

Attachment

Pacific Power & Light Company 2015 Integrated Resource Plan, Docket UE-140546

WAC 480-100-238 directs investor-owned utilities (IOUs) to develop an integrated resource plan (IRP) every two years, which identifies “the mix of energy supply resources and conservation that will meet current and future needs at the lowest reasonable cost to the utility and its ratepayers.”¹ In preparing an IRP, utilities are required to consider changes and trends in energy markets, cost structures, state and federal regulatory requirements, and other shifts in the political and market landscape. The intent is for each regulated company to develop a strategic approach that fits its unique situation, while minimizing risks and costs for the company and its ratepayers.

The Washington Utilities and Transportation Commission (commission) recognizes that the Environmental Protection Agency’s proposal of the Clean Power Plan (CPP) in June 2014 added significant challenges to the IRP process. The commission acknowledges and appreciates the efforts of Pacific Power and Light Company (Pacific Power or company) to integrate the requirements of the CPP into its IRP model and explore the costs and benefits of different compliance options. The model will be a useful tool as the company engages with the developers of state implementation plans, enabling Pacific Power to model the impacts of various compliance options and provide meaningful, quantitative feedback to state policymakers.

Though the commission does not agree with some of the assumptions that Pacific Power has incorporated into the model, we hope that the company will continue to develop and refine the model as states develop their implementation plans and the company’s compliance obligations become clear.

General Comments

The commission is pleased to hear from staff and other stakeholders that Pacific Power’s IRP advisory group process is inclusive and transparent. We encourage the company to continue to conduct its resource planning activities in that spirit.

Generally, the commission is pleased with the thoroughness and the presentation of the company’s analyses in the 2015 IRP. We particularly appreciate the company’s inclusion of extensive data disks with the filing, as this enhanced and streamlined the review process. We encourage the company to continue this practice in future IRP filings.

We also appreciate the company’s response to the commission’s request to study the potential for anaerobic digesters in its Washington service territory. The study appears to have been done well and its conclusions provide valuable input for state policymakers as they consider options for addressing

¹ WAC 480-100-238(2)(a).

groundwater quality issues in the Yakima region and study the growing overlap between water and energy issues.

Pacific Power's re-evaluation of the capacity value of its renewable resources was a positive step, and we commend the company for engaging proactively in this forward-thinking exercise that appears to value more accurately the capacity contribution of variable renewable resources and results in a reduced resource need. We encourage the company to continue to evaluate how its method compares to the effective load carrying capability method on which it was based, to ensure that the company's model is yielding accurate results.

The commission appreciates the company's new conservation potential assessment, which used updated cost assumptions more aligned with recent advancements in energy efficiency, such as LED lighting, and resulted in a larger identified potential that enabled energy efficiency to be the largest resource in the company's resource acquisition plan. We particularly note that the IRP shows that the company can satisfy all of the projected energy growth in its west balancing area for the next 10 years through energy efficiency, and commend the company for its commitment to that cost- and risk-reducing resource. The commission will provide a more detailed commentary on the conservation potential assessment when it reviews the company's conservation plan for the 2016-17 biennium.

Clean Power Plan (CPP) and State-level Carbon Policy Analysis

On August 3, 2015, the Environmental Protection Agency (EPA) released its final rule under Section 111(d) of the Clean Air Act to limit carbon dioxide emissions from existing power plants. In addition to refining the Best System of Emissions Reduction and clarifying the mass-based target option, the final rule appears to have a less significant impact on the company's Washington operations and varying impacts in the company's other states. We encourage the company to use the 2015 IRP Update as an opportunity to begin modeling the final rule and developing useful data that will inform the process as the various states begin formulating compliance plans. We recognize that Pacific Power faces a significant challenge in participating in the formulation of compliance plans in several states, but strongly encourage the company to actively and constructively participate in Washington's process and any multi-state or regional efforts that may emerge.

The commission is concerned with the company's assumption that it will be able to allocate the CPP compliance attribute of renewable energy generation independently of the renewable energy credit (REC) attribute. We do not believe the company's analysis supports a conclusion that its independent allocation is not double counting. The interaction of the final plan's new Emission Rate Credits (ERCs) and RECs is unclear at this time, but we want to make it clear that the double counting of renewable generation is not permissible under Washington law, and we strongly encourage the company not to rely on that assumption when modeling its compliance options.²

² RCW 19.285.030(2) defines a REC as including "all of the nonpower attributes associated with that one megawatt-hour of electricity" (emphasis added).

We appreciate that Pacific Power responded to staff's concerns on this matter by adding sensitivity case S-15, which removed this assumption. But we question the company's approach in assuming that the only compliance alternative would be to shut down the Chehalis gas plant. It would be more appropriate to allow the model to conduct a full run to see if it can identify some other combination of compliance options consistent with the final CPP that would allow the company to meet its obligations without having to double allocate renewable energy. We request that the company provide such an analysis with the 2015 IRP Update.

Based on information the company has provided, it appears that Pacific Power's Washington operations are already below the state's final target under the CPP. However, we note that there are two proposals under discussion in Washington that could potentially create more stringent emissions reduction requirements for Pacific Power. Governor Jay Inslee has directed state officials to develop a rule for limiting carbon emissions within the state, while a proposed citizens' initiative would establish a tax on carbon emissions. While we realize that it is unclear at this time the specifics of the final rule and whether a carbon tax or other system of carbon regulation will be approved and ultimately enacted for the state of Washington, we believe that there is sufficient political and citizen support to justify modeling both in more detail. Therefore, we ask that the company model a sensitivity for both a trading system and carbon tax system in its 2017 IRP, and consult with commission staff regarding the appropriate assumptions and inputs. We realize that the modeling of the carbon tax approach is more straightforward and direct, but the Company should be able to model a carbon trading system based on draft rules to be released in the coming months as well as the experiences with carbon trading systems in other states and regions.

In general, we believe it would be useful for the company to develop a supply curve of emissions abatement. We envision this as a tool that considers all mechanisms for reducing emissions – energy efficiency, emissions controls, plant conversions, etc. – and their costs. This supply curve would identify, specific to Pacific Power, the available technologies and their associated costs that could reach a given emissions goal. This type of tool would lend increased transparency to the issue, and would allow the company, regulators, and stakeholders to engage in meaningful and informed conversations regarding the costs and benefits of reducing Pacific Power's emissions.

Balancing Area Analysis

In acknowledging Pacific Power's 2013 IRP, the commission requested that the company model its east and west balancing areas separately in the 2015 IRP.³ We expressed at that time a concern that the company's system-level approach to modeling failed to account for the differences in load growth and resource base between the two areas and may be resulting in portfolios that do not optimally meet the balancing areas' individual needs. The data presented in the company's 2015 IRP reinforce our

³ Docket UE-120416, Pacific Power & Light Company 2013 IRP Acknowledgment Letter Attachment (Nov. 25, 2015) at pages 5-6.

concern; the east balancing area's load growth rate over the next 10 years is projected to be 86 percent higher than the west's (it was 50 percent higher in the 2013 IRP). When load growth net of conservation is considered, then the west balancing area actually has a negative growth rate for the next decade. The difference in peak demand growth rates is similar.

Pacific Power responded to the commission's request with sensitivity case S-10, which the company presents as the cost impact of planning for the two balancing areas separately. While we appreciate the company's responsiveness, we do not accept S-10 as a satisfactory response to our request. The company presents the cost impacts on a system basis; those cost impacts should be presented at the balancing area level as a means of quantifying the benefits of system integration to the individual balancing areas. The reports that the company included on the data discs provided a high-level view of how the resource plans for the two areas would change, but it is difficult to analyze those impacts without monetary values attached.

The S-10 analysis raises more questions than it answers. Not only does it select incremental resources compared to the preferred portfolio; it selects an entirely different suite of resources than those selected in the preferred portfolio, including storage, geothermal, and demand response. We find this requires further explanation.

Most importantly, we do not accept the S-10 analysis because its conclusions simply do not match the information that we have received through other proceedings. Within the context of the company's Multi-State Process for interstate cost allocations, staff analyzed power flows across the company's system, in particular between the two balancing areas. That analysis shows that the west balancing area is capable of meeting its peak load needs independent of any transfers from the east balancing area. In light of this analysis based on observed data, we cannot accept an analysis of a theoretical split between the two balancing areas that concludes that the west would need to immediately add significant capacity resources to meet its peak needs.

The conversation on this matter during the company's presentation of the IRP did little to reconcile the difference between staff's energy flow analysis and the company's S-10 analysis. We therefore request that the analysis be repeated in the 2017 IRP, and that Pacific Power either use inputs consistent with the flow data we have seen or explain why different inputs are more appropriate.

The commission does not inherently disagree with the company's system-wide approach to resource planning, and recognizes that such an approach may offer integration benefits that reduce costs for all of the company's customers. But we cannot accept such a significant assumption on its face; the system-wide plan must be accompanied by a counterfactual analysis that provides a check by identifying the costs of a balancing area approach. We therefore request that in addition to addressing the concerns mentioned above, the company incorporate the balancing area analysis in all future IRPs.

Energy Storage

In its acknowledgment of the company's 2013 IRP, the commission directed the company to analyze the potential for energy storage in its resource portfolio. The analyses presented in sensitivity cases S-06 and S-13 show the cost impacts of adding pumped hydro and compressed air energy storage, respectively, to Pacific Power's system. The commission appreciates these analyses, which demonstrated the potential of energy storage technology to reduce the company's operating expenses. But we view these analyses as a preliminary step, and expect the company to conduct a more in-depth analysis of energy storage in its 2017 IRP.

The company's energy storage sensitivity cases appear to have valued only the dispatch and arbitrage values of energy storage, that is, their ability to reduce costs by shifting generation from higher-cost time periods and resources to lower-cost time periods and resources. By the company's own admission, the IRP model does not capture operating reserve benefits,⁴ nor does it appear to model ancillary services such as frequency regulation. Based on studies performed by the Pacific Northwest National Laboratory, arbitrage is the smallest value stream for storage projects in the Pacific Northwest, due to the region's lower energy prices and limited diurnal price differentials. Based on analyses we have seen, the majority of benefits associated with energy storage appear to be associated with ancillary services, and any analysis of energy storage that does not account for those benefits is incomplete. The sensitivity analyses were further limited by omitting batteries and other forms of storage.

We encourage Pacific Power to expand the scope of its energy storage study in the 2017 IRP. The study used for the 2015 IRP was primarily qualitative in nature, providing a summary of current technologies, prices and projects that are readily available from public sources. We encourage the company to either conduct or issue an RFP for a deeper study that will consider the potential impacts of energy storage specific to the company's system. This study should go beyond capital costs to value the ancillary benefits of energy storage and identify specific opportunities for energy storage projects on Pacific Power's system, both at the transmission and distribution levels. The company should also ensure that the cost assumptions used in the IRP model are based on current price trends; the cost inputs for storage that the company used in the 2015 IRP differ from those identified by the consultant. In the case of lithium-ion, the company's capital cost assumption was higher than the consultant's figure by an order of magnitude.⁵

We recognize that modeling the multiple benefits of energy storage, including ancillary services, is a challenge. But in other jurisdictions where the value of energy storage has been fully identified and quantified, numerous cost-effective projects have been developed that have reduced costs for utilities and ratepayers. The commission wants to ensure that Washington utilities are fully accounting for the

⁴ Page 205 of the 2015 IRP.

⁵ Page 93 of the 2015 IRP identifies a capital cost of \$10,160/kW for lithium-ion batteries. Page 62 of the HDR study identified a capital cost range of \$800-\$1,200/kW.

value of energy storage so that they can identify opportunities on their individual systems to capture the multiple benefits that energy storage may provide to the utilities' portfolios. We strongly urge Pacific Power to actively participate in the commission's investigation into energy storage modeling and develop proposals for quantifying the value of a storage project that can provide stacked benefits.

Demand Response

The company and its contractor, AEG, adequately describe the costs and risks associated with a range of demand-side options in Chapter 6. The commission appreciates the work that the company has put into identifying the potential supply curves for demand-side resources and looks forward to the continuation of this work in future plans.

However, the company has not placed enough attention on demand response programs in the west balancing area. We note that the company has robust demand response offerings in its east balancing area, and recognize that the reason for that may be significantly related to the climatic differences between the two areas. But the Northwest Power and Conservation Council (Council) in its draft of the Seventh Northwest Power Plan concluded that "in order to satisfy regional resource adequacy standards, the region should be prepared to develop significant demand response resources by 2021 to meet additional winter peaking capacity."⁶ The draft plan identifies a technical potential for more than 1400 MW of demand response resources for the Pacific Northwest at its winter peak in 2035.⁷

We commend the company for identifying in the 2015 IRP an irrigation load control pilot in the west balancing area as an action item, and expect that this pilot will yield useful information and experience with demand response programs on the company's west side. We request that Pacific Power, in its 2017 IRP, re-assess the overall potential and levelized costs for demand response and add a sensitivity analysis that evaluates the portfolio impact of adding additional demand response resources. We also encourage the company to consider demand response along with traditional energy efficiency programs in the context of CPP compliance planning.

Renewable Portfolio Standard Analysis

The commission questions Pacific Power's presentation of its long-term compliance position with Washington's Renewable Portfolio Standard (RPS).⁸ The analysis appears to assume a significant, unexplained increase in Washington's allocation of renewable energy generation beginning in 2018. Based on the company's most recent RPS filing, Washington's annual allocation of renewable generation is around 250,000 MWh. The IRP's analysis appears to assume that that the state's annual allocation increases to about 300,000 MWh in 2018, and to about 400,000 MWh in 2020.

⁶ Northwest Power and Conservation Council, Seventh Northwest Power Plan (Draft), at 1-6.

⁷ *Id.*, at 14-10.

⁸ See page 5 of the 2015 IRP.

Since the company executes REC purchase contracts ahead of its compliance need, it is important that those needs be accurately identified well in advance. We therefore request that Pacific Power update its RPS compliance analysis in the 2015 IRP Update based on a more accurate projection of Washington's future renewable energy allocations.

Resource Adequacy Analysis

The commission is concerned that the company's market resource adequacy evaluation, presented in Appendix J, does not capture the risks associated with the company's strategy to rely on market purchases in meeting its resource needs. The Council's most recent Pacific Northwest Power Supply Adequacy Assessment, released in May 2015, projects that the region does not have sufficient capacity to replace the Boardman and Centralia units that are scheduled to retire at the end of 2020.⁹ Given Pacific Power's long-term reliance on Mid-Columbia market purchases, it is imperative that the company understand the risks it faces as the retirement of those plants nears.

We note that the company has agreed, as a condition of the commission's granting of the waivers requested in Docket UE-151694, to conduct a market reliance risk assessment in conjunction with the 2017 IRP. We encourage the company to work with staff on the design of that analysis and look forward to seeing the results.

Transmission

On page 49 of the 2015 IRP, Pacific Power requests that the commission acknowledge its planned investment in new transmission capacity between the Wallula and McNary substations. The commission recognizes that other states in which the company operates require a Certificate of Public Convenience and Necessity for transmission resources. Washington has no such requirement, nor does the commission regulate the siting of intrastate transmission lines. This function is performed by the Washington State Energy Facility Site Evaluation Council.¹⁰

We therefore do not respond at this time to the company's request for acknowledgment of its plan to build the Wallula to McNary project. We will evaluate the prudence of this project within the context of a general rate case at such time that the company seeks recovery of its investment.

⁹ The Northwest Power and Conservation Council's May 2015 Pacific Northwest Power Supply Adequacy Assessment for 2020-21 identified a need for 1,150 MW of new gas-fired capacity to maintain regional reliability targets. Available at <https://www.nwcouncil.org/energy/powersupply/2015-05/>.

¹⁰ See RCW 80.50.060, RCW 80.50.020.

Energy Imbalance Market

When Pacific Power began modeling the 2015 IRP, it had only recently entered the Energy Imbalance Market (EIM) with the California ISO (CAISO). The commission recognizes that there was not enough experience with this new market to fully quantify its impacts on company operations, but appreciates the company's efforts to incorporate the EIM into its models where possible, such as wind integration costs.

We encourage the company to continue to integrate the EIM into its IRP model, in particular to develop modeling capability to capture how different resources with different generation profiles would interact with the EIM, based on the company's experience with that market. Understanding how the EIM affects long-term power costs of different portfolios will likely prove to be a meaningful component of future IRP analyses.

We also note that the company has begun the more comprehensive process of exploring full membership as a participating transmission owner within CAISO. We recognize that this discussion is still in the early stages, but expect that it is one that may move quickly during the next IRP cycle. Joining CAISO would have many far-reaching and significant impacts on the company's customers and other utilities in the region, and we expect the company will keep the commission informed of the discussion as it progresses. We also expect the company to work with staff on incorporating an analysis of CAISO membership in the 2017 IRP as appropriate.