

**PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: April 24, 2017**

REGULAR X CONSENT _____ EFFECTIVE DATE _____ N/A _____

DATE: April 17, 2018

TO: Public Utility Commission

FROM: JP Batmale *JB*

THROUGH: Jason Eisdorfer *JE*

SUBJECT: PORTLAND GENERAL ELECTRIC: (Docket No. LC 66)
Acknowledgement of 2016 Integrated Resource Plan Update.

STAFF RECOMMENDATION:

Acknowledge Portland General Electric Company's (Company or PGE) update to the 2016 Integrated Resource Plan (IRP).

DISCUSSION:

Issue

Whether the Commission should acknowledge PGE's 2016 IRP update.

Applicable Law

Per OAR 860-027-0400(8) each energy utility must submit an annual update on its most recently acknowledged IRP.¹ The update is due on or before the acknowledgment order anniversary date. The energy utility must summarize the annual update at a Commission public meeting. The energy utility may request acknowledgment of changes, identified in its update, to the IRP action plan.

The annual update is an informational filing that:

- a) Describes what actions the energy utility has taken to implement the action plan to select best portfolio of resources contained in its acknowledged IRP;
- b) Provides an assessment of what has changed since the acknowledgment order that affects the action plan to select the best portfolio of resources, including

¹ See UM 1056, Order No. 07-002, January 8, 2007, Guideline 3.f & 3.g, pg. 9 and 10.

changes in such factors as load, expiration of resource contracts, supply-side and demand-side resource acquisitions, resource costs, and transmission availability; and

- c) Justifies any deviations from the action plan contained in its acknowledged IRP.

Analysis

Context for the 2016 IRP Update

The Commission acknowledged all but one of the action items in PGE's 2016 IRP on August 8, 2017.² While the Commission's administrative rules allow PGE an upwards of one year to submit an IRP update, the Company filed its update to the 2016 IRP just seven months after the initial acknowledgement.

The rationale for the earlier-than-required filing was made clear in the application. PGE would like to use the latest information found in the IRP update as part of the Qualifying Facility (QF) avoided cost update on May 1, 2018. Specifically:

This motion and the IRP Update are made, in part, to respond to recent recommendations by the Commission and Commission Staff that PGE seek acknowledgment of IRP updates in order to more frequently update inputs to the avoided cost process. Accordingly, PGE asks that the Commission acknowledge the IRP Update consistent with the procedural schedule issued by the ALJ so that it can include the updated financial parameters in its May 1 avoided cost update filing.³

Staff finds that PGE's IRP Update contains two categories of interrelated information. The first category is the basic information required by rule, discussed in the *Applicable Law* section above, to be included in an IRP update. The second category of information relates to the inputs associated with QF avoided costs.

Review of Required IRP Update Information

PGE's IRP update described the actions taken place thus far to implement the 2016 IRP action plan per the IRP guidelines and OAR 860-027-0400(8)(a). In Staff's previously file comments, Staff articulated a few concerns with some of the analysis and activities found in the 2016 IRP update.

² See LC 66, Order No. 17-386 at 1, October 9, 2017. Additionally, the Commission acknowledged a revised renewable action item from the 2016 IRP four months later in Order 18-044. This second acknowledgement allowed for PGE to pursue through a competitive process upwards of 100 MWa of new, renewable resources to meet the Company's capacity needs.

³ See LC 66, 2016 IRP Update, March 8, 2018, pg. 2.

Broadly speaking Staff's concerns involved:

- Increases in the cost to acquire energy efficiency.
- Size of the future need for renewable resources, including banked RECs.
- Transparent coordination on distribution system planning (DSP) activities.
- The methodology and data behind changes to the forecasted price for natural gas and wholesale power.
- Alignment between Staff and PGE on the scope of some of the enabling studies from the IRP.
- Completion of all workshops required by the 2016 IRP.

Staff issued fourteen information requests covering energy efficiency cost, renewable resource need, forecasted prices, and the report behind PGE's DSP activities. For the other areas of concern, Staff has simply been in direct communication with PGE staff. In all cases, Staff has found that PGE has addressed Staff's concerns or that a productive dialogue has commenced that should lead to positive outcomes by the next IRP.

Regardless, Staff does plan to explore in greater depth with Energy Trust the rise in energy efficiency acquisition costs. Staff also remains concerned about the methodology to determine Renewable Portfolio Standard (RPS) needs and to determine optimal compliance pathways. While Staff understands that upcoming RPS rulemakings will materially impact many aspects of PGE's RPS compliance strategy, Staff remains uncertain about how to best represent many of the RPS challenges and tradeoffs in the IRP modeling. PGE's work to develop sensitivity analyses for the RPS and other forecasts in time for the IRP update was helpful in this regard and appreciated. However, Staff still believes such issues as unbundled REC's, accounting for QF capacity, lower QF costs, and assessing the financial tradeoffs between ownership and contracting need to be further explored and, hopefully, resolved by the next IRP. Staff plans to work closely with PGE and other stakeholders to better address our RPS compliance and modeling concerns prior to the next IRP.

The IRP guidelines call for an IRP update to conduct an assessment of major changes since the IRP acknowledgement that impact the utility's load, supply-side resources, demand-side resources and overall costs. Staff found that PGE's IRP update accomplished this requirement. The IRP update documented and assessed major changes in operational and financial assumptions. The revised data and conclusions included in the IRP update seemed to be relatively well supported. None of the assessed changes appear to materially impact the 2016 IRP action plan.

It is worth noting however the extent of the changes that have occurred in the short time since the 2016 IRP was acknowledged:

- Newly executed bilateral contracts, new QFs, and other factors have greatly reduced PGE’s 2021 capacity and energy needs.
- Updates to load forecasts have slightly reduced winter and summer peaks. Additionally, the summer and winter peaks are forecasted to be essentially equivalent, reflecting the long-term trend toward milder winters and more intense summers.
- Natural gas and wholesale market power costs continue to trend downward.
- The costs for renewable resources continue to decline. Most notably, solar continues its pace of becoming ever more cost-effective. Simply put, had Staff not adjusted the economic life of solar from 25 to 20 years the levelized cost of solar would be very close to the levelized cost of a simple-cycle combustion turbine.⁴
- PGE’s composite income tax rate dropped from 40 to 27 percent.

A table capturing many of these changes can be found in the section below.

Review of QF Related Changes in IRP Update

The second category of information found in the Company’s 2016 IRP update relates to the inputs associated with QF avoided costs. Again, PGE is seeking an acknowledged IRP Update so that these inputs can be changed to, “allow for greater accuracy in the calculation of avoided costs.”⁵ The table below captures many of the major changes to need, cost of capital, and other financial parameters that may impact PGE’s future avoided cost filing.

Item	2016 IRP Acknowledged	2016 IRP Update
Energy Need 2021 (MWa)	388	4
Capacity (MW)	461	112
Winter Peak	3,662	3,607
Summer Peak	3,633	3,618
RPS need 2021 (MWa) ⁶	71	53
Natural gas costs	n/a	lower

⁴ See UM 1809 for updated solar measure life information. The data on the improved cost of solar comes from PGE’s response to Staff’s Information Request No. 155.

⁵ See LC 66, 2016 IRP Update, March 8, 2018, pg. 2.

⁶ Need reflects use of no (a) banked REC’s and (b) no unbundled REC’s.

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Item	2016 IRP Acknowledged	2016 IRP Update
Wholesale Market	n/a	lower
Composite Income Tax Rate	40%	27%
Incremental Cost of Long-Term Debt	4.68%	4.97%
Allowed Return on Equity	9.60%	9.50%
Long-Term Debt Share of Capital Structure	50%	50%
Equity Share of Capital Structure	50%	50%
Weighted Cost of Capital	7.14%	7.24%
Nominal Weighted After-Tax Cost of Capital	6.20%	6.56%
Long-Term General Inflation	2%	2%
Economic life – Thermal Plant (Yrs.)	30	38
Economic life – Solar (Yrs.)	25	20
Economic life – Wind (Yrs.)	27	30
Natural Gas Combine CCT (\$/kW-yr)	\$164	\$172
Natural Gas Reciprocating Engine (\$/kW-yr)	\$193	\$175
Natural Gas Simple CCT(\$/kW-yr)	\$126	\$124
Solar Utility-Scale (\$/kW-yr)	\$176	\$152
Wind, Pacific NW (\$/kW-yr)	\$222	\$188
Wind, Montana (\$/kW-yr)	\$225	\$190

Staff reviewed these updated QF data inputs for accuracy and sourcing. Staff found the data appeared to be accurate and relatively well-sourced. For example, to substantiate the updated construction costs of new supply-side resources Staff undertook several steps. First we reviewed Black & Veatch’s October 4, 2017 report found in Appendix A and DNV-GL’s December 2017 report on renewable supply options in Appendix B of the IRP update. Staff then compared the findings from these two reports against the values PGE used in their Supply Side resource costs table on page 26. Staff then took the next step of comparing the values used in PGE’s IRP update to the capital costs found in Lazard’s publicly available Levelized Cost of Energy Analysis.⁷ This final step was used as an independent cross-reference to the values supplied by PGE in the IRP update.

Conclusion

Staff finds the 2016 IRP update meets the IRP guidelines. It describes what actions have been taken to implement the IRP action plan. Staff finds that actions taken thus far are good and that the actions would appear to be keeping with the acknowledged IRP.

⁷ See Lazard’s Levelized Cost of Energy Analysis, Version 11.0, November 2017, pg. 11 <https://www.lazard.com/media/450337/lazard-levelized-cost-of-energy-version-110.pdf>

Staff will seek to continue to engage with PGE and other stakeholders to accomplish the 2016 IRP action plan activities prior to the next IRP filing.

The IRP update also provides an assessment of the changes to key parameters of the IRP since acknowledgement. The changes appear to be well documented and credible. While none of the changes are extreme enough to cause a change to the acknowledged IRP action plan, some of the changes are very notable, especially the reduction in the cost of solar and the recent reduction to PGE's composite income tax rate.

To this end the values found in this IRP update that will be submitted as part of QF avoided cost update on May 1, 2018 appear appropriate. Staff notes that acknowledgement in this docket does not guarantee that the avoided costs will be accepted during the QF update process beginning May 1, nor does it establish the new QF rates.

Staff looks forward to working with PGE, Energy Trust, and other stakeholders in resolving the outstanding issues in this IRP update and in the lead-up to the 2019 IRP.

PROPOSED COMMISSION MOTION:

Acknowledge PGE's 2016 IRP update.