

**BEFORE THE PUBLIC UTILITY COMMISSION  
OF OREGON**

UM 1460

In the Matter of the

PUBLIC UTILITY COMMISSION OF  
OREGON

Staff Recommendation to Use Oregon  
Electricity Regulators Assistance Project  
Funds from the American Recovery and  
Reinvestment Act of 2009 to Develop  
Commission Smart Grid Objectives for  
2010-2014.

ORDER

**DISPOSITION: POLICY GOALS AND OBJECTIVES, REPORTING  
REQUIREMENTS, AND GUIDELINES ADOPTED**

**I. INTRODUCTION**

In this order we adopt the following:

- Commission policy goals and objectives related to smart-grid activities;<sup>1</sup>
- Smart-grid reporting requirements for electric utilities; and
- Commission guidelines for utility action.

The reporting requirement adopted in this order will 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.

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<sup>1</sup> We defined "smart-grid investment" for purposes of this docket in Order No. 11-172 and retain that definition here. See Order No. 11-172 at 2 (May 25, 2011).

## II. BACKGROUND

This docket was opened to develop smart-grid objectives and action items for Oregon electric utilities over the next several years. On October 22, 2010, Commission Staff submitted a straw proposal for utility smart-grid planning. After comments were filed, we issued Order No. 11-172. In that order, we concluded that the guidelines that had been developed in the docket at that point were too detailed and prescriptive, given the early stages of smart-grid development.

We ordered the electric utilities to report on the status of their smart-grid activities and to present the information to the Commission at a workshop.<sup>2</sup> We directed Staff to develop an inventory of smart-grid investments that may be made in the next three to five years with potential benefits for Oregon electric utility customers. We also directed Staff to organize workshops with stakeholders to focus on a number of specific smart-grid related issues, and asked Staff to present the results of these discussions at the workshop identified above. Finally, we directed Staff to address any pricing and rate-design issues in docket UM 1415.<sup>3</sup>

On September 22, 2011, Portland General Electric Company; PacifiCorp, dba, Pacific Power; and Idaho Power Company filed reports on their smart-grid activities. On October 3, 2011, Staff filed its inventory of potential smart-grid investments and a report on the parties' workshops. On October 17, 2011, the Commission held a workshop to discuss these issues.

After attending the workshop and reviewing the reports, we conclude that adopting a reporting requirement, rather than a smart-grid planning requirement, is appropriate. The smart grid is comprised of many technologies, in different stages of development and affordability. Because of this, we conclude that a comprehensive "smart-grid plan" for each utility is unwarranted at this time. The potentially significant benefits of smart-grid investments, however, make a reporting requirement appropriate.

## III. DISCUSSION

Below, we adopt Commission policy goals and objectives, reporting requirements, elements of annual reports, and general Commission guidelines for considering and investing in smart-grid technologies.

Although we envision an informal process for development of utility smart-grid reports, the requirements below provide specific opportunities for stakeholders to contribute to the process.

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<sup>2</sup> The electric utilities include PGE, Pacific Power, and Idaho Power.

<sup>3</sup> We repeat that we are not addressing any pricing options made possible by smart-grid technologies in this order. Any pricing issues that need addressing should be addressed in Docket No. UM 1415.

**A. Statement of Commission Policy Goals and Objectives**

The Commission's goal is to benefit ratepayers of Oregon investor-owned utilities by fostering utility investments in real-time sensing, communication, control, and other smart-grid measures that are cost-effective to consumers and that achieve some of the following:

Enhance the reliability, safety, security, quality, and efficiency of the transmission and distribution network:

- Improve fault detection, isolation, and restoration;
- Reduce the frequency, scale, and duration of outages;
- Increase resiliency to withstand physical and cyber attacks, and natural disasters;
- Provide real-time visibility into state of systems and assets;
- Reduce power line losses;
- Enhance the ability to provide reactive power, voltage support, and other ancillary services;
- Increase the ability to control voltage and power flows;
- Increase capacity utilization and upgrade capacity ratings on existing lines; and
- Enable more precise sizing of equipment.

Enhance the ability to save energy and reduce peak demand:

- Enable integration and control of smart appliances and other smart consumer devices;
- Provide access to detailed, real-time information on electricity use and costs to help customers manage use and costs and understand how to save; and
- Improve monitoring of building equipment to alert building owners to problems and improve performance and control of equipment and systems.

Enhance customer service and lower cost of utility operation:

- Reduce costs of meter reading;
- Reduce costs and improve customer service through more efficient notification of and response to outages, more efficient detection of theft and broken meters, more effective handling of service orders, and improved billing, credit, collection, and connection/disconnection practices; and
- Reduce billing errors and call center transactions.

Enhance the ability to develop renewable resources and distributed generation:

- Reduce the cost of integrating utility-scale wind and solar into the grid;
- Improve the ability to safely and efficiently integrate distributed generation and energy storage into the power system;
- Facilitate new resource options for capacity and ancillary services; and
- Enable microgrids.

## **B. Utility Reporting Requirements**

### 1. Annual Report by Utilities:

- a. Every year, beginning in 2013, each electric utility must file a smart-grid report on a staggered schedule:
  - i. PGE – June 1
  - ii. Pacific Power – August 1
  - iii. Idaho Power – October 1

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 of the first report.

- b. In formulating reports, the utility will provide the public with opportunities to contribute information and ideas on smart-grid investments and applications.
- c. Utilities must serve electronic copies of smart-grid reports on all parties in this docket, including Commission Staff, and to all persons on the service lists of their most recent integrated resource plan and general rate revision cases.
- d. Each utility will present its report at a public meeting to be held about 30 days after the report is filed.
- e. The Commission will provide an opportunity for written and oral comment on the annual reports. As part of those comments, the public and Staff may recommend smart-grid investments and applications to be explored by the utilities. If the Commission approves any of these recommendations, the Commission may require the utilities to address the recommendations in a subsequent report.
- f. Commission Staff will file its findings on whether the utility's annual report meets the requirements of this order, and any subsequent related orders, and will make a recommendation at the public meeting about whether the Commission should accept the filing. The Commission's acceptance of a utility's filing signifies

that the report meets the requirements of this order and any subsequent related orders.

2. Other Required Reports. From time to time, the Commission may require reports from each utility on specific smart-grid development and implementation projects.

### C. Elements of Annual Reports

At a minimum, the reports must include the following:

1. Smart-Grid Strategy, Goals, and Objectives.  
The utility must describe its smart-grid strategy, goals, and objectives and their alignment with state and Commission policies.
2. Status of Smart-Grid Investments.
  - a. The utility must describe smart-grid projects, initiatives, and activities underway and the results to date. The projects, initiatives, and activities will be categorized as follows:
    - Transmission network and operations enhancements;
    - Substation and distribution network and operations enhancements;
    - Customer information and demand-side management enhancements;
    - Distributed resource and renewable resource enhancements;
    - General business enhancements:
      - Communications and supporting systems;
      - Work-management systems;
      - Any other business enhancements;
      - Other enhancements.
  - b. The utility must describe smart-grid investments and applications it plans to undertake over the next five years (including pilots and testing). The investments and applications will be categorized as above. In addition, the utility must:
    - Attach any evaluations the utility or its contractors have conducted on planned investments and applications;<sup>4</sup>
    - At a minimum, address the following:
      - How does the investment fit with the utility's IRP?

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<sup>4</sup> To the extent a utility believes the information requested is confidential, it may request a protective order in the appropriate docket.

- How does the investment fit with the utility's annual construction budget for major distribution and transmission investments?
  - How will the investment reduce customer costs, improve customer service, improve reliability, facilitate demand-side resources and renewable resources, and convey other system benefits?
3. Smart-grid Opportunities and Constraints.
    - a. List and describe other smart-grid opportunities the utility is considering for investment over the next five years and any constraints that affect the utility's investment considerations (use same categories as above);
    - b. Describe evaluations and assessments of smart-grid technologies and applications that the company has undertaken or plans to undertake;
    - c. List and describe smart-grid pilots and programs the utility is monitoring. Describe technology research, development, and demonstrations the utility is monitoring; and
    - d. Provide assessment of state of key technologies that give rise to the opportunities and constraints identified above.
  4. Targeted Evaluations. Discuss evaluation of technologies and applications pursuant to Commission-approved stakeholder recommendations.
  5. Related Activities. Discuss related activities to address physical- and cyber- security, privacy, customer outreach and education, and IT and communication infrastructure, as they relate to smart-grid activities.

#### **D. Commission Guidelines for Utility Action**

The utilities should consider the following guidelines when considering, evaluating, and implementing potential smart-grid investments:

1. **GENERAL UTILITY ACTION:** Utilities should be evaluating promising smart-grid technologies and applications on an ongoing basis, developing plans for investments in a collaborative process with stakeholders, and seeking out investments that enhance service and yield benefits to consumers.
2. **INTEROPERABILITY:** Utilities must seek to ensure interoperability of all systems and equipment now and into the future.
3. **PRIVACY AND ACCESS:** Utilities must protect the privacy of customer data, provide customers easy access to their consumption data in a useful format, and enable data-sharing with third parties authorized by the customer.

4. ENERGY EFFICIENCY AND DEMAND RESPONSE: Utilities must continually evaluate promising smart-grid applications for energy management and automation for customers – both fully utility-integrated approaches and unbundled approaches involving competitive providers – and effectively incorporate smart-grid technologies and applications that improve energy efficiency, reduce peak system demand, and reduce ratepayer bills. Utilities should put in place cost-effective smart-grid strategies that enable all types of customers to benefit.
5. OBSOLESCENCE: Utilities must address the risk of obsolescence in investments analyses and employ strategies to mitigate risks.
6. BENEFIT/COST ANALYSIS: In analyzing the costs and benefits of smart-grid investments, utilities must:
  - a. Specify all underlying assumptions and identify the range of uncertainties.
  - b. Estimate the full benefits to customers of improved reliability, power quality, security, and safety (e.g., reduction in lost productivity and sales for businesses).
  - c. Consider all costs with a reasonable likelihood of being included in rates over the long-term.
  - d. Identify both quantifiable and non-quantifiable benefits and assess the relative magnitude of non-quantifiable benefits.<sup>5</sup>
7. SECURITY: Utilities must plan for and maintain the security of their systems to resist physical and cyber attacks.
8. PILOTS AND DEMONSTRATIONS: The Commission encourages utilities to establish well-designed smart-grid pilots to demonstrate and test new technologies, applications, tools, techniques, and programs.

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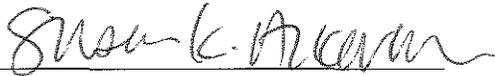
<sup>5</sup> We recognize that in some instances a utility may not be able to seek recovery in rates of certain investments with non-quantifiable benefits; nevertheless, such benefits should be identified and reported.

**IV. ORDER**

IT IS ORDERED that the policy goals and objectives, reporting requirements, and guidelines outlined in this order are adopted.

Made, entered, and effective MAY 08 2012.

  
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**John Savage**  
Commissioner

  
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**Susan K. Ackerman**  
Commissioner

  
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**Stephen M. Bloom**  
Commissioner

