DEVELOPME NT		501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99			A/P - CONCUR	7/1/2021	1012634857	ZC	SAP Concur T&E	LinkedIn Subscription	Whitley:June Report
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description; wsj subscription, document header text: whitley:june report	2021	7		BUSINESS DEVELOPME NT	WSJ subscription	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	34.42	2 232210	A/P - CONCUR	7/1/2021	1012634857	ZC	SAP Concur T&E	WSJ subscription	Whitley:June Report
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: linkedin subscription, document header text: whitley:june report		7		BUSINESS DEVELOPME NT		501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99			A/P - CONCUR	7/1/2021	1012634857	zc	SAP Concur T&E	LinkedIn Subscription	Whitley:June Report
5000	sap concur t&e - cost center name: cash management, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name: a/p - concur, description: ieca certification course, document header text: minty.may expenses (05/01		7	CTR 42030	CASH MANAGEME NT	IECA Certification Course	n 501900	DUES/MEMBE RSHIP	903			CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C				A/P - CONCUR	7/1/2021	1012634937	zc	SAP Concur T&E	IECA Certification Course	Minty:May Expenses (05/01
5000	sap concur t&e - cost center name: damage prevention, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision-office st, account name: a/p - concur, description: aga webinar on damage prevention, document header text: lemke:may 2021 expenses		7	CTR 15515		AGA webinar on damage preventic		DUES/MEMBE RSHIP	885	94% Customer-All	885-01505	DISTRB MAINTENANCE SUPERVISION-OFFICE ST	300.00	281.18	3 232210	A/P - CONCUR	7/2/2021	1012637895	zc	SAP Concur T&E	AGA webinar on damage prevention	e Lemke:May 2021 Expenses
5000	sap concur t&e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: cpa license renewal - cc fee, document header text: borgerson;june		7	CTR 42020	ТАХ	Oregon Board of Accountancy (BOA)	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1.00	0.88	3 232210	A/P - CONCUR	7/2/2021	1012637897	ZC	SAP Concur T&E	CPA License renewal - CC fee	Borgerson:June
5000	sap concur t& e - cost center name: tax, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: cpa license renewal - andrea jung, document header text: borgerson;june	2021	7	CTR 42020	ТАХ	Oregon Board of Accountancy (BOA)	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.00	225.14	232210	A/P - CONCUR	7/2/2021	1012637897	ZC	SAP Concur T&E	CPA License renewal - Andrea Jung	Borgerson:June
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: west columbia gorge membership dues, document header text: nelson:june expenses (06/		7		CIVIC AFFAIRS	West Columbia Gorge Membersh Dues		DUES/MEMBE RSHIP	921			OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012637920			West Columbia Gorge Membership Dues	Nelson:June Expenses (06/
5000	Sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: tigard chamber membership dues, documen header text: nelson.june expenses (06/	:	7		CIVIC AFFAIRS	Tigard Chamber Membership Dues	s	DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012637920		SAP Concur T&E	Membership Dues	Nelson:June Expenses (06/
5000	sap concur t&e - cost center name: cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: a/p - concur, description: membership de ues reimbursement, document header text: lange:june expenses (06/0		7			WPY*OREGON APEM	501900	DUES/MEMBE RSHIP	908	88% Customer-All	908-04660	CUSTOMER ASSISTANCE EXPENSE-MAJ ENERGY S	-125.00	(109.81)) 232210	A/P - CONCUR	7/2/2021	1012639293	zc	SAP Concur T&E	Memebership De ues reimbursement	Lange:June Expenses (06/0

Compar Code	ny Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element FERC	OR Allocation	Allocation	Order	FERC Account Name/Internal Sy Order Name		Off ocation acc	setting Name of offsetting	Posting Date	Document Number	Document	Document Type Description	Name	Document Header	Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: comm & civic affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: east portlan chamber membership, document header text: nelson:june expenses (06/	2021	7	CTR 52020		East Portland Chamber Membership			21 88%		921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN			2210 A/P - CONCUR		1012651702	ZC		East Portland Chamber Membership	TOM			
5000	sap concur t&e - cost center name: env policy and sustn, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: subscription for online invitations, document header text: muirhead;june expenses	ו	7	CTR 55010	ENV POLICY AND SUSTN	PUNCHBOWL.CO M	O 501900	DUES/MEMBE 9 RSHIP	21 88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	35.88	31.68 232	2210 A/P - CONCUR	7/6/2021	1012651704	ZC	SAP Concur T&E	Subscription for online invitations	Muirhead:June Expenses			
5000	sap concur t&e - cost center name: employment, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: linkedin advertising license, document header text: hecht.june expenses (06/0		7	CTR 31100	EMPLOYMEN T	I LinkedIn Advertising Licen		DUES/MEMBE 9 RSHIP	21 88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	119.95	105.90 232	2210 A/P - CONCUR	7/6/2021	1012651710	ZC	SAP Concur T&E	LinkedIn Advertising License	Hecht:June Expenses (06/0			
5000	sap concur t&e - cost center name: system ops, cost element name: dues/membership, ferc accounting name: maint-mtrs and house rgtr- meter painti, account name: a/p - concur, description: twic renewal for mkj, document header text: jamison;june expenses (06	2021	7	CTR 11100	SYSTEM OPS	IDENTOGO- IDEMIA TS	501900	DUES/MEMBE 8 RSHIP	93 89%	Customer-All	893-01345	MAINT- MTRS AND HOUSE RGLTR-METER PAINTI	125.25	111.80 232	2210 A/P - CONCUR	7/8/2021	1012671283	ZC	SAP Concur T&E	TWIC renewal for MKJ	Jamison:June Expenses (06			
5000	sap concur t&e - cost center name: consmr info-inth sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: ulr registration renewals, document header text: beck:june expenses (06/01		7	CTR 11550	CONSMR INFO-INTNT SR	WEB*REGISTER WEBSIT	२ 501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	28.00	24.71 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	URL registration renewals	Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: consmr info-inth sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: stock imagery for website, document header text: beck:june expenses (06/01	-	7	CTR 11550	CONSMR INFO-INTNT SR	CKO*WWW.ISTC CKPHOT	D 501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	65.00	57.36 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	Stock imagery for website	Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: social media tracking service, document header text: beck:june expenses (06/01	ə:	7	CTR 52040	CORPORATE COMMUNICA T	HOO*HOOTSUIT	TE 501900	DUES/MEMBE 9 RSHIP	21 88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	5.99	5.29 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	Social media tracking service	Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: consmr info-intt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: less we can web hosting, document header text: beck:june expenses (06/01	-	7	CTR 11550	CONSMR INFO-INTNT SR	AMAZON WEB SERVICE	501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	98.62	87.03 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	Less We Can web hosting	Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: consmr info-intn sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: video hosting for website, document header text: beck:june expenses (06/01	-	7	CTR 11550	CONSMR INFO-INTNT SR	WISTIA, INC.	501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	7.25	6.40 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	video hosting for websit	e Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description. un registration renewal, document header text: beck:june expenses (06/01	1	7	CTR 11550	CONSMR INFO-INTNT SR		7.C 501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	29.16	25.73 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	URL registration renewa	al Beck:June Expenses (06/01			
5000	sap concur t&e - cost center name: consmr info-inth sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: web url registration, document header text: beck:june expenses (06/01	1	7	CTR 11550	CONSMR INFO-INTNT SR	WEB*REGISTER WEBSIT	₹ 501900	DUES/MEMBE 9 RSHIP	09 88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	6.00	5.30 232	2210 A/P - CONCUR	7/8/2021	1012671455	ZC	SAP Concur T&E	Web url registration	Beck:June Expenses (06/01			

mpany de	y Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADD			ost lement	Cost element F name	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation	Offsetti acct no	ng Name of offsetting account	Posting Date	Document Number	Documer type	t Document Type Description	Name	Document Header Text	Purchase order text	Purchasing Document	PO Vendor Name
00	sap concur t&e - cost center name: occupational safety, cost element name: dues/membership, ferc accounting name: office staffing & expense-safety sal/exp, account name: a/p - concur, description: subscription dues, document header text: sikel:july expenses (07/0	2021	7	CTR 51010	OCCUPAT	TO AMERICA			DUES/MEMBE RSHIP	921	88% Customer-All	921-01590	OFFICE STAFFING & EXPENSE-SAFETY SAL/EXP	245.0			A/P - CONCUR	7/16/202	1 101269298	9 ZC	SAP Concur T&E	Subscription Dues	Sikel:July Expenses (07/0			
0	sap concur t&e - cost center name: cust acq mrktg conv, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: annual membership dues, document header text: barrowjune 2021 expense	2021	7	CTR 11330	CUST ACC MRKTG CONV	Q IN *ORAC	CA	501900	DUES/MEMBE RSHIP	912	88% Customer-All	912-05015	DEMONSTRATION & SELLING EXP-NEW CONSTRUC	3,500.0	0 3,092.	81 232210	A/P - CONCUR	7/19/202	1 101269563	7 ZC	SAP Concur T&E	Annual membership dues	Barrow:June 2021 Expense			
)	expense sap concur t&e - cost center name: cust acq mrktg conv, cost element name: dues/membership, ferc accounting name: demonstration & selling exp-new construc, account name: a/p - concur, description: monthly members meeting, documen header text: barrow:june 2021 expense	2021 t	7	CTR 11330	CUST ACC MRKTG CONV	ASSO	JILDERS		DUES/MEMBE RSHIP	912	88% Customer-All	912-05015	5 DEMONSTRATION & SELLING EXP-NEW CONSTRUC	10.0	0 8.	84 232210	A/P - CONCUR	7/19/202	1 101269563	7 ZC	SAP Concur T&E	Monthly members meeting	Barrow:June 2021 Expense			
D	sap concur t&e - cost center name: gas acq & pipe svce, cost element name: dues/membership, ferc accounting name: trnsmsn main supervision exp-gas acq & p, accour name: a/p - concur, description: aicge annual membership fee, document header text: carl;jul-21 expense repor	nt a	7	CTR 11150		& AICPA An E Membersł		501900	DUES/MEMBE RSHIP	870	92% Customer-All	870-04415	TRNSMSN MAIN SUPERVISION EXP-GAS ACQ & P	295.0	0 270.	00 232210	A/P - CONCUR	7/22/202	1 101270203	5 ZC	SAP Concur T&E	AICPA Annual Membership Fee	Carl:Jul-21 Expense Repor			
0	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/p - concur, description: company purchases, document header text: fuller.june expenses (06/	2021	7	CTR 16100	FACILITIE	S AMAZON PRIME*7U		501900	DUES/MEMBE RSHIP	935	89% Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.9	9 11.	62 232210	A/P - CONCUR	7/23/202	1 101270510	7 ZC	SAP Concur T&E	Company Purchases	Fuller:June Expenses (06/			
)	sap concur t&e - cost center name: engineering svces or, cost element name: dues/membership, ferc accounting name: distb maintenance supervision-supervisi, account name a/p - concur, description: virtual conference, document header text: vangordon:july expenses (7	CTR 15100		RIN WPY*WE	STERN		DUES/MEMBE RSHIP	885	94% Customer-All	885-01630	DISTRB MAINTENANCE SUPERVISION-SUPERVISI	99.0	0 92.	79 232210	A/P - CONCUR	7/23/202	1 101270511	9 ZC	SAP Concur T&E	Virtual Conference	VanGordon:July Expenses (
)	sap concur t&e - cost center name: mist ugs, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision supervisi, account name: a/p - concur, description: professional due american assoc petroleum geologi, document header text: roth:july expenses (07/01		7	CTR 11600	MIST UGS	Professior American Petroleum	Assoc		DUES/MEMBE RSHIP	885	94% Customer-All	885-01633	DISTRB MAINTENANCE SUPERVISION-SUPERVISI	125.0	0 117.	16 232210	A/P - CONCUR	7/23/202	1 101270685	6 ZC	SAP Concur T&E	Professional Dues- American Assoc Petroleum Geologi	Roth:July Expenses (07/01			
1	sap concur t&e - cost center name: mist ugs, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision supervisi, account name: a/p - concur, description: professional license renewal, document header text: roth;july expenses (07/01	2021 n-	7	CTR 11600	MIST UGS	DOL - PROFESS	SIONAL		DUES/MEMBE RSHIP	885	94% Customer-All	885-01633	B DISTRB MAINTENANCE SUPERVISION-SUPERVISI	116.0	0 108.	72 232210	A/P - CONCUR	7/23/202	1 101270685	6 ZC	SAP Concur T&E	Professional License Renewal	Roth:July Expenses (07/01			
	sap concur t&e - cost center name: res consumer service, cost element name: dues/membership, ferc accounting name: misc customer service-office staffing &, account name: a/p - concur, description: onlin business subscription for team, document header text: downing;july 2021 expense		7	CTR 11410		THE BUS JORNAL	INESS		DUES/MEMBE RSHIP	910	88% Customer-All	910-01505	MISC CUSTOMER SERVICE OFFICE STAFFING &	990.0	0 872.	49 232210	A/P - CONCUR	7/23/202	1 101270686	3 ZC	SAP Concur T&E	Online Business subscription for team	Downing:July 2021 Expense			
I	sap concur t&e - cost center name: engineering svces or, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision-supervisi, account name a/p - concur, description: renewal of pe license, document header text: haley:july expenses (07/0		7	CTR 15100	ENGINEEI G SVCES	RIN OSBEELS OR	5		DUES/MEMBE RSHIP	885	94% Customer-All	885-01630	DISTRB MAINTENANCE SUPERVISION-SUPERVISI	190.0	0 178.	08 232210	A/P - CONCUR	7/26/202	1 101270864	1 ZC	SAP Concur T&E	renewal of PE license	Haley:July Expenses (07/0			
)	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: a/ρ - concur, description: lunch for team, document header text: fuller:july expenses (07/		7	CTR 16100	FACILITIE MGMNT	S BRIDGE (CAFE	CITY		DUES/MEMBE RSHIP	935	89% Customer-All	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	22.9	0 20.	49 232210	A/P - CONCUR	7/26/202	1 101270871	2 ZC	SAP Concur T&E	Lunch for team	Fuller:Juły Expenses (07/			

Company	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element	FERC OR Allocati		Allocation Factor	Order	FERC Account Name/Internal S Order Name		R Offsetting llocation acct no.	Name of offsetting	Posting Date	Document Number	Document	Document Type Description	Name	Document Header Text	Purchase order	Purchasing I Document	PO Vendor Name
5000	sap concur t&e - cost center name: strategic planning, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: timeline software for presentations and project mg, document header text: linver;june expenses (06/	2021 e:	7	CTR 45010		OFFICETIMELINI K5VU		RSHIP	921			921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	99.00	87.41 232210			1012712774	-7F		Timeline software for presentations and project mg	Linver:June		- Journel It	
5000	experises (uo/ sap concur t& - cost center name: legacy env. program, cost element name: dues/membership, ferc accounting name: maintenance of general plant-office staf, account name: a/p - concur, description: professional license, document header text: wyatt.july department (07	2021	7	CTR 15502	LEGACY ENV. PROGRAM	NC BOARD LIC GEOLO	501900	DUES/MEMBE RSHIP	935	89% C	Customer-All	935-01505	MAINTENANCE OF GENERAL PLANT-OFFICE STAF	85.00	76.05 232210	A/P - CONCUR	7/27/2021	1012716916	ZC	SAP Concur T&E	Professional License	Wyatt:July Department (07			
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: cpa renewal, document header text: faulk:july expenses (07/0		7	CTR 42010	ACCOUNTIN G	Oregon Board of Accountancy (BOA)	501900	DUES/MEMBE RSHIP	921	88% C	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.00	225.14 232210	A/P - CONCUR	7/27/2021	1012716921	ZC	SAP Concur T&E	CPA Renewal	Faulk:July Expenses (07/0			
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description, payment processing for cpa subscription, document header text: faulk;july expenses (07/0		7	CTR 42010	ACCOUNTIN G	Oregon Board of Accountancy (BOA)	501900	DUES/MEMBE RSHIP	921	88% C	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1.00	0.88 232210	A/P - CONCUR	7/27/2021	1012716921	zc	SAP Concur T&E	Payment processing for CPA subscription	Faulk:July Expenses (07/0			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: customer assistance expense-conversion, account name: a/p - concur, description: engineering society membership - networking, stand, document header text: duell:ashrae expense (07/	2021	7	CTR 11515		Engineering socie / membership - networking, stand	-	DUES/MEMBE RSHIP	908	88% C	Customer-All	908-05020	CUSTOMER ASSISTANCE EXPENSE-CONVERSION	285.00	250.36 232210	A/P - CONCUR	7/28/2021	1012717291	zc	SAP Concur T&E	Engineering society membership - networking, stand	Duell:ASHRAE Expense (07/			
5000	sap concur t&e - cost center name: president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: online magazine renewal 6/12/21-6/11/22, document header text: anderson:2021 7_july p-ca	I	7		& CEO	THE ECONOMIS		RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	149.00	131.55 232210			1012717390			Online magazine renewa 6/12/21-6/11/22	7_July p-ca			
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: chartered accountant annual membership fee, document header text: hayson:july expenses (07	e	7		ACCOUNTIN G	Accountant Annua Membership fee	al	DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	7.73		A/P - CONCUR	7/28/2021	1012717554	ZC		Chartered Accountant Annual Membership fee				
5000	sap concur t&e - cost center name: accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: chartered accountants annual membership, document heade text: hayson;july expenses (07/		7		ACCOUNTIN G	Accountants Annual Membership		DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	515.65	455.27 232210			1012717554			Chartered Accountants Annual Membership	Hayson:July Expenses (07/			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: website video hosting fee, document header text: beck:july expenses (07/01	-	7	CTR 11550	INFO-INTNT SR	WISTIA, INC.		DUES/MEMBE RSHIP					INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	7.75		A/P - CONCUR		1012718882			fee	Beck:July Expenses (07/01			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: un' registration fees, document header text: beck:july expenses (07/01	-	7		INFO-INTNT SR			RSHIP					INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	6.00		A/P - CONCUR		1012718882				Beck:July Expenses (07/01			
5000	sap concur t&e - cost center name: consmr info-intrt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: video hosting for videos, document header text: beck:july expenses (07/01	-	7	CTR 11550	CONSMR INFO-INTNT SR	VIMEO PLUS	501900	DUES/MEMBE RSHIP	909	88% C	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	84.00	74.13 232210	A/P - CONCUR	7/29/2021	1012718882	zc	SAP Concur T&E	Video hosting for videos	Beck:July Expenses (07/01			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element	FERC OF	R Allocation	Allocation	Order	FERC Account Name/Internal S				Name of offsetting	Posting	Document		Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	7	CTR 11550	Name (ADDED) CONSMR	CKO*WWW.ISTO		name DUES/MEMBE	909	88%	Factor Customer-All	909-23000	Order Name V INFO & INSTRUCTIONAL	alue A 65.00	Ilocation ad 57.36 23		account A/P - CONCUR	Date 7/29/2021	Number 1012718882	type ZC	Description SAP Concur T&E	stock photography for	Text Beck:July	text	Document	
	consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p - concur, description: stock photography for website, document header text: beck:july expenses (07/01				INFO-INTNT SR	СКРНОТ		RSHIP					ADVRT-UTILITY INFOR									website	Expenses (07/01			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: social media monitoring service, document header text: beck:july expenses (07/01	2021	7	CTR 52040	CORPORATE COMMUNICA T	HOO*HOOTSUITE	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	75.00	66.22 23	32210	A/P - CONCUR	7/29/2021	1012718882	zc	SAP Concur T&E	Social media monitoring service	Beck:July Expenses (07/01			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p - concur, description: less we can website hosting, document header text: beck:july expenses (07/01	2021	7	CTR 11550	CONSMR INFO-INTNT SR	AMAZON WEB SERVICE	501900	DUES/MEMBE RSHIP	909	88%	Customer-All	909-23000	INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	95.03	83.86 23	32210	A/P - CONCUR	7/29/2021	1012718882	zc	SAP Concur T&E	Less We Can Website hosting	Beck:July Expenses (07/01			
5000	sap concur t&e - cost center name: svp util & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: digital subscription, document header text:	2021	7	CTR 73000	SVP UTIL & CHF MKTG	D J*WALL-ST- JOURNA	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	4.00	3.53 23	32210	A/P - CONCUR	7/29/2021	1012720071	ZC	SAP Concur T&E	Digital subscription	Heiting:July P- Card (07/0			
5000	heiting;july p-card (07/0 sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-employee, account name: a/p - concur, description: annual renewal w@w, document header text: jordan:niki jordan - july	2021	7	CTR 36000	COMP & ADMIN	Annual Renewal W@W	501900	DUES/MEMBE RSHIP	926	93%	Customer-All	926-02200	EMPLOYEE PENSIONS AND BENEFITS-EMPLOYEE	265.00	246.36 23	32210	A/P - CONCUR	7/30/2021	1012720713	zc	SAP Concur T&E	Annual Renewal W@W	Jordan:Niki Jordan - July			
5000	sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: advertising expenses-office staffing & e, account name: a/p - concur, description: job posting, document header text: jordan:july 2021 - talent	2021	7	CTR 36000		AMERICAN GAS ASSOC	501900	DUES/MEMBE RSHIP	913	88%	Customer-All	913-01505	ADVERTISING EXPENSES- OFFICE STAFFING & E	196.00	172.97 23	32210	A/P - CONCUR	7/30/2021	1012720716	ZC	SAP Concur T&E	Job posting	Jordan:July 2021 - Talent			
5000		2021	7	CTR 52010	PUB POLICY & GVRM AF	NW Gas Association Annual meeting		DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00	91.82 50	07500	CORPORATE IDENTITY	7/30/2021	1012723595	ZC	SAP Concur T&E	NW Gas Association Annual meeting	Carlson:June Expenses (06			
5000	sap concur t&e - cost center name: pub policy & gvrm af, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: corporate identity, description: westside economic alliance forum, document header text: carlson;june expenses (06	2021	7	CTR 52010	PUB POLICY & GVRM AF	Westside Economic Alliance Forum	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	10.00	8.83 50	07500	CORPORATE IDENTITY	7/30/2021	1012723595	ZC	SAP Concur T&E	Westside Economic Alliance Forum	Carlson:June Expenses (06			
5000	sap concur t&e - cost center name: cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas sv-c-, account name: a/p - concur, description: ccc celebration committee, document header text. paul:july celebration exp	2021	8	CTR 13400	CONTACT CENTER	Amazon Prime		DUES/MEMBE RSHIP					CUSTOMER RECORDS & COLLECTIONS-GAS SVC-C	12.99			A/P - CONCUR		1012730382		SAP Concur T&E	Committee	Paul:July Celebration Exp			
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, descriptior: conference registration, document header text: lee-pella:june 2021 pcard	2021	8		Y AFFAIRS			DUES/MEMBE RSHIP					OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	54.56			A/P - CONCUR		1012741313			Conference registration	2021 PCard			
5000	sap concur t&e - cost center name: regulatory affairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: conference registration, document header text: lee-pella:june 2021 pcard	2021	8	CTR 53010	REGULATOR Y AFFAIRS	AEC21* 2021 VIRTUA	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	104.00	91.82 23	32210	A/P - CONCUR	8/3/2021	1012741313	ZC	SAP Concur T&E	Conference registration	Lee-Pella:June 2021 PCard			

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost		FERC	OR Allocation Allocation	Order	FERC Account Name/Internal		OR		Name of offsetting	Posting	Document		Document Type	Name		Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	8	CTR 53010		OR NATL ASSN REG	G 50190	0 DUES/MEMB	E 921	Factor 88% Customer-All	921-01505	Order Name OFFICE STAFFING &		Allocation 542.99		A/P - CONCUR	Date 8/3/2021	Number 1012741313	type ZC	Description SAP Concur T&E	Conference Registration		text	Document	
	regulatory affairs, cost element name dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: <i>aip</i> - concur, description: conference registration, document header text: lee-pella.june 2021 pcard	e			Y AFFAIRS	UTIL		RSHIP				EXPENSE-OFFICE STAFFIN										2021 PCard			
	sap concur t&e - cost center name: system ops, cost element name: dues/membership, ferc accounting name: maint- mtrs and house rgltr- meter painti, account name: a/p - concur, description: twic card for sys ops employee, document header text jamison:july expenses (07		8	CTR 11100	SYSTEM OPS	IDENTOGO- IDEMIA TS	50190	0 DUES/MEMB	E 893	89% Customer-All	893-01345	MAINT- MTRS AND HOUSE RGLTR-METER PAINTI	125.2	5 111.80	232210	A/P - CONCUR	8/4/2021	1012764064	ZC	SAP Concur T&E	TWIC card for Sys Ops employee	Jamison:July Expenses (07			
	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: amazon prime membership, documen header text: felix.july expenses		8	CTR 51045		Amazon Prime TY membership	50190	0 DUES/MEMB	E 921	88% Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.9			A/P - CONCUR	8/9/2021	1012775747	zc	SAP Concur T&E	Amazon Prime membership	Felix:July Expenses			
	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, forc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: amazon prime membership, documen header text: felixjuly expenses		8	CTR 51045	BUSINESS CONTINUI	Amazon Prime TY Membership	50190	0 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	12.9	9 11.4	7 232210	A/P - CONCUR	8/9/2021	1012775747	zc	SAP Concur T&E	Amazon Prime Membership	Felix:July Expenses			
	sap concur t&e - cost center name: business continuity, cost element name: dues/membership, ferc accounting name: office staffing & expense-homeland secur, account name: a/p - concur, description: cem membership, document header text: felix.july expenses		8	CTR 51045	BUSINESS CONTINUI			0 DUES/MEMBE RSHIP		88% Customer-All	921-01207	OFFICE STAFFING & EXPENSE-HOMELAND SECUR	100.0	0 88.29	9 232210	A/P - CONCUR	8/9/2021	1012775747	ZC	SAP Concur T&E	OEMA Membership	Felix:July Expenses			
	sap concur t&e - cost center name: s vp & gen counsel, cost element name dues/membership, fera caccounting name: office staffing & expense-office staffin, account name: a/p - concur, description: the corporate board subscription, document header text: saathoff.july p-card (07/	e:	8	CTR 76000	SR VP & GEN COUNSEL	The Corporate Board subscriptio		0 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	630.0	556.2	3 232210	A/P - CONCUR	8/9/2021	1012775865	ZC	SAP Concur T&E	The Corporate Board subscription	Saathoff:July P- Card (07/			
	sap concur t&e - cost center name: legal, cost element name: dues/membership, fera accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: legal amazon subscriptio fees, document header text: chand.roselene - july/aug	e	8	CTR 54010	LEGAL	Legal Amazon Subscription fees		0 DUES/MEMBI RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.9	9 11.4	7 232210	A/P - CONCUR	8/20/2021	1012806898	zc	SAP Concur T&E	Legal Amazon Subscription fees	Chand:Roselene July/Aug			
	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: monthly amazon subscription fees for legal, document header text: chand:roselene - july/aug	9	8	CTR 54010	LEGAL	Monthly Amazon Subscription Fee for Legal		10 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	12.9	9 11.47 11.47	7 232210	A/P - CONCUR	8/20/2021	1012806898	ZC	SAP Concur T&E	Monthly Amazon Subscription Fees for Legal	Chand:Roselene July/Aug			
	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: monthly pacer subscription fees, document header text: chand.roselene - july/aug	e	8	CTR 54010	LEGAL	Monthly PACER Subscription fees		10 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		<u>)</u> 41.06	5 232210	A/P - CONCUR	8/20/2021	1012806898	ZC	SAP Concur T&E	Monthly PACER Subscription fees	Chand:Roselene			
	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: texas state bar membership fees for missy, documer header text: chand:roselene - july/aug	e	8	CTR 54010	LEGAL	Texas State Bar membership fees for Missy		0 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	55.0	0 48.56	3 232210	A/P - CONCUR	8/20/2021	1012806898	zc	SAP Concur T&E	Texas State Bar membership fees for Missy	Chand:Roselene July/Aug			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: monthly legal ojin fees, document header text: chand:roselen - july/aug	e	8	CTR 54010	LEGAL	Monthly legal OJ fees	IN 50190	0 DUES/MEMBE RSHIP	E 921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN		57.39	9 232210	A/P - CONCUR	8/20/2021	1012806898	zc	SAP Concur T&E	Monthly legal OJIN fees	Chand:Roselene July/Aug			

Compar	vy Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element FEF	RC OR Allocation	Allocation	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation	Offsetting	Name of offsetting account	Posting Date	Document Number	Document Document Type type Description	Name	Document Heade	Purchase order	Purchasing Document	PO Vendor Name
5000	sap concur t&e - cost center name: cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: <i>a/p</i> - concur, description: business journal power breakfast speaker, document header text: edwards:july expenses (07	2021	8	CTR 11325		Business Journal Power Breakfast Speaker		DUES/MEMBE RSHIP	908 88'		908-04660	CUSTOMER ASSISTANCE EXPENSE-MAJ ENERGY S				A/P - CONCUR		1012815062		Business Journal Powe Breakfast Speaker	r Edwards:July Expenses (07		Document	
5000	sap concur t&e - cost center name: cust seg srvc, cost element name: dues/membership, ferc accounting name: customer assistance expense- maj energy s, account name: a/p concur, description: annual dues, document header text: lange:july expenses (07/0	2021	8	CTR 11325	CUST SEG SRVC	ROTARY CLUB O PORTLAND	F 501900	DUES/MEMBE RSHIP	908 88'	% Customer-Al	908-04660	CUSTOMER ASSISTANCE EXPENSE-MAJ ENERGY S	550.00	483.10	6 232210	A/P - CONCUR	8/24/2021	1012817965	ZC SAP Concur T&E	Annual Dues	Lange:July Expenses (07/0			
5000	sap concur t&e - cost center name: facilities mgmnt, cost element name: dues/membership, ferc accounting name: maintenance of general plant- maintenance, account name: <i>a/p</i> - concur, description: company purchases, document header text: fuller:july expenses (07/		8	CTR 16100	FACILITIES MGMNT	AMAZON PRIME*7U6RP	501900	DUES/MEMBE RSHIP	935 89	% Customer-Al	935-01295	MAINTENANCE OF GENERAL PLANT- MAINTENANCE	12.99	11.62	2 232210	A/P - CONCUR	8/26/2021	1012819620	ZC SAP Concur T&E	Company Purchases	Fuller:July Expenses (07/			
5000	sap concur t&e - cost center name: v chf hr&dvry off, cost element name: dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: annual membership fee, document header text: carpio:august expenses fo	9	8	CTR 77000		PP*PARTNERS IN DIV	501900	DUES/MEMBE RSHIP	921 88'	Customer-Al	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,000.00	882.9	1 232210	A/P - CONCUR	8/27/2021	1012821284	ZC SAP Concur T&B	Annual membership fee	Carpio:August Expenses fo			
5000	sap concur t&e - cost center name: v chf hr&dvry off, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual subscription for partners in diversity, document heade text: carpio:august expenses fo	3	8	CTR 77000		Annual subscription for Partners in Diversity	501900	DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR	8/27/2021	1012821284	ZC SAP Concur T&E	Annual subscription for Partners in Diversity	Carpio:August Expenses fo			
5000	sap concur t&e - cost center name: corp ethics & compl, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: annual membership dues for shawn filippi an mardi, document header text: filippi august expenses	e:	8	CTR 46030	ETHICS & COMPL	SOCIETY OF CORPORA		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN				A/P - CONCUR		1012823052		Dues for Shawn Filippi and Mardi	Filippi:August Expenses			
5000	sap concur t&e - cost center name: res consumer service, cost element name: dues/membership, ferc accounting name: misc customer service-office staffing &, account name: a/p - concur, description: builder assc. membership dues, document header text: downing:august 2021 expen	2021	8	CTR 11410		Builder Assc. Membership Dues) DUES/MEMBE RSHIP	910 88	% Customer-Al	I 910-01505	MISC CUSTOMER SERVICE- OFFICE STAFFING &	70.00	61.69	9 232210	A/P - CONCUR	8/31/2021	1012827992	ZC SAP Concur T&E	Builder Assc. Membership Dues	Downing:August 2021 Expen			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: linkedin subscription, document header text: whitley:july expenses (07	2021	9	CTR 43010	BUSINESS DEVELOPMENT	LinkedIn subscription	501900	DUES/MEMBE RSHIP	921 88'	% Customer-Al	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	29.99	26.4	8 232210	A/P - CONCUR	44440	1012835729	ZC SAP Concur T&E	LinkedIn subscription	Whitley:July Expenses (07			
5000	sap concur t&e - cost center name: business development, cost element name: dues/membership, førc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: waj subscription, document header text: whitley:july expenses (07		9	CTR 43010	BUSINESS DEVELOPMENT	WSJ Subscription	501900	DUES/MEMBE RSHIP	921 88'	% Customer-Al	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	34.42	2 232210	A/P - CONCUR	44440	1012835729		WSJ Subscription	Whitley:July Expenses (07			
5000	sap concur t&e - cost center name: claims overhead, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nacm training, document header text: baxter:august 2021 baxt	: er		CTR 51065		NACM Training		DUES/MEMBE RSHIP				OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	39.00			A/P - CONCUR		1012859049	ZC SAP Concur T&E	NACM Training	Baxter:August 2021 Baxter			
5000	sap concur t&e - cost center name: legacy env. program, cost element name: dues/membership, ferc accounting name: maintenance of general plant-office staf, account name: a/p - concur, description: professional license, document header text: wyatt:august department e		9	CTR 15502	LEGACY ENV. PROGRAM	PA BPOA PROF LICEN	501900	DUES/MEMBE RSHIP	935 89	% Customer-Al	I 935-0150 5	MAINTENANCE OF GENERAL PLANT-OFFICE STAF	100.00	89.4	7 232210	A/P - CONCUR	44446	1012859050	ZC SAP Concur T&E	Professional License	Wyatt:August Department E			

Cor	pany Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center Name (ADDED)	Organization	Cost Element	Cost element F	ERC	DR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$ Value	OR Allocation		Name of offsetting account	Posting Date	Document Number	Document	t Document Type Description	Name	Document Header Purchase order Text text	Purchasing I Document	PO Vendor Name
500	sap concur t&e - cost center name: facilities mgmnt, cost element name	2021	9	CTR 16100	Name (ADDED)	AMAZON PRIME*7U6RP		DUES/MEMBE RSHIP	935		935-01295	MAINTENANCE OF GENERAL PLANT-	12.99			A/P - CONCUR		1012859067	ZC	- 500194011	Company Purchases	Fuller:August Expenses (0	Doounon	
	dues/membership, ferc accounting name: maintenance of general plant					PRIME-706RP		RSHIP				GENERAL PLANT- MAINTENANCE										Expenses (0		
	maintenance, account name: a/p - concur, description: company																							
	purchases, document header text: fuller:august expenses (0				FACILITIES																			
500		2021	9	CTR 13400	MGMNT	Amazon Prime	501000	DUES/MEMBE	903	88% Customer All	903-04280	CUSTOMER RECORDS &	12.99	11.4	8 232210	A/P - CONCUR	AAA47	1012870772	70	SAP Concur T&E	CCC Celebration	Paul:August		
300	cust contact center, cost element name: dues/membership, ferc	2021	Ĩ	511110400		, mazon r illie	301900	RSHIP	505	0070 Castomer-All	300-0420U	COLLECTIONS-GAS SVC-C	12.99	11.4	- 2022 IU		44447	.012010112	20		Committee	Celebration E		
	accounting name: customer records collections-gas svc-c, account name																							
	a/p - concur, description: ccc celebration committee, document																							
	header text: paul:august celebration	ne			CUST CONTACT	r														SAP Concur T&E				
500	sap concur t&e - cost center name: business development, cost elemen		9	CTR 43010		WSJ subscription	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	38.99	34.4	2 232210	A/P - CONCUR	44447	1012870825	ZC	concar fac	WSJ subscription	Whitley:August Expenses (
	name: dues/membership, ferc accounting name: office staffing &																					, (
	expense-office staffin, account nam a/p - concur, description: wsj	ne:																						
	subscription, document header text: whitley:august expenses (:			BUSINESS																			
500		2021	9	CTR 43010	DEVELOPMENT	LinkedIn	501900	DUES/MEMBE	921	88% Customer-All	921-01505	OFFICE STAFFING &	29.99	26.4	8 232210	A/P - CONCUR	44447	1012870825	ZC	SAP Concur T&E	LinkedIn subscription	Whitley:August		
	business development, cost elemen name: dues/membership, ferc					subscription		RSHIP				EXPENSE-OFFICE STAFFIN										Expenses (
	accounting name: office staffing & expense-office staffin, account nam	ne:																						
	a/p - concur, description: linkedin subscription, document header text:	:																						
	whitley:august expenses (BUSINESS DEVELOPMENT															SAP Concur T&E				
500	pub policy & gvrm af, cost element	2021	9	CTR 52010		REGISTER GUARD	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	(9.99)	(8.82	2) 501500	MILEAGE REIMBURSI	E 44447	1012870954	ZC		Newspaper Delivery	Ramos Jr:August Mileage		
	name: dues/membership, ferc accounting name: office staffing &																							
	expense-office staffin, account nam mileage reimburse, description:																							
	newspaper delivery, document head text: ramos jr:august mileage	aer			PUB POLICY &															CAD C:				
500		2021	9	CTR 52010	GVRM AF	Digital Access to	501900	DUES/MEMBE	921	88% Customer-All	921-01505	OFFICE STAFFING &	9.99	8.8	2 E1100002	ANTHONY RAMOS JR	44447	1012870954	ZC	SAP Concur T&E	Digital Access to	Ramos Jr:August		
	pub policy & gvrm af, cost element name: dues/membership, ferc					Register Guard		RSHIP				EXPENSE-OFFICE STAFFIN			9						Register Guard	Mileage		
	accounting name: office staffing & expense-office staffin, account nam																							
	anthony ramos jr, description: digital access to register guard, document																							
500	header text: ramos jr:august mileage		9	CTR 52010	PUB POLICY & GVRM AF	Home deliverant (E04000	DUESMEMO	921	900/ 0 *"	021 04505	OFFICE STAFFING &	13.00		8 E1100000	ANTHONY RAMOS JR		1012870954	70	SAP Concur T&E	Home delivery of	Pamos Ir:August		
500	sap concur t&e - cost center name: pub policy & gvrm af, cost element name: dues/membership, ferc	2021	9	GTR 52010		Home delivery of Register Guard	501900	DUES/MEMBE RSHIP	921	00% Customer-All	921-01505	EXPENSE-OFFICE STAFFIN	13.00	11.4	9	ANT HUNT KAMUS JH	44447	10126/0954	20		Home delivery of Register Guard	Ramos Jr:August Mileage		
	name: dues/membersnip, ferc accounting name: office staffing & expense-office staffin, account nam	ne:																						
	anthony ramos jr, description: home delivery of register guard, document	•																						
	header text: ramos jr:august mileage				PUB POLICY & GVRM AF															SAP Concur T&E				
500	sap concur t&e - cost center name: pub policy & gvrm af, cost element	2021	9	CTR 52010		ALBANY AREA CHAMBER	501900	DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	22.00	19.4	2 E1100002	ANTHONY RAMOS JR	R 44447	1012870954	ZC	SAF CONCULTARE	Membership Forum Luncheon	Ramos Jr:August Mileage		
	name: dues/membership, ferc accounting name: office staffing &					CONDER .						ENGL-OFFICE OTAFFIN			5									
	expense-office staffin, account nam anthony ramos jr, description:	ne:																						
	membership forum luncheon, document header text: ramos jr:aug	just			PUB POLICY &																			
500	mileage		9	CTR 15100	GVRM AF	NACE annual	501900	DUES/MEMBE	887	97% Customer-All	887-01025	DISTRB MAINTENANCE OF	150.00	145.6	7 232210	A/P - CONCUR	44448	1012877928	ZC	SAP Concur T&E	T. Countryman - CP	Bronson:August		
	engineering svces or, cost element name: dues/membership, ferc		-			membership	50.000	RSHIP			5. 5.020	MAINS-CATHODIC PRO						1.111.020			Tech - NACE annual membership r	Expenses (
	accounting name: distrb maintenance of mains-cathodic pro, account name																							
	a/p - concur, description: t. countryman - cp tech - nace annual																							
	membership r, document header tex bronson:august expenses (ENGINEERING																			
500	sap concur t&e - cost center name:		9	CTR 15100	SVCES OR	NACE annual	501900	DUES/MEMBE	887	97% Customer-All	887-01025	DISTRB MAINTENANCE OF	150.00	145.6	7 232210	A/P - CONCUR	44448	1012877928	ZC	SAP Concur T&E	NACE annual	Bronson:August		
	engineering svces or, cost element name: dues/membership, ferc					membership		RSHIP				MAINS-CATHODIC PRO									membership renewal for CP Tech D. Luck	Expenses (
	accounting name: distrb maintenand of mains-cathodic pro, account nam	ne:																						
	a/p - concur, description: nace annu membership renewal for cp tech d.	ual																						
	luck, document header text: bronson:august expenses (ENGINEERING																			
500	sap concur t&e - cost center name:		9	CTR 15100	SVCES OR	NACE annual	501900	DUES/MEMBE	887	97% Customer-All	887-01025	DISTRB MAINTENANCE OF	150.00	145.6	7 232210	A/P - CONCUR	44448	1012877928	ZC	SAP Concur T&E	NACE annual	Bronson:August		
	engineering svces or, cost element name: dues/membership, ferc					membership		RSHIP				MAINS-CATHODIC PRO									membership renewal for CP Tech G. Canh	Expenses (
	accounting name: distrb maintenance of mains-cathodic pro, account name	ne:																						
	a/p - concur, description: nace annu membership renewal for cp tech g.	lal																						
	canh, document header text: bronson:august expenses (ENGINEERING																			
			1		SVCES OR						I							l		SAP Concur T&E		<u> </u>		

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element	FERC OR All	location	Allocation	Order	FERC Account Name/Int	ernal System \$	OR	Offsetting	Name of offsetting	Posting	Document	Docume		Name	Document Header	Purchase order	Purchasing P	PO Vendor Name
Code 5000		Year	0	CTR 36000	Name (ADDED	CUDM manh amhi	Element	name	926	020/	Factor	000 00000	Order Name	Value	Allocation		account	Date	Number	type ZC	Description	CUDM mambankin	Text	text	Document	
5000	sap concur t&e - cost center name: comp & admin, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-employee, account name: a/p - concur, description: shrm membership, document header text: jordan.niki jordan - augu	2021	9	C1R 36000	COMP &	SHRM membershi	501900	DUES/MEMBE RSHIP	920	93%	Customer-All	926-02200	EMPLOYEE PENSIONS BENEFITS-EMPLOYEE	AND 294.00	213.32	232210	A/P - CONCUR	44454	1012887165	20		SHRM membership	Jordan:Niki Jordan - Augu			
5000	sap concur t&e - cost center name:	2021	9	CTR 31100	ADMIN	LinkedIn	501900	DUES/MEMBE	913	88%	Customer-All	913-01505	ADVERTISING EXPENS	ES- 119.95	105.86	232210	A/P - CONCUR	44454	1012887167	ZC	SAP Concur T&E	Job posting	Jordan:Talent			
	employment, cost element name: employment, cost element name: dues/membership, ferc accounting name: advertising expenses-office staffing & e, account name: a/p - concur, description: job posting, document header text: jordan:talent acquisition	2021	5		EMPLOYMENT		001000	RSHIP		0070	ousioner-vir		OFFICE STAFFING & E		. 100.00	102210				20	SAP Concur T&E		Acquisition			
5000	sap concur t&e - cost center name: network critrl systms, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: yes, document header text:	2021	9	CTR 13100	NETWORK	JADE LEARNING LLC	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STA	25.00	22.07	232210	A/P - CONCUR	44459	1012899315	ZC		YES	Budiao:Septembe r Expenses			
5000	budiao:september expenses sap concur t&e - cost center name:	2021	0	CTR 31300	CNTRL SYSTMS	SHRM	501000	DUES/MEMBE	926	03%	Customer All	026 01505	EMPLOYEE PENSIONS	AND 100.00	02.07	232210	A/P - CONCUR	44450	1012899525	70	SAP Concur T&E	HR Certification	Lynch:September			
5000	sap concur tee - coas center name. ee&labor relations, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-office st, account name: a/p - concur, description: hr certification, document header text: lynch:september expenses	s	5	CIRCISO	EE&LABOR RELATIONS	CERTIFICATION	301300	RSHIP	520	5576	Gustomer-Air	520-01303	BENEFITS-OFFICE ST		52.31	232210			101203323	20	SAP Concur T&E	The Certification	Expenses			
5000	sap concur t&e - cost center name:	2021	9	CTR 31100	RELATIONS	Linkedin	501900	DUES/MEMBE	926	93%	Customer-All	926-01505	EMPLOYEE PENSIONS	AND 119.95	111.51	232210	A/P - CONCUR	44459	1012899640	ZC	SAI CONCUTICE	Linkedin	Vetsch:Septembe			
	employment, cost element name: dues/membership, ferc accounting name: employee pensions and benefits-office st, account name: a/p concur, description: linkedin, document header text: vetsch:september expenses	-			EMPLOYMENT			RSHIP					BENEFITS-OFFICE ST								SAP Concur T&E		r Expenses			
5000	sap concur t&e - cost center name: maj acct serv team, cost element name: dues/membership, ferc accounting name: customer records & collections-billing g, account name:	2021	9	CTR 11348		NORTHWEST FOOD SHO	501900	DUES/MEMBE RSHIP	903	88%	Customer-All	903-01010	CUSTOMER RECORDS COLLECTIONS-BILLING		22.09	232210	A/P - CONCUR	44460	1012903041	ZC		Conference/expo fee	Russell:August Expenses (
	a/p - concur, description: conference/expo fee, document header text: russell:august expenses	(MAJ ACCT SERV TEAM																SAP Concur T&E					
5000	president & ceo, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: aicpa membership dues, document header text: anderson:202	9	9	CTR 71000	PRESIDENT &	AICPA membership dues	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STA	485.00	428.21	232210	A/P - CONCUR	44461	1012907301	zc		AICPA membership due	s Anderson:2021 9_Sep p-car			
	9_sep p-car				CEO																SAP Concur T&E					
5000	sap concur t&e - cost center name: investor relations, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: aga finance committee, document header text: sparley:july/august expen		9	CTR 48010	INVESTOR	AGA Finance Committee	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STA) (242.80)) 232210	A/P - CONCUR	44461	1012907308	ZC		AGA Finance Committee	 Sparley:July/Augu st Expen 			
5000	sap concur t&e - cost center name:	2021	9	CTR 48010	RELATIONS	AGA Finance	501900	DUES/MEMBE	921	88%	Customer-All	921-01505	OFFICE STAFFING &	(495.00) (437.04)	232210	A/P - CONCUR	44461	1012907308	ZC	SAP Concur T&E	AGA Finance Committee	e Sparlev:Julv/Augu			
	investor relations, cost element name dues/membership, ferc accounting name: office staffing & expense-offic staffin, account name: a/p - concur, description: aga finance committee, document header text: sparley:july/august expen	E			INVESTOR	Committee		RSHIP					EXPENSE-OFFICE STA		, ,						SAD Concurran		st Expen			
5000	sap concur t&e - cost center name: investor relations, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: aga meeting registration, document header text: sparley:july/august expen	e: e	9	CTR 48010	RELATIONS INVESTOR RELATIONS	AGA Meeting Registration	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STA	495.00	437.04	232210	A/P - CONCUR	44461	1012907308	ZC	SAP Concur T&E	AGA Meeting Registration	Sparley:July/Augu st Expen			
5000	sap concur t&e - cost center name: investor relations, cost element name dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ir news feed, document	e:	9	CTR 48010		D J*BARRON'S	501900	DUES/MEMBE RSHIP	921	88%	Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STA	19.99	17.65	232210	A/P - CONCUR	44461	1012907308	ZC	SAF CONCULTAE	IR News Feed	Sparley:July/Augu st Expen			
	header text: sparley:july/august exper				INVESTOR RELATIONS																SAP Concur T&E					

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost		ERC OR Allocation	Allocation	Order	FERC Account Name/Internal Sy		OR Offsetting Name of offsetti			ment Document Type	Name	Document Header		O Vendor Name
Code		Year	0	CTB 40040	Name (ADDED)	ACA Mactine		name	021	Factor	024.0450			Allocation acct no. account	Date	Number type	Description	ACA Mostine	Text	ocument	
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: aip - concur, description: aga meeting registration, document header text: sparley:july/august expen	2021	9	CTR 48010		AGA Meeting Registration	501900	DUES/MEMBE RSHIP	921	200 70 Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	275.00	242.80 232210 A/P - CONCUR	4446	1012907308 ZC	SAP Concur T&E	AGA Meeting Registration	Sparley:July/Augu st Expen		
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: certification requirement, document header text: sparley:june - july expen	2021	9	CTR 48010		OR BOARD OF ACCOUN	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	255.00	225.14 232210 A/P - CONCUR	4446	1 1012907309 ZC	SAP Concur 1&E	Certification Requiremer	it Sparley:June - July Expen		
5000		0004		075 40040	RELATIONS		504000	DUEDALENDE	001	000/ 00 1 00	004 0450		1.00			1010007000 70	SAP Concur T&E				
5000	sap concur t&e - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: certification requirement, document header text: sparley:june - july expen	2021	9	CTR 48010	INVESTOR	OR BOARD OF ACCOUN	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1.00	0.88 232210 A/P - CONCUR	4446	I 1012907309 ZC		Certification Requiremer	it Sparley:June - July Expen		
5000	sap concur t&e - cost center name:	2021	0	CTR 48010	RELATIONS	D J*BARRON'S	501000	DUES/MEMBE	921	88% Customer All	021 0150	05 OFFICE STAFFING &	19.99	17.65 232210 A/P - CONCUR	4446	1 1012907309 ZC	SAP Concur T&E	IR News Feed	Sparley: June		
5000	sap concur kee - cost center name: investor relations, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ir news feed, document header text: sparley:june - july expen	2021	9	CTR 46010	INVESTOR RELATIONS	D J BARRON S	501900	RSHIP	921	50% Customer-All	921-0150	EXPENSE-OFFICE STAFFIN	19.99	17.65 232210 AIF - CONCOR	4440	1012907309 20	SAP Concur T&E	IR News Feed	Sparley:June - July Expen		
5000	sap concur t&e - cost center name: svp util & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description; the week magazine subscription, document header text: heiting:august p-card (08	2021	9	CTR 73000		The Week Magazine subscription	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	229.00	202.19 232210 A/P - CONCUR	4446	1012907355 ZC	SAP Concur T&E	The Week Magazine subscription	Heiting:August P- Card (08		
5000	sap concur t&e - cost center name: svp uti & chf mktg, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: wsj digital subscription, document header text: heiting:august p-card (08	2021	9	CTR 73000		WSJ Digital Subscription	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	4.00	3.53 232210 A/P - CONCUR		1012907355 ZC	SAP Concur T&E	WSJ Digital Subscription	Heiting:August P- Card (08		
5000	sap concur t&e - cost center name: claims overhead, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: drw d.a.v.e. fee for vehicle accident research, document header text: renk:robert renk septembe	2021	9	CTR 51065	CLAIMS OVERHEAD	DMV D.A.V.E. fee for vehicle accident research		DUES/MEMBE RSHIP	921	88% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	0.10	0.09 232210 A/P - CONCUR	4446	2 1012909046 ZC	SAP Concur T&E	DMV D.A.V.E. fee for vehicle accident research	Renk:Robert Renk Septembe		
5000	sap concur t&e - cost center name: philanthropy, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: nebc annual membership dues, document header text: muirhead:september expens	2021	9	CTR 52015		NEBC Annual Membership Dues	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	15 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	1,500.00	1,324.36 232210 A/P - CONCUR	4446	3 1012912919 ZC	SAP Concur T&E	NEBC Annual Membership Dues	Muirhead:Septem ber Expens		
5000	sap concur t&e - cost center name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership renewal for shawn for oregon wom, document header text: filippi:september busines	2021	9	CTR 46010		OREGON WOMEN LAWYE	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	125.00	110.36 232210 A/P - CONCUR	4446	1012914741 ZC	SAP CONCUT T&E	Annual Membership Renewal for Shawn for Oregon Wom	Filippi:September Busines		
5000	sap concur t&e - cost center name: corp secretary, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual membership dues to zoom for shawn filippi, document header text: burgoyne:september expens	2021	9	CTR 46010		Zoom		DUES/MEMBE RSHIP				05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	149.90	132.35 232210 A/P - CONCUR		3 1012914742 ZC	SAP Concur T&E	Annual Membership Dues to Zoom for Shawr Filippi	Burgoyne:Septem ber Expens		
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: owl membership fee for kat rosenbaum, document header text: chand:roselene - septembe		9	CTR 54010		OWL Membership	501900	DUES/MEMBE RSHIP	921	38% Customer-All	921-0150	05 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	125.00	110.36 232210 A/P - CONCUR	4446	3 1012914843 ZC	SAP Concur T&E	OWL Membership fee fo Kat Rosenbaum	r Chand:Roselene - Septembe		

Compar	ny Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost		ERC OR Allocation	Allocation	Order	FERC Account Name/Internal		OR	Offsetting Name of offsetting	Posting	Document		Document Type	Name	Document Header	Purchase order		PO Vendor Name
Code 5000	sap concur t&e - cost center name:	Year 2021	9	CTR 54010	Name (ADDED)	Amazon		name DUES/MEMBE RSHIP	921 88	Factor 3% Customer-Al	921-0150	Order Name 5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	/alue 12.99	Allocation 11.47	acct no. account 232210 A/P - CONCUR	Date 4446	Number 5 1012914843	type ZC	Description	Amazon Subscription	Text Chand:Roselene -	IEXL	Document	
	legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: amazon subscription fees for legal dept., document header text: chand:roselene - septembe	5			LEGAL	Subscription Fees for Legal Dept.		KSHIP				EXPENSE-OFFICE STAFFIN							SAP Concur T&E	Fees for Legal Dept.	Septembe			
5000	sap concur t&e - cost center name: legal, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: ojin subscription fees, document header text: chand:roselen - septembe		9	CTR 54010	LEGAL	OJIN Subscription fees	501900	DUES/MEMBE RSHIP	921 86	3% Customer-Al	921-0150	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	130.00	114.78	232210 A/P - CONCUR	4446	5 1012914843		SAP Concur T&E	OJIN Subscription fees	Chand:Roselene - Septembe			
5000	sap concur t&e - cost center name: cust acq mrktg new, cost element name: dues/membership, ferc accounting name: customer assistance expense-new construc, account name: jeffrey tamburro, description: hba membership dues, document header text:	2021	9		CUST ACQ MRKTG NEW	HBA Membership Dues	501900	DUES/MEMBE RSHIP	908 88	3% Customer-Al	908-0501	5 CUSTOMER ASSISTANCE EXPENSE-NEW CONSTRUC	184.00	161.64	E097481 JEFFREY TAMBUR	RO 4446	7 1012917684	zc	SAP Concur T&E	HBA Membership Dues	Tamburro:August 2021 Expe			
5000	tamburro:august 2021 expe sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: ul registration, document header text: beck:august expenses (08/		9	CTR 11550	CONSMR INFO- INTNT SR	WEB*NETWORKS OLUTIO	501900	DUES/MEMBE RSHIP	909 88	3% Customer-Al	909-2300	0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	10.00	8.83	232210 A/P - CONCUR	4446	7 1012917703	zc	SAP Concur T&E	URL registration	Beck:August Expenses (08/			
5000	sap concur t&e - cost center name: consmr info-intn sr, cost element name: dues/membership, farc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: less we can web hosting, document header text: beck:august expenses (08/	-	9	CTR 11550	CONSMR INFO- INTNT SR			DUES/MEMBE RSHIP				0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	96.61		232210 A/P - CONCUR		7 1012917703		SAP Concur T&E	Less we can web hostir	ng Beck:August Expenses (08/			
5000	sap concur t&e - cost center name: consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: url registration, document header text: beck:august expenses (08/		9		CONSMR INFO- INTNT SR	DNH*GODADDY.C OM	501900	DUES/MEMBE RSHIP	909 86	3% Customer-Al	909-2300	10 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	58.32	51.47	232210 A/P - CONCUR	4446	7 1012917703	zc	SAP Concur T&E	url registration	Beck:August Expenses (08/			
5000	sap concur t&e - cost center name: consmr info-intn sr, cost element name: dues/membership, ferc accounting name: info & instructional advt-utility infor, account name: a/p- concur, description: video hosting for nwm.com, document header text: beck:august expenses (08/	-	9		CONSMR INFO-	WISTIA, INC.	501900	DUES/MEMBE RSHIP	909 88	3% Customer-Al	909-2300	0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	7.75	6.84	232210 A/P - CONCUR	4446	7 1012917703		SAP Concur T&E	video hosting for nwn.com	Beck:August Expenses (08/			
5000	sap concur t&e - cost center name: consmr info-intn sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p- concur, description: web url registration, document header text: beck:august expenses (08/		9	CTR 11550	CONSMR INFO- INTNT SR	WEB*REGISTER WEBSIT	501900	DUES/MEMBE RSHIP	909 88	3% Customer-Al	909-2300	0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	70.00	61.78	232210 A/P - CONCUR	4446	7 1012917703	zc	SAP Concur T&E	web url registration	Beck:August Expenses (08/			
5000	sap concur t&e - cost center name: corporate communicat, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name a/p - concur, description: social media tracking service, document header text: beck:august expenses (08/	e:	9	CTR 52040	CORPORATE	HOO*HOOTSUITE INC	501900	DUES/MEMBE RSHIP	921 88	Customer-Al	921-0150	5 OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	75.00		232210 A/P - CONCUR	4446	7 1012917703	zc	SAP Concur T&E	social media tracking service	Beck:August Expenses (08/			
5000	consmr info-intn sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: stock photograph for website, document header text: beck:august expenses (08/	- iy			CONSMR INFO- INTNT SR			DUES/MEMBE RSHIP				0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	65.00		232210 A/P - CONCUR		7 1012917703		SAP Concur T&E	stock photography for website	Expenses (08/			
5000	sap concur t&e - cost center name: consmr info-initi sr, cost element name: dues/membership, ferc accounting name: info & instructional advrt-utility infor, account name: a/p concur, description: web url registrations, document header text: beck:august expenses (08/		9	CTR 11550	CONSMR INFO- INTNT SR	WEB*REGISTER WEBSIT	501900	DUES/MEMBE RSHIP	909 88	3% Customer-Al	909-2300	0 INFO & INSTRUCTIONAL ADVRT-UTILITY INFOR	6.00	5.30	232210 A/P - CONCUR	4446	7 1012917703	ZC	SAP Concur T&E	web url registrations	Beck:August Expenses (08/			

Company	Combine Description (ADDED)	Fiscal Year	Period	Cost Center	Cost Center	Organization		Cost element name	FERC	OR Allocation Allocation Factor	Order	FERC Account Name/Internal Order Name	System \$	OR Allocation	Offsetting Name of offsetting acct no.	y Posting Date	Documen Number	t Docume	nt Document Type Description	Name	Document Header	Purchase order		PO Vendor Name
5000	sap concur t&e - cost center name:	2021	9	CTR 11550	Name (ADDED)	STATISTA INC	501900	DUES/MEMBE	913	88% Customer-All	913-20000	ADVERTISING EXPENSES-	468.00		232210 A/P - CONCUR		Number 7 10129177	900	Description	Research for OR Rate	Beck:August	ICAL	Document	
	consmr info-intnt sr, cost element name: dues/membership, ferc accounting name: advertising expenses-admin / payroll, account name: <i>alp</i> - concur, description: research for or rate case, document header text: beck:august expenses				CONSMR INFO-	-		RSHIP				ADMIN / PAYROLL								case	Expenses (08/			
5000	(08/ sap concur t&e - cost center name:	2021	9	CTR 52010	INTNT SR	ASSOC OF WA	501900	DUES/MEMBE	921	88% Customer-All	921-01505	OFFICE STAFFING &	575.00	507.67	232210 A/P - CONCUR	4446	8 10129195	69 ZC	SAP Concur T&E	Annual Dues	Carpio:Annual			
	sap concur tate - cost center name: pub policy & gyrm af, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: annual dues document header text: carpio:annual dues for as	:	3	01102010	PUB POLICY &	BUSINE		RSHIP	321		SE 1-0 1000	EXPENSE-OFFICE STAFFIN	575.00	507.07		4440	0 10 120 190		SAP Concur T&E	, and Dubs	Dues for As			
5000	sap concur t&e - cost center name:	2021	9	CTR 11600		Amazon Prime		DUES/MEMBE	820	89% Customer-All	820-01310	MEASURE & REGULATING	12.99	11.56	232210 A/P - CONCUR	4446	8 10129196	83 ZC	SAP CONCULTAE	Amazon Prime	Ingraham:Septem			
	mist ugs, cost element name: dues/membership, ferc accounting name: measure & regulating exp- measuring and r, account name: a/p- concur, description: amazon prime, document header text: ingraham:september expens	-			MIST UGS			RSHIP				EXP-MEASURING AND R							SAP Concur T&E		ber Expens			
5000	sap concur t&e - cost center name:	2021	9	CTR 42010	10131 003	AICPA *ORDER		DUES/MEMBE	921	88% Customer-All	921-01505	OFFICE STAFFING &	295.00	260.46	232210 A/P - CONCUR	4446	8 10129197	03 ZC	SAF CONCUT TRE	Accounting professional				
	accounting, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: accounting professional subscription, document header text: faulk:september expenses				ACCOUNTING			RSHIP				EXPENSE-OFFICE STAFFIN							SAP Concur T&E	subscription	Expenses			
5000	sap concur t&e - cost center name: comm & civic affairs, cost element	2021	9	CTR 52020		WOODBURN CHAMBER		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	399.00	352.28	232210 A/P - CONCUR	4446	9 10129243	46 ZC		Chamber membership	Reiten:July Expenses (07/			
	comm & civic anairs, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: chamber membership, document header text: reiten;july expenses (07/	:			COMM & CIVIC AFFAIRS			NOTIF				LAFENGE-OFFICE STAFFIN							SAP Concur T&E		Lypenses (U//			
5000	sap concur t&e - cost center name:	2021	9	CTR 43010		WSJ Subscription	501900	DUES/MEMBE	921	88% Customer-All	921-01505	OFFICE STAFFING &	38.99	34.42	502700 TELEPHONE	4446	9 10129244	77 ZC	Concurrate	WSJ Subscription	Whitley:Septembe			
	business development, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: telephone, description: wsj subscription, document header text: whitley:september expense	:			BUSINESS			RSHIP				EXPENSE-OFFICE STAFFIN									r Expense			
5000	sap concur t&e - cost center name:	2021	9	CTR 15505	DEVELOPMENT	NCEES.ORG	501900	DUES/MEMBE	885	94% Customer-All	885-01514	DISTRB MAINTENANCE	375.00	351,48	E097857 CHRISTIAN CHIN	IG 4446	9 10129245	67 ZC	SAP Concur T&E	PE Exam	Ching:September			
	pipeline integrity, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision pipeline, account name: christian ching, description: pe exam, documen header text: ching:september 2021	1-			PIPELINE INTEGRITY			RSHIP				SUPERVISION-PIPELINE							SAP Concur T&E		2021			
5000	sap concur t&e - cost center name:		9	CTR 15505		Oil Well Service C	501900	DUES/MEMBE RSHIP	885	94% Customer-All	885-01514	DISTRB MAINTENANCE SUPERVISION-PIPELINE	725.00	679.52	E097857 CHRISTIAN CHIN	IG 4446	9 10129245	67 ZC		Supervisor Rig/Well Control Re-Certification	Ching:September			
	pipeline integrity, cost element name: dues/membership, ferc accounting name: distrb maintenance supervision pipeline, account name: christian ching, description: supervisor rig/well control re-certification, document header text: ching:september 2021	1-			PIPELINE INTEGRITY			NONIF				GUFERVIOIUN-PIPELINE							SAP Concur T&E	Control Ne-Ceruiication	2021			
5000		2021	9	CTR 13400	AT CONTI	CCC Celebration		DUES/MEMBE	903	88% Customer-All	903-04280	CUSTOMER RECORDS &	(12.99)	(11.48)	232210 A/P - CONCUR	4446	9 10129245	74 ZC	concurrec	CCC Celebration	Paul:September			
	cust contact center, cost element name: dues/membership, ferc accounting name: customer records & collections-gas svc-c, account name: a/p - concur, description: ccc celebration committee, document header text: paul:september celebration				CUST CONTACT CENTER	Committee		RSHIP				COLLECTIONS-GAS SVC-C							SAP Concur T&E	Committee	Celebratio			
5000	sap concur t&e - cost center name: vp strtgy & biz dev, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description; wsj subscription,		9	CTR 78000		WSJ Subscription		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	116.97	103.27	232210 A/P - CONCUR	4446	9 10129247	ZC		WSJ Subscription	Palfreyman:Sept 2021 Pcar			
	document header text: palfreyman:sept 2021 pcar				VP, STRTGY & BIZ DEV														SAP Concur T&E					
5000	sap concur t&e - cost center name: pub policy & gvrm af, cost element name: dues/membership, ferc accounting name: office staffing & expense-office staffin, account name: a/p - concur, description: newspaper		9	CTR 52010		SALEMSTATESMA NJRNL		DUES/MEMBE RSHIP	921	88% Customer-All	921-01505	OFFICE STAFFING & EXPENSE-OFFICE STAFFIN	59.00	52.09	232210 A/P - CONCUR	4446	9 10129265	ZC ZC		Newspaper subscription	Reiten:September Expenses			
	subscription, document header text: reiten:september expenses				PUB POLICY &																			
					GVRM AF								<u> </u>						SAP Concur T&E					

Company	Combine Description (ADDED)	Fiscal	Period	Cost Center	Cost Center	Organization	Cost	Cost element	FERC	OR Allocation	Allocation	Order	FERC Account Name/Internal	System \$	OR	Offsetting	Name of offsetting	Posting	Document	Documen	nt Document Type	Name	Document Header	Purchase order	Purchasing	PO Vendor Name
Code		Year			Name (ADDED)	-	Element	t name			Factor		Order Name	Value	Allocation	acct no.	account	Date	Number	type	Description		Text	text	Document	
5000	sap concur t&e - cost center name:	2021	9	CTR 52010		ALBANY AREA	5019	000 DUES/MEMBE	921	88	% Customer-All	921-01505	OFFICE STAFFING &	(22.00)	(19.42)	503100	PRINTING	4446	69 1012926526	ZC		Membership Forum	Ramos			
	pub policy & gvrm af, cost element					CHAMBER		RSHIP					EXPENSE-OFFICE STAFFIN									Luncheon	Jr:September			
	name: dues/membership, ferc																						Expens			
	accounting name: office staffing &																									
	expense-office staffin, account name:																									
	printing, description: membership																									
	forum luncheon, document header																									
	text: ramos jr:september expens				PUB POLICY &																					
					GVRM AF																SAP Concur T&E					
5000	sap concur t&e - cost center name:	2021	9	CTR 52010		REGISTER	5019	000 DUES/MEMBE	921	889	% Customer-All	921-01505	OFFICE STAFFING &	13.00	11.48	232210	A/P - CONCUR	4446	69 1012926526	ZC		Home delivery of local	Ramos			
	pub policy & gvrm af, cost element					GUARD		RSHIP					EXPENSE-OFFICE STAFFIN									newspaper	Jr:September			
	name: dues/membership, ferc																						Expens			
	accounting name: office staffing &																									
	expense-office staffin, account name:																									
	a/p - concur, description: home																									
	delivery of local newspaper, document																									
	header text: ramos jr:september				PUB POLICY &																					
	expens				GVRM AF																SAP Concur T&E					

NW Natural[®] Rates & Regulatory Affairs UG 435 Request for a General Rate Revision Data Request Response

Request No.: UG 435 OPUC DR 136

136. A) Please provide the organizational name, FERC account number, Oregon jurisdictional rate, allocation factor, and correlating expense to each membership, dues, subscription service, conference, and other totaling \$918,489, as reported in NW Natural's response to Staff's Standard Data Request Number 90 (SDR 90).

B) Standing Request: In addition, once the data is available for the period October 1, 2021, through December 31, 2021, please update your response to this information request to reflect actual data for the year 2021.

Response:

- A) Refer to 'UG 435 OPUC DR 136 Attachment 1' for detail totaling \$918,489 as reported in SDR 90 – the organizational name, FERC account number, Oregon jurisdictional rate, allocation factor, and correlating system and OR expense for each transaction is included.
- B) For the detail for the period October 1, 2021 through December 31, 2021, this information will be provided when it becomes available to the public at the end of February 2022.