BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

LC 66

In the Matter of	)	
Portland General Electric	)	FINAL COMMENTS OF THE
2016 Integrated Resource Plan	)	NW ENERGY COALITION
	)	

The NW Energy Coalition (Coalition) is pleased to offer final comments on Portland General Electric (PGE)'s 2017 Integrated Resource Plan (IRP). The Coalition appreciates the extensive reply comments filed by PGE. In many cases, PGE's reply comments clarify the analysis and support key elements of the IRP. In other areas, particularly where new analysis would have been required, the reply comments fail to answer a number of Coalition concerns with the IRP and related action plan.

Our final comments focus on concerns related to resource need and timing, portfolio analysis, scoring metrics and associated risk analysis, and present recommendations for related action items. We express continued support for PGE's analysis demonstrating the clear benefits of early action procurement of renewable resources. Additionally, we strongly support PGE's commitment, as expressed in reply comments, to pursue bilateral negotiations for hydropower resource contracts currently available in the region.

However, we remain unconvinced regarding the appropriate selection of *Efficient Capacity 2021* as the preferred portfolio. Given the close scoring of the top 3 portfolios with dramatically different resource selections it seems most prudent to delay decisions related to significant, long-term capital intensive investments, particularly those that rely on natural gas due to historical natural gas price variability and its contributions to greenhouse gas emissions. Instead, the Coalition recommends the sequencing of specific action items related to resource procurement in order to ensure a least cost/least risk outcome for customers in meeting PGE's needs in the 2021 and beyond timeframe.

I. Resource Need, Selection and Timing

PGE's action plan identified a capacity need of up to 850 MW. In their reply comments, PGE indicated that this need is now reduced due to the renewal of the Wells hydropower contract, revised load forecast projections and new Qualifying Facilities (QF) contracts. PGE estimates that these factors reduce the projected capacity need to 560 MW (see Figure 5, PGE Reply Comment Supplemental Filing). In reply comments, PGE states that "updated load forecasts, Qualifying Facility contracts, and other executed contracts may reduce the identified need" further (page 7).

At the same time, PGE asserts in its reply comments that the renewal of the Well's contract does not change the Company's acquisition strategy (page 15). However, as a whole, these new developments, coming less than 6 months after the filing of the IRP, reduce the capacity need by more than 250 MW – a change that the Coalition feels should change the acquisition strategy and perhaps the selection of the preferred portfolio – especially considering that the current selected preferred portfolio contains two new large gas resources that the Coalition asserted were not justified, even at the earlier identified higher capacity resource need.

The Coalition reiterates its concern, expressed in our initial comments, that PGE's treatment of supply side options in the portfolio analysis and modeling methodology results in an IRP that favors the selection of a preferred portfolio heavy in large long-term (30-year or more) investment in new natural gas resources by underrepresenting other resource options. As acknowledged by PGE in reply comments, renewal or acquisition of hydropower resources are not modeled, and demand side resource decisions are made prior to modeling and risk analysis with no effective attempt to test higher levels of these resources.

Hydropower Resources

Despite what appears to be solid availability in the market, PGE failed to model hydropower resources in its IRP portfolio analysis. The Coalition, in our initial comments, recommended additional analysis including one or more portfolios with hydropower resources to inform the IRP analysis. PGE did not conduct additional analysis for hydropower resources for their reply comments. Rather, they explain in reply comments that modeling hydropower contracts is complicated due to the multiple uncertainties around specific contract specifications.

Importantly, however, the Company acknowledges in reply comments that hydropower contracts appear to be available in the market and also appear to be a good fit for PGE needs. The Company commits to pursuing bilateral negotiations in an attempt to acquire these resources.

The Coalition strongly supports bilateral negotiations for existing hydropower resources. The Coalition agrees with PGE that due to the nature of the hydropower suppliers, these entities are unlikely to bid into an RFP (see page 16 PGE Reply Comments). The concern about the whether these entities would bid into an RFP is an important driver for the

Coalition's recommendation that PGE conduct bilateral hydropower negotiations in our initial comments. We continue to strongly support this approach.

Because hydropower was not modeled in the IRP, the Coalition recommends careful sequencing of procurement actions. At the conclusion of the bilateral negotiations, PGE should commit to refreshing key elements of their IRP analysis in order to fully understand the contributions that these resources will make to its overall system needs before pursuing an all source RPF.

In addition to ongoing factors of low cost hydropower contract availability, QF contracts and adjustments to the load forecast, the Coalition asserts in our opening comments, and reiterates here, that the contributions from the acquisition of cost-effective energy efficiency and demand response are underrepresented in this IRP analysis.

Energy Efficiency

In reply comments, PGE acknowledges the need to advance energy efficiency forecasting methodology in the IRP. While the Coalition appreciates PGE's willingness to work with stakeholders to address this for the next IPR, we point out that the existing IRP likely suffers from under-accounting of available energy efficiency projections in the near term, and especially in the longer timeframe.

The Coalition maintains that energy efficiency will likely contribute a considerably higher contribution to PGE's capacity needs in the 2021-2040 timeframe than represented in the IRP analysis. Considering recent findings by the NW Power and Conservation Council in the 7th Power and Conservation Plan regarding energy efficiency resources important contributions to meeting peak capacity needs, PGE should take two actions:

1) Work with the Energy Trust of Oregon to analyze and target energy efficiency resources that effectively target PGE's peak capacity needs in order to ensure that programs are striving to achieve maximum levels of these resources in particular, and

2) Improve forecasting methodology in time for a reassessment after initial resource procurement actions to better inform how energy efficiency will reduce future needs, rather than waiting until the next IRP.

Lastly, while PGE seems to minimize the problem regarding large user energy efficiency caps at the Energy Trust of Oregon in their reply comments, the Coalition continues to be concerned about this issue. Failing to acquire the least cost resource is not in the best interests of customers and makes more expensive resource acquisition necessary. While the amount of conservation that not be acquired due to this issue might be 0.5-1% of PGE's overall needs, every kWh will count in keeping costs down for customers and this large user energy efficiency is really the least cost resource available to PGE. We urge the Commission to weigh in strongly on this issue in the IRP order and encourage PGE to solve the problem before the Company is unable to acquire cost effective energy efficiency.

Demand Response

PGE proposes to acquire 69-77 MW of new demand response (DR) resources under the Action Plan through 2021 and supports this number in reply comments. There is substantial evidence that the company's target for the action plan period is too cautious and threatens to become a ceiling rather than a floor for expectations going forward. Unfortunately, PGE did not include, in the IRP or reply comments, scenarios or other analysis accelerating demand response acquisition opportunities contrary to the Commission's requirements in Order #14-415 in PGE's 2013 IPR (pp. 5-6).

Developing DR to scale will require a broad-based and flexible effort. Some potential DR resources will be more difficult to acquire than expected, but others may be more ready to go to scale than currently anticipated. As noted (p. 68), the smart thermostat pilot is expanding more rapidly and the automated DR program is lagging. This is a normal result for early stage development, and highlights the importance of moving promising areas of DR forward quickly so that a sense of market responsiveness and resource scale can be achieved soon.

PGE should maximize its effort to acquire DR from this point forward, so as to reduce the need for long-term, risky investments in large, new gas generation to meet resource adequacy, coincident system peak and flexibility needs. The 69-77 MW range should be seen as a low floor, and reassessment of potential in promising DR segments should commence as soon as possible so that this target can be pushed significantly upward.

We recommend:

- An upward revision of the 78 MW action plan period goal by at least 50%, or at least addition of a stretch target to the 50% level or higher, to set a more appropriate trajectory for development.
- A demand-side specific RFP, issued concurrent with a renewables RFP.
- A revised in-depth analysis of specific DR approaches and sectors with high potential during the next five years, building on the Brattle assessment. That report helped provide a general sense of the broad reach of DR potential, but needs refinement to reflect early program learning.
- A collaborative process through which the company and stakeholders, especially including third party providers and aggregators as well as the NW Energy Efficiency Alliance, can help accelerate the DR development process.

Resource Adequacy / Market

The Coalition continues to have difficulty understanding why PGE limits its assessment of market resources for resource adequacy to only 200 MW. The discussion in the reply comments (p. 56) only repeats the conclusion from the 2013 IRP that "it is not prudent to assume availability of wholesale spot market power during the peak WECC summer months… However, for the remainder of the year, we assume moderate availability of market power. For years prior to 2019, we assume that 300 MW will be available in all

non-summer hours. This drops to 200 MW beginning in 2019." The company then mentions concern with continued resource retirements.

However, numerous changes have occurred since the analysis referred to in the 2013 IRP. While resource retirements are occurring as noted, projections of load growth have also fallen. For example, PGE is a member of the Northern Tier Transmission Group, whose members have considerable portion of resource capacity in the Northwest. The current draft of the NTTG Biennial Study Plan for the 2016-17 Regional Planning Cycle indicates that summer peak load in 2015 was 22,947 MW, the 2024 peak load estimate in the previous planning cycle was 23,902 MW, and the current estimate for 2026 peak load is now 23,637. With the addition of new renewable generating resources, distributed energy resources and more optimized used of the regional transmission grid, the Coalition anticipates that the current potential for market capacity purchases will actually increase in the years ahead. However, we recognize that many factors are involved.

We recommend that the IRP action plan include a process to study market resource availability for peak capacity needs. The review process should incorporate both the Company's own analysis and NTTG and WECC studies, and consideration of evolving regional cooperation approaches to address peak capacity needs.

II. Early Action Renewables

The Coalition continues to support PGE's analysis indicating early procurement of RPS resources is a least cost, least risk strategy. PGE has strengthened the justification in reply comments, which present a more thorough version of the analysis that was presented during the stakeholder meeting in May 2016 than was accomplished in the original IRP filing. Additionally, in response to staff and other intervener concerns, PGE tested new sensitivities – including zero load growth and zero minimum REC bank scenarios. These sensitivities showed that these factors were not significant drivers in the least cost result of early action.

PGE's original analysis and the additional information contained in reply comments indicate that 175aMW is a conservative number, and may underrepresent the actual amount of renewables that would represent least cost acquisition. Table 4 of the Company reply comments supports a much higher level for optimal early action resource acquisition – the table indicates 300 aMW would result in the lowest NPVRR (-$193.1 million) relative to a delay portfolio, and 350 aMW still results in a lower NPVRR than for 175 aMW.

The Company says they limited it based on operational and business judgment (page 21) – but we remain unconvinced that this should be the final determination of the cost-effective acquisition level. In fact, because the Coalition maintains that the use of gorge wind as a proxy wind resource may undervalue wind resource contributions to PGE's resource needs throughout the portfolio analysis, PGE's analysis of early procurement likely understates the financial value of more diverse wind resources that may be available in the market.

The actual renewable procurement that represents a least cost/least risk strategy will depend upon multiple factors including the commercial online date COD (2018-2020), and the characteristics of the renewables offered for acquisition. The total value of renewable resource ability to contribute to total system value – RPS compliance and capacity needs, will only be adequately evaluated through the renewable RFP when we see the characteristics and price of the resources. Acquisition of solar resources in Oregon will assist with summer capacity needs, and wind sited in other areas with generation profiles better fitted to load shapes will also be beneficial and better capture the full value of a diverse renewable portfolio indicated in the IRP analysis. In particular, with regard to solar, we note the company's observation (p. 48) that summer on-peak resources make a larger reduction to the annual LOLE than a similarly sized winter on-peak resource.

We appreciate the company's observation that a larger acquisition in a short period of time could result in integration and operational challenges. However, we emphasize the importance of early action to create a more diverse resource mix and capture the available incentives while reducing compliance risk for the Oregon RPS.

As a result, the Coalition strongly encourages PGE to raise the target for early action RPS acquisition to at least 300 aMW, and to seek resource and geographic diversity.

There has been a lengthy debate in Oregon on the future market for unbundled RECs. While we support Oregon's state policies and the use of RECs, they require prudent management. The Coalition continues to support PGE's conclusion (p. 29) that "long-term REC purchases at speculative prices in the REC market may also introduce deviations from the long run theoretical REC price." The company rightly notes that REC markets are subject to short-term volatility and to unobserved but potentially substantial longer-term effects that could result in adverse price trends and shocks. The very wide spread in REC prices across the country is cautionary with regard to state policies and regional market trends.

III. Portfolio Analysis, Scoring Metrics, Risk Evaluation and Selection of Preferred Portfolio

The Coalition continues to have concerns that the portfolio analysis conducted by PGE over-values contributions of single large resources and under values renewables and demand-side resources (see Initial Comments of the NW Energy Coalition). We also continue to have concerns about the scoring metrics used in the IRP, notwithstanding the additional analysis presented in PGE's reply comments.

In our initial comments, the Coalition argued that the severity metric and the durability metric measure almost the same elements and are consequently duplicative and therefore give additional weight to severity, under emphasizing variability. We pointed out that this has the effect of overstating cost results and underemphasizing risk. We recommended that the Company remove the "durability" metric from its calculations. Unfortunately,

PGE took its sensitivity analysis a step too far, by altering too many variables, including removing both the durability and the severity metrics. With the multitude of changes, including removing the severity metric required by IRP guidelines, the sensitivity analysis lacks specificity to the Coalition's primary concerns and therefore does not help us evaluate IRP portfolios selection. Consequently, our concerns with the scoring metrics remain.

Given these concerns, along with the significantly reduced resource need identified by PGE in their reply comments, the Coalition does not support the selection of *Efficiency Capacity 2021* as the preferred portfolio in this IRP. Instead, to the extent that it is necessary to select a preferred portfolio, we recommend the selection of the *Wind 2018 Long* as the preferred portfolio. We believe that this portfolio provides a closer match in resource choices to the least cost strategy outlined in the early action procurement analysis, for which we outline our support in the proceeding section. Additionally, we believe, based on our concerns with the scoring metrics analysis, that the *Wind 2018 Long* portfolio provides a better balance of minimizing cost and long-term risk for customers. On this issue, the Coalition supports the comments and associated analysis filed by Renewable Northwest in this docket.

IV. Transmission

The Coalition reiterates our concerns, expressed in detail in our initial comments, that the overall treatment of transmission in the IRP leaves many questions, including perhaps most significantly, PGE's existing transmission rights and the value new transmission projects could bring to PGE's system by facilitating connections to low-cost renewable energy. The Coalition recommends that PGE reflect the need for stronger, more coherent and more open and transparent regional transmission cooperative planning in the IRP.

The Coalition thanks PGE for the detail provided on Montana wind and transmission (section 7.2.1). It is time to move this discussion forward, while recognizing the complexities involved concerning the retirement schedule for Colstrip units 1-2, development for new wind, transmission rights and access including BPA's Eastern Intertie rate, and more.

The reply comments provide an assessment on the cost effects of using existing or new transmission for access to Montana wind. We note that this necessarily is a hypothetical assessment based on what is known now in a fast-changing situation. Also, while we appreciate the short discussion of the cost and effort needed to build new transmission, there may be important opportunities beyond the five-year action plan period.

Many stakeholders are involved in the effort to achieve access to high quality Montana wind resources, including utilities, developers, advocacy groups and planning bodies such as NTTG and ColumbiaGrid. For example, there is currently an informal effort to prepare for the review that will be needed under the WECC Path Rating Process when the Colstrip units begin to retire and transmission capacity is shifted to new wind and other

resources. PGE may want to convene an informal group to discuss the complex timing and staging issues needed to gain access to valuable Montana wind resources.

V. Recommendations

Preferred Portfolio

1. Reject *Efficient Capacity 2021* as the preferred portfolio. To the extent that a preferred portfolio must be selected, *Wind 2018 Long* provides a better balance of cost and risk and is a preferred portfolio better suited to recently updated resource needs.

Resource Acquisition/Action Items

1. Acknowledge early action acquisition of renewables up to at least 300 aMW to ensure the PGE is able to acquire resources with full PTC value.

2. Develop specific conditions for the final IRP order that lay out a precise sequencing of procurement actions:

a. First, conduct bilateral negotiations for hydropower resource contracts. Least cost/least risk hydropower resource contracts should be eligible for a waiver to the competitive bidding guidelines.
b. Second, issue two concurrent RFP's
    i. A renewables RFP that seeks to acquire up to 300 aMW of renewable resources
    ii. A demand side RFP that seeks to acquire cost-effective demand side resources
c. After completion of the bilateral negotiations and the two RFP's, refresh PGE analysis concerning system capacity needs including the resource adequacy evaluation, load forecast refresh, updated energy efficiency supply curves that include improved forecasting analysis, along with hydro and QF contract information and planned resource acquisitions from the RFP's. Reevaluate the need for an all source RFP based on this analysis.

3. Strongly encourage PGE to solve the large customer energy efficiency acquisition barriers at the Energy Trust.

4. Encourage PGE to work with the Energy Trust of Oregon and stakeholders to analyze and target energy efficiency resources that effectively target PGE's peak capacity needs in order to ensure that programs are striving to achieve maximum levels of these resources in particular.

5. Increase the 78 MW action plan period demand response goal by at least 50%, or at least include the addition of a stretch target to the 50% level or higher, to set a more appropriate trajectory for development.

IRP Update

1. Require that PGE initiate a stakeholder process to improve long-term energy efficiency supply curve development methodology.

2. Require that PGE undertake additional transmission analysis to inform near term resource selection.

3. Require that PGE study market resource availability for peak capacity needs. The review process should incorporate both the Company's own analysis and NTTG and WECC studies, and consideration of evolving regional cooperation approaches to address peak capacity needs.

Next IRP

1. Require that PGE and the Energy Trust make detailed information regarding its energy efficiency supply curve development and analysis available to stakeholders concurrent or prior to IRP filing.

2. Request that PGE adopt a dual approach of assessing solar PV and other innovation-driven technologies (including but not limited to wind and various forms of storage) with both trend analysis and experience curve analysis, and run additional studies to assess the potential impact on the resource mix for preferred portfolios from cost declines projected by the experience curve method.

3. PGE should review and improve its scoring metric and risk assessment methodology and approach with stakeholders. This should include improvements to the methodology for representing natural gas fuel price risk in future IPRs.

4. PGE should conduct a revised in-depth analysis of specific DR approaches and sectors with high potential during the next five years, building on the Brattle assessment. That report helped provide a general sense of the broad reach of DR potential, but needs refinement to reflect early program learning.

VII. Conclusion

The Coalition is encouraged by the evolution of PGE's IRP analysis and the changes to the resource procurement strategy that we see outlined in their reply comments. We are especially supportive of the Company's approach to pursuing bilateral negotiations with regional hydropower suppliers, because our experience indicates that these clean, low cost resources are currently available, and are a good fit for PGE's identified resource needs.

The Coalition supports a carefully sequenced approach, conducted in concert with refreshed analysis throughout the resource procurement process, to ensure that the

resulting decisions are financially sound, least cost/least risk for customers today and in the future. We also believe the approach outlined in our comments is a path to ultimately achieve the state's greenhouse gas emission goals and clean energy goals overall.

We appreciate the opportunity to provide comments in PGE's IRP. The utility industry does indeed seem to be at a turning point and PGE continues to be at the forefront of this trend. Beginning with the groundbreaking decision to close the Boardman coal plant in 2020 to the thoughtful approach to replacement needs in this IRP process – PGE has the opportunity to lead the way to affordable, clean energy.

Respectfully submitted this 12h day of May 2017.

/s/ Wendy Gerlitz */s/Fred Heutte*

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