

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
UM 1657**

In the Matter of)	
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PORTLAND GENERAL ELECTRIC)	COMMENTS OF THE
COMPANY,)	NW ENERGY COALITION
)	
2015 Smart Grid Report)	
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The NW Energy Coalition (“NVEC”) appreciates the opportunity to provide the comments below on the 2015 Smart Grid Report filed by Portland General Electric (“PGE” or “Company”).

In general, the report is well organized and clearly presented, with a sufficient level of detail on most of the many elements under discussion. We appreciate the Company’s efforts to make interim presentations and take and respond to stakeholder input. For example, as we suggested, Appendix 2 adds a breakout of reliability metrics by region and looks ahead to a breakout by customer class (residential, commercial, industrial).

For the 2015 report, we generally agree with the consolidation of assessment and reporting under the two categories of grid optimization and customer engagement. NVEC continues the focus of our response to the previous annual smart grid reports on two issues. First is the connection between energy efficiency and smart grid development. The second is the importance of insuring that low income customers – a group providing a significant fraction of utility revenues and also potentially a significant part of smart grid program success -- are fairly treated through sharing the benefits and not having disparate treatment as a result of smart grid programs. In addition, we draw attention to other aspects of the smart grid effort, particularly on the risks and benefits of smart grid data, and the increasing relevance of smart grid development to integrated resource planning.

In general, our assessment is that the PGE smart grid effort is shaping up as a strategy with an increasing level of sophistication and maturity that is already providing benefits to customers. Although to some extent it is an extension of the Company's longstanding effort and investment in maintenance and updating the existing distribution and transmission systems, it has numerous aspects that point to a phase change toward a modernized, dynamic "two way grid of the future." But this poses new types of complexity and an ongoing series of choices that will be needed for greater manageability of the system by the Company and more flexibility and choice for customers. We emphasize the importance of balanced development, selection and scaling up of high-value program elements, continued focus on value and cost effectiveness, and equity for customers, especially low income.

Smart Grid and Low Income Customers. We continue to have concerns about potential smart grid related initiatives on Time of Use (TOU) rate design and prepay programs, especially regarding low income customers. However, the 2015 report provides more directional context and time frames, providing some assurance these kinds of programs will be developed such that they provide benefits and are not detrimental to low income customers.

In its Reply Comments of July 29, 2014 on the previous 2014 smart grid report, the Company stated, "Implementation of a voluntary prepaid metering pilot would not be pursued until CIS and MDMS replacement is complete. Before implementing any such pilot, PGE would actively engage with CAAs and low-income advocates on pilot design. In addition, PGE will continue to research the benefits of a smart grid for low income consumers, while considering ways the smart grid may cause inadvertent harm to low income customers and developing mitigation strategies to prevent such harm."

A welcome development in the 2015 report, therefore, is the enhanced focus on an inclusionary approach for low income customers. The Company states, "PGE's commitment to low income customer engagement ensures programs are designed and targeted to reach all customers." (p. 8) And a full section of commentary is provided on Low Income Customer Engagement. (p. 42).

This is further elaborated through examples: “To help ensure that PGE’s low-income customers are aware of the Energy Tracker tool, PGE has provided information and demonstrations to the Community Action Agencies (CAAs) that serve our customers at our semiannual meetings. At the request of its staff members, one of the agencies incorporated Energy Tracker into a new program it offered during winter 2013/2014. In addition, the Company offered to demonstrate the tool during the CAAs’ energy education workshops with clients and to train the low income weatherization auditors on the tool, so that they could walk through the information with a customer during the course of an audit.” (p. 39)

Energy Efficiency and the Smart Grid. NWEC continues to suggest a focus on the interrelationship of energy efficiency and smart grid programs. Not only does energy efficiency shape load, but going forward energy efficiency physical measures and customer behavior, choice and response programs offer valuable information and data that can be used in a smart grid context, in turn capturing the full value of energy efficiency investment.

Enhanced data flow creates additional issues we will address below. But here we highlight again the potential for energy and operational improvements by effective alignment of energy efficiency and smart grid program development, and a balanced approach to elicit both short-term conservation response and long-term energy savings, providing direct benefits to individual customers and system benefits to customers as a whole.

Data and the Smart Grid: Benefits and Risks. The smart grid concept has often been defined as some combination of innovative technologies, electronic communications and data flows to assist with optimization across the electric power system. Already it is clear that smart grid related programs are starting to generate unprecedented magnitudes and ranges of data, from simple but voluminous measurements as with advanced meters and synchrophasors, to more enhanced telemetry channels, to sophisticated analytics aggregating data into “actionable information.”

The benefits are already becoming apparent. For example, the 2015 report summarizes demonstrable improvements in reliability metrics from the distribution automation (DA) pilot at Gales Creek. (p. 29)

At the same time, increasing reliance on data is accompanied by increased risk: for data quality, integrity, security and privacy. Through previous decades, the success and traditional isolation of SCADA and other major utility information, communication and control systems has led to a relaxed attitude about data risks. Certainly PGE and other utilities see this internally as a major concern and are already deeply engaged in the difficult balance between data benefits and risks. The 2015 report touches on some of these aspects. For example it states, “Finally, as part of PGE’s ongoing Information Security Program, all future Smart Grid initiatives involving technology or customer information will require rigorous security testing and validation to ensure these projects are ready to deploy in a safe and secure manner.” (p. 41)

NWEC believes the overall subject now deserves even more comprehensive attention through the Commission’s processes. It will not be easy to do, both because the subject is very technical and its security aspects preclude, to some degree, assessing success, direction and appropriate levels of money and other resources in the way we are used to when considering resource choices and other traditional decisions, because open discussion of some security specifics could itself create additional risk.

Nevertheless, smart grid programs now bring these issues to the forefront for customers and society generally. To begin with, data generated by the advanced meters and other devices PGE customers may attach to the growing smart grid infrastructure not only has operational value to the Company in providing improved reliability and system benefits, it also has commercial value to various kinds of third party suppliers. In addition, misuse of data or degradation of data quality could have implications not only for the more effective management of the grid but also for personal privacy and security.

Because the electric system touches so much of modern daily life, the saturation of data flows both within the grid and across other systems creates both immense opportunity and pitfalls. For PGE, the Commission and public interest groups like NWEC alike, this moves outward from our traditional concerns about mainly economic and environmental aspects of utility operations and investment to data-driven impacts, both positive and potentially negative, on our daily lives. This is a sobering development.

Finding an appropriate balance of data value and risks is not easy but is necessary to insure that smart grid deployment advances as rapidly as it can to provide system and customer benefits. Some of these themes are already evident in the 2015 report, as in the discussion of early development of a Distribution Management System (DMS). (p. 36)

At a project-specific level, for example, the Smart Water Heater planning pilot anticipates using hybrid communications strategy involving FM radio and WiFi for low-cost, low-latency and high reliability data flow. (p. 38) We agree with this approach but note the need for attention to secure communication to avoid “man in the middle” and other potential attack methods that could affect grid operations and customer security and privacy. We are sure that data security and quality are a strong focus for PGE, but the point is that these matters are rising to a high level of concern from a regulatory and policy perspective.

While most problems arising from data and communications are the result of data quality and management issues, the smart grid as a whole presents an “attack surface” that various kinds of intruders can take advantage of. We do not believe that everyone involved in smart grid needs to become a technical expert in data security, but we do need an increased basic understanding of the issues and the traditional and effective methods of securing data systems summarized in phrases like “security is a process, not a product,” “security is about tradeoffs,” and “defense in depth,” as well as good practices on data generation, processing, storage and change management.

Finally, aside from security questions, very basic questions arise on who owns and controls data generated through smart grid activities. This in turn relates to broader questions on market structure and regulation that will cut across a number of Commission dockets.

Smart Grid and Integrated Resource Planning. The 2015 report shows that PGE working on a lot of good pieces that together create a complex and resource intensive process. The program mix is in a variety of development stages, and it is important to maintain focus and balance. Overall, the smart grid effort is moving generally from early assessment and limited testing to pilot programs and full implementation.

The 2015 report states, “PGE foresees Smart Grid investments becoming viable alternatives to supply-side resources in the IRP, similar to the way cost-effective energy efficiency and demand response are considered as alternatives to supply-side resources. As such, PGE expects that many of our Smart Grid initiatives will likely be vetted during IRP public meetings.” (p. 15)

We agree but this does not extend far enough. Aside from the part of smart grid development in the transmission system (e.g., synchrophasors and the Energy Management System State Estimator), most of the effort will be on the grid edge – in the distribution system and on the customer side. The extensive array of program and development efforts documented in the 2015 report is an indication that a more comprehensive approach is needed for assessment and direction.

NWEC believes it may be time to augment the IRP process with a distribution resource plan (DRP), which would be aimed at situating the assessment embodied in the annual smart grid reports in a broader context guided by the least cost/least risk perspective, with some additional flexibility given the rapid advances in technology and deployment and the need to try and assess many smart grid options.

This could start with a separate analysis as California has now done with the initial DRP filings on July 1 by PG&E, Southern California Edison, San Diego Gas & Electric, PacifiCorp and others

(CPUC docket R.14-08-013, <http://www.cpuc.ca.gov/PUC/energy/drp/>). While the California Long Term Planning Process is somewhat different than Oregon's IRP framework, their DRP approach provides useful guidance.

Dated this 10th day of July, 2015.

A handwritten signature in black ink that reads "Fred Heutte". The signature is written in a cursive, slightly slanted style.

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