PACIFIC POWER
A DIVISION OF PACIFICORP

825 NE Multnomah, Suite 2000
Portland, Oregon 97232

January 6, 2015

VIA ELECTRONIC FILING
AND OVERNIGHT DELIVERY

Public Utility Commission of Oregon
3930 Fairview Industrial Dr. S.E.
Salem, OR 97302-1166

Attn: Filing Center

Re: UM 1667—PacifiCorp's Reply Comments

PacifiCorp d/b/a Pacific Power encloses for filing its Reply Comments in the above-referenced docket.

Informal questions concerning this filing may be directed to Natasha Siores, Director, Regulatory Affairs & Revenue Requirement, at (503) 813-6583.

Sincerely,

R Bryce Dalley /ncs

R. Bryce Dalley
Vice President, Regulation

Enclosures

cc: Service List—UM 1667

BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON

UM 1667

In the Matter of PACIFICORP d/b/a PACIFIC POWER 2014 Annual Smart Grid Report	**PACIFICORP'S REPLY COMMENTS**

On October 31, 2014, PacifiCorp d/b/a Pacific Power (PacifiCorp or Company) submitted its annual Smart Grid Report (Report) to the Public Utility Commission of Oregon (Commission) under Order No. 12-158.[1] On December 17, 2014, the Company received comments on the Report from Commission Staff, the Oregon Department of Energy (ODOE), and the Citizens' Utility Board of Oregon (CUB). The Company provides these reply comments in response to the comments of Staff, ODOE, and CUB.

I. Response to Staff's Comments

A. General Comments

The Commission adopted non-substantive smart grid reporting requirements to ensure that "utilities are systematically evaluating promising smart-grid technologies and applications, that the Commission is kept apprised of utilities' progress, and that stakeholders, Commission Staff, and the Commissioners have an opportunity to provide input into utility evaluations of smart-grid technologies and applications, as well as their plans for smart-grid investments."[2] Recognizing that "smart grid is comprised of many technologies, in different stages of development and affordability", the Commission has

[1] Docket No. UM 1460 (May 8, 2012).
[2] Order No. 12-158 at 1.

expressly declined to require utilities to submit comprehensive "smart grid plans."[3] Furthermore, the Commission has declined to adopt "detailed and … prescriptive" guidelines for smart grid reports "given the early stages of smart grid development."[4] To that end, the Commission established a series of "general Commission guidelines" for utility smart grid reports via an "informal process" that allows for stakeholder input.[5]

The Commission addressed PacifiCorp's 2013 Smart Grid Report in Order 13-382, and provided a series of suggestions for PacifiCorp to consider when developing its 2014 report. Consistent with its informal policies surrounding smart grid reporting, the Commission did not impose any substantive requirements or otherwise order PacifiCorp to perform specific analyses in its 2014 report.

PacifiCorp appreciates Staff's comments on its 2014 Smart Grid Report, and would like to clarify Staff's suggestion that the Company failed to comply with Order No. 13-382. Numerous times in its comment letter, Staff states that PacifiCorp did not meet the requirements of Order No. 13-382.[6] PacifiCorp disagrees with this assessment. First, as noted above, Order No. 13-382 did not impose any substantive requirements on PacifiCorp, but instead, enumerated a number of suggestions for PacifiCorp to consider in its 2014 report. And second, as discussed in more detail below, PacifiCorp fully responded to each of the Commission's suggestions in the Report.

[3] Order No. 12-158 at 2.
[4] Docket No. UM 1460, Order No. 11-172 at 2 (May 25, 2011).
[5] Order No. 12-158 at 2.
[6] *See, e.g.*, Staff's Comments at 3 ("Staff concludes that PacifiCorp's actions do not meet the requirement"); Staff Comments at 4 ("Staff concludes that it does not meet the requirements of Order No. 13-382).

B. Specific Comments

1. Staff Comments Regarding Demand Response Pilot Programs

PacifiCorp designed and is implementing an irrigation time of use pilot program in Oregon, Schedule 215. The Commission approved the pilot in Advice No. 14-005. The goal of the pilot is to test the interest, willingness, and ability of irrigators in Oregon to shift usage away from designated on-peak periods. The Company filed a report with the Commission providing an update on the status of the pilot on December 1, 2014, docketed as RE 153. Please refer to the Company's report in Docket RE 153 for additional details on the pilot.

2(a). Staff Comments Regarding Dynamic Line Rating

PacifiCorp actively evaluates dynamic line rating opportunities in the course of its regular transmission process. PacifiCorp has identified several applications of the technology and these applications are considered each time a thermal constraint is discovered during the planning process. However, applicability of dynamic line rating to the PacifiCorp system is limited due to the nature of system operations in the western United States.

The electrical grid in the western United States is operated utilizing a path rating methodology where the maximum transfer capability of a portion of the transmission system is determined through system studies. These studies utilize conservative, worst-case ambient weather conditions to determine line thermal capabilities that are incorporated in the path operating limits, and transmission service is sold based on the path limits determined with these worst-case weather conditions. This methodology ensures reliable service to transmission customers while maintaining transmission line temperatures within safe operating levels that do not pose a risk to public safety.

Because path limits are determined based on conservative assumptions of the worst-

case ambient weather conditions, dynamic line rating technology may offer a benefit when ambient weather conditions are more favorable to transmission conductor thermal operation, such as periods of cool temperatures and high wind speeds. The technology offers little benefit during periods of hot weather in conjunction with low wind speed. The pilot project data has revealed that the worst-case temperature and wind speed assumptions are not overly-conservative. The limited hours when worst-case ambient weather conditions are seen presents a significant challenge to wide-spread dynamic line rating implementation, as any capacity benefits that are sold above the static limits of a given path would be curtailed during periods when line capability is reduced.

PacifiCorp has determined several scenarios favorable to dynamic line rating implementation with limited anticipated impact to transmission, load, and generation customers. As a prerequisite for dynamic line rating consideration, the transmission constraint to be mitigated by dynamic line rating implementation must be purely thermal in nature, with no voltage or transient stability criteria violations as a result of the dynamic line rating capacity increase.

The first scenario where dynamic line rating is strongly considered is in areas of the system where transmission loading is correlated with wind generation output. Dynamic line rating is particularly applicable in instances where wind generation is in close geographic proximity to the line that will be dynamically rated. In these instances, line loading and dynamic line rating tend to be well-correlated, resulting in decreased likelihood of customer impacts such as generation or load curtailments. The Miners-Platte Pilot dynamic line rating project is a good example of this scenario, and the success of the project is a direct result of the correlation between line load and dynamic rating.

A second potential scenario where dynamic line rating is considered is in generator interconnections where remedial action schemes are utilized to mitigate post-contingency transmission constraints. In these scenarios, dynamic line rating may be incorporated into the remedial action scheme arming logic to limit generation run-back or tripping to times when a transmission contingency occurs in conjunction with worst-case ambient weather conditions.

PacifiCorp has also identified two applications of dynamic line rating technology where the output of the dynamic line rating is not directly utilized in system operations. The first application is verification of line thermal capacity from Light Detection and Ranging (LiDAR) surveys. Dynamic line rating data may be useful in some instances to implement in conjunction with LiDAR survey data to more accurately model ambient weather assumptions in the LiDAR model. Accurate ambient weather assumptions may help to remove from consideration some spans from a given line segment that would have otherwise required construction to mitigate thermal clearance violations. Additionally, PacifiCorp has determined that dynamic line rating may be beneficial to validate static ambient weather assumptions on portions of the system where thermal constraints were identified. These two additional dynamic line rating applications will be considered in the future as system need arises.

PacifiCorp is researching additional applications of dynamic line rating technology, and has regular contact with dynamic line rating vendors to keep abreast of the most-recent advancements in dynamic line rating technology. As new applications of dynamic line rating technology are discovered, they will be considered in the planning process in addition to the applications listed above.

2(b). Staff Comments Regarding Reliability and Quality of Service Metrics

PacifiCorp proposes that the following reliability metrics be used to evaluate reliability-initiated smart grid investments: System Average Interruption Frequency Index (i.e., frequency or SAIFI), System Average Interruption Duration Index (i.e., duration or SAIDI), Customer Average Interruption Duration Index (i.e., outage restoration), customers interrupted, and cost per avoided customer minute interrupted. SAIFI, SAIDI, and CAIDI are each identified in Oregon Administrative Rule 860-023, and described within the Oregon Investor-owned Utilities Seven-Year Electric Service Reliability Statistics Summary. PacifiCorp quantified the reliability and quality of service improvements that could be expected from an implementation of smart grid technologies. These estimates are described in the Report:

> The Company estimates that the distribution automation would reduce sustained outage frequency to its Oregon customers by 8 percent and outage duration by 6 percent, improving reliability by an average of seven minutes per customer per year.
>
> Using a cost per avoided customer minute interrupted metric, these improvements would result in a cost of $167/customer minute interrupted, which is approximately 300 times more costly than the improvements the Company funds in its [most recently developed] ~~normal~~ targeted reliability programs.[7]

2(c). Staff Comments Regarding Synchrophasors

PacifiCorp does not have a schedule from Peak Reliability on the full functionality of their synchrophasor tool and cannot propose a timeline for completion. PacifiCorp will report on potential operational uses for the data after full access. The 2015 Smart Grid Report will discuss any synchrophasor status updates.

[7] Report at 17.

PacifiCorp currently has no plans for deployment of additional synchrophasors and for the use of synchrophasor data until review of the full capabilities of the planned Peak Reliability tool is available. PacifiCorp will develop further plans for the technology and data as the business need and full capability is determined.

3. Staff Comments Regarding the Oregon Advanced Metering Project

PacifiCorp acknowledges Staff's concerns addressed in its comments. PacifiCorp conducted a request for information that was inconclusive. As a result, a more detailed request for proposal was conducted in 2014, which for a project of this size took a great amount of time and resources.

PacifiCorp will continue to evaluate the feasibility of implementing an advanced metering system and associated costs and benefits. The Company will continue to evaluate whether it is in the best interest of our customers to pursue an advanced metering system.

4. Staff Comments Regarding Additional Comments: Benefits/Savings

The benefits within PacifiCorp's confidential Attachment are in line with those that can be realistically achieved.

5. Staff Comments Regarding Additional Comments: Roadmap

PacifiCorp has developed a Smart Grid Roadmap with a timeline illustrating potential development with respect to dependencies and utility needs. However, PacifiCorp does not have the ability to forecast a start date dependent upon things that are unknown at this time such as the changing technical and financial feasibility of different Smart Grid technologies.

II. Response to ODOE Comments

1. ODOE Comments Regarding "Present transparent analysis of system-wide benefits in decision-making on metering infrastructure"

PacifiCorp appreciates the comments and included a business case analysis in its 2014 Smart Grid Report. PacifiCorp will continue to incorporate transparency in the process.

2. ODOE Comments Regarding "Enhance customer communication with access to more granular data and then re-evaluate time-of-use pricing programs and demand response"

PacifiCorp has evaluated the business case for advanced metering as well as other smart grid applications that may or may not be supported by advanced metering, including providing customers with the capability to participate in demand response programs that can reduce peak load growth. PacifiCorp's approach allows the benefits of transparent customer information and peak load reduction to be an adder on top of other advanced metering benefits.

3. ODOE Comments Regarding "The Commission should require PacifiCorp to examine a wider range of assumptions on electric vehicle penetration"

PacifiCorp will consider a wide range of electric vehicle growth forecasts for its 2015 Smart Grid Report, including information from local agencies, such as ODOE, the Oregon Department of Transportation, and the Oregon Department of Environmental Quality. PacifiCorp will consider this information along with current electric vehicle loads and growth rates in the PacifiCorp service area.

4. ODOE Comments Regarding "Analyze smart grid solutions for the integration of distributed renewable generation"

PacifiCorp will continue to explore challenges and solutions relating to the integration of distributed renewable generation. PacifiCorp has discussed this, particularly smart inverters, within the Report, and will further explore this in subsequent reports.

5. ODOE Comments Regarding "Better quantify the interdependencies of smart grid solutions"

PacifiCorp has created a roadmap to the smart grid and explored the financial outcome of six scenarios. The interdependencies were illustrated in Figure 2, which displays infrastructure that might facilitate other technologies. PacifiCorp will continue to consider the interdependencies in our smart grid analyses.

PacifiCorp appreciates ODOE's comments and will consider these comments in future smart grid analyses and reports.

III. Response to CUB's Comments

PacifiCorp appreciates CUB's comments supporting the 2014 Smart Grid Report. PacifiCorp has developed a comprehensive smart grid analysis and will continue to explore the application of innovative solutions to PacifiCorp's electrical system, piloting and implementing those that have a strong potential to benefit our customers and business. PacifiCorp will continue to strive to make our analysis transparent.

IV. Conclusion

The Company appreciates Staff's, ODOE's, and CUB's comments, the opportunity to respond to them, and to present this report to the Commission and other Oregon stakeholders.

Respectfully submitted this 6th day of January, 2015.

By: 

Dustin Till
Senior Counsel
PacifiCorp d/b/a Pacific Power
825 NE Multnomah Street, Suite 1800
Portland, OR 97232
T: 503.813.6589
F: 503.813.7252
Dustin.till@pacificorp.com

CERTIFICATE OF SERVICE

I certify that I served a true and correct copy of PacifiCorp's Reply Comments on the parties listed below via electronic mail and/or US mail in compliance with OAR 860-001-0180.

UM 1667

Brittany Andrus (W) (C)
OPUC
PO Box 2148
Salem, Oregon 97308-2148
Brittany.andrus@state.or.us

Kacia Brockman (W) (C)
Oregon Department of Energy
625 Marion Street NE
Salem, Oregon 97301-3737
Kacia.brockman@state.or.us

Renee M. France (W) (C)
Oregon Department of Justice
Natural Resources Section
1162 Court Street NE
Salem, Oregon 97301-4096
renee.m.france@doj.state.or.us

OPUC Dockets (W)
Citizens' Utility Board of Oregon
610 SW Broadway, Ste 400
Portland, Oregon 97205
dockets@oregoncub.org

Robert Jenks (W) (C)
Citizens' Utility Board of Oregon
610 SW Broadway, Ste 400
Portland, Oregon 97205
bob@oregoncub.org

G. Catriona McCracken (W) (C)
Citizens' Utility Board of Oregon
610 SW Broadway, Ste 400
Portland, Oregon 97205
catriona@oregoncub.org

Wendy Gerlitz
NW Energy Coalition
1205 SE Flavel
Portland, Oregon 97202
Wendy@nwenergy.org

Etta Lockey (W)
PacifiCorp
825 NE Multnomah Street, Suite 1800
Portland, Oregon 97232
Etta.lockey@pacificorp.com

Bryce Dalley (W) (C)
PacifiCorp
825 NE Multnomah Street, Suite 2000
Portland, Oregon 97232
Bryce.Dalley@pacificorp.com

Micahel T. Weirich (W) (C)
OPUC Staff – Dept of Justice
Business Activities Section
1162 Court St, NE
Salem, Oregon 97301-4096
Michael.weirich@state.or.us

Dated this 6th of January, 2015.

Amy Eissler
Coordinator, Regulatory Operations