BEFORE THE PUBLIC UTILITY COMMISSION

OF OREGON

LC 73

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY, 2019 Integrated Resource Plan.	OPENING COMMENTS OF NW ENERGY COALITION

1. Introduction

The NW Energy Coalition (NWEC) respectfully submits the following comments on the 2019 Integrated Resource Plan (IRP) of Portland General Electric Company (PGE).

NWEC appreciates the broad thematic approach driving the 2019 IRP, focusing on (1) customer engagement; (2) full and effective decarbonization; and (3) a staged approach to new clean resources while improving reliability, all within the least cost/least risk framework.

NWEC also generally supports the Preferred Portfolio and Action Plan, which explicitly encompass a diverse and evolving approach to new resource acquisition taking a first strong step toward decarbonization while enhancing reliability and affordability for customers. We also suggest some additional perspectives and potential modifications, as detailed below.

The IRP demonstrates significant progress in innovative modeling and a more coherent approach to overall resource assessment. NWEC believes that both the outside consultant reports and the refinements and additions to PGE's modeling have added significant value to the IRP.

Alongside these technical advances, we have high hopes and expectations for a new customer-centric approach that will open up customer choices and preferences that also help deliver overall system benefits.

The IRP notes customer interest in affordability, sustainability and transparency, and points to "enhanced customer analytics, varying media channels, touchpoint surveys, and market research." In addition, PGE conducted an initial Community Listening Session. We urge PGE to accelerate its efforts to engage at the community level, and commit to continued work with the company and an expanding circle of community stakeholders to make progress.

Finally, NWEC thanks PGE for its steady support of good climate policy, including the Paris Agreement, and more specifically the Oregon 2050 greenhouse gas emissions goal. This IRP builds a concrete connection from high-level policy to action "on the ground" for our climate and energy goals.

2. Preferred Portfolio

NWEC support the general approach of the Mixed Full Clean portfolio (Sec. 7.3), which PGE constructed from the most common elements across the best performing portfolios in the extensive set of scenarios and multi-attribute scoring in the modeling process.

This portfolio combines distributed energy resources, potential capacity contracts, storage and renewable resources, including 150 MWa of new wind by 2023 and about 250 MW of energy storage by 2025. The inclusion of both battery and pumped storage in the preferred portfolio is an indication of significant progress toward a full-spectrum resource strategy. The rapid onset of solar/wind plus storage as a hybrid resource significantly elevates capacity value, although further assessment and refinement is needed for optimal configurations and dispatch. And notably, the projected renewable resource additions would reduce greenhouse gas emissions by as much as 12% of the overall amount needed to meet the 2050 goal.

We recognize that the magnitude of actual acquisition for each resource type may vary somewhat, based on the context for each round of procurement and the depth and breadth of resources offered through competitive bidding. That said, the notable aspect of this approach is that it is a coherent whole incorporating cost, emissions, flexibility and reliability, not simply stacking up resources based on a supply curve.

The proposed approach could be strengthened with additional focus on demand side resources, both enhanced energy efficiency and distributed flexibility resources. As discussed below, NWEC believes significant stretch goals can be achieved here.

3. Energy Efficiency and Distributed Flexibility

Energy efficiency is an essential component of the foundation for utility resource planning. The Northwest region has advanced the science, modeling techniques and program approaches associated with energy efficiency over the past several decades, providing a sound basis for acquiring all cost-effective conservation in each IRP cycle. In Oregon, the Energy Trust of Oregon works with utilities, stakeholders and customers to advance these energy efficiency goals, generally exceeding IRP targets for all utilities.

However, underlying this success is a risk of taking energy efficiency for granted, continuing status quo without striving for yet better analysis, programs and implementation. Today, many aspects of the IRP methodology are rapidly evolving, drawing attention to the latest breakthrough for technology, modeling approaches, etc.

Allowing energy efficiency to be overshadowed by other, more dynamic elements of the IRP is a mistake. Energy efficiency continues to be our most reliable resource, reducing system costs for customers, lowering PGE's carbon emissions by a considerable factor, and, at the same time, providing uncounted health and comfort benefits to customers that undertake efficiency and even those that do not directly partake in programs.

NWEC supports PGE's action item (proposed Action 1A) to acquire 157 MWa of energy efficiency resources by 2025 – as a minimum target. PGE, working with the Energy Trust of Oregon and other partners, should strive to maximize opportunities to go beyond this goal through innovative direct program work and support for building code and appliance efficiency standard advancement.

Additionally, in the IRP analysis, while we recognize that some work has been done to try to capture the capacity value of energy efficiency resource acquisition, we encourage PGE to work with the Energy Trust to further refine this methodology. As PGE's system, and that of the region, becomes more capacity constrained, energy efficiency modeling techniques need to evolve faster in order to be able to assess the full value that these resources provide to the system, particularly in times of peak energy use. Traditional modeling approaches that assess energy efficiency from an energy only perspective by bundling based on cost are insufficient to meet today's system challenges. Advancement on this and other elements of energy efficiency modeling will help advance realistic goals for IRP planning and also help refine program approaches to successful energy efficiency acquisition.

In the area of distributed flexibility, NWEC strongly believes that now is the time to make demand side capacity and flexibility a full part of system management, not merely a small, supporting role. There is an immediate need to meet near term capacity requirements, as well as set a longer term path toward a better balance of supply and demand side contributions to the system. This provides urgency for even more focus on "distributed flexibility."

We recognize and appreciate PGE's efforts to move rapidly to full programmatic development from the backdrop of the Smart Grid Reports, the Demand Response Testbed and other efforts. PGE is rightly gaining national recognition for this effort.[1]

We are optimistic that this early success can be extended even further than outlined in the Action Plan. While recognizing the substantial and complex effort to achieve the basic proposed targets (demand response of 211 MW in summer and 141 MW in winter, proposed Action 1B), NWEC suggests adding a 20% additional stretch goal for this IRP, followed by a full reassessment and substantial increase in targets in the next cycle as the DR Testbed and other efforts produce new results and learning.

We also recommend adding to the Action Plan an open-ended request for distributed flexibility resources. Previous demand response RFPs in the Northwest have been hobbled by narrow specifications. It is time to test the market for innovative demand side products and terms from third parties, just as previous supply RFPs uncovered a surprising amount of market depth and rapidly declining prices for new wind and solar resources.

While support for demand response is strong in the residential and commercial sectors, the somewhat high 20% unfavorability observed in the residential survey (Figure 2.1) raises concern. We recommend additional attention and possibly an Action Plan item to address program design,

[1] T&DWorld, "The Virtual Power Plant: A New Era of Energy Flexibility: Portland General Electric's VPP project is on track to add 77 MW of distributed flexibility by the end of 2020, up to 200 MW by 2025," October 1, 2019, https://www.tdworld.com/generation-and-renewables/virtual-power-plant-new-era-energy-flexibility

incentives and marketing to alleviate customer unease/uncertainty and improve participation to fully develop this key resource going forward.

4. Renewable Resources

The broader resource mix for supply is a positive development in the IRP: wind, solar and batteries, and especially hybrid combinations, are a new feature on our landscape. We support proposed Action 2 to conduct a request for proposals in 2020 to acquire 150 MWa renewable resources by 2023. The Wheatridge project secured in the last RFP round, which provided an innovative hybrid wind-solar-battery resource at a lower cost than anticipated, is an important signal of the broader potential.

The discussion of early action for new supply in the IRP (Sec. 7.3.1) is very good; we note that an additional benefit is the hedging that early action provides against natural gas and market price run-ups.

NWEC firmly supports returning value of RECs to customers. In addition, it is important to recognize the rapidly increasing importance of renewable energy for both system energy and capacity needs. Furthermore, renewable resources, and all resources connected to the grid with power electronics, including batteries, can provide significant ancillary services. Consequently, the IRP evaluation perspective needs to move well beyond the mindset of renewable resources matching near-term RPS requirements.

Although we recognize that an all renewable RFP will provide an opportunity to ensure least cost resources are acquired to meet system needs, the inputs and assumptions in the IRP are still of critical importance to guide this process. In that regard, we offer some comments on the characterization of renewable resources in this IRP analysis.

The IRP still has slightly high current costs for wind, solar and batteries, but the larger issue is future cost projections. By the late 2020s, as we have discussed in the IRP workshops, actual costs are likely to be notably less than the median projected values. And assigning effectively flat cost projections for the high cost cases for renewables and batteries (Fig. 6.1) is simply not plausible.

It is somewhat surprising that more solar resources were not selected by the model. While we have been unable to identify the precise cause for this lack of selection, it could be caused at least in part by overly high estimates of integration costs or conservative assumptions around resource performance. However, we commend PGE for innovative work to assess solar + battery resources (Fig. 6.4), showing a very significant increase in combined capacity value.

NWEC, other stakeholders and the company have had in-depth discussions about the assessment of Oregon and Washington wind versus Montana wind. The extended IRP discussion on this point (Sec. 6.5) shows the company has taken this seriously and advanced the analysis. We continue to believe, however, that the source data is incomplete and support further refinement, because the Montana wind resource has both higher overall annual output and is a better fit to system needs seasonally and diurnally.

All of these elements indicate that it is quite possible that the value of wind and solar to the PGE system is still under-represented in the IRP analysis. This will potentially result in the RFP process identifying even lower cost resource acquisition than anticipated in this IRP.

5. Transportation Electrification/Electric Vehicles

We begin by commending PGE for its longstanding commitment to addressing transportation electrification with innovative pilot programs and a collaborative approach working with stakeholders of all kinds, including local governments and transit agencies. Our comments here are intended to highlight specific areas where additional progress can be made.

We appreciate the more comprehensive inclusion of transportation electrification (TE) in the IRP in this cycle (Sec. 4.1.3.1). As the demand attributed to TE continues to grow, that will result in increased marginal revenue and benefit customers by putting downward pressure on rates when combined with managed charging that better utilizes the grid and rate design that encourages beneficial charging behavior.

As of June 30, 2019, there were 16,131 plug-in electric vehicles (PEVs) registered in PGE's service territory.[2] It is essential to consider future growth of that fleet in evaluating future load growth, forecasting daily load profiles, and estimating demand effects including opportunities to support grid flexibility.

Lastly, the study omits assumptions associated with the estimated energy consumption for battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). Further information regarding Navigant's methodology and key assumptions would be helpful.

As of June 30, 2019, BEVs made up 64% of PEVs in PGE's service territory. Yet as discussed during the IRP workshops, Navigant estimates that only 54% of all electric vehicles will be BEVs by 2050. Revisiting and resolving this difference is important for load forecasting, system capacity, charging infrastructure and EV demand shaping requirements in the coming years.

For both the summer and winter Peak Demand Reduction Forecast attributable to demand response, it is important to clarify how many eligible smart (also referred to as "connected" or "DR capable") Level 2 home chargers are assumed to be available, as well as details on contribution of the unit load (approximately 3.2 kW) to coincident peak demand. NWEC is interested in further analysis of demand response potential related to LDVs in the time-of-use, peak time rebate, and behavioral demand response scenarios.

Finally, vehicle classes beyond light-duty are not addressed in the IRP. In April 2019, PGE joined a group of west coast utilities in sponsoring the West Coast Clean Transit Corridor Initiative. The study is designed to explore best options for providing EV charging on I-5 and its

[2] https://www.oregon.gov/deq/FilterDocs/CFP-electicvehicles.pdf

connecting routes for medium- and heavy-duty electric trucks as well as to help determine what role electric utilities must play in the electrification of the corridor.[3]

For example, some long-haul trucks could add roughly 1.6 MW per charging event,[4] highlighting the importance of including all forms of transportation electrification, including medium- and heavy-duty vehicles, when forecasting future load, assessing charging infrastructure build-out, and relevant aspects of rate design.

6. Load Forecast

The rise of long term direct access (LTDA) represents a significant change to the underlying utility business model. While some progress has already been made on assessing spillover effects, including load forecasting, as described at some length in the IRP (section 4.1.4 and elsewhere), further work is urgent. Likewise, the potential for small customer self-supply and microgrids (including the resilience aspects) along with transfer of vehicle and building demand is creating new dimensions for load forecasting.

7. Resource Adequacy/Capacity

The IRP describes how new capacity to meet resource adequacy requirements (Sec. 4.3.2) could range from 350 to 1000 MW by 2025 under a range of plausible scenarios, with further variance from New Load Direct Access customers.

NWEC views resource adequacy as a system capability that is provided by individual resources working in harmony with each other. Therefore, it is crucial to look at resource adequacy as a matter of assembling the best available portfolio from a range of possible choices, rather than picking single resource winners. That said, we support PGE's approach of prioritizing existing resources such as hydro capacity that are available and cost-competitive, and that if a new competitive solicitation supporting resource adequacy and reliability becomes necessary, that it will exclude new fossil generation.

Second, demand side resources must explicitly have a role in meeting resource adequacy, whether in the PGE footprint or acquired via the proposed NW Power Pool resource adequacy program. While PGE has made significant progress assessing the capacity value of energy efficiency and early development of distributed flexibility, further work is needed to incorporate these fully into the resource adequacy context. The IRP notes that distributed flexibility and distributed standby generation together could avoid the need for approximately 200 MW of capacity in 2025, and we believe the actual achievable potential is considerably greater, particularly heating demand reduction in winter, cooling demand reduction in summer and water

[3] https://www.publicpower.org/periodical/article/west-coast-public-power-entities-study-ev-charging-trucks

[4] https://rmi.org/insight/seattle-city-light/

heater demand reduction year-round. Since those resources can be managed on a realtime basis, this will also reduce forecast error and increase reliability.

While the availability of on-peak energy resources from the power markets is shrinking, especially as coal retirements proceed, the offpeak market may grow as new renewables are deployed in the Northwest and rest of the west. New demand side flexibility within the PGE system can work in concert with offpeak market purchases to help build up peak capabilities and reduce resource adequacy needs.

Finally, we commend PGE for building out an IRP analysis framework that can go deeper in assessing all these aspects of resource adequacy, but there is clearly more work to be done. Detailed studies in distribution resource and transmission planning should be coordinated more directly with IRP assessment of resource adequacy going forward.

8. Colstrip and Clean Energy Replacement

NWEC appreciates the additional analysis (Section 7.4.2) of accelerating retirement of the Colstrip coal plant and two clean energy replacement options, one of which relies on portfolio optimization (Scenario A) and the other on a new Montana wind resource plus portfolio optimization for the residual need (Scenario B).

Both of these scenarios indicate that removing Colstrip units from PGE's resource mix well before the 2035 statutory deadline is the least cost option, while the scenario that adds Montana wind is both least cost and least risk. We acknowledge that many factors are shaping the future of this multi-owner facility; however, we find PGE's explanation for not fully evaluating the cost and risk of a Colstrip exit in the IRP action plan window falls short of reasonable justification. And importantly, accelerating removal of the plant from PGE's resource mix from 2035 to 2027 would reduce customer costs and also reduce emissions by 0.6 $MMtCO_2$ per year, which is more than 15% of PGE's total projected emissions for that 8-year period.

The analysis in this IRP compels immediate action by PGE on this issue, or the Company risks potential disallowance related to Colstrip costs in future rate proceedings. NWEC recommends that PGE conduct an additional, more thorough round of this analysis for the 2019 IRP Update. By that point, the Oregon legislature may act on a reintroduction of a comprehensive climate and energy bill which could significantly affect the analysis. We also recommend adding analysis of Montana wind plus pumped storage and/or battery resources to provide a better match to system load and more efficient use of transmission resources.

9. Transmission

The 2019 IRP Addendum – Interim Transmission Solution (filed August 30, 2019) takes a significant step in the right direction for key aspects of aligning new renewable resource acquisition with transmission access. NWEC generally supports the views submitted separately by Renewable Northwest. We emphasize that the proposed steps should support significant improvement of the interconnection process and find a fair balance between company and

developer interests, to expedite the buildout of clean supply resources. Removing barriers will accelerate renewable uptake, decrease costs for all sides and provide tangible benefits for customers.

In addition to the current focus on procedural aspects of transmission access, a broader review is needed to align transmission and power planning. Looking ahead, NWEC recommends that the 2021 IRP include a significant initiative to co-optimize power and transmission operations and development, particularly for Oregon solar and Montana wind. The ongoing development of the proposed Enhanced Day Ahead Market associated with the Western EIM, which features a major focus on more efficient use of existing transmission regionally, could also play a significant role in the 2021 IRP process.

10. Reducing Capital Investment Risk

With an emerging strategy of shifting to a more diverse and interconnected mix of resource and programs/measures/rates, there is a need to address the utility business model so that rate based resources do not outweigh other resources and measures providing similar system value.

The question of fairly valuing all resources in cost allocation and recovery is beyond the scope of the IRP process, but it is clearly time to start moving in that direction. We commend the efforts of PGE, all stakeholders, and the Commission in the initial assessment under the SB 978 process, and urge that a staged action approach now go forward.

Thank you for your consideration of NW Energy Coalition's comments.

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