

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
UM 1667**

In the Matter of

PACIFICORP

Annual Smart Grid Report

STAFF'S COMMENTS

The Public Utility Commission of Oregon Staff (Staff) files these comments in response to PacifiCorp's (PacifiCorp or Company) second annual smart grid report (Smart Grid Report). The Public Utility Commission of Oregon's (Commission) Smart Grid Guidelines,¹ state that:

The first report must include all smart-grid reporting elements identified in this order. Subsequent reports need only include incremental additions and updates of all elements in the first report.

Prior to PacifiCorp's submittal of this Smart Grid Report, Staff requested that PacifiCorp reduce the amount of general background information on smart grid technologies. Staff appreciates PacifiCorp doing so in this Smart Grid Report.

Regarding PacifiCorp's 2013 Smart Grid Report,² the following requirements were set forth for the 2014 Smart Grid Report:

1. PacifiCorp should design and implement demand response pilot programs in Oregon.
2. In its next Smart Grid Report, PacifiCorp should:
 - a. Report on its Dynamic Line Rating (DLR) pilot projects, provide an evaluation on the potential applicability of DLR on its transmission system, and describe with specificity its plans to implement DLR
 - b. Propose specific reliability and quality of service metrics to evaluate smart grid strategies and investments
 - c. Describe with specificity its future plans for deployment of synchrophasors and use of synchrophasor data once the current demonstration project ends
 - d. Provide an analysis of its work integrating Distributed Generation and Renewables into its transmission and distribution grid, including the integration of Electric Vehicles and Solar Power

¹ See Order No. 12-158.

² See Order No. 13-382.

The Commission also granted Pacific Power's request for an extension of time to file its 2014 Smart Grid Report, from August 1 until October 31. This extension was intended to:

“enable Pacific Power to include in their report the results of its Oregon Advanced Metering Project that will explore the potential for a full advanced metering infrastructure in Oregon across all impacted departments. This evaluation should incorporate an analysis of the potential benefits from improved Outage Management Systems and Fault Detection, Isolation, and Restoration and describe with specificity its plans for installation of improved systems.”

In addition to the above requirements, the Commission also adopted the following Staff recommendations:

- PacifiCorp should seek stakeholder involvement earlier in the process of preparing the next Smart Grid Report.
- PacifiCorp should include a roadmap (with dates) that includes how PacifiCorp plans to systematically evaluate the myriad of smart grid options available to the Company. PacifiCorp should list and prioritize specific smart grid investments and provide a description of the path forward and how the work plan and any pilot projects will be organized in order to evaluate the smart grid projects.
- PacifiCorp should evaluate traditional non-smart grid investments and applications as alternatives to smart grid investments and seek to identify the most cost-effective options for meeting its objectives and its customers' needs.
- PacifiCorp should provide in its future smart grid reports updates of its cost-benefit analysis of the implementation of the smart grid system, including cost-benefit analyses of the smart grid case components.³

Staff has reviewed PacifiCorp's 2014 Smart Grid Report and provides the following comments.

1. Demand Response Pilot Programs

Pacific Power should design and implement demand response pilot programs in Oregon.

The Smart Grid Report lists demand response as having a status of “complete,” and “n/a” for the timeline.⁴ The Customer Information and Demand Side Management Enhancements section of the report, Project 3, contains information about PacifiCorp's

³ Order No. 13-382, Appendix A, p. 9.

⁴ PacifiCorp 2014 Smart Grid Annual Report, p. 8.

existing residential air conditioning and irrigation direct load control (DLC) demand response programs. It also describes PacifiCorp's existing time-of-use (TOU) programs, and refers to a TOU pilot for irrigation customers in Oregon, though it is unclear whether or not it was implemented in 2014 ("The pilot program will be developed for the 2014 irrigation season and findings will be reported in the 2015 IRP"⁵). TOU participation rates for residential and small non-residential customers are less than one percent in PacifiCorp's Oregon service territory.

This section of the report also explains that the costs per kW-year for DLC demand response as reported in a supplemental analysis to the 2013 IRP⁶ exceeded those of a combined-cycle combustion turbine.

With respect to pilot demand response programs, the Company states:

"However, there is little need to develop pilot demand response programs. PacifiCorp has significant experience implementing demand response products and will consider implementation of programs that are a least-cost resource when there is a capacity resource need."⁷

Staff acknowledges that the IRP process did not include DLC demand response as part of the least cost, least risk portfolio, but notes that this would not preclude actions to implement a pilot. Because the Company did not provide information indicating that it has designed and implemented demand response pilot programs in Oregon, Staff concludes that PacifiCorp's actions do not meet the requirement. The Company should provide clarifying comments on its plans to design and implement demand response pilot programs in Oregon.

2(a) Dynamic Line Rating

Report on Dynamic Line Rating (DLR) pilot projects, provide an evaluation on the potential applicability of DLR on the transmission system, and describe with specificity the plans to implement DLR.

The report includes informative summaries of two DLR projects implemented by the Company, and notes the success of the completed Miners-Platte installation, which yielded a winter capacity increase in excess of 100 MW. This increase, evaluated in conjunction with the adjacent path, has been incorporated into a Western Electricity Coordinating Council (WECC) path rating increase. Equipment was installed for the second project, West of Populus, in 2013 and it is currently in the data collection phase. PacifiCorp expects the rating process to be completed in 2015, and the project to be in service sometime in 2015 or 2016. Staff concludes that this information meets the requirement to report on the pilot project.

⁵ Id., p. 29.

⁶ PacifiCorp DSM Potential Study performed by The Cadmus Group.

⁷ PacifiCorp 2014 Smart Grid Annual Report, p. 29

The DLR summary does not, however, include an evaluation on the potential applicability of DLR on the transmission system, nor does it contain specific information about plans to implement DLR, as required. PacifiCorp states:

“DLR is considered for future transmission needs. DLR is only applicable for thermal constraints and provides capacity only during site-dependent time periods, which may or may not align with the expected transmission need. DLR is one method within the toolbox of transmission planning and is considered when applicable.”

It is unclear from this information whether the Company is actively evaluating DLR opportunities in the course of its regular transmission planning process. Because no evaluation of the potential applicability of DLR more broadly on PacifiCorp’s transmission system, and no specific plans were provided regarding the Company’s plans to implement DLR, Staff concludes that this does not meet the requirement of Order No. 13-382. As part of its response comments, the Company should describe its current process to evaluate the applicability of DLR on the transmission system and its future plans to implement DLR.

2(b) Reliability and Quality of Service Metrics

Propose specific reliability and quality of service metrics to evaluate smart grid strategies and investments.

PacifiCorp’s summary of projects⁸ indicates that this requirement is addressed in the Substation and Distribution Enhancements category, Project 2. While this section of the report states that distribution management can improve reliability metrics,⁹ and that intelligent electronic devices in distribution line equipment can accelerate service restoration times,¹⁰ no specific reliability or quality of service metrics to be used in evaluating smart grid investments are proposed. The “Future Actions and Timeline” for Distribution Automation and Reliability (includes distribution management and outage management) states only that “PacifiCorp will continue to evaluate smart grid technologies for system reliability needs.”

Because no specific reliability or quality of service metrics are proposed in the Smart Grid Report, Staff concludes that it does not meet the requirement in Order No. 13-382. Staff believes that implementation of smart grid technologies should result in reducing the frequency of momentary and sustained outage, reducing the duration of outages, and reducing the operations and maintenance costs associated with outage management. These metrics are captured in the reliability data reporting¹¹ contained in the Oregon Investor-owned Utilities Seven-Year Electric Service Reliability Statistics

⁸ PacifiCorp 2014 Smart Grid Annual Report, p. 3.

⁹ Id., p. 17.

¹⁰ Id., p. 18.

¹¹ Required by OAR 860-023-0080 through 0161.

Summary. PacifiCorp should quantify any reliability and quality of service improvements it anticipates due to the implementation of smart grid technologies.

2(c) Synchronphasors

Describe with specificity its future plans for deployment of synchronphasors and use of synchronphasor data once the current demonstration project ends.

The Smart Grid Report contains a summary of PacifiCorp's participation in WECC's Western Interconnection Synchronphasor Project. WECC, and the Peak Reliability entity formed through a division of WECC, are implementing this project with partners throughout the Western Interconnection. The project goal is to "leverage technology "to identify and analyze system vulnerabilities and disturbances on the western bulk electric system and take timely actions to avoid wide-spread blackouts."¹²

As a participant in this project, PacifiCorp installed phasor measurement units (PMUs) at eight substations, and phasor data concentrators at its Salt Lake City control center. WECC has developed a tool to enable participants to see the phasor measurement unit data, and ultimately utilities should be able to use this data for "situational awareness" on their systems, but the system's data viewing capability is limited as of this time. PacifiCorp states that its installation responsibilities with respect to the WECC project are complete, that "additional installations will be considered after the project proves fruitful," and that the data available in the future may prove valuable for its utility operations.¹³

PacifiCorp provided a summary of the synchronphasor project, and a general description of the issue with regard to data access. It did not "describe with specificity its future plans for deployment of synchronphasors and use of synchronphasor data once the current demonstration project ends." Staff suggests that PacifiCorp provide a proposed timeline, based on consultation with WECC and on the Company's internal needs, within which it will have access to the synchronphasor data. Further, Staff suggests that PacifiCorp propose a specific period of time after such data is available within which it will evaluate and report on potential operational uses for the data.

2(d) Distributed Generation and Renewables, including Electric Vehicles, Solar

Integrating distributed generation and renewables into its transmission and distribution grid, including the integration of Electric Vehicles and Solar Power.

The Smart Grid Report contains information on PacifiCorp's activities, industry research and company expectations for the future with respect to distributed generation, renewables, and electric vehicles. This information only peripherally addresses potential strategies for integrating these resources (and in the case of electric vehicles, potential storage) through existing and future smart grid technologies. Staff recognizes

¹² PacifiCorp 2014 Smart Grid Annual Report, p. 12.

¹³ Id., p. 13-14.

that some of these technologies are showing very limited adoption. However, Staff believes that the complexity of a broad smart grid implementation over a period of several years requires that this planning work begin in earnest now. Staff suggests that this requirement be addressed more completely in PacifiCorp's next smart grid report.

3. Oregon Advanced Metering Project

As stated in the Commission order for PacifiCorp's 2013 Smart Grid report, PacifiCorp was granted a delay to October 31, 2014 for its 2014 report to enable the inclusion of the results of the Oregon Advanced Metering Project. PacifiCorp states that it expended "considerable effort during 2014 further developing and refining its strategy related to an advanced metering system (AMS) in the state of Oregon."¹⁴ PacifiCorp issued a Request for Information in early 2014, and the "vendor data proved inclusive given the wide range in data and difficulty in quantifying the benefits actually realized by other utilities."¹⁵ PacifiCorp issued a Request for Proposal (RFP) in order to refine the costs,¹⁶ and presumably the benefits, for an AMS. The RFP was issued in September 2014, and it closed in mid-October 2014, with seven vendors responding. PacifiCorp is currently evaluating the proposals, and it anticipates that the results will be available by December 31, with a decision in early 2015.

Staff concludes that the pace of developments with respect to the Oregon Advanced Metering Project is very disappointing. Staff would expect that, given PacifiCorp's range and depth of technical and contracting experience, the process for gathering meaningful information could have been completed within the previous 14 months, and that the results of the Oregon Advanced Metering Project could have been reported to the Commission on schedule.

Additional Comments

Staff is concerned that the benefits for some of the scenarios examined in the Company's confidential Attachment A are too narrowly defined, and that potential savings from some of the smart grid technologies such as advanced metering are therefore limited. Staff intends to pursue additional information prior to its issuance of the staff report for the special public meeting on PacifiCorp's 2014 Smart Grid report, scheduled for February 11, 2015.

Finally, the Commission adopted the following Staff recommendation:

"include a roadmap (with dates) that includes how PacifiCorp plans to systematically evaluate the myriad of smart grid options available to the Company. PacifiCorp should list and prioritize specific smart grid investments and provide a description of the path forward and how the work plan and any pilot projects will be organized in order to evaluate the smart grid projects."

¹⁴ PacifiCorp 2014 Smart Grid Annual Report, p. 22.

¹⁵ Id., p. 23.

¹⁶ Id., p. 23.

PacifiCorp indicates in its Summary of Projects¹⁷ that the “include a roadmap” recommendation is addressed on page 38. Staff notes that Table 6, Scenario Components, is identical to Table 3 in last year’s smart grid report,¹⁸ Case Components, except that the rows and columns are switched. Figure 12, Smart Grid Roadmap, is identical to Figure 7, Smart Grid Roadmap, in last year’s report. In neither report do the roadmap figures include dates; they show a Smart Grid Timeline shown in years zero to 15.

Dates are, however, included in Table 2, Summary of Projects.¹⁹ Staff notes that only four projects in this table include a timeline (DLR, Synchronphasors, Communicating Faulted Circuit Indicators, and Advanced Metering Strategy for Oregon Customers). Six projects show with a timeline of N/A: Centralized Energy Storage Assessment, Distribution Automation and Reliability Analysis, Conservation Voltage Reduction Demonstration, Customer Communications and Programs, Demand Response, and Distributed and Renewable Resource Enhancements. Due to the lack of detail, the lack of dates for many components, and the lack of a portrayal of how initiatives are prioritized and evaluated, Staff concludes that PacifiCorp did not appropriately address this recommendation.

This concludes Staff’s Comments.

Dated at Salem, Oregon, this 17th day of December, 2014



Brittany Andrus
Senior Utility Analyst
Energy Resources and Planning

¹⁷PacifiCorp 2014 Smart Grid Annual Report, p. 3.

¹⁸ PacifiCorp 2013 Smart Grid Annual Report, p. 61.

¹⁹ PacifiCorp 2014 Smart Grid Annual Report, p. 8.

CERTIFICATE OF SERVICE

UM 1667

I certify that I have, this day, served the foregoing document upon all parties of record in this proceeding by delivering a copy in person or by mailing a copy properly addressed with first class postage prepaid, or by electronic mail pursuant to OAR 860-001-0180, to the following parties or attorneys of parties.

Dated this 17th day of December, 2014 at Salem, Oregon



Kay Barnes
Public Utility Commission
3930 Fairview Industrial Drive SE
Salem, Oregon 97302
Telephone: (503) 378-5763

UM 1667 – SERVICE LIST

*OREGON DEPARTMENT OF ENERGY	
KACIA BROCKMAN (C) (W) SENIOR ENERGY POLICY ANALYST	625 MARION ST NE SALEM OR 97301-3737 kacia.brockman@state.or.us
*OREGON DEPARTMENT OF JUSTICE	
RENEE M FRANCE (C) (W) SENIOR ASSISTANT ATTORNEY GENERAL	NATURAL RESOURCES SECTION 1162 COURT ST NE SALEM OR 97301-4096 renee.m.france@doj.state.or.us
CITIZENS' UTILITY BOARD OF OREGON	
OPUC DOCKETS (W)	610 SW BROADWAY, STE 400 PORTLAND OR 97205 dockets@oregoncub.org
ROBERT JENKS (C) (W)	610 SW BROADWAY, STE 400 PORTLAND OR 97205 bob@oregoncub.org
G. CATRIONA MCCrackEN (C) (W)	610 SW BROADWAY, STE 400 PORTLAND OR 97205 catriona@oregoncub.org
NW ENERGY COALITION	
WENDY GERLITZ (US MAIL)	1205 SE FLAVEL PORTLAND OR 97202 wendy@nwenergy.org
PACIFIC POWER	
R. BRYCE DALLEY (C) (W)	825 NE MULTNOMAH ST., STE 2000 PORTLAND OR 97232 bryce.dalley@pacificorp.com
PACIFICORP	
ETTA LOCKEY (W)	825 NE MULTNOMAH ST., STE 1800 PORTLAND OR 97232 etta.lockey@pacificorp.com
PUBLIC UTILITY COMMISSION OF OREGON	
BRITTANY ANDRUS (C) (W)	PO BOX 1088 SALEM OR 97308-1088 brittany.andrus@state.or.us
PUC STAFF--DEPARTMENT OF JUSTICE	
MICHAEL T WEIRICH (C) (W)	BUSINESS ACTIVITIES SECTION 1162 COURT ST NE SALEM OR 97301-4096 michael.weirich@state.or.us