



**Portland General Electric Company**  
121 SW Salmon Street • Portland, Oregon 97204  
[PortlandGeneral.com](http://PortlandGeneral.com)

August 14, 2015

**Via Email**

[puc.filingcenter@state.or.us](mailto:puc.filingcenter@state.or.us)

Oregon Public Utility Commission  
Filing Center  
201 High Street  
PO Box 1088  
Salem, OR 97308-1088

**RE: UM 1657 PGE Reply Comments**

Attention: Filing Center

Enclosed for filing are Portland General Electric's Reply Comments in Docket Number UM 1657. This document is being filed by electronic mail with the Filing Center.

If you have any questions or require further information, please contact me at (503) 464-8937.

Please direct all formal correspondence and requests to the following email address:

[pge.opuc.filings@pgn.com](mailto:pge.opuc.filings@pgn.com)

Sincerely,

A handwritten signature in blue ink, appearing to read "Stefan Brown" with a stylized flourish at the end. Below the signature, the name "Stefan Brown" is printed in a black, sans-serif font.

Stefan Brown

cc: UM 1657 Service List

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

**UM 1657**

In the Matter of

PORTLAND GENERAL ELECTRIC  
COMPANY

Annual Smart Grid Report

REPLY COMMENTS OF PORTLAND  
GENERAL ELECTRIC

Portland General Electric (“PGE”) submits these reply comments in response to comments submitted by the Citizens’ Utility Board of Oregon (“CUB”), NW Energy Coalition (“NVEC”) and Oregon Public Utility Commission (“OPUC”) Staff regarding PGE’s 2015 Smart Grid Report (the “Report”). We greatly appreciate the input we received on the Report and look forward to continued collaboration around future reports and Smart Grid development in Oregon.

**Response to CUB Comments**

CUB provided comments<sup>1</sup> on July 10, 2015 which focused on two issues: (1) reporting of costs and benefits of smart grid initiatives in the Report and (2) concern over PGE’s interest in prepaid metering and how a program, if developed without stakeholder input, could negatively impact a subset of customers.

**A. Cost and Benefits**

PGE acknowledges CUB’s request to be more explicit in its inclusion of costs and benefits to the report. As outlined in Docket UM 1708<sup>2</sup>, PGE will lead a process to develop a cost effectiveness tool unique to demand response. PGE believes this process will lead to the development of a smart grid cost effectiveness tool which will span a broader range of technologies and initiatives. A standardized tool which spans a range of technologies and use cases would add value to the Report and provide a standardized methodology for reporting costs and benefits of a wide range of smart grid initiatives.

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<sup>1</sup> <http://edocs.puc.state.or.us/efdocs/HAC/um1657hac82847.pdf>

<sup>2</sup> UM 1708 - PGE’s Response in Agreement to Staff’s Recommended Modifications to the Two Demand Response Pilots (<http://edocs.puc.state.or.us/efdocs/HAH/um1708hah125510.pdf>)

## **B. Prepaid Metering**

CUB stated concerns about the inclusion of prepaid metering in the report and the potential impact a prepaid metering program could have on customers. PGE acknowledges this concern and reaffirms that before developing a pilot program, PGE would actively engage stakeholder input. PGE is watching prepaid metering but there are no current development plans.

### **Response to NWECC Comments**

NWECC provided comments<sup>3</sup> on July 10, 2015 which supported the progress made by the Smart Grid report along with highlighting opportunities for future considerations as smart grid develops at PGE: (1) leveraging enhanced data flows from energy efficiency projects with smart grid projects to provide additional customer and system benefits; (2) additional Commission oversight of data quality, integrity, security, and privacy; and (3) smart grid and integrated resource planning.

#### **A. Energy Efficiency**

NWECC suggested that an increased focus on the interrelationship of energy efficiency and smart grid programs could offer short-term conservation response and long-term energy savings, providing individual and system benefits.

PGE acknowledges NWECC's interest in aligning energy efficiency efforts with smart grid goals. An example of how energy efficiency program data may aid or inform a smart grid initiative is the deployment of smart thermostats for demand response. PGE will collaborate closely with the Energy Trust of Oregon ("ETO") to maximize program participation and to leverage existing ETO outreach efforts. Existing programs also look for opportunities to leverage smart grid data to enhance efficiency programs. For example, customers are able to access their energy usage information via Energy Tracker—that information is used to direct customers to the ETO to find out about available rebates for acting on energy efficiency suggestions available in the tool.

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<sup>3</sup> <http://edocs.puc.state.or.us/efdocs/HAC/um1657hac9059.pdf>

## **B. Data and the Smart Grid: Benefits and Risks**

NWEC spoke to the value of smart grid data and risks associated with data quality, integrity, security, and privacy and stated that the subject deserves more attention through the Commission's processes.

Like NWEC, PGE believes smart grid data is a critical element in the evolution of smart grid initiatives, however, PGE does not agree that additional Commission oversight is necessary. PGE takes security and privacy seriously and follows industry best practices to ensure any such risks are reduced and controlled. PGE has been actively revamping internal networks to provide "secure-by-default infrastructure zones," which are positioned to support sensitive command-and-control systems (CCS), such as AMI, SCADA and DSG, in a consistent, unified, predictable, repeatable and automated fashion. Since smart grid relies on the unified integration of many disparate systems operating in unison, this consistent approach to infrastructure, architecture and security is critical to the interoperability and flexibility necessary to adapt to changing uses of a smart grid. Additionally, PGE is adopting the National Institute of Standards and Technology's (NIST) smart grid interoperability, security, and privacy standards. PGE's processes around data quality, integrity, security, and privacy follow industry best practices.

## **C. Integrated Resource Plan**

NWEC stated that it may be time to augment the IRP process with a distribution resource plan (DRP), which would be aimed at situating the assessments embodied in the annual smart grid reports in a broader context guided by least cost/least risk perspective. NWEC additionally recommends an assessment similar to that which was recently completed in California.

PGE believes the current integrated resource planning process already allows for the assessment of smart grid initiatives and does not need to be augmented. For example, Commission Order 14-415, acknowledging PGE's 2013 IRP, requires 1) assessment of distributed generation potential, 2) evaluation of new analytical tools for optimizing the flexible resource mix, and 3) a portfolio level analysis of CVR in PGE's next IRP. PGE's integrated resource planning process is inclusive of distributed resources, and we continuously evaluate the adequacy of methodologies used. PGE's internal processes include strong

collaboration between IRP and smart grid. Further, PGE fully appreciates the importance of ongoing collaboration, discussion and information-sharing between the utility, the Commission, OPUC Staff and stakeholders as we conduct our analysis and develop our IRP. We believe the robust dialogue process we use creates a strong foundation for this cooperative relationship and results in the selection of a portfolio of resources with the best combination of expected costs and associated risks and uncertainties for PGE and its customers. As the diversity of resources continues to evolve we remain committed to this approach.

### **Response to OPUC Staff Comments**

Staff provided comments<sup>4</sup> on July 10, 2015 which highlighted some report improvements along with a focus on how PGE addressed the requirements set forth by the Commission in Order No. 14-333: (1) Conservation Voltage reduction, including a reminder that Commission Order 14-415 requires PGE to include a portfolio level analysis of CVR in its next IRP; (2) Critical Peak Pricing pilot; (3) Smart Grid Metrics; (4); Synchrophasors; (5) Smart Thermostat Pilot; (6) Salem Smart Power Center; (7) TOU programs. The comments outlined several concerns regarding elements of pilot design and sufficiency of information provided in the report.

In response to Staff's comments to the Report, PGE and OPUC Staff held a follow-up phone call on July 22, 2015. During the call, PGE and Staff talked through the concerns outlined by Staff in Staff's comments. PGE appreciates the opportunity to discuss Staff's concerns and looks forward to future opportunities like this to collaborate. PGE and Staff agreed that continuing communication on future reports, workshops, and smart grid pilots would yield better products. Responses to specific comments are outlined below.

Additionally, PGE is grateful for the feedback received by Staff during the informal comment period because it allows for collaboration on the front end of reports and ultimately results in better quality report.

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<sup>4</sup> <http://edocs.puc.state.or.us/efdocs/HAC/um1657hac132336.pdf>

**A. Critical Peak Pricing (CPP), Time-of-Use (TOU), Dynamic Pricing Pilots, and Smart Thermostat DLC**

Staff expressed a variety of concerns regarding the previously completed CPP pilot, existing TOU programs, and the planned smart thermostat DLC pilot. Concerns included how new pilots are being developed (i.e. program design, baseline, education & outreach, etc.), how TOU rates are being marketed to customers today, and the quality and quantity of the information on smart thermostats in the Report. The concerns mirror concerns outlined by Staff in Docket No. UM 1708.<sup>5</sup>

PGE has actively worked to respond to these concerns in Docket No. 1708 (Application for Deferral of Expenses Associated with Two Residential Demand Response Pilots). The timing of Docket No. UM 1708 and Docket No. UM 1657 conflicted such that the level of detail desired by Staff was not available nor consented to at the time the Report was filed. Specifically, a draft of the 2015 Smart Grid Report was provided to stakeholders on April 10, 2015, and the final report was filed May 28, 2015. PGE provided detailed testimony regarding Docket No. UM 1708 on May 5, 2015 and filed subsequent comments to Staff's recommended modifications on June 10, 2015. These concerns outlined by Staff have been addressed and the deferral was subsequently approved (Order No. 15-203).

The CPP pilot demonstrated that load curtailment is possible but given the variety of demand response pricing alternatives that are available to utilities, PGE believes customer interests are better served by implementing a dynamic pricing pilot and direct load control thermostat pilot. The dynamic pricing pilot developed and referenced in Docket No. UM 1708 was created to continue the development of PGE's pricing programs. The dynamic pricing pilot is intended to evaluate and identify the best pricing program offering for our customers in terms of overall cost effectiveness and customer satisfaction. PGE does not believe that additional research into CPP pilots is warranted at this time.

Regarding the marketing of the existing TOU program, the existing program has proven unfavorable to customers. Aggressive marketing of a rate schedule that leaves customers dissatisfied could negatively affect customer perception of future pricing programs. Rather than splitting efforts and actively promoting

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<sup>5</sup> <http://apps.puc.state.or.us/edockets/docket.asp?DocketID=19228>

a TOU rate schedule that has proven to be unfavorable for customers, PGE is focusing efforts on (1) market research and (2) successful deployment of the dynamic pricing pilot. Because the dynamic pricing pilot will employ a variety of TOU tactics including peak time rebates and behavioral demand response, PGE is poised to determine which combination of programs delivers the greatest system benefits and customer satisfaction. It is important to note that a new pricing program cannot be deployed to customers at scale until the deployment of the new meter data management (MDM) system and customer information system (CIS).<sup>6</sup>

### **B. Smart Grid Metrics**

Staff inquired about “Possible future metrics” and when those might be available. Additionally, Staff stated they believe there are opportunities for additional metrics in the future.

PGE acknowledges that several metrics in Appendix 2 of the Report (Smart Grid Metrics) are identified as “Potential Future metric: Not yet capturing”. PGE developed this Appendix in collaboration with OPUC Staff and other stakeholders through a series of workshops. “Potential Future Metrics” were included in Appendix 2 at the request of OPUC Staff as a product of those workshops.

PGE remains committed to continuous improvement and reiterates its position on Smart Grid Metrics as presented on March 12<sup>7</sup>, that an iterative approach to metrics is necessary which includes a process of:

1. Research Industry Best Practices
2. Define Metrics
3. Stakeholder Feedback
4. Capture/Report Data
5. Evaluate Metric Effectiveness

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<sup>6</sup> PGE reached this conclusion based on the cost/benefit analysis of the CPP pilot. The MDM and CIS replacement projects are part of PGE’s Customer Engagement Transformation initiative, which has been discussed in detail in PGE’s three most recent general rate cases, i.e., UE 262, PGE Exhibit 900; UE 283, PGE Exhibit 1000; and UE 294, PGE Exhibit 900.

<sup>7</sup><http://www.puc.state.or.us/meetings/pmemos/2015/031215/SPM%20Presentation%20PGE%20Smart%20Grid%2003122015.pdf>

Though OPUC Staff requested a time when those metrics would be available, PGE believes that it would be unfruitful to attempt to provide a target date for those metrics. Metrics are not static and may evolve over time and PGE is continually improving systems, analytical capacities, and evaluating best practices. As a result, “Potential Future Metrics” are just that, “Potential,” and they should not be assumed to be a future metric on a particular date in the future. PGE acknowledges and agrees with OPUC Staff’s comments that there could be opportunities for additional metrics in the future, and PGE believes its iterative approach described above will yield future metrics that add additional value to the smart grid reporting process.

### **C. Implementation of Sychrophasors**

Staff stated that PGE did not submit a report on sychrophasor implementation prior to this year’s smart grid report as required by Order No. 14-333. Staff additionally inquired if PGE is participating in Western Electricity Coordinating Council’s (WECC) Peak Reliability program.

Appendix 6 of the 2015 Smart Grid Report is intended to fulfill the Commission-adopted Recommendation in Order No. 14-333. In response to Staff’s question, PGE is not participating in WECC’s Western Interconnection Sychrophasor Project (WISP) and WECC’s Peak Reliability Program. PGE has been coordinating with WECC/PEAK to assess data handling for reliability and is actively assessing whether to join the WISP.

Staff also pointed out that there is a discrepancy between the body of the Report and Appendix 6 regarding the number of substations planned to include sychrophasors.

PGE affirms that page 26 of the report, which states that “sychrophasor technology is scheduled for two additional substations in 2015,” is correct. PGE acknowledges that the table on page 78 includes 5 substations to receive upgrades in 2015. This table illustrates an early cost estimate and plan for 2015 which originally anticipated 5 substations in 2015, however with a change in the scope of work this number was subsequently reduced to two.



#### **D. Non-wire Alternatives to Distribution Upgrades**

Staff asked if PGE has already identified transmission & distribution systems such as feeders that are approaching operating thresholds that require capital upgrades for continued, reliable operation. Staff also hopes that PGE is already considering non-wire alternatives such as distributed generation, demand response, or energy efficiency.

PGE established a T&D Strategic Asset Management (SAM) department in 2013. This department identifies and manages risk within the T&D system by analyzing individual assets and asset systems via a standardized, economic risk methodology which quantifies electric service impacts to customers. SAM evaluates various risk reduction solutions and advocates for proactive investments (e.g. asset replacement, system reconfiguration, distribution automation) that demonstrate the greatest value to customers.

In addition to demonstrating a number of distributed generation and demand response initiatives, PGE is also conducting research on utilizing storage as non-wire alternative. As PGE's distributed resource portfolio matures and as research results provide new insights, localized distributed resources may become viable as non-wire alternatives to defer capital upgrades.

#### **E. Customer Outreach/Engagement**

Staff asked if PGE informs customers of the transmission & distribution smart grid investments and explains how those upgrades offer better and cheaper service. Additionally, Staff inquired whether PGE can indicate to customers how much money and downtime they can expect to save with such an investment.

PGE agrees that with increasing customer interest in demand side resources and the evolving smart grid, ongoing communications will help customers understand and appreciate the benefits of smart grid investments.

Since 2008, when PGE initiated the smart meter rollout, the majority of communications have centered on energy information and demand response. PGE's communications objectives have been to communicate targeted messages to all customer classes about the benefits of a smart grid. For example, residential and small business customers are increasing engagement with Energy Tracker. This free

online tool is designed to help customers better understand and manage their energy use, which often leads to cost savings. Commercial and Industrial customers are more interested in how smart grid investments improve reliability and restoration efforts, so targeted communications and personal outreach are more focused here (i.e., substation improvement).

In addition to these ongoing efforts, PGE is developing a customer communications plan as a part of 2015 smart grid the road map development. The Company anticipates that communication and collaboration with customers will be critical as demand-side applications become more accessible.

#### **F. Continuous Communications Upgrades**

Staff inquired about the specifics of PGE's intended uses for a purchased radio spectrum.

PGE's primary objective for procuring radio spectrum was to replace the land-mobile radio system to increase reliability and safety. Additionally, the spectrum can serve a variety of deployments of smart grid initiatives including but not limited to: distribution automation, demand management programs, conservation voltage reduction, SCADA traffic, synchrophasors, and customer "smart" devices.

Additionally, staff inquired about the roles that the Internet could play in addressing smart grid communication needs.

Though the Internet is rapidly becoming accessible by an increasing number of customers, the Internet is generally not suitable communications network to serve grid-related initiatives. The internet has no guarantee of service and is not a reliable option for the functions mentioned above. Events such as a cell tower going down or an event with a significant amount of communications congestion would prohibit PGE from being able to use the Internet to reliably serve the needs of customers. In addition to reliability concerns, there are also coverage issues particularly in remote areas where distribution hardware needs to be monitored or controlled (i.e., reclosers).

Additionally, Staff inquired about the integration of mobile access into demand response programs.

For both the dynamic pricing and smart thermostat pilots in Docket No. 1708, customers will have the ability to gain program information and/or control via mobile devices. Thermostat program customers will be able to opt-out and control their thermostats via a mobile device. Dynamic pricing program

customers will be able to receive alerts and feedback via a mobile device, including behavior demand response calls and details on how much energy was saved by participating.

### **G. Behavioral Pricing Programs**


Staff suggested that TOU and many non-TOU customers could be enrolled in a behavioral demand response program.

PGE shares Staff's view that behavioral demand response could be a good opportunity. Consistent with this view, PGE is testing a sample of customers in the dynamic pricing pilot (outlined in Docket No. UM 1708), which PGE believes is sufficient to yield statistically significant results.

### **H. Conclusion**

PGE believes the 2015 Smart Grid Report filing has met the requirements of Commission Order No. 12-158 established in Docket No. UM 1460 and requests the Commission to accept this report. We greatly appreciate the input and collaboration of Staff and other stakeholders on this report. We look forward to continued collaboration around future reports and smart grid development in Oregon.

Dated this 14<sup>th</sup> day of August, 2015

  
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Stefan Brown  
Manager, Regulatory Affairs  
Portland General Electric  
121 SW Salmon Street, 1WTC0702  
Portland, OR 97204  
503.464.8937