

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON**

Docket No. UM 1675

In the Matter of

IDAHO POWER COMPANY,

2017 Annual Smart Grid Report

Staff Comments

These comments are submitted in response to Idaho Power Company's (Idaho Power or "the Company") fourth annual *Smart Grid Report*.

Background

In 2012, the Public Utility Commission of Oregon (Commission) adopted smart-grid reporting requirements for PacifiCorp, Portland General Electric, and Idaho Power Company 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."¹

At a minimum, the utility's Smart Grid Report must include:

1. Smart-grid strategy, goals, and objectives.
2. Status of smart-grid investments the utility plans to take in the next five years and of projects already underway.
3. Smart-grid opportunities and constraints.
4. Targeted evaluations of technologies and applications pursuant to Commission approved stakeholder recommendations.
5. Related activities such as investment to address physical-and cyber-security, privacy, customer outreach and education, etc.²

The Commission's smart grid reporting requirements specified each utility's first report in 2013 must include all five smart grid reporting elements from Order No. 12-158 listed above. Subsequent reports need only include incremental additions and updates of all elements in the first report and information that may be required by the Commission in a previous order.³

¹ Order No. 12-158 at page 1, Docket No. 1460, May 8, 2012.

² Order No. 12-158, at 6.

³ Order No. 12-158, p. 4.

This will be Idaho Power's fifth Smart Grid report. Each utility's annual report is structured to cover the previous year's work. For example, this 2017 Annual Smart Grid report will cover all of activities and investments conducted in 2016. In the 2017 Order No. 17-290, the Commission decided to move from an annual reporting cycle to a biennium reporting cycle. Idaho Power's next smart grid report will be issued in 2019.

Staff's Approach to these Comments on the 2017 Smart Grid Report

In these comments, Staff will focus its analysis on how well Idaho Power addressed the recommendations from last year's Order No. 17-076. The Commission recommended Idaho Power's next Smart Grid Report detail how the Company implemented the following recommended actions:

1. Continue to include Staff and stakeholder informal comments and corresponding Company responses in the *2017 Smart Grid Report*.
2. Host additional workshops with Staff and other stakeholders for their input in finalizing the program design of the time-of-day (TOD) pilot.
3. Provide updated information on quantifiable benefits by populating the to-be-determined (TBD) fields in its Appendix H as applicable and continue to include any updates to the appendix in next year's report.
4. Provide the final Observability study and explain the final implications of the study as it applies to phasor measurement unit (PMU) installations, the cost of the PMU installations, and how those PMU installations will benefit the Idaho Power system.
5. In addition to providing updates on the linear state estimator (LSE) and the real-time voltage stability monitoring and control (RT-VSMAC) via an appendix similar to that in the 2016 report, provide a narrative explaining the elements of the appendix and explain how its updates related to the Peak Reliability Synchrophasor Program (PRSP) are benefiting the Idaho Power system.
6. Track the progress of the customer relationship management (CRM) application and the customer relationship and billing (CR&B) upgrade and provide a robust narrative, complete with costs and benefits, describing how it intends to utilize CRM for personalized demand-side management (DSM) purposes beyond what is already available to customers. The Company should also provide a robust narrative describing how its Savings Center will or won't help achieve new DSM offerings or energy management abilities, if any.

Analysis of Idaho Power's Response to Last Year's Recommendations

Recommendation 1: Idaho Power continue including Staff and stakeholder informal comments and the Company's respective responses as an appendix in future smart grid reports.

Staff appreciates that the Company has included Staff and stakeholder informal comments as Appendix A to the 2017 Smart Grid Report. Staff is satisfied that the Company has responded to Recommendation 1 in this report.

Recommendation 2: Idaho Power host additional workshops with Staff and other stakeholders for their input in finalizing the program design of the TOD pilot.

The Company has been exploring TOD or time-of-use (TOU) programs in Oregon since at least the 2013 Smart Grid Report.⁴ Staff has expressed concern in the past that the Company was designing programs without stakeholder input, and by the time a program was introduced, it would be too late for Staff or other stakeholders to raise concerns or offer input. The Company has responded by holding several conference calls, webinars, and workshops with stakeholders in 2017, while introducing potential offerings.

At the latest conference call between Staff and the Company on December 14, 2017 (and in previous Smart Grid Reports and comments), Staff expressed that the primary goal of TOU programs is to shift daily electricity demand from peak to off-peak periods and relieve constraints on the Company's system. However, the Company stated that their small customer base in Oregon does not create a critical peak demand, and so the Company and its customers would receive minimal benefit from load shifting. Regardless, Staff believes that shifting peak loads and incenting customer behavioral changes through a TOU program will provide a valuable service to the Company's system. The Company and Staff also expressed interest in introducing cost-based rates, and a voluntary TOU program would explore that. The Company is also going to explore the potential impact of seasonal rates on the Company's cost of service and potential customer savings.

The Company is compiling their research and proposals for TOU programs and will provide them to Staff in the near future. Order No. 17-076 recommends that the Company should complete its design of the TOD pilot and file a tariff proposal with the Commission by Jan 1, 2018, but the above analysis results and several stakeholder meetings have delayed project completion. The Company proposed presenting its TOU project at the Idaho Power Smart Grid Special Public Meeting in March 2018, and Staff agreed that that is an acceptable timeline.

⁴ 2013 Idaho Power Smart Grid Report, p. 14.

Staff requests that the Company compile proposals and pertinent research to provide Staff, and hold at least one more workshop with Staff before finalization and presentation of the TOU program in March 2018.

Recommendation 3: Idaho Power provide updated information on quantifiable benefits of smart grid projects by populating the TBD fields in its Appendix H as applicable and continue to include any updates to the appendix in next year's report.

Staff appreciates the Company responding to Staff requests regarding quantifying benefits. The 2017 Smart Grid Report has only one metric that is TBD, which is the ongoing CRM Project's final cost, and Staff is satisfied that the Company properly responded to Recommendation 3.

Recommendation 4: Idaho Power provide the final Observability study and explain the final implications of the study as it applies to PMU installations, the cost of the PMU installations, and how those PMU installations will benefit the Idaho Power system.

The Company provided the final Observability study prepared by V&R Energy Systems Research Inc. in Appendix D.

The study identified 78 PMU locations that would provide complete observability of the Idaho bulk electric system (BES), and a LSE uses the PMUs for performing measurement-based analysis. Some applications of this functionality include:

- Contingency analysis
- Voltage stability analysis
- Automatic corrective actions
- Phase angle limit computation
- Analysis of cascading outages

The Company states that ~44 PUMs are in place, allowing partial observability of the BES. The Company also identifies a cost of \$1.5 million to install the additional 34 PMUs in locations identified in the study, but they do not indicate whether they are proceeding with the installation. Staff is satisfied that the Company properly responded to Recommendation 4.

Staff requests that the company indicate in its reply comments if they plan on installing the additional 34 PMUs, and update the analysis of observability of the BES in a future report or comments once the installation of all 78 PMUs are completed.

Recommendation 5: Idaho Power provide updates on the LSE and the real-time voltage stability monitoring and control (RT-VSMAC) applications in future smart grid reports. In addition, the Company should provide a narrative explaining the elements of

the appendix and explain how updates related to the PRSP are benefiting the Idaho Power system.

The RT-VSMAC project refers to the functionality of the region of stability existence (ROSE) tool and the implementation and validation of the LSE, which is addressed in Recommendation 4. The ROSE tool utilizes PMU data to increase situational awareness and provide real-time monitoring and system predictability. This allows operators to make more timely remedial actions to prevent system instability. The ROSE tool uses monitoring equipment based on system control and data acquisition (SCADA) to provide PRSP participants with measurements at approximately five-minute intervals.

The PRSP's goal is to collaborate with transmission owners, transmission operators, and V&R Energy, an application vendor to develop, deploy, and test voltage stability software and linear state estimation software. The Company provided the three most recent quarterly PRSP Project Status reports in Appendix E. Staff is satisfied that the Company properly responded to Recommendation 5.

Recommendation 6: Idaho Power should track the progress of the customer relationship management (CRM) application and the customer relationship and billing (CR&B) upgrade and provide a robust narrative, complete with costs and benefits, describing how it intends to utilize CRM for personalized demand-side management (DSM) purposes beyond what is already available to customers. The Company should also provide a robust narrative describing how its Savings Center will or won't help achieve new DSM offerings or energy management abilities, if any.

The Company completed the upgrade of its CR&B software in January 2017, allowing integration of the CRM module into CR&B to move forward. The integration is expected to occur in quarter 1 of 2018. The Company provides costs to date (September 29, 2017), and details several customer benefits that rely on the CRM. These include the myAccount customer portal, which provides access to detailed account and energy usage information, and The Savings Center, which is described as a useful tool for customers to learn how they can save energy. The Savings Center is not a driver to achieve new DSM offerings or energy management abilities. Staff is satisfied that the Company properly responded to Recommendation 6 with information available to date.

Staff requests that the Company provide an update on CRM January 2018 integration in its special public meeting report in March 2018, as well as other project updates in the 2019 Smart Grid Report.

Summary

The Company addressed all the recommendations from Order No. 17-076, but some of responses would benefit from clarification in Idaho Power's Reply Comments due in January 2018, and as otherwise described in these comments. To reiterate, Staff requests that the Company address the following in its response:

- The Company compile proposals and pertinent research to provide Staff, and hold at least one more workshop with Staff before finalization and presentation of the TOU program in March 2018.
- The Company indicate in its reply comments if they plan on installing the additional 34 PMUs, and update the analysis of observability of the BES in a future report or comments if the installation is completed.
- The Company provide an update on CRM January 2018 integration in its Final Smart Grid Report scheduled for presentation to the Commission at a special public meeting in March 2018, as well as other project updates in the 2019 Smart Grid Report.

Overall, Staff believes the Company has provided a robust smart grid report and has provided Staff with useful information about the progress of its projects, as well as details of future projects.

This concludes Staff's Comments.

Dated at Salem, Oregon, this 20th day of December, 2017.



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