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# Integrated Resource Plan Open Meeting Presentation

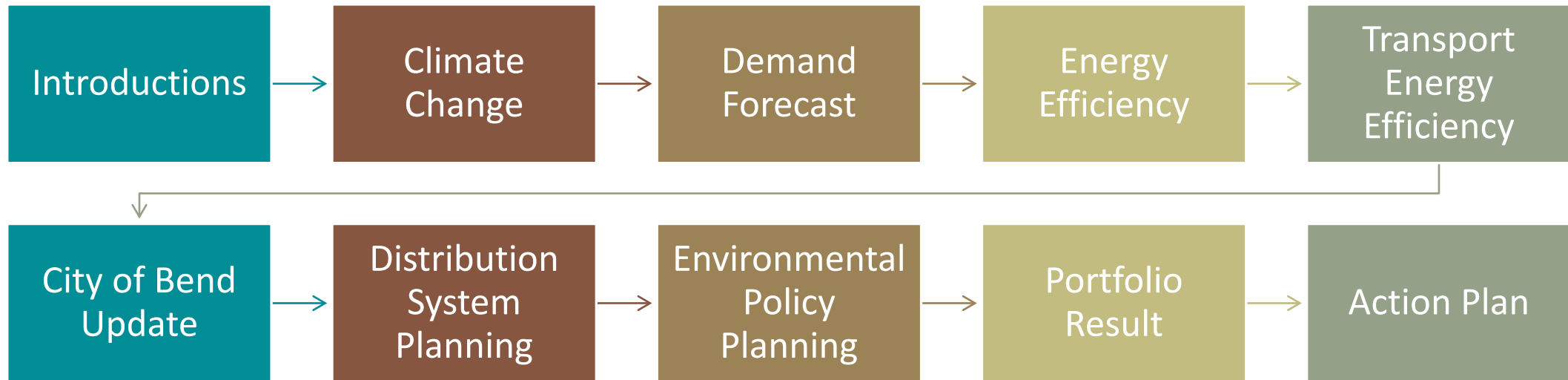
JULY 25, 2023

MICROSOFT TEAMS/TELECONFERENCE

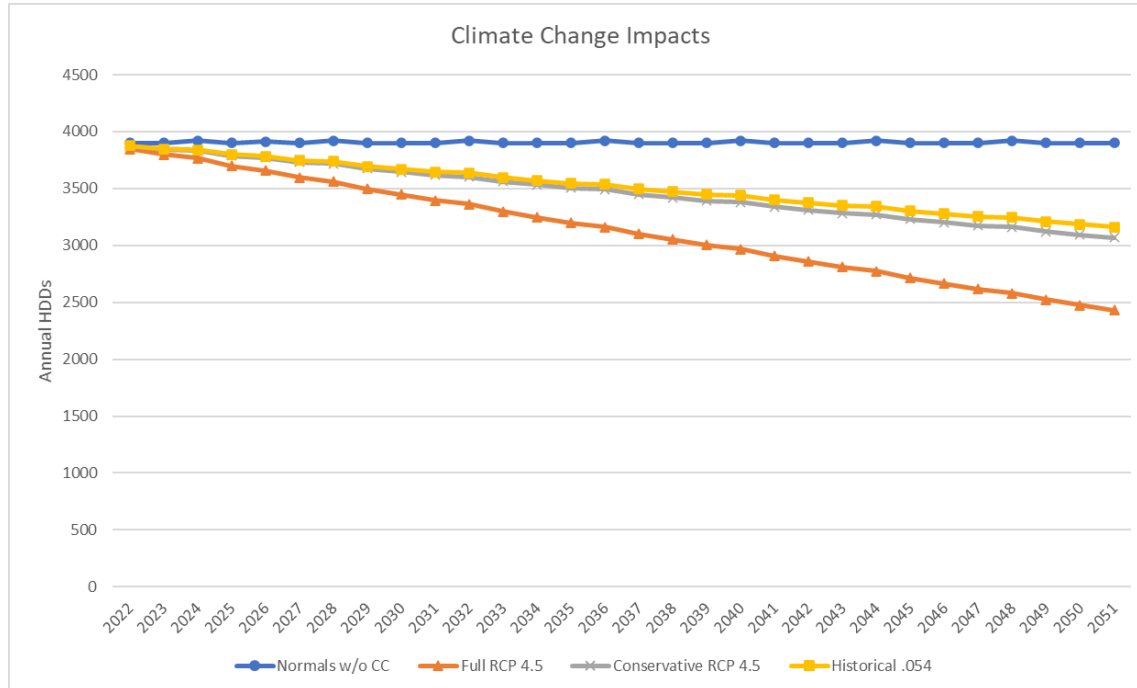


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# Agenda



# Climate Change Impacts



- Cascade utilized Climate Change data from the Intergovernmental Panel on Climate Change.<sup>1</sup>
- Cascade used the Coupled Model Intercomparison Project Phase 4 (CMIP5) with the RCP 4.5 scenario which included 36 different models.
- Cascade chose this scenario as it best represents the Western North America emission goals and was labeled as the most probable baseline scenario.<sup>2</sup>
- Cascade also modeled using the 18 most conservative models as well as the Environmental Protection Agency’s noted historical temperature change (.54°F per decade since 1979).<sup>3</sup>

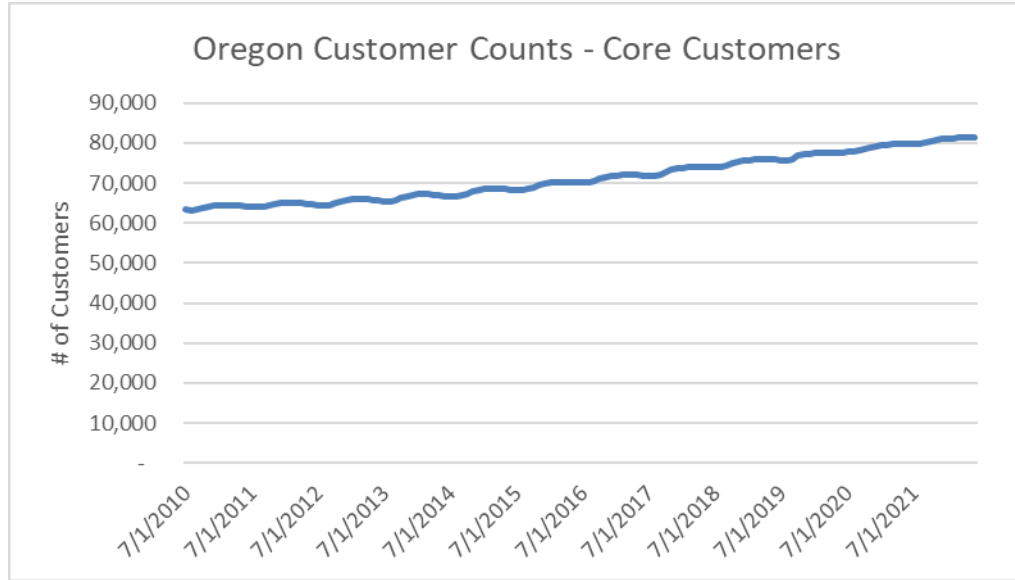
<sup>1</sup> [HTTPS://IPCC-BROWSER.IPCC-DATA.ORG/BROWSER/SEARCH?FORMAT](https://ipcc-browser.ipcc-data.org/browser/search?format)

<sup>2</sup> [REPRESENTATIVE CONCENTRATION PATHWAY – WIKIPEDIA](#)

<sup>3</sup> [CLIMATE CHANGE INDICATORS: U.S. AND GLOBAL TEMPERATURE | US](#)

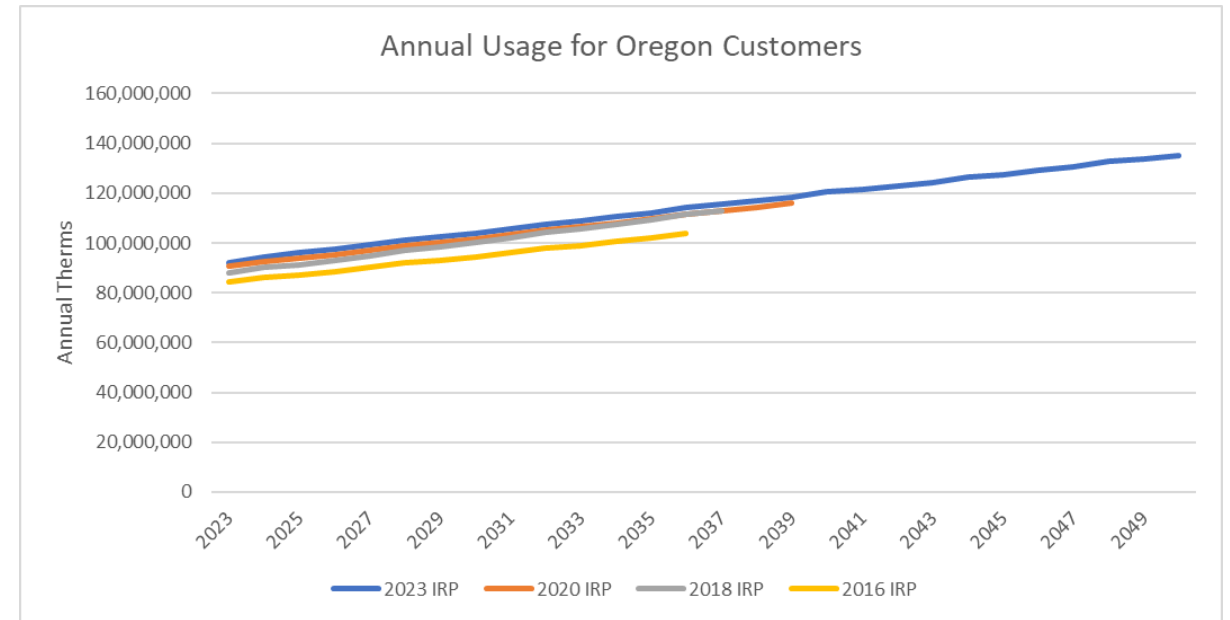
[EPA](#)

# Total System Demand



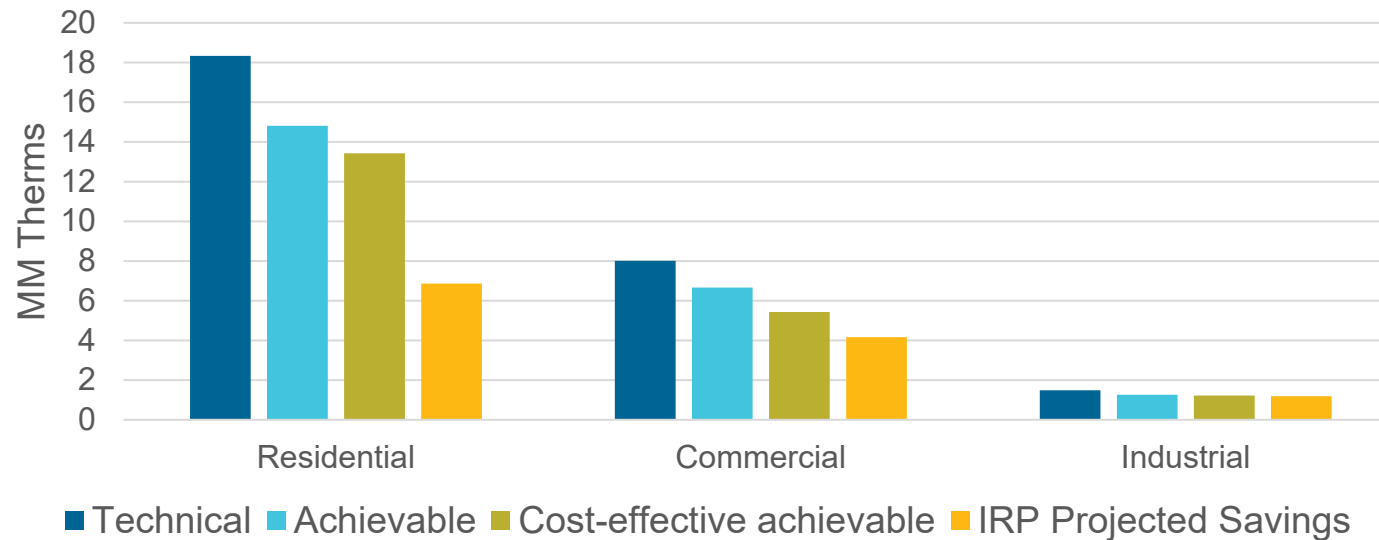
Oregon Projected Growth	
2025	2.29%
2030	2.05%
2035	1.86%
2040	1.71%
2045	1.57%
2050	1.46%

Oregon Growth	
Previous 10 years	2.34%
Previous 5 years	2.54%
Previous 3 years	2.42%
Previous year	2.12%



	Residential	Commercial	Industrial	All Sectors
Technical Potential	18,333,106	8,011,512	1,486,157	27,830,775
Achievable Potential	14,814,813	6,663,051	1,263,233	22,741,098
Cost-effective Achievable Potential	13,423,463	5,430,091	1,224,379	20,077,933
IRP Projected Savings	6,865,056	4,162,029	1,193,202	12,220,287

# Cumulative Savings by Sector and Type (Therms)



# Transport Customers Carbon Compliance Assessments

## ❖ Assessments Year to Date

- 7 Completed
- 4 Coordination Stage
- 13 Queue\*

## ❖ Assessment Results

- Summary of opportunities vary by customer needs and carbon compliance goals

## ❖ Next Steps

- Explore options to best serve Cascade Transport Customers

# City of Bend update

- Cascade continues to communicate with local Bend government and staff regarding our interest in working with the City on natural gas decarbonization pathways.
  - Developing options in coordination with Guidehouse to share with City officials Q4 this year.
  - Preliminary research demonstrates Bend/Deschutes customer interest in Cascade decarb pathways that expand EE, RNG, and exploration of low carbon gas technologies.
- Deschutes County and Cascade have executed a long-term agreement whereby Cascade will build an RNG production facility at the site and assume operation of the landfill's gas collection system generating a projected 250,000 MMBtu per year injected directly into Cascade's Bend distribution system.
- Environmental and Climate Committee (ECC) plans on convening an ad-hoc committee towards the end of 2023 to discuss the role of gas in low carbon future in Bend. Recommendations may include limits to the use of gas in City facilities, disallowing use of gas in new or existing construction, and/or incentives for electrification. They will also be discussing the viability of NG.
  - Cascade has been notified that we will be included in discussions, but it's unclear what our formal role would be in the ad-hoc group.



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# Prineville Gate Upgrade Justification

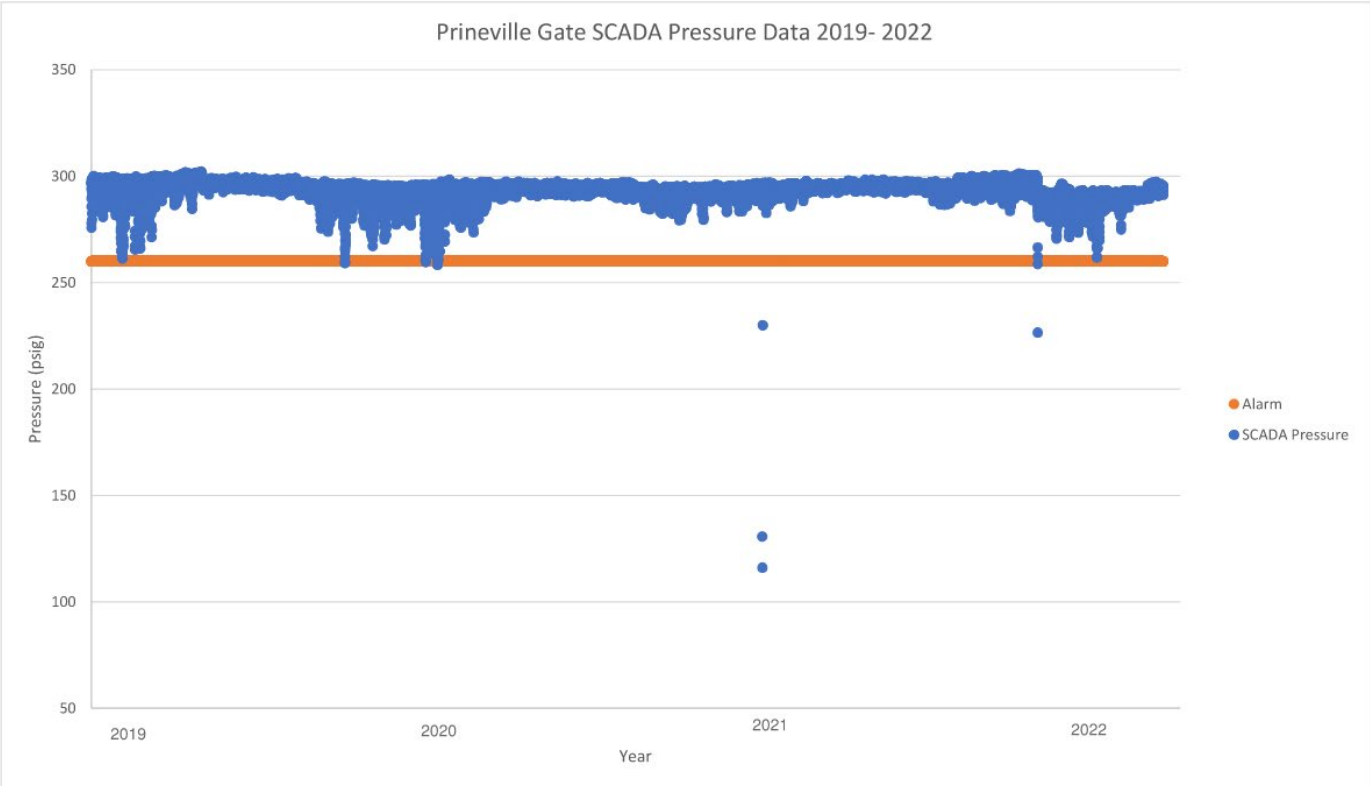
- Outlet operates at 300 psig to deliver flows and pressures required down the Prineville Transmission Line.
- Gate is undersized and during peak demand (cold weather events) the high flows in the undersized piping and equipment cause pressure drop from the outlet of the gate.
- Gas Control alarm when the outlet pressure is below 260 psig.
- Prineville System is designed for a heating degree day of 73. (-13<sup>o</sup> F average daily temperature)



# Prineville Gate Upgrade Justification con't

## Prineville Gate Alarm Log:

- o 2/18/2020 lowest pressure event of 258.6 psig. HDD=27.4 (27° F average daily temperature)



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# Baker City and Ontario Targeted DSM Update

- Engineering Services has determined that we need a 9% reduction in core loading in both Ontario and Baker City by 2027 to offset the proposed reinforcements.
- CNG has held 3 Meeting with ETO to discuss scope and path forward.
- ETO has had some staffing turnover which has delayed getting this project going.
- We are hoping to have ETO start targeted DSM efforts in Baker City and Ontario in early 2024.
- We need to start in 2024 to allow us to have 3 full years of targeted DSM efforts and then determine if targeted DSM was effective at offsetting the proposed reinforcements.

# Climate Protection Program

## Baseline

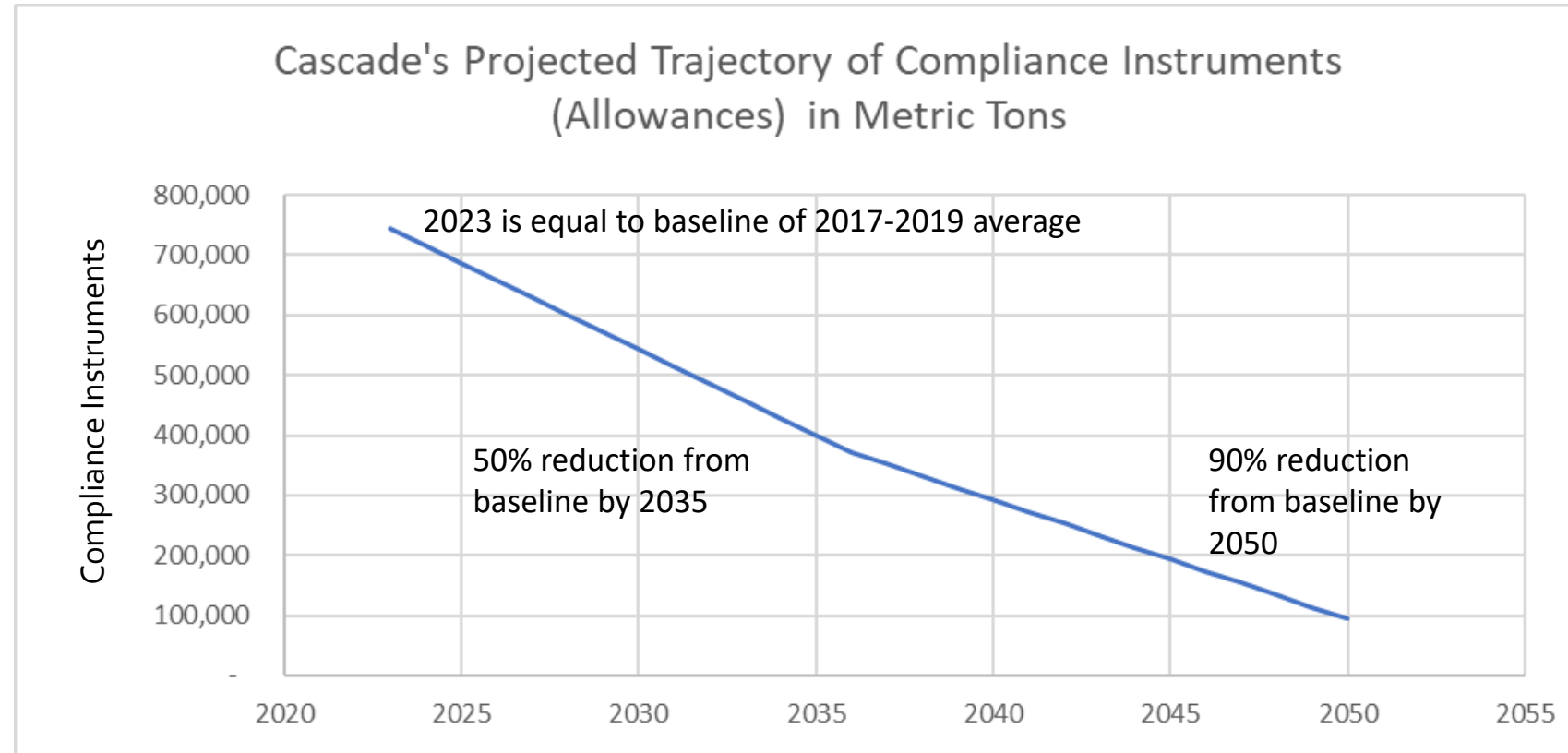
- 2017-2019 average

## Compliance Instruments (Allowances) Allocated to Cascade

- See chart

## Compliance Instrument Allocations

- DEQ distributes compliance instruments into covered entities' accounts each March



# Compliance Options and Cost

- Oregon
  - Community Climate Investments (CCIs)
  - RNG (On-System and Off-System)
  - Hydrogen (Not available until 2030)
- Washington
  - Auction Allowances (Regular, APCR, Price Ceiling)
  - Offsets
  - RNG (On-System and Off-System)
  - Hydrogen (Not available until 2030)

Parent Name	Collection	Property	Band	Fiscal Year	Units	Off System RNG	OR CCIs	OR Green Hydrogen	OR On System RNG	WA Auction	WA Offsets	WA Green Hydrogen	WA On System RNG	WA Price Ceiling
System	Gas Contract	Price	1	2025	\$/MMBtu	\$ 13.50	\$ 6.55	\$ -	\$ 13.50	\$ 2.18	\$ 1.09	\$ -	\$ 13.50	\$ 4.39
System	Gas Contract	Price	1	2030	\$/MMBtu	\$ 19.00	\$ 8.19	\$ 11.49	\$ 19.00	\$ 2.95	\$ 1.47	\$ 11.49	\$ 19.00	\$ 6.45
System	Gas Contract	Price	1	2035	\$/MMBtu	\$ 19.00	\$ 10.32	\$ 9.89	\$ 19.00	\$ 3.74	\$ 1.87	\$ 9.89	\$ 19.00	\$ 9.62
System	Gas Contract	Price	1	2040	\$/MMBtu	\$ 19.00	\$ 13.03	\$ 8.49	\$ 19.00	\$ 4.54	\$ 2.27	\$ 8.49	\$ 19.00	\$ 14.40
System	Gas Contract	Price	1	2045	\$/MMBtu	\$ 19.00	\$ 16.44	\$ 7.08	\$ 19.00	\$ 5.87	\$ 2.94	\$ 7.08	\$ 19.00	\$ 21.56
System	Gas Contract	Price	1	2050	\$/MMBtu	\$ 19.00	\$ 20.72	\$ 5.67	\$ 19.00	\$ 8.81	\$ 4.40	\$ 5.67	\$ 19.00	\$ 32.14



2023 IRP Proposed Scenarios	Scenario						
	Base Case - OR-CPP and WA-CCA	Carbon Neutral by 2050	Limited RNG availability	Electrification	High Customer Case	High Price - Interrupted Supply	Other?
Customer Growth	Current Expectations			No new customers after 2030	High Customer Counts	Current Expectations	
Energy Efficiency	CPA Projections	Scenario 2 CPA Projections				CPA Projections	
Renewable Natural Gas	Expected Availability	Expected - High Avail.	Low Availability	Expected - High Avail.		Expected Availability	
Hydrogen	Expected Availability	Expected - High Avail.	Low Availability	Expected - High Avail.		Expected Availability	
Natural Gas Bans	Current Bans			Additional Bans	Current Bans		
Natural Gas Price	Expected Price	Adjusted Price?	Expected Price	Adjusted Price?		High Price	

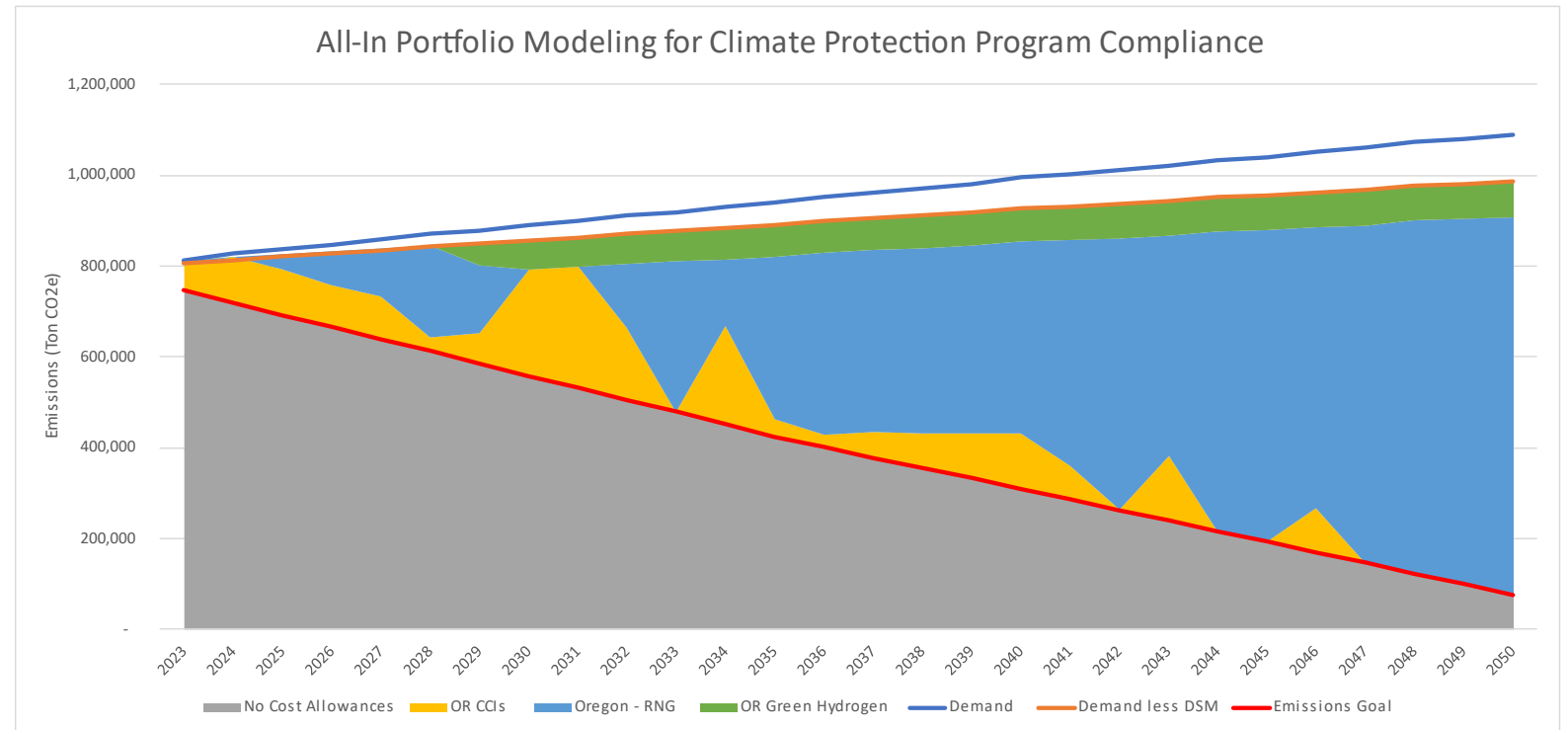
# All-In Portfolio – PLEXOS® Suggested Resource Mix

All Cost-Effective DSM

Incremental RNG – Utilized mostly in Oregon, 154,210 Dth starting in 2023, up to 15,635,780 Dth by 2050

Incremental Hydrogen – 90,970 Dth starting in 2029, up to 524,700 Dth by 2050

Compliance Instruments – Utilized as needed, exact number discussed under confidential treatment in IRP



# Two-Year Action Plan

- Demand:
  - Incorporate end use forecasting in the load forecast model
- Avoided Cost:
  - Investigate incorporating a separate avoided cost for transportation (non-core) customers
  - Explore how environmental compliance costs from the CPP/CCA impact the avoided cost
- Demand Side Management:
  - Continue to work with Energy Trust of Oregon (ETO) in an effort to create a DSM program for non-core customers.
  - In coordination with ETO, Cascade will strive to acquire the projected cost-effective gas savings over the next two to four years.
  - Cascade will coordinate with ETO in 2023 to include targeted load management for Baker City and Ontario distribution system projects.
  - Cascade will coordinate with ETO in 2023 to include targeted load management for the city of Bend.
- Compliance:
  - Acquire the number CCIs needed to meet compliance under the Climate Protection Program.
  - Acquire on-system RNG (System resource that will be utilized in OR and WA as needed).
  - Acquire necessary RTCs.
  - Continue to participate in the local climate community action plans around Cascade's service territory.
- Distribution System Planning:
  - Prineville Gate Upgrade
  - Targeted load management on Baker City and Ontario Projects



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