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V. Denise Saunders

Assistant General Counsel

October 29, 2010

Via Electronic Filing and U.S. Mail

Oregon Public Utility Commission

Attention: Filing Center

550 Capitol Street NE, #215

PO Box 2148

Salem OR 97308-2148

Re: LC 48

Attention Filing Center:

Enclosed for filing in the captioned docket are an original and ten copies of Portland General Electric Company's Reply Comments Regarding Staff's Draft Proposed Acknowledgment Order and Staff's Final Comments.

This is being filed by electronic mail with the Filing Center.

An extra copy of the cover letter is enclosed. Please date stamp the extra copy and return to me in the envelope provided. Thank you in advance for your assistance.

Sincerely,

Denise Saunders B4 CBM

V. DENISE SAUNDERS

denise.saunders@pgn.com

VDS:cbm

Enclosures

cc: LC 48 Service List (w/enclosures)

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

DOCKET NO. LC 48

In the Matter of PORTLAND GENERAL ELECTRIC COMPANY 2009 Integrated Resource Plan.	REPLY COMMENTS REGARDING STAFF'S DRAFT PROPOSED ACKNOWLEDGMENT ORDER AND STAFF'S FINAL COMMENTS
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Portland General Electric Company ("PGE") submits these Reply Comments on Staff's Draft Proposed Order and Staff's Final Comments. We appreciate the time and resources Staff has committed over the past two years to our 2009 Integrated Resource Plan docket. Staff has attended numerous workshops, provided written comments, and offered many helpful suggestions. Staff's analysis has ultimately enabled us to improve and refine our 2009 Integrated Resource Plan and Action Plan (IRP)¹. With the exception of the issues addressed in detail below, we accept Staff's proposed requirements identified in the Draft Proposed Order.

We organized these Reply Comments to follow Staff's issues (Staff Final Comments at 1-2) and proposed requests (Draft Proposed Order at 25-26). Our Reply Comments are set forth below in the following sections:

- I. Boardman
- II. Cascade Crossing
- III. Loads
- IV. Demand Response
- V. Energy Efficiency
- VI. Renewable Energy Credits
- VII. Wind Integration
- VIII. Reliability
- IX. Natural Gas Forecasts
- X. Conclusion

I. BOARDMAN

- A. The Commission Should Adopt Staff's Recommendation to Acknowledge BART III

We appreciate and support Staff's recommendation that the Commission acknowledge PGE's BART III proposal. We agree with Staff's assessment that BART III allows adequate time

¹ Unless otherwise noted, the term "IRP" shall refer to our 2009 IRP and IRP Addendum dated April 9, 2010.

to implement a lower-risk replacement resource strategy (Staff Final Comments at 4) while offering a balanced alternative that is in the best interest of our customers:

PGE's IRP makes the case that if the proposed BART III compliance actions meet the Oregon Regional Haze Plan and Oregon Utility Mercury Rule standards, then this combination of pollution control investments and commitment to cease coal-fired operations at Boardman in 2020 provides the best combination of expected costs and risks for ratepayers.

Staff's Draft Proposed Order at 13.

1. Staff Correctly Dismissed Objections to BART III

Staff correctly dismissed objections to BART III based on assertions that PGE's forecasts for loads and natural gas prices were too high. As observed in Staff's Draft Proposed Order, the reference case forecast for CO₂ prices may have been overstated. Staff's Draft Proposed Order at 11. Adjusting the forecast for CO₂ prices would likely offset, at least in part, reductions in the forecasts for loads and natural gas prices. In any event, Staff agreed that PGE's analysis showed that reducing the load and natural gas price forecasts and lowering the trajectory for future carbon dioxide prices had no significant impact. Under the revised forecasts, BART III continues to be the best option. It meets state and federal environmental standards while providing the best combination of cost and risk for our customers.

Staff cogently analyzed the fundamental flaws in the arguments supporting early shutdown of Boardman. PGE has no reliable option today to fill the energy gap that would be created by an early Boardman shutdown without creating undue reliability and cost risk for our customers. Staff rejected proposals by NIPPC and NWECC to fill the energy gap with purchases from independent power purchasers or the wholesale power market because "the risk associated with this type of strategy is not in the best interest" of PGE customers. Staff Final Comments at 3.

The risk associated with a near-term closure implicates not only the potential for higher cost but also degradation of reliability. As Staff observed, it is "uncertain" whether a reasonable replacement strategy can be implemented by 2015 or 2016 and it is unlikely that the substantial risk for customers can ever be adequately mitigated: "the uncertainty surrounding the feasibility of implementing a reasonable replacement strategy by late 2015 or early 2016 would be difficult to overcome." Staff's Draft Proposed Order at 13.

2. A 2020 Plan is Gaining Additional Support

The plan to end the use of coal at Boardman no later than the end of 2020 has recently gained further support. The Citizens' Utility Board (CUB), NW Energy Coalition, Oregon Environmental Council and Renewable Northwest Project now all support a reasonable plan that ends the use of coal at Boardman no later than December 31, 2020. *See*, Letter from Citizen's

Utility Board, *et. al* to PGE dated October 22, 2010, attached hereto as Exhibit A. Discussions with these groups, review of comments submitted in the DEQ process and further review of technology have led PGE to request that DEQ reopen the record to permit a refinement to the BART III plan. *See*, Letter from PGE to DEQ dated October 22, 2010, attached hereto as Exhibit B. The refinement consists of (i) a lower SO₂ emissions requirement (compared to the BART III plan) commencing July 2018, so long as this requirement does not cause Boardman to exceed PM_{2.5} or PM₁₀ ambient standards, prevent Boardman from meeting mercury reduction goals, or cause significant operational issues² and (ii) advocating for the repeal of the existing BART I option once BART III is finally approved by EPA and binding on Boardman. As part of this 2020 plan, PGE has agreed to work with stakeholders in the next IRP to evaluate and consider carbon-reduction options for replacement power. *See*, Letter from Jim Lobdell to Bob Jenks dated October 22, 2010, attached hereto as Exhibit C.

3. The BART III Refinements Have No Material Impact on PGE's IRP Analysis

The further SO₂ reduction from 2018 through 2020 will be reached through increased Dry-Sorbent Injection (DSI). We estimate that the higher levels of DSI starting in 2018 will increase the total cost of the Boardman BART emission controls by approximately \$10 MM NPV (in \$2009). This change is not material, given the total cost of the BART III 2020 portfolio of approximately \$28.5 Billion NPV (\$2009).

The BART III refinements, if adopted by the EQC, do not represent a material change in the cost or risk of PGE's recommended Action Plan for Boardman. As a result, we do not believe that any further analysis or updates would be necessary if the EQC approves a rule substantially consistent with the refinements proposed in our recent letter to DEQ. Furthermore, we urge the Commission to issue an acknowledgement order with respect to Boardman that enables the Company to proceed with a 2020 plan so long as the EQC adopts a rule that is substantially similar to BART III and consistent with the provisions outlined in PGE's letter to the DEQ.

B. BART I is the Best Backstop Alternative and Should Be Acknowledged

We disagree, however, with Staff's recommendation not to acknowledge BART I if the EQC declines to adopt either BART III or a substantially similar plan acceptable to the Company. Staff's recommendation is premised on two faulty assumptions, namely that (i) another viable alternative to BART I may arise and (ii) that BART I and early shutdown alternatives will remain just as viable for consideration throughout 2011. Both assumptions are unsupported.

First, as we've pointed out before, PGE has been actively working with regulators and stakeholders (including the Joint Parties) for the last two and a half years to fashion a mutually acceptable plan for discontinuing coal-fired operations at Boardman. We have worked very hard

² PGE plans to undertake a full-scale DSI test at the Boardman to verify that the contemplated SO₂ emission reduction can be reached without adversely impacting other pollutant levels or plant operations.

with stakeholders to fashion a 2020 plan that now enjoys broad support. As indicated in the letter attached as Exhibit A, a number of stakeholders now support a plan that ends the use of coal at Boardman no later than December 31, 2020. If PGE's BART III plan (with the refinements submitted to DEQ on October 22, 2010) or a plan substantially similar is not adopted by the EQC, we need a plan to operate Boardman within the current regulatory and legal framework. The only viable plan under the current DEQ rules that complies with all legal and regulatory requirements is BART I.

Second, and just as important, we cannot delay any further the Commission's decision regarding these options without creating risks for customers in implementing these alternatives. If the EQC declines to adopt either BART III or a substantially similar plan acceptable to the Company, we have essentially two choices: install emissions controls and continue to operate Boardman at least until 2040 or cease coal-fired operations at the plant in the next few years. Either choice offers no room for delay. At a minimum, any delay comes with a price tag for customers in terms of additional cost and risk. We believe that it is already too late to implement a near-term shut down option given that there is insufficient time to obtain reasonably priced firm replacement power. The execution risk associated with a near-term closure that Staff highlighted only gets worse with time. *See Staff Final Comments at 3-4.*

As explained in PGE's IRP Addendum, we need to begin ordering required equipment to implement BART I by March 2011. Any delay in ordering the necessary equipment could lead to (i) increased costs for emissions control equipment and construction due to a compressed Engineering, Procurement, and Construction schedule and (ii) a temporary shut-down of the plant due to the inability to install the equipment in time to meet regulatory requirements. The potential costs to customers are substantial. Based on market prices today, the incremental cost for replacement supply is about \$6.4 million per month. This estimate would increase if a temporary shutdown occurred during peak summer or winter months. IRP Addendum at 124.

In short, we understand Staff's desire for more time to consider alternatives if BART III does not receive EQC approval. The backstop alternatives before the Commission are time-sensitive and need to be acknowledged now. BART I is the best backstop alternative.

Nevertheless, if the Commission declines to acknowledge a backstop, we request that the Commission permit PGE to file a Boardman-Only Update as expeditiously as warranted if the EQC issues a ruling rejecting BART III and does not offer an alternative consistent with the refinements proposed by the Company. The Boardman-Only Update would not include other items identified in Staff's Draft Proposed Order. The need to include these additional update items, such as an evaluation of unbundled RECs, Conservation Voltage Reduction, and updates for Cascade Crossing, would significantly delay filing of a Boardman update without providing any substantial benefit to the Commission's consideration of Boardman alternatives. PGE would not file a Boardman-Only Update if the EQC accepts BART III or a substantially similar alternative which is consistent with the refinements that PGE submitted to DEQ.

The opportunity to file a Boardman-Only Update would permit the Commission to consider the alternatives reasonably soon after the EQC issues its decision and could mitigate the

risk to customers from undue delay in implementing alternatives to BART III. If the Commission permits PGE to file a Boardman-Only Update, we would, consistent with IRP Guideline 3(f), still file a general IRP Update within one year of the acknowledgement order with the other updates specified in the Commission's Acknowledgement Order.

The Commission would also benefit by having the annual IRP Update filed after a Boardman-Only Update. Much of the information contained in the general IRP Update, such as updated Cascade Crossing information, would be more informative to the Commission and stakeholders if it were provided after more time had elapsed. However, as noted earlier, the Boardman-Only Update, if necessary, should be filed as expeditiously as warranted. Separating the two updates would allow the Commission to receive the greatest benefit from each. PGE requests that the Commission expressly allow PGE to file a Boardman-Only Update, if necessary, in addition to the later general IRP Update for other items identified in the Commission's Acknowledgment Order. (In the comments that follow, we will use the term "Annual IRP Update" to refer to the general IRP Update required by Guideline 3(f) as opposed to the Boardman-Only Update we propose as an option if needed).

II. CASCADE CROSSING

A. The Commission Should Acknowledge Cascade Crossing

We agree with Staff's recommendation that the Commission acknowledge PGE's proposal to build Cascade Crossing, subject to the requirement that PGE include certain additional information in its IRP Update. Staff Final Comments at 5. Nevertheless, the Commission should make certain clarifying changes to Staff's Draft Proposed Order. We include as Exhibit D a red-line of the Cascade Crossing portion of the Staff's Draft Proposed Order showing those changes.

Staff's suggestion that PGE's Cascade Crossing request is conditional or that we seek conditional acknowledgment is incorrect. Staff Draft Proposed Order at 17. While agreeing to provide updates to the Commission, PGE has asked for final acknowledgement to proceed with Cascade Crossing. The decision of whether we construct a single-circuit or double-circuit configuration is conditional, based on such updated information; however, the action plan to construct Cascade Crossing is unconditional.

Similarly, language in the Staff's Draft Proposed Order suggesting that parties can advocate against acknowledgment of Cascade Crossing in the future is misleading in that it suggests less than final acknowledgment of PGE's Cascade Crossing action plan in this IRP. See Staff's Draft Proposed Order at 17. We suggest that the final acknowledgement order expressly provide that PGE's proposed action plan for Cascade Crossing as specified in the 2009 IRP is fully acknowledged at this time, with the requirement that PGE provide the updated information specified in the Order in the Annual IRP Update.

Parties are free to challenge acknowledgment of future IRPs and we do not question that the Commission and parties will review PGE's updated information provided in the Annual IRP

Update. However, acknowledgment of this IRP must be based on information available at the time of filing, and the Commission should not include any language in its final acknowledgement order that implies that its acknowledgement of Cascade Crossing is conditional or that parties can advocate against the Commission's acknowledgement of PGE's 2009 IRP in future IRP proceedings.

B. PGE Has Conducted a Thorough Review of Cascade Crossing, Including Sensitivity Analyses

We are also concerned about Staff's comment that PGE included little or insufficient sensitivity analysis in our Cascade Crossing analysis. Staff Final Comments at 8; Staff's Draft Proposed Order at 17. Based on the record, PGE does not believe this is the case. In the IRP, we analyzed the results for two very different project configurations (single-circuit and double-circuit), three different levels of third-party participation, and three different growth rates for BPA transmission rates and analyzed all of these for three leading supply portfolios. Further, we provided ten confidential spreadsheets with the analyses of the different cases. In the spreadsheets, we grouped and displayed key assumptions for the analyses on a separate "Assumptions" tab. This allowed parties, including Staff, to conduct any additional sensitivity analyses desired, or to ask PGE to perform such analyses during the data discovery process.

In response to Staff's Data Request No. 76, we also supplied estimated rate impacts for both project costs \$100 million higher and \$100 million lower than projected. As part of our data response, we also provided twenty confidential spreadsheets containing the analyses and results for all the cases and project configurations with the higher and lower assumed project costs. In response to Willard Rural Association Data Request No. 13, we also supplied results for the double-circuit configuration under two scenarios, one in which land and right-of-way costs doubled to \$86.6 million and another in which such costs increased by \$120 million.

While we believe that our sensitivity analyses were sufficient, we will make best efforts to provide additional sensitivity analyses Staff may request in future IRPs. We request that, prior to the next IRP, Staff clarify the additional sensitivity analyses requested.

III. LOADS

A. PGE's Load Forecast Was Reasonable

We agree with Staff's assessment that "the range of load forecasts in PGE's IRP provides a reasonable basis for PGE's portfolio selection." Staff Final Comments at 8. PGE continues to believe our load forecast was appropriate given the information reasonably available at the time the forecast was made. Staff primarily focused on the recession as the basis for concluding that PGE's load forecast was high. In fact, we explained in our comments that the recession was one of the key factors accounting for reductions in our load forecasts between March and December 2009. *See* PGE Reply Comments (September 27, 2010) at 12-14.

Although we have reduced our load forecast since we filed the IRP, recent business news provides some optimism concerning future load recovery. On October 12, 2010, Intel announced plans to build another fabrication facility in Hillsboro, a facility that will be served by PGE distribution facilities. *See* Exhibit E, Intel press release. Intel also forecasts an additional 800-1,000 high tech jobs resulting from their capital investments throughout their facilities. PGE will incorporate this information in our next long-term load forecast.

Even though Staff believed our forecasts were high, they agreed that PGE faces a significant shortfall in both energy and capacity. In particular, Staff observed that "our analysis indicates that PGE's energy and capacity need remains significant even under a lower load scenario." Staff Final Comments at 3. Staff used PGE's low load forecast to evaluate PGE's energy and capacity needs both with and without Boardman, finding that the low load forecast did not "alter Staff's conclusions regarding PGE's portfolio selections." Staff Final Comments at 8. We maintain that our load forecasts were reasonable based on the information reasonably available at the time. Nevertheless, PGE has no objection to providing a new load forecast in our Annual IRP Update.

B. Potential Load Loss Due to Distributed and Self Generation

Staff recommends that "in the next planning cycle, PGE must analyze the extent of potential load loss due to distributed and self generation." Staff Final Comments at 1. We are unclear about the source of Staff's objection given that we currently comply with this recommendation. Staff's comment supporting this suggestion is that "it becomes especially difficult [to project load growth] when the economy is uncertain and the industry is facing 'disruptive' technology of distributed generation and energy efficiency and 'supportive' technology of electric vehicles." Staff Final Comments at 9. In fact, the IRP contains a section entitled Distribution Generation Options. IRP, §7.5, at 147. In this section we discuss the benefits of distributed generation ("DG"), including Dispatchable Standby Generation ("DSG"), Customer-sited Combined Heat and Power (CHP), Distributed Solar, and Net Metering. The IRP includes DSG starting at 53 MW in 2008 and rising to a total of 120 MW in 2013. *See* IRP at 224. We also assumed 5 MWa of CHP and 6 MW (0.7 MWa) of distributed solar by 2019. *See* IRP at 320. In addition, we included a discussion on the potential impact of electric vehicles. IRP at 50-52.

Accordingly, it is unclear what additional analysis Staff is suggesting for the next IRP and the source of any such requirement in the IRP Guidelines. We will work with Staff and other Stakeholders to address this issue in the next IRP.

IV. DEMAND RESPONSE

PGE has fully complied with Guideline 7 for demand response ("DR"). We have not changed our DR methodology materially from the method used in PGE's 2007 IRP (Docket LC 43) with the exception of modifying the planning horizon as directed by the Commission in Order No. 08-246. The Commission determined that this DR approach met the Guideline requirements: "We conclude that, except for the planning horizon used in its analysis, PGE's

2007 IRP complies with Guideline 7.” *Re Portland General Electric Company*, Docket LC 43, Order No. 08-246 at 19.

The only specific shortcoming Staff identifies – that the IRP did not include projected capacity contributions and cost by year and DR class (Class 1 is directly dispatchable load curtailment and Class 2 relates to dynamic price signals) – does not reflect an express Guideline requirement. In fact, the Guidelines make no mention of DR classes.

Nevertheless, PGE's analysis comports in substance with Staff's recommendation. PGE relied on third-party estimates from the Brattle Group for DR availability. As presented in our December 2008 Public Meeting, Brattle analyzed firm (direct load control, customer controlled – e.g. curtailable tariff) and non-firm (bidding or buy-back programs, real time pricing, critical peak pricing, and peak time rebate) options. These options cover both Class 1 and Class 2 DR options Staff mentions.

Finally, Staff's general point that DR should be modeled "on par" with other resource options requires some clarification. First, we do in fact model assumed amounts of DR that we can cost-effectively acquire as contracts on par with supply-side resources. However, we have never interpreted the Commission's Guidelines to require us to ignore DR's unique attributes that make traditional portfolio analysis non-applicable. We evaluate DR by comparing its cost to the avoided cost of the incremental capacity supply alternative. Similar to the methodology the ETO used in its EE study, the Brattle study reviewed DR using a benefit/cost ratio based on an avoided capacity resource – i.e., a simple-cycle combustion turbine. In the IRP we propose to acquire DR that passes this economic test. We believe this analysis comports with the requirement that DR be considered “on par” with other resource options.

The first time we heard about this potential IRP Guideline shortcoming was in Staff's Final Comments. In future IRP dockets, we suggest that parties follow a process that allows us to receive and address potential Guideline issues early in the proceeding so that suggestions may be incorporated into our analysis. We believe potential issues should be identified early enough for incorporation into the IRP. New issues identified for the first time late in the process, after the utility cannot reasonably change its IRP, should be handled as suggested changes for the next IRP and not as current IRP Guideline deficiencies.

V. ENERGY EFFICIENCY (“EE”)

Staff believes that PGE fully complied with three of the four requirements under Guideline 6 but faults PGE for not including Conservation Voltage Reduction as a conservation measure. The IRP Guideline at issue – Guideline 6(b) – requires the utility to include all best cost/risk portfolio conservation resources for meeting projected resource needs but makes no mention of CVR. PGE views CVR as an operational efficiency, not a long-term planning issue. We have treated CVR in the same manner in all recent IRPs. In the 2007 IRP, Staff did not raise this issue and the Commission concluded that PGE complied with Guideline 6 (with the exception of an unrelated issue – the planning horizon). As discussed above, any new

interpretations about what the Guidelines require should be handled as suggested changes for the next IRP and should not be characterized as non-compliance with current IRP Guidelines.

Not only do we believe that Guideline 6 has been met, but the amount of CVR at issue is not material to our IRP and Action Plan. Staff notes that “the ETO identified the technical potential for 19 MWa of efficiency from conservation voltage reduction.” Staff Final Comments at 11. In other words, there will be a total of 19 MWa of CVR at the end of the 20-year study period (2029). This is less than one MWa annually, assuming the CVR total is added in equal amounts each year. At less than 5MWa by 2015 (the end of the Action Plan horizon) the amount of CVR would not have a material impact on PGE’s resource requirements or proposed Action Plan. Although we believe it broadens the scope of IRP for a marginal effect, we do not object to considering CVR alongside all other generation and T&D efficiencies in future IRPs.

VI. RENEWABLE ENERGY CREDITS (“RECS”)

A. Forecasting the Availability and Price of Unbundled RECs Is Not Prudent

Staff suggests that PGE did not thoroughly examine the role of RECs (in particular unbundled RECs) in meeting the renewable portfolio standard (“RPS”) requirements. PGE disagrees with this assessment. While the current IRP guidelines prescribe no specific treatment for RECs, PGE provided a thorough evaluation and discussion of RECs and the RPS requirements. IRP at 111-122. We tested two potential risks for RPS compliance. First, we evaluated the risk of violating RPS requirements because of a portfolio's shortage of qualified resources or being forced to rely on Alternate Minimum Compliance Payments to meet the requirement. Second, we conducted a scenario analysis to examine the potential cost risk of using banked RECs to delay the acquisition of new renewable resources.

The supply risk analysis tested how quickly PGE would deplete its store of RECs if PGE delayed the acquisition of new renewable resources. Our analysis illustrated the rapid rate of REC depletion that occurs once a new RPS compliance requirement (i.e., higher level of renewable qualifying energy) is reached and no new renewable resources acquired. IRP at 116.

In order to test the risk of deferring the acquisition of new RPS resources, we also included a cost sensitivity for future wind generation in our IRP analysis. The cost sensitivity was based on a future scenario in which the cost of energy for new wind resources increased at a rate of 7.8% per year. This rate of increase was selected as it reflected the escalation in projected costs for a wind plant experienced between PGE’s 2007 and 2009 IRPs. *See* IRP at 119. This sensitivity was used to examine the cost risk of delayed acquisition of renewable resources in favor of “drawing down” PGE’s bank of RECs. Since one of the primary risks of deferring the acquisition of physical resources is the potential for increased future costs, we believe that this sensitivity was appropriately included in the IRP to illustrate the potential downside of employing such a “deferral” strategy. The REC analysis suggests that depletion can occur rapidly if banked RECs are used to delay the acquisition of physical RPS resources for more than a few years. Ultimately our analysis indicates that a deferral strategy can lead to a sudden and

significant “cliff” when all banked RECs are depleted and a large RPS resource deficit must be quickly filled.

Staff suggests that PGE should attempt to project future prices and availability for unbundled RECs and use these projections to assess the potential for acquiring unbundled RECs as an alternative to meeting the RPS requirements with long-term resources. Staff Final Comments at 12. We believe that, given the lack of liquidity and transparency in the REC markets, it would not be prudent to rely on such projections. The market for RECs in the West is a fragmented, non-standard and bi-lateral system subject to significant variability in price and availability, as well as transaction terms. In addition, there is virtually no active market for the purchase or sale of RECs beyond a few months to a year ahead. Given these circumstances, it is not advisable to include market projections with respect to the future value or availability of unbundled RECs in its IRP analysis, particularly for the entire 30-year planning horizon as Staff suggests. Including such projections for RECs in a future IRP may become viable if the market for RECs matures and becomes better organized, with reasonable price transparency and liquidity. However, given the current state of the REC market and the high degree of speculation that would be required to project future prices and availability, we believe that the Commission should decline to adopt Staff’s recommendation that PGE be required to evaluate the use of unbundled RECs to meet RPS requirements in its next Annual IRP Update and planning cycle.

B. PGE Has Complied with Staff’s Other REC Recommendations

Staff also requests that the Commission require PGE in its next IRP Update to “evaluate alternatives to physical compliance with RPS Requirements in a given year, including meeting the RPS Requirements in the most cost-effective / least risk manner that takes into consideration technological innovations, expiration or extension of production tax credits, and different levels of integration costs for renewable resources.” Staff Final Comments at 2.

Staff requests that PGE assess alternate approaches to meeting RPS requirements, and suggests that PGE did not consider technology innovations, the effect of changes in renewable resource tax credits or varying levels of integration costs in its IRP analysis. We disagree with this assessment.

A limited number of approaches satisfy the RPS requirements: acquisition of RPS qualified resources or contracts, use of banked or unbundled RECs, reliance on Alternative Minimum Compliance Payments, or some combination of these strategies. Our IRP addresses each of these approaches, except for the use of forecasted unbundled RECs, which we addressed above.

With regard to technological innovations, PGE examines emerging technologies (including renewable resource innovations) in our IRP. IRP at 161-163. However, we do not speculate or attempt to include in candidate portfolios unproven technology innovations or emerging resources where the technology, cost or availability are poorly understood. This is consistent with the approach the Northwest Power & Conservation Council employs. See Northwest Power and Conservation Council Sixth Plan at 4-6.

PGE's IRP also evaluates the impact of various changes to renewable resource tax credits, including extension of existing incentives, 50% reduction of incentives and elimination of existing incentives. PGE incorporates each of these as an IRP future. IRP §10.6 and D-2.

We also disagree with Staff's assessment that the IRP does not consider the impacts of different levels of renewable resource integration costs. The IRP incorporates two different levels of integration costs for prospective renewable resources: new wind (\$11.83 / MWh in \$2009, escalating at inflation), solar and wave (\$6.35 / MWh in \$2009, escalating at inflation). IRP at 158-159. The IRP also uses a separate integration cost for existing wind resources based on the Tier I wind integration cost estimate from the 2007 IRP. PGE recognizes that the potential cost impacts of new and less deployed variable resources such as solar and wave are not currently well understood and that further study should be done to better define the integration cost differences between various types of renewable resources. However, we disagree with Staff's suggestion that the IRP does not consider the impact of different levels of integration costs.

PGE requests that the Commission decline to adopt Staff's recommendation that PGE further evaluate alternatives for RPS compliance or requests that if the Commission adopts such a requirement that it provide the objectives and modeling parameters for doing so.

VII. WIND INTEGRATION

Staff suggests that we have failed to comply with the Commission's directive to include a wind integration study that "has been vetted by regional stakeholders." Staff Final Comment at 13. At the outset, we note that Staff suggests no substantive criticism of our wind integration study or that this issue affects any of the Action Plan items. Moreover, while the term "vet" is imprecise, we maintain that under any reasonable interpretation of the term we have complied with the Commission's directive. In any event, we have no objection to including a Phase 2 wind integration study in our Annual IRP Update that has been vetted with regional stakeholders.

We interpret "vet" to require sharing our wind integration study for review, soliciting comments from stakeholders, and due consideration of those comments in the final study. Our Phase 1 wind integration study involved many neutral third-party reviewers, including OPUC Staff. In addition to the three hour wind integration technical meeting that Staff notes, we provided a description of our study in our IRP. IRP at 125-130. We involved a technical review committee (TRC) composed of third-party industry wind integration experts who met with us frequently to review our work and advise us. We invited RNP to our offices to review our detailed modeling approach, coding, and inputs and responded to many questions that RNP sent to us by email. We engaged Enernex, an industry expert in wind integration, to help develop our study and provide key in-hour cost functions.

In our concurrent 2008 renewables RFP docket, we had a similar requirement to vet the wind integration study before soliciting bids. In that docket, we engaged an Independent Evaluator (IE) who called the study a "thorough integration study." *Portland General Electric*

Company, Docket UM 1345, Report of the Independent Evaluator at 18 (12/11/08). At the time, Staff provided PGE with written confirmation that we had met the requirement to vet the study in the context of the RFP. Because Staff indicated that the vetting requirement was satisfied and at no later time suggested that further vetting was required, we reasonably concluded that we had complied with the Commission's directive.

Nevertheless, PGE agrees to include a Phase 2 study in our Annual IRP Update that has been vetted with regional stakeholders, but requests the Commission to find that we met the requirement from Order No. 08-246 to vet our study. If the Commission concludes that our efforts in the 2009 IRP fell short, we ask that the Commission provide more specific guidance as to what constitutes "vetting" for future IRP compliance.

VIII. RELIABILITY

Staff suggests that PGE did not fully comply with all the requirements of Guideline 11. PGE believe it has complied with the requirements of Guideline 11 which are as follows:

- (1) Analyze reliability within the risk modeling of the actual portfolios being considered.
- (2) Loss of load probability, expected planning reserve margin, and expected and worst-case unserved energy should be determined by year for top-performing portfolios.
- (3) Demonstrate that the utility's chosen portfolio achieves its stated reliability, cost and risk objectives.

PGE uses three metrics to analyze reliability for its considered portfolios: Loss of Load Probability (LOLP), Expected Unserved Energy (EUE), and TailVar 90 of Unserved Energy (TailVar UE). Staff seems to acknowledge that PGE analyzed reliability with these metrics, but does not agree that these metrics are reasonable reliability metrics.

Staff's contention is that PGE's EUE metric should be called a conditional expected unserved energy and is a market exposure metric, not a valid reliability metric. Staff further agrees with the contention by NWECC that the metric is a measure of a portfolio's "length" and "independent of PGE's portfolios."

We disagree with Staff's assertion that the EUE metric reported in the IRP is conditional and that it represents a measure of a portfolio's relative length. Since the portfolios were created (with three exceptions) to reach similar capacity targets, the difference in the reliability measures across portfolios is primarily a function of the characteristics of the generation resources in each portfolio and the stochastic nature of the output for each resource, not portfolio length. For example, consider two portfolios, one composed primarily of wind resources, the other primarily of gas resources, and both with the same overall capacity year-to-year. The two portfolios would clearly have different exposure to the stochastic nature of wind and the stochastic forced outage rate of gas-fired generation. This difference in relative exposure to stochastic variables is

reflected in the risk metric results of each portfolio. PGE notes that the amount of generation resources in a portfolio does impact our ability to reliably serve our customers' load and thus the market exposure caused by the stochastic nature of the resources in the portfolio is a measure of reliability risk for that portfolio.

We would like to address the example given by Staff where a portfolio would have a low EUE, but a high LOLP. Staff Final Comments at 15. If rated solely by EUE, the portfolio would appear to perform well, but in conjunction with a high LOLP the portfolio would actually be undesirable. PGE notes that this is a valid observation. Solely using measures of average expected and worst case risk magnitude without also considering the risk frequency could provide an incomplete picture. However, PGE did in fact also analyze LOLP (frequency of reliability events). Since PGE's largest concern, when measuring risk for our deterministic, stochastic, and reliability metrics was to find portfolios that avoid particularly poor outcomes, we focused on the TailVarUE for use in the scoring matrix for the sake of consistency. However, in future IRPs, we will include both frequency and magnitude metrics in the scoring.

While PGE agrees that it is important to capture both magnitude and frequency of reliability events, we disagree that the concept of ENS (Energy Not Served) is a more sound reliability metric than the joint use of LOLP, EUE, and TailVar EU. ENS would not distinguish between a portfolio that has many hours with small amounts of unserved energy, and a portfolio that has a fewer number of hours with extremely high amounts of unserved energy, since it is just a sum. Consider an extreme example where a portfolio has 5 hours with 1000 MWa unserved, or 1000 hours with 5 MWa unserved. ENS would not distinguish between these situations. For this reason, PGE believes, consistent with Guideline 11, metrics that describe both magnitude and frequency should be used in conjunction, and that doing so provides a better picture of these distinct risks.

PGE believes that it has complied with all the Guideline 11 requirements. Specifically, PGE developed and analyzed the loss of load probability, expected and worst-case unserved energy metrics by year for all its portfolios. As mentioned above, PGE believes its EUE metric is a reliability metric, not a measure of market exposure. In light of Staff's guidance, PGE will ensure in the Annual IRP Update and future IRPs that the modeling metrics evaluated in the IRP for both magnitude and frequency of reliability events) are also captured in its methodology for ranking of portfolios.

IX. NATURAL GAS FORECASTS

Staff recommends that PGE should obtain gas price forecasts from multiple third-party sources. Staff Final Comments at 16. Staff compares forecasts from PIRA, U.S. Energy Information Administration ("EIA") and Wood MacKenzie Research and Consulting ("Wood MacKenzie") and concludes that the PIRA Energy Group's ("PIRA") natural gas forecasts are biased. *Id.*

PGE is unaware of any specific bias in PIRA's forecast. Moreover, it appears that in comparing PIRA, EIA, and Wood MacKenzie forecasts, Staff is comparing the PIRA August 2009 forecast used in the IRP with EIA and Wood MacKenzie prices for 2010. While we do not

have access to Wood MacKenzie, we have compared the PIRA Henry Hub forecasts in 2009 and 2010 with EIA and find that PIRA is not consistently higher. In fact, PIRA's May 2010 real levelized forecast is almost 3% lower than EIA's Annual Energy Outlook released in May 2010. Comparing PIRA's 2009 forecast with the 2010 forecast of other sources is misleading because most forecasters reflected a downturn in prices for 2010.

While we do not object to using more than one gas forecast, we note that acquiring additional subscriptions will increase costs that PGE will include for recovery in customer rates.

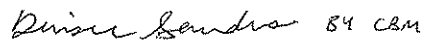
Staff registers a similar observation with respect to PGE's use of NYMEX for near-term market indications, suggesting that PGE should use "other fundamental sources for short-term price indicators." Staff Final Comments at 16. PGE maintains that using prices daily from actual trades is superior to forecasts from other third party forecasters, because actual trades reflect the most current and accurate information that is available in the market. Moreover, we used this same methodology in our last two IRPs and in calculating avoided costs for the last several years. In addition, because our portfolios are the same until 2015, using NYMEX futures instead of fundamentals-based forecast is immaterial to our early years of analysis and has no impact on future portfolio decisions.

X. CONCLUSION

PGE appreciates Staff's careful review and analysis of the IRP. With the exception of the issues addressed in detail above, we accept Staff's proposed requirements identified in the Staff Draft Proposed Order and respectfully request that the Commission acknowledge our 2009 IRP.

DATED this 29th day of October, 2010.

Respectfully Submitted:

 84 CBM

V. Denise Saunders
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Portland General Electric Company
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LC 48

PGE's 2009 Integrated Resource Plan

Exhibit A

Letter from Citizens' Utility Board, et al, to PGE
Dated October 22, 2010

October 22, 2010

Mr. Jim Lobdell
Vice President, Power Operations and Resource Strategy
Portland General Electric Company
121 SW Salmon Street
Portland, OR 97204

Dear Mr. Lobdell:

Certain members of the public interest community, including to date, the Citizens' Utility Board ("CUB"), the Renewable Northwest Project, Angus Duncan, Oregon Environmental Council, and the NW Energy Coalition (the "Group"), have been in discussions with Portland General Electric Company ("PGE") about PGE's method of constructing Boardman candidate replacement resource portfolio options to be considered in the Oregon Public Utility Commission's ("OPUC") Integrated Resource Planning process related to the cessation of Boardman coal-fired operations. The Group and PGE have also been discussing the Group's support for cessation of Boardman coal-fired operations at the Oregon Department of Environmental Quality ("DEQ"), the Environmental Quality Commission ("EQC") and the OPUC. This letter represents the Group's understanding of its role with respect to these discussions, and should be read in the context of the corresponding letter of the same date from Jim Lobdell, PGE, to Bob Jenks, CUB dated October 22, 2010 (the "PGE Letter").

The Group supports a plan that is similar to PGE's BART III proposal that would cease coal-fired operations at Boardman no later than December 31, 2020 as a part of a comprehensive plan (the "Plan") that satisfies the Clean Air Act ("CAA") and makes significant emissions reductions, meets the least-cost/least-risk standard, and is accompanied by commitments to a good faith process, within PGE's next IRP process and sanctioned by the OPUC, to develop a limited number of carbon reduction candidate resource portfolio options for replacing Boardman upon cessation of its coal-fired operations, and meeting the anticipated resource requirements of the utility's customers. The portfolios will be designed to achieve the best combination of expected costs and associated risks and uncertainties for PGE and its customers, and also reduce the carbon footprint of the company's resource portfolio over time. The Group agrees that it will, in consultation with PGE, define specific CO₂ reduction targets on which these portfolios can be based. Such portfolios will be evaluated against other constructed resource portfolios developed during the IRP process.

The Group strongly believes that greenhouse gas and criteria pollutant reductions consistent with Oregon's climate goals and Clean Air Act standards are compatible with safe, reliable and affordable utility electricity service, and that PGE, in its disposition of Boardman and in its next IRP, can serve as a leader in achieving these outcomes, and providing a clean energy future for Oregon. We invite PGE to embrace this leadership position and would assist the company in realizing this vision.

The DEQ 2018 and PGE BART III proposals now under consideration have many similarities, but differ in their treatment of operating flexibility. We encourage DEQ to develop appropriately flexible emission limits—similar to the mercury rule—to accommodate the proposed control technology recommendations, while achieving significant emissions reductions under the CAA.

All members of the Group, including individuals speaking on behalf of the Group, will immediately:

- Work in good faith with PGE for adoption and implementation of the Plan. Members of the Group remain free to advocate at any time and in any process (including at the OPUC) for elimination of a 2040 date, or any date later than 2020, for terminating coal-fired operations at Boardman.
- Advocate strongly for the Plan in comparison to other Boardman emission control options being considered in public and private forums and communications, including the following:
 - Department of Environmental Quality: Speak strongly in favor and/or file written comments at any additional hearings or comment periods prior to an EQC decision;
 - Environmental Quality Commission: Speak strongly in favor at hearings and public meetings where public comments on the Plan are taken and/or file written comments supportive of the Plan at the appropriate times;
 - Environmental Protection Agency: Speak strongly in favor at hearings and public meetings where public comments on the Plan (*i.e.*, Boardman BART State Implementation Plan approval) are taken and/or file written comments supportive of the Plan at the appropriate times;
 - Oregon Public Utility Commission: Speak strongly in favor and/or file written comments supportive of the Plan, including the Boardman replacement power process described in the PGE Letter at appropriate scheduled times. The Group's advocacy will include seeking OPUC acknowledgment of the Boardman replacement power process.

Members of the Group will comment in other public venues, including print and broadcast media, strongly in favor of the Plan and consistent with the content of this letter and the PGE Letter, including co-authorship with PGE of a joint opinion editorial by the Group that will generally reflect the content of these letters, including speaking to the importance of the Plan to cease coal-fired operations at Boardman and the replacement resource process that will enable PGE's transition to a cleaner, low-carbon resource portfolio, to be filed with the Oregonian and other relevant news outlets prior to the EQC decision on this matter.

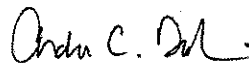
The Group commits to using its best efforts and to work in good faith and adhere to the OPUC's prevailing IRP guidelines and process.

Thank you for taking the time to engage in these discussions.

Sincerely,



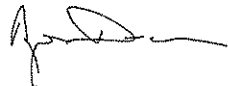
Bob Jenks, Citizens' Utility Board



Andrea Durbin, Oregon Environmental Council



Rachel Shimshak, Renewable Northwest Project



Angus Duncan



Sara Patton, NW Energy Coalition

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PGE's 2009 Integrated Resource Plan

Exhibit B

Letter from PGE to DEQ
Dated October 22, 2010



Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204
(503) 464-8928 • Facsimile (503) 464-2222

Stephen M. Quennoz
Vice President
Power Supply/Generation

October 22, 2010

Mr. Dick Pedersen
Executive Director
Oregon Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204

RE: Request to re-open the record for Boardman BART

Dear Mr. Pedersen:

Portland General Electric Company ("PGE") is hereby requesting you, in your role as Director of the Department of Environmental Quality ("DEQ") and representative of the Oregon Environmental Quality Commission ("EQC"), to re-open the Regional Haze Best Available Retrofit Technology ("BART") rulemaking record to consider an acceptable Boardman BART approach. Our goal, throughout this process, has been to obtain the environmental benefit of transitioning Boardman away from coal 20 years ahead of schedule, while balancing the cost to customers and the reliability of our system. PGE makes this request based on significant stakeholder discussions over the past month, reviewing comments filed during the DEQ's comment period in September 2010, and additional considerations about the possible performance of certain technologies in later years of operation. We appreciate the DEQ's work on this matter over the past several years and we look forward to obtaining a workable rule from the EQC by the end of this year.

This approach would have the following elements:

- The July 1, 2011 NO_x BART control requirements remain as they are in the current BART rules adopted June 19, 2009 ("2009 BART Rules").
- The July 1, 2011 NO_x emission limit compliance date shall commence the later of July 1, 2011 or 90 days after DEQ issues the required permits to allow operation of PGE's low-NO_x burners.
- The July 1, 2017 NO_x Reasonable Progress control requirements would be removed from the 2009 BART rules.
- On and after July 1, 2014, Boardman shall meet an SO₂ emission limit of 0.4 lbs/MMBtu on a 30-day average.
- On and after July 1, 2018, Boardman shall meet an SO₂ emission limit of 0.3 lbs/MMBtu on a 30-day average.

- Prior to each reduction in SO₂ emissions, PGE shall perform testing as necessary of the installed SO₂ control systems to confirm the applicable SO₂ emissions limit is achievable without causing an exceedance of PM₁₀ or PM_{2.5} ambient standards, preventing PGE from meeting mercury reduction goals, or causing significant operational issues. If the testing shows that Boardman is unable to meet the required SO₂ emission limits, DEQ shall set an alternative SO₂ emission limit that is achievable without installation of additional control equipment (e.g., bag house, scrubber).
- In the event of a delay of approval by the U.S. Environmental Protection Agency ("EPA") beyond December 31, 2011 of Oregon's State Implementation Plan that includes the BART elements contained in this letter (the "SIP"), the date for the emissions limits under the existing 2009 BART Rules shall be set at three years after EPA approves the State Implementation Plan incorporating the 2009 BART Rules.
- Boardman shall cease the use of coal to fire the plant's boiler no later than December 31, 2020.

If the above elements are included in the BART rule and if the SIP incorporating these elements is finally approved by EPA and binding on Boardman, PGE agrees that DEQ should repeal the 2009 BART Rules that would otherwise allow full installation of controls and operation beyond 2040.

We understand that PGE or any other party has the right to petition the DEQ for future rule amendments and that EQC may approve or deny such petitions. Such petitions might be triggered by changes to federal law requirements or an order of a federal court that could fundamentally alter successful implementation of the BART approach contained herein.

PGE believes that the approach described herein, which includes significant and cost-effective interim emissions controls and ends coal firing no later than December 31, 2020, achieves the proper balance of environmental benefits, cost and risk to our customers. We are confident this approach provides a groundbreaking opportunity for Oregon that is capable of being approved as BART and incorporated into a new rule. Please do not hesitate to contact us if you need clarification or have questions.

Sincerely,



Stephen Quennoz
Vice President, Nuclear & Power Supply/Generation

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PGE's 2009 Integrated Resource Plan

Exhibit C

Letter from Jim Lobdell to Bob Jenks
Dated October 22, 2010



Portland General Electric Company
121 SW Salmon Street • Portland, Oregon 97204
(503) 464-2723 • Facsimile (503) 464-2222

James F. Lobdell
Vice President
Power Operations and Resource Strategy

October 22, 2010

Mr. Bob Jenks
Executive Director
Citizens' Utility Board of Oregon
610 SW Broadway, Suite 308
Portland, OR 97205

RE: PGE Boardman replacement resource planning process.

Dear Mr. Jenks:

Portland General Electric Company ("PGE") has been working with certain members of the public interest community (including to date, the Citizens' Utility Board ("CUB"), the Renewable Northwest Project, Angus Duncan, Oregon Environmental Council, and the NW Energy Coalition (the "Group")) to discuss PGE's public commitment to construct Boardman candidate replacement resource portfolio options to be considered in the Oregon Public Utility Commission's ("OPUC") Integrated Resource Planning process related to the cessation of Boardman coal-fired operations. The Group and PGE have also been discussing the Group's support for ceasing coal-fired operations at Boardman no later than December 31, 2020 as part of a comprehensive plan, as further described in the Group's letter from Bob Jenks of CUB to Jim Lobdell of PGE dated October 22, 2010 (the "Group Letter"). This letter represents PGE's understanding of its role with respect to these discussions.

Within the context of the Integrated Resource Planning Process ("IRP") and the guidelines adopted for that process by the OPUC, and in consideration of the Group's support as described in the Group Letter, and contingent upon EQC approval of BART III or a plan that is substantially similar to BART III and acceptable to PGE, PGE will:

- Lead an effort in its next IRP to develop a limited number of carbon reduction candidate resource portfolio options to meet anticipated utility resource requirements including the replacement of Boardman coal generation and designed to achieve the best combination of expected costs and associated risks and uncertainties for PGE and its customers and also reduce the carbon footprint of the company's resource portfolio over time ("CO₂ reduction portfolios"). Such portfolios will be evaluated against other constructed resource portfolios developed during the IRP process.
- Define CO₂ reduction portfolios as prospective supply and demand side resource options that are technically feasible and commercially available during the IRP planning period that could potentially be candidates for reducing portfolio carbon emissions and meet forecasted energy and capacity deficits related to the cessation of Boardman coal-fired operations and other resource requirements.
- Design in consultation with the Group the CO₂ reduction portfolios to meet specific CO₂ reduction targets to be defined by the Group.

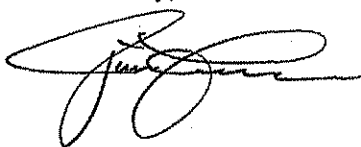
- Allocate sufficient funding, not to exceed \$50,000 without PGE's prior approval, to be made available on a one-time basis for the sole purpose of securing technical consulting assistance services (to be selected jointly by PGE and the Group) to assist with development and evaluation of the potential candidate resource portfolios for Boardman.
- Initiate a limited number of workshops, designed to develop the CO₂ reduction portfolios during the next IRP process.
- Invite all IRP stakeholders, including OPUC and ODOE staff to the workshops.
- Affirm publicly that the process described above represents a commitment by PGE to use its best efforts to develop and evaluate carbon emission reduction portfolios that support Oregon's efforts to reduce greenhouse gas emissions while operating within the OPUC's least-cost/least-risk paradigm.
- Support the elimination of the DEQ BART Rule that now allows for continued coal-fired operations at Boardman through 2040, or the end of its economic life, upon occurrence of all of the following: (1) a revised Boardman BART/Reasonable Progress rule acceptable to PGE has been adopted by EQC; (2) such Boardman BART/Reasonable Progress rule has been included in Oregon's State Implementation Plan (SIP); and (3) the Boardman BART/Reasonable Progress portion of the Oregon SIP has been finally approved by the Environmental Protection Agency and becomes binding on Boardman. Until such final approval by EPA of the Boardman BART/Reasonable Progress portion of the Oregon SIP, PGE is free to advocate for a 2040 backstop option should EQC and EPA not approve a BART rule that is acceptable to the company.

PGE will comment, consistent with the content of this letter and the Group Letter, in other public venues, including print and broadcast media strongly in favor of this process, including co-authorship with the Group of a joint opinion editorial speaking to the importance of these efforts to cease coal-fired operations at Boardman, and the replacement resource process that all parties hope will enable PGE's transition to a lower carbon least-cost resource portfolio, to be filed with the Oregonian and other relevant news outlets prior to the EQC decision on this matter.

PGE understands that nothing in this document will require the company to take any action that is in conflict with the OPUC's IRP Guidelines and process.

Thank you for taking the time to engage in these discussions.

Sincerely,

A handwritten signature in black ink, appearing to be "John" followed by a surname, written in a cursive style.

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PGE's 2009 Integrated Resource Plan

Exhibit D

Red-line of Cascade Crossing Portion of Staff's Draft
Proposed Order

Cascade crossing.

The Cascade Crossing Transmission Project (Cascade Crossing) is a proposed 500 kV transmission line connecting its Boardman and Coyote Springs plants to the southern portion of its service territory. The proposed project would begin at PGE's Coyote Springs substation, go to the Boardman plant and terminate at PGE's Bethel substation. The project would parallel existing utility lines for the first 106 miles from the Boardman substation toward Bethel, and parallel PGE's existing Bethel-to-Round Butte 230 kV line over the Cascades for the last 77 miles. The project would require the construction of a 500/230 kV substation, 500/230 kV transformer, 500/230 kV transformer bank and improvements to two existing substations.³²

PGE asserts that Cascade Crossing will (1) directly connect west-side load to existing and new resources on the east side of the Cascade, (2) transfer capacity to the Cross-Cascades South and West of Slatt cutplanes; (3) reduce stress on the I-5 cutplanes by providing another path to its system from the south; (4) provide firm transmission service as an alternate to BPA service for existing generation; and (5) improve reliability by providing additional transmission and reducing load transfer paths parallel to Cascade Crossing, reducing the severity of currently limiting contingencies.³³

PGE seeks acknowledgment to build Cascade Crossing as a double-circuit 500 kV and alternatively, as a single-circuit 500 kV facility. PGE states that whether it proceeds with Cascade Crossing, as either a double-circuit or single-circuit, will depend on future economic analysis incorporating refined cost estimates, updated information regarding path rating, the level of equity participation from third parties, transmission service requests received by PGE, and updated information regarding PGE's generation facilities that would utilize the project. conditional

Parties' positions RNP believes Cascade Crossing will directly facilitate wind interconnections and will provide links between eastern Oregon wind, solar, and geothermal resources with western load centers. RNP supports acknowledgment of Cascade Crossing so long as it can be responsibly and developed within parameters of a sensible and timely cost-benefit analysis. RNP recommends that the Commission require PGE to update its analysis regarding Cascade Crossing in a future IRP or IRP update.³⁴

CUB has the following questions and concerns regarding PGE's proposed Cascade Crossing Transmission Project, but does not go as far as to recommend against acknowledging the project: (1) Why does the expected closure of Boardman not affect PGE's plan for Cascade Crossing; (2) Why aren't BPA transmission services sufficient to serve PGE's needs; (3) Does PGE have sufficient experience to manage construction of Cascade Crossing without incurring significant cost overruns; (4) Should new transmission be a top priority for PGE?

³² PGE IRP at 187.

³³ PGE IRP at 189-90.

³⁴ RNP Sept 1, 2010 Reply Comments at 3.

Willard Rural Association (WRA) recommends that the Commission not acknowledge Cascade Crossing asserting that PGE overstates its forecast, understates the amount of transmission BPA will have in the future and overstates the cost of that transmission, underestimates the cost to acquire right of way for Cascade Crossing and understates the risk associated with an \$823 million investment.

Staff recommends that the Commission acknowledge Cascade Crossing in the double-circuit configuration, subject to the requirement that PGE provide the Commission certain information and updated analysis in its IRP Update.

Staff asserts that PGE's proposal to acquire transmission resource is supported by analysis under Guideline 8. Staff agrees with PGE's conclusions that adding transmission to PGE's system will allow additional purchases, access to less costly resources in remote locations, access to renewable resources developed on the east side of the state, and will improve reliability.

Staff also asserts that PGE's financial and qualitative analysis (some done in response to a Staff data request) supports PGE's proposal to build Cascade Crossing, as opposed to acquiring transmission in another manner. Staff finds that PGE analyzed the "economic benefit" of Cascade Crossing, which PGE defines as the cost of utilizing BPA transmission service minus the cost of Cascade Crossing for the top three preferred scenarios against five cases. The five cases utilize different assumptions for the growth rate of the BPA transmission tariff rate and the extent to which PGE may partner with other entities to build the project.

conditional

Staff concludes that PGE's analysis shows that Cascade Crossing is economic with relatively conservative estimates regarding BPA transmission rate increases, equity participation by third parties and requests for service by third parties.

Commission Resolution Guideline 8 directs utilities to consider transmission facilities as resource options, taking into account their value in making additional purchases and sales, accessing less costly resources in remote areas, acquiring alternative fuel supplies, and improving reliability.³⁵ We agree with Staff's conclusion that PGE complied with this guideline, and with Staff's conclusion that the considerations of Guideline 8 support PGE's proposal to acquire additional transmission resources. We are not persuaded by WRA's assertion that there is a need to build a transmission facility from the eastern part of the state to PGE service territory. PGE's proposal to build Cascade Crossing does not turn on load growth expectations. Instead, PGE's proposal is based largely on other factors, including relieving transmission constraints in the northwest and accessing renewable generation in the eastern part of the state.

We also agree with Staff's conclusion that PGE's financial and qualitative analysis supports acknowledgment of PGE's proposal to build Cascade Crossing, as opposed to acquiring transmission in another manner. PGE's analysis, based on conservative assumptions regarding BPA's transmission rates and available capacity, reflect that

conditional

³⁵ Order No. 07-002 at 11.

Cascade Crossing is economic, as compared to BPA transmission service, if other milestones are reached, e.g., equity partnership.

We do not agree with WRA's assertions regarding the cost and availability of BPA transmission or with WRA's assertions regarding the ability to acquire right-of-way. We agree with Staff that BPA's economic analysis is based on conservative assumptions regarding BPA's future transmission rates. And, we are not persuaded by WRA's anecdotal evidence regarding the price paid for an easement in California several months prior to the start of the 2007-09 recession.

We also find that contrary to WRA's assertion, PGE's estimated costs for Cascade Crossing include costs to upgrade PGE's existing 230-kV (230-kV) transmission line from Salem to Oregon City. With respect to the upgrade to the Salem to Oregon City line, PGE's estimated costs include an estimated approximately \$47 million (2009\$) for the Willamette Valley upgrade. This estimated cost includes the procurement and construction costs for the structures and conductors and associated equipment to be built entirely within PGE's existing right-of-way for the Bethel to Monitor to McLoughlin 230 kV line, based on \$1 million per mile plus the cost of terminating the new line in the Bethel and McLoughlin substations.

In any event, PGE has made clear that its decision to proceed with Cascade Crossing will continue to be informed by future analysis, including analysis comparing the cost of using BPA transmission and third-party transmission instead of building Cascade Crossing. We will require PGE to present specific information in this analysis. WRA will have opportunity to review and comment on the future analysis.

turns or

advocate against acknowledgment of Cascade Crossing after PGE has completed

Finally, we do not share all CUB's concerns. While transmission is a top priority. And given that few transmission facilities have been constructed in the Northwest in recent history, we do not think that expertise in building transmission projects should be a necessary predicate for Cascade Crossing. With respect to CUB's inquiry about relying on BPA to serve PGE's transmission needs, we do not have further opportunity to review whether BPA will have sufficient resources to serve PGE's needs prior to the time PGE proceeds with Cascade Crossing. And with respect to the uncertainty regarding Boardman, we are persuaded by PGE's argument that Boardman's continued operation is not a necessary predicate for Cascade Crossing construction.

Based on the information presented in the IRP, we support PGE's proposal to proceed with Cascade Crossing to be reasonable and we acknowledge it as part of the IRP action plan. We require PGE to include the following information in its Annual IRP Update:

We acknowledge PGE's conditional proposal for Cascade Crossing, subject to the following requirement:

- a. An updated plan of service and project calendar for Cascade Crossing;
- b. Any executed equity and capacity participation and interconnection agreements;

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³⁶ See WRA Intervenor's Comments at 2-3.
³⁷ PGE Sept 27, 2010 Reply to Intervenor Comments at 2.

- c. Status of directional ratings on all circuits proposed;
- d. The same benefit-cost model PGE used in its IRPs do contain then current inputs for Cascade Crossing and continued transmission service through BPA.

We also adopt Staff's recommended requirement for future IRP analysis regarding transmission. We agree with Staff that sensitivity analysis is an integral part of integrated resource planning and will require PGE to include analysis in all future IRPs.

Staff notes that PGE included little sensitivity analysis regarding Cascade Crossing in its IRP.

We also adopt Staff's recommendation that we require PGE include analysis regarding upgrades to facilities used for transmission between Oregon City and PGE's Bethel Substation.

PGE will include in its next IRP:

- a. An evaluation of potential transmission reinforcement between Salem and Oregon City areas with alternative northern endpoint areas with and without equity partners.
- b. Sensitivity analysis around financial and factual assumptions underlying transmission decisions.

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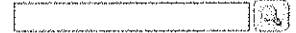
PGE's 2009 Integrated Resource Plan

Exhibit E

Intel Press Release



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Intel Announces Multi-Billion-Dollar Investment in Next-Generation Manufacturing in U.S.

Posted by Patrick Darling on Oct 19, 2010 6:34:03 AM

24

5

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NEWS HIGHLIGHTS

- Intel will spend \$6-8 billion in manufacturing to support future technology advancements in Arizona and Oregon.
- The investment supports the creation of 6,000-8,000 construction jobs and 800-1,000 permanent high-tech jobs, and also allows Intel to maintain its current manufacturing employment base at these U.S. sites.
- The investment will fund a new development fab in Oregon, as well as upgrades to four existing fabs to manufacture the next-generation 22-nanometer (nm) process technology.
- Intel's next-generation, 22nm microprocessors will enable sleeker device designs, higher performance and longer battery life at lower costs.

SANTA CLARA, Calif., Oct. 19, 2010 – Intel Corporation announced today that the company will invest between \$6 billion and \$8 billion on future generations of manufacturing technology in its American facilities. The action will fund deployment of Intel's next-generation 22-nanometer (nm) manufacturing process across several existing U.S. factories, along with construction of a new development fabrication plant (commonly called a "fab") in Oregon. The projects will support 6,000 to 8,000 construction jobs and result in 800 to 1,000 new permanent high-tech jobs.

"Today's announcement reflects the next tranche of the continued advancement of Moore's Law and a further commitment to invest in the future of Intel and America," said Intel President and CEO Paul Otellini. "The most immediate impact of our multi-billion-dollar investment will be the thousands of jobs associated with building a new fab and upgrading four others, and the high-wage, high-tech manufacturing jobs that follow."

The PC industry is achieving a significant milestone this year with 1 million PCs shipping per day. The upgraded fabs create the capacity for the continued growth of the PC market segment and additional computing markets Intel is addressing, such as mobile and embedded computing.

The new investments reinforce Intel's leadership in the most advanced semiconductor manufacturing in the world. Intel's brand-new development fab in Oregon – to be called "D1X" – is scheduled for R&D startup in 2013. Upgrades are also planned for a total of four existing factories in Arizona (known as Fab 12 and Fab 32) and Oregon (known as D1C and D1D).

"Intel makes approximately 10 billion transistors per second. Our factories produce the most advanced computer technology in the world and these investments will create capacity for innovation we haven't yet imagined," said Brian Krzanich, senior vice president and general manager of Intel's Manufacturing and Supply Chain. "Intel and the world of technology lie at the heart of this future. Contrary to conventional wisdom, we can retain a vibrant manufacturing economy here in the United States by focusing on the industries of the future."

While Intel generates approximately three-fourths of its revenues overseas, it maintains three-fourths of its microprocessor manufacturing in the United States. This new investment commitment also allows the company to maintain its existing manufacturing employment base at these sites.

This new capital expenditure follows a U.S. investment announcement made in February 2009 to support state-of-the-art upgrades to its manufacturing process. Those upgrades resulted in 32nm process technology which has already produced computer chips being used today in PCs, servers, embedded and mobile devices around the world. Intel's first 22nm microprocessors, codenamed "Ivy Bridge," will be in production in late 2011 and will boost further levels of performance and power efficiency. By continuing to advance manufacturing process technology, additional features and functions can be integrated and enable devices with sleeker designs, higher performance and longer battery life at lower costs for users.

View the Multimedia Press Kit

(includes the full story with high resolution photos, videos, quotes, fact sheets, and more)

About Intel

Intel (NASDAQ: INTC) is a world leader in computing innovation. The company designs and builds the essential technologies that serve as the foundation for the world's computing devices. Additional information about Intel is available at newsroom.intel.com and blogs.intel.com.

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5,427 Views

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Dated at Portland, Oregon, this 29th day of October, 2010.

Denise Saunders BY CBM

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