BEFORE THE PUBLIC UTILITY COMMISSION OF OREGON

UM 1460

In the Matter of an Investigation into Smart Grid Objectives and Action Items	STAFF OPENING COMMENTS

Introduction

At the December 8, 2009 Public Meeting, The Public Utility Commission (Commission) opened docket UM 1460, Investigation into Smart Grid Objectives and Action Items.

In recommending the Commission open docket UM 1460, Staff reported that the SG investigation should address:

- What types of rate structures and services will be possible with the new meters and communication systems?
- What are the expected energy savings from these rate structures?
- Should rate structures and services be mandatory or allow customers to voluntarily opt-in or opt-out?
- Does the Commission need to develop new standards to address equipment obsolescence?
- Should new reliability metrics be developed to evaluate the performance of utility distribution systems?
- Should the Commission direct each utility to file a smart grid transition plan with periodic updates?

The timing and scope of this investigation are influenced by the following developments.

- There is a good deal of interest in Smart Grid (SG) at the state, regional, and national levels.

- At the national level, the American Recovery and Reinvestment Act (ARRA) provided funding for staff to be added to the Commission to pursue activities in SG, electric vehicles, and other energy efficiency efforts. Also, the National Association of Regulatory Utility Commissioners (NARUC) has established a Smart Grid Working Group (SGWG) to coordinate state commission activities with activities of the federal government, including the White House.

- At the regional level the States of California and Washington have enacted legislation on utility Smart Grid reporting. Action by this Commission will mean that all three West Coast states will have enacted Smart Grid reporting rules.

- At the state level, Smart Grid can help operationalize Advanced Meter Infrastructure (AMI), time differentiated pricing and demand response programs.

On September 14, 2010, Staff circulated a draft issues list to the parties in this investigation. On September 27, 2010 Staff held a public workshop (First Workshop) to frame the issues and gather input from the parties.

After hearing the stakeholders' comments at the First Workshop, Staff issued a Smart Grid Straw Proposal (SGSP) on October 22, 2010. The SGSP was not a Staff position on the issues. Instead, the SGSP was intended to provide a framework and as a catalyst for comments from all parties, including Staff.

On November 3, 2010, Staff held a second workshop (Second Workshop) to discuss the SGSP. Staff developed these opening comments after considering the comments of parties at both Workshops.

Staff's Opening Comments are structured as follows. Staff will first summarize the draft positions set forth in its SGSP. Then, we discuss Staff's current position on these same issues. Staff's positions for the most part are consistent with, or the same as, those articulated in the SGSP, they do differ in some respects as explained in these Opening Comments The discussion will either argue in support of what appeared in the SGSP or argue in opposition to it. Where Staff opposes a proposed position in the SGSP, an alternative position and rationale are included in the relevant discussion section.

The attachment “Staff Proposed Guidelines for Utility Smart Grid Plan (SGP)” is a list of the proposed guidelines. What follows below is Staff discussion of the draft guideline from the SGSP or an alternative where Staff now opposes that draft guideline.

I. Goal of this Investigation

From the SGSP,

“There was one primary goal for this docket discussed at the September 27 Smart Grid (SG) Workshop (Workshop). That goal is to develop a framework to guide utility development of its Smart Grid Plan (SGP). A part of this goal includes SGP submission requirements, Commission review, and the use of the SGP in subsequent Commission proceedings.”

Discussion

This remains the appropriate goal. SG project planning is an integral part of the general, ongoing, utility planning process. However, utilities may not be pursuing these SG activities in a comprehensive manner. The process of drafting and submitting an SGP will assist the utility to think comprehensively about its overall SG strategy. All parties will benefit from a more focused public examination of that strategy.

The utility will also include any and all SG related activities being pursued by all unregulated affiliates. The Commission’s acknowledgement will not cover these non-regulated activities. However, Staff will examine the actions of the regulated utility in light of the actions of any unregulated affiliates in the process of reaching a prudence decision. This examination will be focused on helping to assure that the actions of the regulated utility are adequate in light of the actions of the unregulated affiliate(s).

A majority of a utility’s first SGP will likely emphasize actions currently underway. However, it is our expectation that even this first SGP will include actions not currently implemented.

II. Goals for the SGP

From the SGSP,

"There are five goals for the SGP that the three electric Investor Owned Utilities (IOUs) will be required to submit.

1. *Identify and discuss promising investments in SG technology, programs and protocols that utilities are investigating;*
2. *Show a timeline for implementing SG technologies, programs and protocols investigated that a utility recommends for adoption;*
3. *Address SG related concerns such as privacy, security and obsolescence;*
4. *Present, at a high level, the utility's best current thinking regarding business cases for implementing SG technologies and programs in terms of traditional utility obligations such as reliability, quality of service, compliance with statutory mandates (such as Renewable Portfolio Standard) and cost effectiveness;*
5. *Inform future Commissions in subsequent proceedings."*

Discussion

Staff continues to support these goals. Our rationale for each separate goal follows.

Concerning the goal one, it is important for a utility to identify which SG technologies, programs, and protocols they are examining. This is especially important considering how quickly the landscape for SG is changing.

In addition, the information in the SGP will inform the Commission and parties about what SG actions the utility is evaluating. This will help determine whether there may be other SG activities that have not received sufficient attention and will need to be examined either within the submitted SGP or at a later date.

Concerning the second goal, it is important for the utility to construct a timeline of its SG activities. This timeline will help inform utility customers, employees,

Commission staff, and various interveners about the utility's SG schedule. This will also help aid the utility with its own planning and regulatory process.

Concerning goal three, as discussed below, Staff is concerned that customers may choose not to participate in SG programs without assurance that data containing their personal electricity use will not be released without their consent or stolen. Privacy is crucial because the overlay of information technology onto the electric grid brings with it the same opportunity for intrusion and deliberate attack that has been experienced on the internet. Finally, a discussion of obsolescence is warranted because of the rapid pace of technological change associated with information technology. The information contained in an SGP will also help all stakeholders keep abreast of the utility's SG activities. In turn, this will help stakeholders to better evaluate these activities.

Concerning goal four, it is important for the utility to evaluate and draw conclusions about the business basis for actions in the SGP. In future SG investment related cost recovery decisions, these conclusions will provide evidence to support or oppose cost recovery. Staff understands that there may be some miss-understanding about the phrases "high level" and "best current thinking." Staff is now backing away from the "high level" language. Rather, the utility will submit detailed analysis that fully layout the business basis for actions in the SGP. This includes, but is not limited to, actions that are intended to improve reliability, quality of service, and compliance with statutory mandates (such as Renewable Portfolio Standard).

Goal five does several things. It provides future Commissions with evidence of the level of evaluation of actions at the time decisions are made. Second, it is a concise statement about the role of Commission review and SGP acknowledgement in proceedings in which the SGP, or any of its elements, are a part.

III. Guidelines for Issues Common to all SGPs

Some parties asserted at the First Workshop that there are a set of issues that warrant a common treatment across utilities. Staff was persuaded by their arguments and included the following issues in the SGSP.

From the SGSP,

1. *Access, Control, and Use of Customer Information*
   [NOTE: This is a placeholder proposal on a very important issue. What are your views on the most effective way for the Commission to proceed on the larger issue of customer privacy?]

   Data covered by this section include meter data (consumption, voltage readings, etc.), usage data (a subset of meter data), billing data, and customer data (from in-premises control devices). Hereafter all the above are referred to as Data.

   The SGP should identify which federal, state, or other Data privacy standards have been adopted. The SGP should indicate where the utility plans a different approach than any of the available standards. The SGP should also identify how the utility plans to assure that its network does not become an access point for others seeing any of these Data.

2. *Opt in, Opt out, or Mandatory Program Participation*
   For programs contained in the SGP, the utility should identify those programs for which the utility intends to require customer participation and provide the reasons for such a requirement(s). The utility should also identify where it is proposing to use opt in or opt out customer participation choices and the reason for the selection.

3. *Treatment of Obsolescence Risk*

   The SGP should identify and discuss obsolescence risks that may arise from actions in the SGP. The SGP should identify the degree of obsolescence risk, quantify it if possible and discuss mitigation measures.

4. *Utility Energy Management in Customer's Home or Business*

   If the utility proposes to participate in the market for customer energy use management hardware or software, Staff recommends that the Commission not allow any of the costs to be recovered from ratepayers. This part of the SGP should also assure that the utility is complying with Direct Access rules contained in Code of Conduct rules (OAR 860-038-0500 through 860-038-0640). Further, the utility should work to assure that any devices or software it is involved in installing allow for interoperability with third-party hardware and software. This limitation does not apply to section II (F) below."

   Discussion

   The SGSP contained the Staff proposed positions on these issues that are noted above. The last issue did not come out of the Workshop. Rather, it was added by Staff.

   Access to and control of customer information is a particularly critical issue that may play a large role in the success or failure of SG at the customer level. For example, in testimony before the California Public Utilities Commission (CPUC) the Center for Democracy & Technology and the Electronics Frontier Foundation (CFDT-EFF) commented that,

   "The Smart Grid promises great benefits to consumers and the environment, including lowered energy costs, increased usage of environmentally friendly power sources, and enhanced security against attack and outage. At the same time, however, the Smart Grid presents new privacy threats through its enhanced collection and transmission of detailed consumption data –

data that can reveal intimate details about activities within the home and that can easily be transmitted from one party to another."[1]

In their comments, CFDT-EFF noted concerns about both the greater frequency of data collection and also the greater granularity of that data. When the greater frequency and granularity are combined, new opportunities arise for third parties to have an even more intimate knowledge of how people use their homes. As they note in their testimony,

"The sheer volume of granular data provided by Smart Grid technologies, combined with its revealing nature, will make it highly attractive to a number of parties other than the utilities themselves, including marketers, law enforcement or other government actors, civil litigants, and criminals. The attraction for marketers, for example, has already created an emerging market in consumer energy data. Within the new Smart Grid, third-party, non-utility operations will have unprecedented incentives to gain access to customer data. Beyond direct access to data held at utilities, third parties will seek to use utilities as conduits for customer information or will market devices that pull customer data directly from within the home, bypassing the utility's equipment."[2]

They go further arguing that *"…the emergence of increasingly sophisticated metering technologies…will remove a "latent structural limitation" that previously protected the revelation of intimate details about household activities"*[3] Regarding the removal of this 'latent structural limitation' they go on to explain,

"For example, new non-intrusive appliance load monitoring ("NALM") techniques make it easy to reconstruct information about energy consumption of individual appliances from a household's aggregate smart meter data, and

[1] Joint Comments of the Center for Democracy & Technology and the Electronics Frontier Foundation on Proposed Policies and pertaining to the Smart Grid, before the Public Utilities Commission of the State of California, filed on December 18, 2008, p. 4.

[2] Ibid., p. 5.
[3] Ibid.

researchers have already compiled libraries of appliance load signatures. Research shows that analyzing fifteen-minute interval aggregate household energy usage data can by itself pinpoint the use of most major home appliances. As the time intervals between data collection points decrease, home appliance use will be inferable from overall utility usage data with greater and greater accuracy. Activities that might be revealed through analysis of home appliance use data include personal sleep and work habits, cooking and eating schedules, the presence of certain medical equipment and other specialized devices, presence or absence of persons in the home, and activities that might seem to signal illegal, or simply unorthodox, behavior. As a result, information collected by the Smart Grid becomes highly valuable for many purposes other than energy efficiency, most prominently: commercial exploitation by advertisers and marketers, household surveillance by law enforcement, and access by criminals attempting to break into homes or commit identity theft."[4]

Another source notes that one barrier to Smart Grid implementation is the

"…significant gap in knowledge and understanding among Stakeholders. To address these issues many jurisdictions have engaged in extended public discourse, generally outside the confines of a litigated proceeding, to provide a common understanding and foundation for discussion of smart grid issues."[5]

Staff acknowledges customer privacy is a valid concern and agrees with various parties who have identified this as a significant issue for this investigation. Staff is also cognizant of the magnitude and complexity of the issues involved and understands that the customer privacy concerns could also have broader implications beyond the issues in this docket.

In response to this concern, Staff proposes that the Commission require that utilities employ privacy safeguards consistent with Department of Homeland

[4] Ibid., p. 6.
[5] "Summary of Smart Grid Benefits and Issues," Illinois Smart grid Initiative, p. 3, See: http://www.cnt.org/news/media/isgi-summary-of-benefits-and-issues-6-08.pdf.

Security's Fair Information Practice Principles (FIPs).[6] These are default safeguards that provide a complete system for considering privacy and consumer security issues.

At the close of the UM1460 investigation Staff will propose that the Commission consider opening a docket to investigate the need for, and the substance of, a customer information privacy policy. Staff requests that parties comment on what privacy issues should be included in such an investigation.

Turning to opt in, opt out, or mandatory program participation, Staff has proposed that the utility identify which of these alternatives it is proposing for actions requiring customer participation. For example, an Advanced Meter Infrastructure (AMI) program that installs meters at customer locations would have to identify which of the three participation levels the utility proposes. The utility will also need to include a rationale for that selection. This information is important because it will likely have significant implications for the utility's cost-benefit or cost-effectiveness analysis.

Turning to obsolescence risk, since SG-related technology is likely to be evolving for some time to come, it is important that the utility, Staff, customers, and other interested parties be aware of the potential for obsolescence costs to arise with SG actions. To this end, Staff has proposed that the utility identify in its SGP where it sees that risk arising, describe the magnitude of the risk, both quantitatively and qualitatively, where possible. While issues of cost recovery, accelerated depreciation and the like are outside the scope of this investigation, it is important that the utility be working to identify any such risks that arise from proposed actions in its SGP. Staff anticipates that this requirement will help all interested parties to be better informed about such risks earlier rather than later. Staff hopes that this requirement may actually help reduce any such costs. Ideally this could

[6] See, U.S. Dept. of Homeland Sec., Privacy Policy Guidance Memorandum, The Fair Information Practice Principles: Framework for Privacy Policy at the Department of Homeland Security (2008), available at http://www.dhs.gov/xlibrary/assets/privacy/privacy_policyguide_2008-01.pdf

occur if as a result of identifying these risks steps can be taken proactively to reduce them.

Concerning Utility Energy Management in Customer's Home or Business, Staff proposed in its SGSP that the utility be prohibited from including in rates any costs associated with such activity. While the Commission's Mission Statement includes fostering the use of competitive markets[7], after listening to the parties' comments at the Second Workshop, Staff agree that the proposed approach may preclude reasonable activities.

Staff remains concerned about the potential for the regulated utility using its relationship with customers, and its resources, in a way that impedes the creation of a competitive market for energy management related hardware and software within the customer's premises.[8] However, upon further reflection, considering (a) some of the major companies currently positioning themselves in this market, (b) initial survey results suggesting consumers are not willing to pay much for such hardware or monthly monitoring, and (c) the relatively small size of the Oregon market for such services, Staff is now of the opinion that prohibiting cost recovery is not critical to fostering a competitive market in these services within Oregon.[9] Therefore, the utility may request cost-recovery for some action in its SGP. However, if it wants cost-recovery, it must request it for the actions it wishes to potentially rate base.

An acknowledgement of the SGP will not guarantee favorable rate treatment of any such costs. Rather, it means that based on the facts presented in the

[7] OPUC Internal Operating Policy Guidelines, Nov. 19, 2009, pg. 1. See: www.puc.state.or.us/PUC/commission/operating_guidelines.html.
[8] For example, the Electronics Industry Market Research and Knowledge Network is marketing a report titled "*Energy Smart Home Area Networks (HAN): A Market Dynamics Report*" See: http://www.electronics.ca/publications/products/Energy-Smart-Home-Area-Networks-%28HAN%29%3A-A-Market-Dynamics-Report.html
[9] An article titled "*Energy management not waiting on smart grid,"* by Sarah Reed in Connectedplantonline.com notes that companies are moving forward on customer energy management systems before smart meters and other technologies are deployed. These companies include Cisco Systems, Google, and Microsoft to name a few. This article also notes survey results that suggest consumers are unwilling to pay more than around $50 for the system and only a nominal monthly service charge.

SGP, cost-recovery appears reasonable. Further, the prudence issue will still arise as part of the contested rate proceeding.

Staff remains concerned about the potential for a utility or its unregulated affiliate to use its existing customer relationship in a way that stifles the emergence of a competitive market in customer energy use management services. To help foster a competitive environment in these services, Staff continues to support the requirement that the utility be in compliance with the existing Code of Conduct rules identified in this section of the SGSP. Additionally, the utility must also be in compliance with the customer information access rule also contained in the SGSP. These two requirements are considered minimum requirements to help foster a competitive market in these services.

At this point, Staff expects that a competitive market will continue to emerge. Staff is of this view since the costs of such systems are not extraordinary and there are some very sophisticated businesses with a great deal of knowledge in customer marketing and information systems that are poised to compete for market share.

One final element of this section of the SGSP is the requirement that the utility use devices and software it is involved in installing that allow for interoperability with third-party hardware and software. This is an important requirement to help insure there are no artificial barriers placed in the path of this evolving segment of the energy supply marketplace.

IV. SGP[10] Content – Overview

From the SGSP,
"The SGP should include the following sections: Introduction/Overview of the SGP; Timeframes for the SGP; SGP Estimated Benefits and Costs; Systems Reliability; Treatment of Customer Related Data; Education and Information -

[10] Throughout this document, SGP means the utility's initial filing as well as the annual updates to that initial filing. Since it addresses the SGP, it also includes the Action Plan.

Customer Energy Use Management; Communications and IT Infrastructure; Cyber and Physical Security; Distribution of SGP Benefits and Costs, SG Enabled Pricing Options; and Risk and its Mitigation."

Discussion

Considering the absence of opposition, the support for the topics identified in the Topics List, and the support among the various parties for adding several sections, Staff supports this list of sections as key for the SGP to be credible.

Even though the proposal is for each SGP and Annual Update to include these specific sections, the content of a given section will likely vary from one utility to the next. It may also vary between SGPs for a given utility. It can also vary from a given SGP and Annual Updates of that SGP for a given utility. At the Workshop, parties supported that degree of flexibility, noting that what is necessary in a given section should reflect the circumstances for that utility. The sections to be included should be constant across utilities and plans for each utility. This approach will help all involved parties, including Staff, to be able to better compare SGPs across utilities. It will also help all parties, including Staff, to compare SGPs from a utility with its Annual Updates.

One exception to this discussion is that Staff had identified timeframes for the SGP in the SGSP as one of the required sections of the SGP. Staff no longer supports that proposal. While Staff continues to support the timeframes as contained in the SGSP, there is no need to include a specific section by this name in the SGP.

A. SGP Estimated Benefits and Costs[11]

From the SGSP,

"The SGP should include detailed information about potential benefits and costs of actions included in the SGP with special attention paid to those actions in the

[11] This section will describe total benefits and total costs arising from actions in the SGP. The latter section on benefit and cost distribution will present the distribution of these total benefits and total costs.

Action Plan. Staff encourages utilities to separate benefit and cost detail into logical groupings, such as along functional lines (generation, transmission, distribution, customer level). Staff also encourages utilities to separate costs within a category in a logical way, such as between capital and ongoing expenses.

It may not be possible to collapse all likely benefits and costs into dollars and cents. Some of the benefits that may be difficult to quantify or monetize include: (1) improved reliability, (2) better access by customers to their energy use information; and, (3) the opportunity for price schedules that better reflect the costs of utility service. The SGP should include discussions, and when possible, estimates of these types of benefits."

Discussion

Staff included this section in the SGSP since cost/benefit information is important to guide the Commission's acknowledgement decisions. While cost recovery decisions will continue to be made in contested rate proceedings, it is important to know the utility's thinking on these matters at the time the decision was to be considered.

Benefit and cost calculations are one of the key focal points in the broad SG literature. For example, a paper titled "*Summary of Smart Grid Benefits and Issues"*[12] identifies among the benefits of SG, *"Improvements in grid reliability by reducing the frequency and duration of power outages and the number of power quality disturbances,"*

Furthermore, in a paper titled *"Methodological Approach for Estimating the Benefits,"*[13] four broad categories of benefits were identified*:*

- *"Economic – reduced costs, or increased production at the same cost, that result from improved utility system efficiency and asset utilization,*

[12] "Summary of Smart Grid Benefits and Issues," Illinois Smart Grid Initiative, See: http://www.cnt.org/news/media/isgi-summary-of-benefits-and-issues-6-08.pdf.
[13] "*Methodological Approach for Estimating the Benefits and Costs of Smart Grid Demonstration Projects,"* EPRI, Final report, January 2010.

- *Reliability and Power Quality – reduction in interruptions and power quality events,*
- *Environmental – reduced impacts of climate change and effects on human health and ecosystems due to pollution, and*
- *Security and Safety – improved energy security (i.e., reduced oil dependence); increased cyber security."*[14]

Staff supports these groupings with one clarification for the environmental section Since the Commission has limited authority to consider societal impacts, including environmental ones, Staff proposes that the environmental impact discuss what risk mitigation benefits may occur by mitigating CO2 risk.

Staff supports the EPRI framework as it avoids benefit double - counting. As the EPRI report states *"Within each of the broad categories, there are several types of benefits. Note that these categories are defined to be mutually exclusive in terms of accounting for different benefits."*[15]

Staff also supports the distinction between benefits and intermediate outcomes made in this EPRI report. For example, the authors draw the following important distinction between a benefit and an intermediate outcome: *"We emphasize that a benefit is an outcome of a project which has value – it is not simply a project's performance or intermediate outcomes of the project."* The following examples clarify this distinction between benefits and intermediate outcomes:

- *"Customer participation is an example of an intermediate outcome of some Smart Grid projects, but we do not classify it as a benefit, per se. The reason is that customers' participation in programs in which a distribution utility offers smart meters coupled with a time-varying tariff structure does not have value in and of itself but, rather, leads to other impacts that do have value. A benefit in this case is the reduction in the customers' electricity bills – which is an economic benefit to the consumer.*

[14] Ibid., p. 2-16.
[15] Ibid.

- *Reduced peak load is an impact, but does not itself have value; thus, it is not classified as a benefit. Reductions in peak load reduce a utility's generation and delivery costs as a result of greater efficiencies and improved utilization of assets. These provide cost savings to the utility. These savings are the benefit, not the peak load reduction in and of itself.*

- *As a third example, greater use of renewable energy options is an impact, though not classified as a benefit within our framework. The benefit of greater use of renewable energy is that it reduces emissions of greenhouse gases and other damaging pollutants. It is these reductions that are benefits; society values these reductions because of the resulting reduction in health effects, environmental impacts, and other damages and risks from climate change."*[16]

Some benefits may not be fully quantifiable. For example, one such benefit may be better access by customers to their energy use information. Customers may also reap rewards from feeling more in control of their spending or from being able to better tailor their choice between comfort and spending as occurred in the Olympic Peninsula study.[17] They may also reap benefits from a belief that they are acting responsibly for the planet. Whatever these non-quantifiable benefits may be, it will be important for the utility to identify and defend them.

Staff supports the argument in the EPRI report that it is ultimate benefits not intermediate benefits that are important.

B. Systems Reliability[18]

From the SGSP,

[16] Ibid.
[17] D. Hammerstrom, Principle Investigator, Pacific Northwest GridWise Testbed Demonstration Projects, Part I. Olympic Peninsula Project, Pacific Northwest national Labs, October 2007. See: http://gridwise.pnl.gov/docs/op_project_final_report_pnnl17167.pdf.
[18] Systems reliability means not only assuring power delivery, but also power quality and the ability of the system to react to potential problems before they occur and recover from problems after they occur. It also refers to communications and all information systems.

"System reliability covers the electric system components and all the communications and data components required to assure and improve both continued power deliveries and power quality. Staff anticipates that this section will discuss only those system reliability issues that are associated with SG actions, plans, and pilots included in the SGP.

Staff encourages the utility to separate its Action Plan along functional lines (generation, transmission, distribution, customer level). Within each functional line, the SGP should provide sufficient detail to allow the Commission to reach a conclusion that it is reasonably likely that the Action Plan will improve system utilization and reliability as described in the SGP. The factors staff will use to make this determination may include, but are not be limited to, the following: adoption of national standards, evidence of its success at other utilities, and success of the actions in pilots at the utility submitting the SGP.

The SGP should include the rationale for the actions contained in the Action Plan. It should also include a discussion and rationale for actions the utility investigated and rejected. It will be important for the utility to address what standards it is considering adopting that bear on the issue of system reliability. Information contained in this section should be developed in conjunction with the section on Communications and Information Technology (IT) infrastructure as there is likely to be significant overlap between these two sections. Some examples of actions at the distribution level that are intended to improve reliability include, but are not limited to, the following: automatic circuit reconfiguration; improved fault location; dynamic system protection for two-way power flows and distributed resources; dynamic volt-VAR management; and, conservation voltage optimization.

The SGP should explain the choice of any standards or technologies that are not recommended by the National Institute for Standards and Technology (NIST) Smart Grid Interoperability Framework.

The SGP should also discuss actions (along with any actions investigated and rejected), including but not limited to, those designed to enhance customer

distributed resource interconnection, coordinated management of distributed resources, optimized electric vehicle charging, and dispatch of electric vehicle storage. To the extent it is relevant, each SGP should also address reliability and system awareness enhancements at the transmission level and its participation in regional efforts. Such enhancements include, but are not limited to, the following: wide area (Phasor) measurement and wide scale outage recovery."

Discussion

The Commission's mission statement includes the following passage "*Ensure …safe and reliable utility services…"*[19] The reliability of utility services are placed front and center in this mission statement. Staff views this as an affirmative statement of the Commission's emphasis on reliability as an essential part of its work.

Staff also supports this section as part of the SGP since reliability is a significant issue in the SG literature.[20] SG should at the very minimum not degrade system reliability, and should strive to improve it.

With increased integration of power delivery and digital communications, improving reliability is a key rationale for SG. For example, in Title VIII of the Energy Independence and Security Act of 2007 (EISA), the first two features of a modernized grid are identified as (1) increased use of digital information and controls technology to improve reliability, security, and efficiency of the electric grid, and (2) dynamic optimization of grid operations and resources, with full cyber-security as one key feature of a smart grid.[21]

[19] Internal Operating Policy Guidelines, pg. 1. See: wwwwwww.puc.state.or.us/PUC/commission/operating operating_guidelines.shtml.
[20] Several of the following footnotes provide two of the many citations to discussions of the role of improved reliability within the smart grid literature.
[21] For example, see EISA, Title VIII, Sec. 1301, where it identifies the second characteristic of a Smart Grid See: http://www.oe.energy.gov/DocumentsandMedia/EISA_Title_XIII_Smart_Grid.pdf

Several aspects of improved reliability are described as "*bounds impacts, local resources self-organize to manage contingencies.*"[22] By"bounds impacts" Mr. Imhoff means that a disruption in power deliveries is kept more localized than can occur in the current system. One way this happens is that *"local resources self-organize to manage contingencies"* to a greater extent than can occur today. It is the increased use of digital communications that helps provide this greater monitoring and recovery capability which in turn helps make the grid smarter than the grid that powers our lights today.

Staff continues to support separating this information along functional lines. Separating information in this section along functional lines will aid in identifying changes between SGPs filed by a utility. It will also aid in determining changes between one SGP and the Annual Updates of that SGP.

It is also important for the SGP to address the rationale for actions the utility investigated and rejected. There are two reasons for this. First, it may provide additional context for the actions that are included in the SGP. Second, Staff wants the benefit of the utility's thinking on actions it chose to reject.

Knowing the interoperability standards a utility is considering bears on the issue of system reliability because one aspect of SG is more equipment will be managed by the grid[23] and these systems will need to communicate with each other. Customer distributed resource interconnection and coordinated management of distributed resources are two SG elements that show up in the literature.[24] Title VIII of EISA addresses distributed resources, noting that a smart grid also allows for integration of distributed resources.[25]

---

[22] Carl Imhoff, Pacific Northwest National Laboratory, "Candidate Outcomes to Shape National Electric System Transformation", Annual NARUC Meeting, November 2008.

[23] For example, Sec. 1301 of Title VIII defines one characteristic of a Smart Grid as one that has developed standards for communication and interoperability between appliances and other equipment connected to the electric grid.

[24] For example, EPRI is conducting a research project on the integration of distributed resources. See: Smart Grid Demonstration — Integration of Distributed Energy Resources. "EPRI's smart grid demonstration project initiative will conduct several regional demonstrations and supporting research focusing on smart grid activities related to integration of Distributed Energy Resources. These will include distributed generation, storage, renewables, and demand response technology into a "virtual power plant" to: Help to define roles for distributed resources and integration requirements in different market environments, Determine requirements for demand-side

Staff understands that transmission pricing is a federal function. However, it is important for this Commission to understand what transmission-related actions the utility is contemplating, or pursuing, or may have rejected, that bear on system reliability. The requirement to include reliability and system awareness enhancements at the transmission level in its SGP is important since the transmission level impacts will likely flow down to the distribution level and to the customer level. It is prudent to be informed about utility actions and inactions at this level since any cascading of transmission level problems can have dramatic impacts on this state's economy and its citizens.

For example, in a report on the benefits and costs of improved reliability, the authors note that interruption costs *"…can take both direct and indirect forms. Direct costs include lost production, idle facilities and labor, damage to electronic data, damaged or spoiled product, and damage to equipment or customer refunds. Residential customers may experience direct out-of-pocket expense (e.g., the purchase of wood for home heating, alternative light sources, food spoilage or damage to electrical equipment) as a result of power interruption. In addition to direct costs, there are several types of indirect costs (e.g., accidental injuries, looting, vandalism, legal costs, loss of water supply, and increases in insurance rates) with monetary impacts that, in some cases, may exceed direct costs".*[26] That study estimated that "*Interruption costs appear to be highest in the transportation sector at $16.42/kW for a 1-hour interruption, followed by the industrial sector ($13.93/kW) and the commercial sector ($12.87/kW). Residential customers incur costs ($0.15/kW for a 1-hour interruption) that are a fraction of those incurred by end-users in the other sectors."*[27] While these results would have to be further studied in order to reach conclusions about applicability within Oregon, at first blush, at a minimum, they are suggestive of the importance of reliability improvements within the service areas of the utilities required to submit an SGP.

---

technology integration with system operation, and provide the basis for standards development that will facilitate widespread deployment and integration of distributed resources." See: www.smartgrid.epri.com/Demo.aspx.

[25] Ibid., Title VIII of EISA, Sec. 1301.

[26] P.J. Balducci et. al., Electrical Power Interruption Cost Estimates for Individual Industries, Sectors, and U.S. Economy, Pacific Northwest National Laboratory, February 2002., p. iii.

[27] Ibid.

C. **Treatment of Customer Related Data**

From the SGSP,

"The SGP should contain a statement that it conforms to the allowable uses and restrictions for data consistent with what is determined in I (B) (1) above."

Discussion

Staff understands that the issue of access and use of customer related data is much larger than what can be addressed in this investigation. Yet, Staff also understands that the SG literature points to this issue as being one issue with the potential to derail SG advancements at the customer level.[28] In fact, it is one issue that is causing some people to focus on the distribution level rather than the customer level as the place to secure SG benefits with less risk.[29] As a result, while the issue of customer privacy and data security is larger than the scope of this docket, given the critical nature of this issue, Staff continues to support its proposed provision contained in I(B)(1) of the SP. This is a placeholder policy for purposes of SG planning and the development of planning of SG by a utility.

D. Education and Information - Customer Energy Use Management

From the SGSP,

"This section should identify and describe customer education efforts focused on helping the customer to better understand and use SG technologies, consistent with Section I(B)(4). If appropriate, this section may also include details about utility activities working with retailers and vendors aimed at educating customers about other information, equipment, and software that may help them better manage their electricity use. It should also discuss how the utility plans to enhance interactivity with customers. By this, Staff means the degree to which the system implementing the application helps the power system and its users

[28] One broad overview of this issue is available at: Susan Lyon and John Roche, "Smart Grid Privacy Part 1: How to Keep Your Customer Data Protected — and Keep Your Customers," Smart Grid News, February 2, 2010.

[29] The utility may be more comfortable working at the distribution level, a level they have years of experience with. It is also true that the transactions costs of distribution level enhancements will be lower than the customer level enhancements. Nonetheless, customer privacy and data security concerns are also issues that further move utilities away from the customer level.

react to each other's needs. The SGP should include information about how the utility plans to collaboratively with stakeholders in the design of consumer education programs and in the development, targeting, and delivery of program-specific information or tools.

The SGP should include a discussion of actions the utility is considering that would allow customers to securely retrieve usage data directly and in near-real-time from an in-premises device. This objective may require that any in-home device that connects to the utility's meter be certified or approved to comply with cyber-security standards or operational characteristics so that the meter data are not compromised."

Discussion

Enhanced management of electricity use by customers is one feature of SG. Yet, there is considerable uncertainty about how readily SG will be adopted by customers, especially the residential sector.[30]

In a separate article Miller identifies three steps that are needed to gain their support — understanding, alignment, and motivation.[31] He says that understanding will only occur if an effective education and communication process is presented to the consumer. He argues that it is important to explain how the Smart Grid can provide benefits to consumers in the following areas: improved reliability, security, economics, efficiency, environmental friendliness, and safety. Miller argues that *"alignment requires collective consumer understanding of Smart Grid concepts and a general agreement with those concepts"*. Finally, "*agreement requires a collaborative approach and a willingness to allow the consumers to impact the direction of the Smart Grid transition in their respective areas or regions."* He further asserts that motivating

[30] One quick overview piece on this issue is a commentary by Joe Miller, "*The Smart Grid and Consumers: Unanswered Questions,"* in Smart Grid News.com, See: http://www.smartgridnews.com/artman/publish/News_Commentary_News/The-Smart-Grid-and-Consumers-Unanswered-Questions-1250.html

[31] Joe Miller, "*What about Consumers? The Missing Piece to the Smart Grid Puzzle*," in Smart Grid News.com, http://www.smartgridnews.com/artman/publish/End_Use_Demand_Side_News/What_about_Consumers_The_Missing_Piece_to_the_Smart_Grid_Puzzle-1175.html.

for the consumer requires *"…a value proposition of adequate size to inspire the consumer to support and participate in the smart grid transition."*

These are but a few of the references that discuss the importance of effective consumer/customer education in helping to realize benefits from SG investments at the customer level. Based on these types of discussions, the utility's SGP must address how it plans to conduct education and information campaigns with the aim of encouraging greater customer energy use management.

The SGP will include a discussion of actions the utility will take to help customers

- Understand SG and how it can help them better manage their electricity use,
- Understand SG and how it can lead to improved reliability, security, economics, efficiency, environmental friendliness, and safety,
- Understand the broad SG framework,
- Support SG through some kind of collaborative approach that allows customers to impact the direction of the Smart Grid transition,
- Understand the value in SG to them of adequate size to inspire the consumer to support and participate in the smart grid transition.
- Understand and influence approaches to assuring usage data are secure,
- Can effect the direction of plans for retrieving use data directly and in near real-time from an in-premises device.

Retrieving use data directly and in near real-time from an in-premises device is a particularly important feature of improved energy use management on the part of customers. For example, the summary of one report states that "…the key to the smart grid is to provide customers with real-time energy information and to enable them to participate with their own energy management."[32]

E. **Communications and IT Infrastructure**

From the SGSP,

[32] Electronics Industry Market Research and Knowledge Network. See: http://www.electronics.ca/publications/products/Energy-Smart-Home-Area-Networks-%28HAN%29%3A-A-Market-Dynamics-Report.html

"This section of the SGP should include sufficient detail (including cost) to allow the Commission to determine the adequacy of the utility's communications and IT planning to support SG actions. Staff encourages the utility to organize this information along functional lines (generation, transmission, distribution, customer level).

Staff recommends that the SGP include a thorough discussion of each of the following design issues as they relate to its proposed communications and IT actions: (1) Capacity (bandwidth) -- the ability of a communications link to carry data, including the impact of factors such as latency, data volume, and event rate; (2) Technical maturity and risk -- the level of certainty that the technology will meet the requirements of the application; (3) Openness and "standardization" – Open technologies lack barriers to implementation or integration, and have few or no royalties or license fees.; (4) Reliability – the degree to which systems associated with the application can automatically recover from power, communications and component failures, in order to minimize the impact on the customer and the systems; (5) Manageability -- the degree to which devices, systems, and data must be configured, synchronized, tracked, diagnosed and/or maintained in order to implement the application. Manageability includes the ability to measure the health and the performance of the system; (6) Upgradeability -- the degree to which the devices and systems that implement the application can be changed to adapt to future conditions; and (7) Scalability -- the degree to which the application's system(s) will permit future expansion.

The SGP should also identify what Federal Energy Regulatory Commission (FERC), Federal Communications Commission (FCC), standards and proposed NERC and/or NIST standards for communications protocols are being adopted. The SGP should indicate where planned investments might be inconsistent with these standards and the likely implications. The SGP should explain the choice of any standards or technologies that are not recommended by the NIST Smart Grid Interoperability Framework.

The SGP will also identify which Federal Energy Regulatory Commission (FERC) or Federal Communications Commission (FCC) standards or proposed NERC

and NIST standards for communications protocols are being adopted. The SGP will indicate where planned investments might be inconsistent with these standards and the likely implications. The SGP will explain the choice of any standards or technologies that are not recommended by the NIST Smart Grid Interoperability Framework."

Discussion

In a paper titled "*Communication Network Architecture and Design Principles for Smart Grids,"* its authors argue that *"A high performance, reliable, and secure communication network is one of the fundamental building blocks to the introduction of smart grid applications."*[33] These authors note that, as one might suspect, requirements of SG applications drive the design and architecture of an integrated SG communications network.[34] These requirements perform functions in one or more of five classes of applications (not necessarily mutually exclusive): Smart metering, automated demand response (ADR), tele-protection, distribution automation, and micro grid management.[35]

In light of the central role the communications network plays in supporting SG applications, it is imperative that the utility provide an overview of its communications architecture in its SGP[36]. More specifically, it is important that each utility submitting an SGP provide detail on the seven characteristics of its communications architecture (i.e. Capacity, Technical maturity and risk, Openness and "standardization," Reliability, Manageability, Upgradeability, and Scalability). This information will be in a comparable level of detail as it discusses distribution and generation assets in the IRP process or in a rate filing.

Communications and computing technology obsolescence can occur rapidly. Computing capability changes rapidly, features expand, and software is

[33] Kenneth C. Budka, Jayant G. Deshpande, Tewfik L. Doumi, Mark Madden, and Tim Mew, Communication Network Architecture and Design Principles for Smart Grids, "Bell Labs Technical Journal 15(2), 205–228 (2010), p. 206.
[34] Ibid., p. 209.
[35] Ibid., p. 207.
[36] Keep in mind that the utility will be required to identify changes in and increments to its existing communications architecture associated with the actions contained in its SGP or in any Annual Update to its SGP.

frequently updated. One way that the SG literature address the obsolescence issues is what is referred to as the "the middle mile."[37] This refers to a communications system that becomes obsolete quickly because the utility has not planned adequately for its data transmission needs. The author of that essay identifies such issues as requirements for bandwidth, latency, range, and quality of service (prioritizing critical messages), and a network that has lots of excess capacity or a plan for expanding when needed as important considerations for communications systems design.

Staff recommends that the SGP address how it has planned for adequate bandwidth, latency, range, and quality of service (prioritizing critical messages). Our intent in requesting this detail is to help all parties understand the utility's communications planning criteria as part of its effort to reduce the risk of making a poor investment. Also, the Commission has a responsibility to help assure that costs passed on to ratepayers are just and reasonable. While the just and reasonable decision will be made in a contested rate case proceeding, this information will help understand the facts at the time the utility had to make the investment.

Staff recognizes that each utility is likely to have different needs and approaches to integrating even more digital communications with the existing power system. While the PR Newswire reports that SG promises to lead to a more uniform set of architectures, configurations and applications for utilities in the future than exists today,[38] it also reports that, because of the legacy communications systems, *"…no single approach to utility communications is practical in the near-term."*[39] While no one system design may be appropriate in the near-term, there are important technical factors that are essential for safe, reliable, and secure utility

[37] One short overview of this problem can be found at: Jesse Burst, "*How the 'middle mile' could stall smart grid communications*," Smart Grid News.com, http://www.smartgridnews.com/artman/publish/Technologies_Communications_News/How-the-middle-mile-could-stall-smart-grid-communications-2982.html.
[38] "*Utilities Need Improved Communications Networks to Improve Energy Independence and Sustainability,"* by Utilities Telecom Council, as reported in PRNewswire. See: http://www.prnewswire.com/news-releases/utilities-need-improved-communications-networks-to-improve-energy-independence-and-sustainability-104096093.html.
[39] Ibid.

operations (extreme high reliability, higher bandwidth, very low latency, ubiquitous coverage, tight security and uninterrupted power supplies).[40]

F. Cyber and Physical Security

From the SGSP,

"For purposes of the SGP, the utility should identify steps it is taking to ensure that SG actions are intended to maintain adequate levels of security. By security, Staff means the system's ability to withstand both physical and electronic attacks.

The SGP should also identify which FERC, NERC, and/or NIST security standards it has adopted. The SGP should indicate where planned investments might be inconsistent with these standards. The SGP should identify cases where the utility or the Western Electric Coordinating Council (WECC) plans to apply to the FERC for exemptions to adopted standards or where either party plans to challenge proposed standards. The SGP should also identify how the utility plans to protect Critical Energy Infrastructure Information (CEII).

Providing the information requested in this section should not require the utility to identify the details of its security plans nor its vulnerabilities or the specific details of its security measures."

Discussion

Staff agrees that there needed to be a separate section of the SGP that addresses cyber and physical security. Staff wants to reiterate that this section of a utility's SGP will only include information on cyber and physical security pertinent to the actions contained in the utility's SGP. This means the SGP is not a forum for a full and comprehensive summary of the utility's cyber and physical security framework.

In testimony before the U.S. Congress' Subcommittee on Emerging Threats, Cyber Security, Science and Technology, Joe Weiss distinguished between

[40] Ibid.

functional and cyber security. He defined cyber security as *"…protecting the computers independent of whether electric reliability is being maintained."*[41] [42]

Utilities certainly understand that segments of the electrical delivery system are operational assets at risk with economic, regulatory, and safety consequences. Unauthorized changes to a control system's configuration or software may lead to potentially unknown operational risks. This in turn may lead to risks to sensitive customer equipment, and potentially risk the health safety of customers.

An article by Mr. Jude Clement focuses on the transmission level as the key component in what they refer to as the *"…next evolution of the US electricity grid."*[43] Mr. Clement argues that this evolution depends upon the reduction of transmission congestion and bottlenecks and greater interconnection between currently separate grids across the nation.[44] Furthermore, he notes that *"…Smart Grid's unique infrastructure must now become the spotlight to secure the system. Going forward, the US Department of Energy (DoE) confirms the ability to resist attack – by identifying and responding to disruptions caused by sabotage – is one of Smart Grid's seven crucial functions."*[45] Smart Grid's use of internet technologies makes protection of the grid *"…a matter of national security."*[46] He identifies four level of physical security to help assure that the power system avoids a disruptive attack,, *"… 1) environmental design 2) mechanical and electronic access control 3) intrusion detection and 4) video monitoring."*[47]

---

[41] Testimony of Joe Weiss, Statement for the Record, July 21, 2009, Hearing before the Subcommittee on Emerging Threats, Cyber Security, Science and Technology, Statement for the Record, July 21, 2009, Hearing before the Subcommittee on Emerging Threats, "*Cyber Security, Science and Technology,"* as reported in ControlGlobal.com, July 21, 2009, See: http://www.controlglobal.com/articles/2009/WeissCyberAttacks0907.html?page=1.

[42] He does note that his remarks should be understood to address functional security (keeping the lights on) irrespective of the operation of the computers.

[43] Jude Clemente, Energy Security Analyst with the Homeland Security Department at San Diego State University, "*The Security Vulnerabilities of Smart Grid,"* Journal of Energy Security, June 2009, See: http://www.ensec.org/index.php?option=com_content&view=article&id=198:the-security-vulnerabilities-of-smart-grid&catid=96:content&Itemid=345.

[44] Ibid.

[45] Ibid.

[46] Ibid.

[47] Ibid.

As a result, the SGP will include a discussion of the utility's efforts to assure adequate physical security in the four areas noted in the above paragraph, for all actions included in the SGP, irrespective of whether any of those actions involve any segments of the bulk power system.[48]

Staff is confident that the utility is aware of the importance of providing sufficient cyber and physical security. Additions of even more sophisticated digital communications and computing technologies means that a physical breach of the power system can no longer be viewed simply as a property crime. For example, a short paper issued by the National Cyber Security Division states this issue thusly,

"*Physical break-ins and other unauthorized entries into critical infrastructure locations, such as electrical power substations, have historically been viewed as traditional property crimes where trespass, theft, and vandalism were the motives. However, the current trend of using computer networks to remotely monitor and control unmanned facilities has also increased the possibility that these physical property crimes could be used to conceal less discernible cyber crimes*."[49]

Concerning a distinction between standards compliance and security, Weiss distinguished between compliance with NERC CIPs and security, arguing that compliance is not the same as security.[50] Staff wants to reiterate that its interest is with security first. In order to help assure adequate security, it is imperative that the utility's SGP address how compliance with a given set of standards translates into providing adequate cyber and physical security. Staff also wants to clarify that assuring adequate information on cyber and physical security is included in the SGP, the utility must address cyber and physical security for actions in the SGP irrespective of whether the utility has classified any of the

[48] NIST CIP guidelines apply only to those assets a utility has identified as critical and that are also part of the bulk power system..
[49] National Cyber Security Division Control Systems Security Program, "*Cyber Security Response to Physical Security Breaches,"* http://www.us-cert.gov/reading_room/cssp_cyberresponse0712.pdf, November 28, 2007.
[50] Weiss, http://www.controlglobal.com/articles/2009/WeissCyberAttacks0907.html?page=2.

involved assets as "critical."[51] It is important that the SGP address cyber and physical security for the utility's distribution system regardless of whether the NERC CIPs include distribution.[52]

G. **Distribution of SGP Benefits and Costs**

From the SGSP,

"The SGP should address the possible (estimated) distribution of benefits and costs to customer groups from actions proposed in the SGP. Part of this discussion should identify potential impacts on vulnerable populations. In addition, Staff recommends that the utility stay alert to, and advise the Commission of, potential or actual threats to any of its businesses that currently contribute revenue for cost recovery. The SGP should also identify (including a cost estimate) what SGP actions require customer investments to fully realize any benefits identified in the SGP. The Commission's acknowledgement of an SGP will not be dependent on the content of this section."

Discussion

Staff understands that one important role for the Commission is to ensure rates are just and reasonable.[53] Staff is not disputing that equity is one factor the Commission considers.

A utility's SGP represents the utility's best thinking about SG actions and how best to meet the goals identified for the SGP itself. While it is not intended to be the forum for determining the fairness of benefits or costs that are identified in the SGP, it is important for the utility to be considering distribution while developing and implementing actions in the SGP.

[51] In his testimony, Weiss notes a letter by Michael Assante, Vice President and Chief Security Officer of NERC, stated that "…only 29% of generation owners and operators identified at least one Critical Asset and fewer than 63% of the transmission owners identified at least one Critical Asset. This means that 71% of generation owners did not identify a single critical asset, and 37% of transmission owners did not identify a single critical asset. I am personally aware of utilities that have identified zero Critical Assets…" See: http://www.controlglobal.com/articles/2009/WeissCyberAttacks0907.html?page=2.

[52] Weiss's testimony includes the following statement "…the NERC CIPs explicitly exclude electric distribution." See: http://www.controlglobal.com/articles/2009/WeissCyberAttacks0907.html?page=3.

[53] Commission Internal Operating Policy Guidelines.

Staff is not in a position to direct the utility to one distribution over another one. Fairness is typically thought of in terms of who pays what costs and who receives what benefits. While Staff agrees this is the usual understanding of fairness, that view is overly restrictive. There are numerous elements of program design that may affect distribution beyond matters of rate design.

Borrowing again from the Illinois Smart Grid materials, the following topology provides a good reference point for the types of issues that come into play while addressing distribution.[54]

- *[Smart Grid investments can] "Help mitigate or reduce the price of electricity through the interaction of the demand side of the market (consumers) with the supply side (suppliers),"*
- *[Benefits to] "Retailers can create and offer new products and services that give consumers greater choice and flexibility in energy consumption and to create value for end users,"*
- *[Benefits to] "Consumers will benefit from improved operational efficiency,"*
- *"… the smart grid will allow for more efficient consumer response to prices, which will reduce the need for additional fossil fuel-fired generation capacity, thereby reducing the emission of CO2 and other pollutants."*
- *[Benefits to] "Residential and Small Commercial Customers: Improved system reliability will create benefits for consumers. However, perhaps the most significant benefits arise from more empowerment and individual control over energy use and monthly bills."*
- *[Benefits to] "Low Income Customers, Customers on Fixed Incomes, and the Elderly: Elderly people are most at risk to extreme heat and cold when power is lost. A more reliable grid will limit the risk of outages. In addition, by helping to reduce the need for costly new generation, transmission, and distribution facilities a smart grid can help relieve upward pressure on prices."*

[54] "Summary of Smart Grid Benefits and Issues," Illinois Smart grid Initiative, See: http://www.cnt.org/news/media/isgi-summary-of-benefits-and-issues-6-08.pdf.

- *"A smart grid will allow large customers to integrate their production, storage and efficiency investments easily into wholesale market operations. In addition, to the extent that*
- *"Local Governments: Local governments can benefit from higher reliability and lower duration of outages that will reduce the burden on local fire, police and other city resources that must help with such events. Greater information and control over the distribution system will also allow grid operators to assist with emergency situations, such as fires and storms, by turning off power selectively or by restoring power faster and more efficiently. Local governments are also consumers of electricity and can take advantage of the consumer-related benefits of smart grids."*
- *Utility/Grid Operators: Grid operators will benefit from direct cost reductions, enhanced system reliability, and higher customer satisfaction. Direct cost reductions can come in the form of lower meter reading and servicing costs, avoided meter capital costs on existing meters, more efficient deployment of field staff as a result of better information on grid conditions, labor and non-labor operations costs savings, improvement in efficiency of billing, customer connections, and many other utility processes. Other benefits include reductions in working capital needs, reduction in bad debt expense, reduction in theft and energy losses, improved and more efficient customer service, more efficient planning and maintenance of the system, and more efficient use of back office resources.*
- *State and Local Economies benefit…from increasing the reliability of the power system, creating a modern infrastructure for 21st century commerce and attracting or retaining new and innovative businesses providing new jobs and income. Most importantly, a modern electricity infrastructure can protect the economic and environmental viability of communities that are essential to creating a truly sustainable economy. In addition, the environmental benefits of a smart grid can reduce health-care-related costs."*

Staff also supports how the EPRI report classifies benefits to three distinct groups and takes a rigorous approach to separating benefits from transfer payments.[55] The EPRI report states that

"The benefits to utilities (including generation, transmission and distribution utilities and cooperatives) are reduced operation and maintenance costs, deferred capital costs and other reductions in their costs.

- *The benefits to consumers are reductions in their electricity bills and in the damages caused by power interruptions and power quality events.*

- *The benefits to society at large are reductions in negative externalities and related market failures.*

Total benefits are the sum of the benefits to utilities, consumers and society at large – except that any transfer payments between these beneficiary groups must be taken into account*."*[56]

Staff proposes that the utility describe benefits by group using the list from the Illinois Smart Grid Report or identify an alternative list with the reasons for proposing this alternative list. These benefits should be identified distinguishing between (1) a benefit and an intermediate outcome, and (2) between a benefit and an income transfer from the EPRI Report. Staff strongly encourages the utility to consider the examples above when describing the potential distribution of benefits from actions contained in its SGP.

H. **SG-Enabled Pricing Options**

From the SGSP,
"The SGP should assess the applicability of price-based demand response alternatives and plans for introducing them in the next five years. The SGP should also assess the potential benefits and costs of deploying AMI within the

[55] In the economics literature on Benefit-Cost analysis there is a distinction between a benefit and a transfer payment. Transfer payments are not considered benefits.
[56] Ibid., pg. 2-19.

Action Plan timeframe. The SGP should include a discussion of whether AMI deployment will occur and if the conclusion is that Advanced Meter Infra-structure (AMI) will not be deployed, the SGP should articulate the basis for this conclusion. If the utility has not enacted dynamic pricing (DP) or price-based demand response in its service area, the SGP should discuss the utility's plan to implement it."

Discussion

Staff continues to support this section as written. Deploying AMI, and smart meters as a part of AMI, provides the functionality for DP schemes and demand response (DR) programs.

In the National Demand Response Plan[57] (DR Plan) *"…the Commission defined "demand response" to mean "a reduction in the consumption of electric energy by customers from their expected consumption in response to an increase in the price of electric energy or to incentive payments designed to induce lower consumption of electric energy."*[58] In the DR Plan, dispatchable DR refers to planned changes in consumption that the customer agrees to make in response to direction from someone other than the customer.[59] The DR Plan also defines "Non-dispatchable demand response *"as the customer's ability to decide whether and when to reduce consumption based changing prices."*[60]

DR may also include integrating consumption with variable generation as one method to better enable the addition of new technologies to utility systems or customer premises. Further in the future, DR has the potential to provide services back to the grid as well as manage energy storage devices.

Given that these various efforts reflect the importance being placed on DR, it is good business practice for the utility to discuss its plans for AMI deployment within the Action Plan timeframe. Staff did not propose that AMI functionality be achieved within the timeframe of either the SGP or its Action Plan. Rather, Staff

[57] FERC Commission Staff, National Action Plan on Demand Response, June 17, 2010.
[58] Ibid., p.3, http://demandresponsecommittee.org/FERC_NAPDR_to_Congress_10.06.17.pdf.
[59] This may include direct load control of customer appliances.
[60] Ibid., p.17.

is only recommending that the utility examine AMI deployment within the timeframe of the Action Plan.

Staff considers it to be good business practice for the utility to discuss AMI deployment in its SGP, including discussing the reasons it is choosing to not implement AMI, if that is the case. It is important that the utility articulate its reasons for not moving forward on AMI deployment. A decision to not deploy AMI must be soundly argued considering (a) the emphasis being placed on it nationally, and (b) its role in helping to operationalize a range of SG features.

Staff continues to support a requirement that the utility must also discuss its reasons for not implementing some form of DP in its service area within the timeframe of the Action Plan, if that is the utility's decision. Having some form of DP operational within its service area within the Action Plan timeframe appears as a reasonable step to take in keeping with the DR implementation.

I. <u>Risk and its Mitigation as set forth in the</u>

From the SGSP,
"The SGP should identify financial and operational risks that arise from actions in the SGP. This discussion should include such issues as potential for, and cost of, risk mitigation, risk exposure absent mitigation, how SG actions either causes, or exacerbates, an existing risk. The discussion should include steps the utility plans to take in an effort to reduce these risks. Staff encourages the utility to separate these risks sub-sections: Generation; Transmission; Distribution; Customer Level."

<u>Discussion</u>
There are overlaps between this section and other parts of the SGP. This is especially true for the Cyber and Physical Security section and the Communications and IT Section. For both of those sections, there are two sources of operational risks – cyber and functional security. Material covered in those sections does not also need to appear in this section. Rather, this section will address other sources of risk to the utility's finances and operations arising

from actions in the SGP. It will also include a broad overview of the utility's approach to managing risks arising from actions in the SGP.

Risk management is an important piece of utility planning and operations. It is for this reason that Staff continue to support it as a separate section of the utility's SGP. As with other section of the SGP, risk and its mitigation address risks associated with actions contained in the SGP.[61]

Staff continues to support the breakout of SGP related risks into financial and operational categories. Staff also understands that operational risks ultimately impact the utility's finances. However, it is important to separately discuss operating risks because there will likely be mitigation measures that can reduce or mitigate an operational risk that will differ from the methods available to reduce or mitigate a financial risk.

Staff thinks of risk as the effect of uncertainty on an organization's objectives. Along with identifying sources of risk and mitigation measures, it is important to know what "residual risk" the utility foresees existing after implementing its risk mitigation measures. The SGP will also explain what controls the utility has instituted, or will be instituting, to ensure that risk mitigation measures are in fact implemented. Since risk management is like any other project an organization needs to execute, the SGP will include a risk management action plan.

V. SGP Submission, Review, and Use in Future Proceedings

A. Timeframes for the SGP

From the SGSP.

"The SGP should use a 20-year planning horizon. The SGP should include an Action Plan that should identify actions the utility intends to take during the first five years of the SGP. The SGP should also identify potential actions, measures and programs over two additional time periods: a mid-term period; years 6-10,

[61] This may also include changes in pre-existing risks when the utility determines the SG actions either increase or decrease one or more of those risks.

and a long term period; years 11-20. The SGP is expected to contain more detail in the Action Plan than for the mid and long term planning horizons. If the utility is contemplating on instituting any pilots as part of its Action Plan, it will be important for the utility to identify the length of the pilot, what is the needed participation, what the purpose(s) are of the pilot, and the estimated cost of the pilot. More information about SGP submissions is contained in the section on Submission Schedule."

Discussion

Staff continues to support the 20-year timeframe for the economic analysis. This timeframe is consistent with other analyses, including the IRP.

As for the five-year timeframe for the Action Plan, a key factor influencing the Action Plan length is when the next SGP must be filed. For example, if the Action Plan timeframe were two years, then given that the first SGP must be filed in 2011, the second SGP would have to be in place by the end of that two-year period. This means it would need to be submitted potentially only one year after the first SGP was submitted. This is far too short a period and does not allow for adequate learning to be reflected in the second SGP.

While the Action Plan's five-year timeframe may appear long, it reflects a reasonable balance between wanting adequate learning to inform the second SGP submittal while also keeping that timeframe reasonably short. To address the potential that SG technology and learning will advance quicker than can be accommodated by a five-year timeframe, Staff has proposed annual updates as discussed below.

B. SGP Submission Schedule and Submission

From the SGSP,

"Pacific Power, Idaho Power, and Portland General Electric should be required to meet these filing requirements.

The utility will file an SGP within six months of the Commission's Order in this docket. This first SGP should cover 20 years, (i.e.: 2011 - 2031), and the Action

Plan should cover a 5-yr period (i.e.: 2011 - 2016), beginning on the SGP submission date.

Unless parties agree to a staggered schedule, a second SGP will be due no later than June 30, 2014. Utilities may submit this second plan at any time during the 2012-2014 timeframe. It should also cover a 20-yr period beginning no later than June 30, 2015, and the 5-yr Action Plan begins on the submission date. A utility should file its third SGP no later than four years from the second submission, and the 5-yr Action Plan begins on the submission date.

During each year of the Action Plan, the utility should submit an Annual Update of its initial SGP filing by the 12-month anniversary date of the SGP filing date. The update should include (a) all changes to the SGP and a discussion of reasons for the changes, and (b) inform the Commission of Action Plan implementation.

Towards the end of the five year period for the third SGP, Staff will submit a report to the Commission on the SG planning effort. As part of that report, Staff will make a recommendation about next steps. "

Discussion

One reason for the relatively short submission deadline reflects the understanding that the first SGP will be focused primarily on actions currently underway. Another reason for this deadline is to assure that there's enough time to complete the review process at last once before ARRA staff depart. A third reason is that Staff is proposing that the SGP content be limited to the actions identified in the SGP. This will significantly limit the information demands placed on the utilities, Staff, and other parties. A forth reasons is that it is possible to also have one round of Annual Reviews to be submitted and evaluated before the ARRA staff depart.

C. SGP and Annual Update Review

From the SGSP,

"Upon receipt of the SGP, a schedule should be established to enable the Commission to issue a final decision in no more than 180 days. That schedule should allow for Staff review, including comments from all parties, and a hearing.

The Commission may acknowledge the SGP as submitted or it may withhold acknowledgement and make recommendations to the utility that, if adopted, will achieve Commission acknowledgment of the SGP. Acknowledgement of the SGP has the same meaning and effect as it does for the Integrated Resource Plan.

Staff will give the Annual Updates a focused review to determine whether significant changes have occurred in either the utility's proposed actions or its implementation of its Action Plan. Staff recommends that the utility summarize the update at a Commission public meeting. If Staff determines that the Annual Update does not include significant changes from the acknowledged SGP, the Annual Update will be included as part of the original filing. If there is a significant change, Staff will summarize its finding at the same Commission public meeting where the utility summarizes its update. These Staff conclusions and any utility responses will then become part of the original filing

Discussion

Staff now supports holding a Prehearing Conference to adopt an SGP evaluation schedule within 30 days of receipt of the SGP. The schedule will include a public hearing before the Commission within 6 months of the Prehearing Conference.

The amount of time for review of an SGP should be more than the time allowed to review an implementation plan for the renewable portfolio standard (RPS) and less time than is currently typical of the process to acknowledge an IRP. Having a guideline with a fixed timeline can encourage a timely Commission decision and help constrain the workload of Staff, utilities and other parties.

Concerning the timeframe for RPS implementation, ORS 469A.075 states: "The commission shall acknowledge the [RPS] implementation plan no later than six months after the plan is filed with the commission." OAR 860-083-0400(8)(a)

requires that the Commission hold a public hearing 120 days after Jan. 1 of even numbered years. Jan. 1 is the fixed filing date for RPS implementation plans. The Commission is not under a statutory deadline for a final decision on an SGP, so this guideline can be more generous and flexible.

If the parties determine that this guideline does not provide sufficient time for an appropriate review of the SGP, parties can individually or collectively petition the Commission for more time to conduct the review. Such petitions should be made early in the SGP docket to allow the Commission adequate time to schedule the public hearing.

Routinely planning for more than six months between the prehearing conference and the Commission public meeting seems inappropriately large compared current reviews of RPS implementation plans and IRPs. The ability to petition the Commission for more time seems the appropriate level of flexibility.

Having a guideline with a fixed timeline should encourage an efficient and effective process. Having six months between the prehearing conference and the public hearing should provide better flexibility for parties to perform other duties than is possible with the review of RPS implementation plans under ORS 469A.075.

The Commission may acknowledge the SGP as submitted or it may withhold acknowledgement and make recommendations to the utility that, if adopted, will achieve Commission acknowledgment of the SGP. Acknowledgement of the SGP has the same meaning and effect as it does for the Integrated Resource Plan.

Staff will review Annual Updates to determine whether material changes have occurred in either the utility's proposed actions or its implementation of its Action Plan. If there are material changes and the electric utility seeks acknowledgement of the changes, Staff and the assigned ALJ will hold a prehearing conference to establish a schedule for the docket. The schedule should include a public hearing within six months of the prehearing conference.

Whether there are material changes or not, Staff recommend that the utility summarize the update at a Commission public meeting. If a new docket is not opened on the Update, the Update will be included on OPUC's e-dockets as part of the original filing. The audio recording of the public meeting on the update and associated written comments will become part of the public record that can be used in subsequent Commission proceedings.

Dated at Salem, Oregon this 16th day of November, 2010

Robert J. Procter, Ph.D.
Sr. Economist
Electric Rates & Planning
Oregon Public Utility Commission

Attachment - - Staff Proposed Guidelines for Utility Smart Grid Plan (SGP)

These guidelines apply to the actions contained in the SGP

1. ***Access, Control, and Use of Customer Information***

   A. The utility must identify which federal, state, or regional standards, or other privacy standards it has adopted.
   B. The utility must indicate where it plans to manage access, control and use of customer information if it plans to use an approach other than any of the available standards.
   C. The utility must explain how it plans to maintain the security of its network from non-authorized access by third parties. to consumers' information[1]
   D. The utility must explain what it is doing, or will do, to employ privacy safeguards consistent with Department of Homeland Security's Fair Information Practice Principles.

2. ***Opt in, Opt out, or Mandatory Program Participation***

   A. The utility must identify when it intends to require customer participation and provide the reasons for such a requirement(s).
   B. The utility must identify when it is proposing to use opt in or opt out customer participation choices,
   C. The utility must identify whether the utility plans to ultimately seek to make a program mandatory.
   D. The utility must identify the cost of any equipment needing installation on the customer's side of the meter to implement an action in the SGP.

3. ***Treatment of Obsolescence Risk[2]***

   A. The utility must identify the potential obsolescence risks.
   B. The utility must identify the degree of obsolescence risks, and if possible, quantify the risk and discusses mitigation measures.

4 ***Utility Energy Management in Customer's Home or Business***

   A. The utility must comply with Direct Access requirements (e.g., OAR 860-038-0500 through 860-038-0640).
   B. The utility must assure that any devices or software will allow for interoperability with third-party hardware and software.

[1] Data may be aggregated and released without customer prior approval only if there is no way to associate data with a particular customer.
[2] Obsolescence risk arises only when a durable asset is being replaced and a portion of the capital cost of the asset being replaced has not yet been fully recovered through rates.

5. SGP[3] Content

A. *Estimated Benefits and Costs of Actions in SGP[4]*

1. The utility must present and discuss quantified (where possible) benefits and costs.[5]
2. The utility must, to the extent possible, group benefits and costs in the following categories:
   a. Economic – reduced costs, or increased production at the same cost, that result from improved utility system efficiency and asset utilization,
   b. Reliability and Power Quality – reduction in interruptions and power quality events,
   c. Environmental – identify the climate change risk and its mitigation, and
   d. Security – improved cyber and physical security and customer privacy.
3. The utility must use the guidance provided in Opening Comments as a guide to distinguish between intermediate outcomes, on the one hand, and benefits, on the other. Intermediate outcomes are not benefits.
4. The utility must submit detailed benefit and cost analysis that fully layout the business basis for actions in the SGP. This includes, but is not limited to, actions that are intended to improve reliability, quality of service, and compliance with statutory mandates (such as Renewable Portfolio Standard).
5. The utility must present a list of actions set forth in the SGP and discuss non-quantifiable benefits in sufficient detail that the Commission is able to understand their significance.
6. The utility is encouraged to separate benefit and cost detail into logical groupings, such as along functional lines (generation, transmission, distribution, customer level). The utility is also encouraged to separate costs within a category in a logical way, such as between capital and ongoing expenses.
7. The utility must include a discussion of all benefits where it proves impossible to quantify likely benefits and costs.

[3] Throughout this document, "SGP" means the utility's initial filing as well as the Annual Updates.
[4] For purposes of the SGP costs includes, but need not be limited to, the capital, operating, and depreciation costs of all hardware, software, customer education, and security related actions included in the SGP.
[5] While it is not a requirement, utilities are encouraged to separate benefit and cost detail into logical groupings, such as along functional lines (generation, transmission, distribution, customer level). Utilities are also encouraged to separate costs within a category in a logical way, such as between capital and ongoing expenses.

B. *Systems Reliability*[6]

1. The utility is encouraged to separate its system reliability discussion along functional lines (generation, transmission, distribution, customer level).
2. The utility must provide information in sufficient detail that permits the Commission to reach a conclusion that it is likely that system utilization and reliability will be maintained and preferably improved. Information that the utility must provide includes, but is not limited to, the following: (1) adoption or rejection of national or regional reliability standards or guidelines; and/or (2) the success of other utilities with the standard(s) proposed for adoption.
3. The utility must include a discussion and rationale for reliability improvements the utility investigated and rejected.
4. The utility must address what standards it is considering adopting that bear on the issue of systems reliability. Information contained in this section should be developed in conjunction with the section on Communications and Information Technology (IT) infrastructure as there is likely to be significant overlap between these two sections.
5. The utility must explain the choice of any standards or technologies that are not recommended by the National Institute for Standards and Technology (NIST) Smart Grid Interoperability Framework.
6. The utility must discuss actions (along with any actions investigated and rejected) to increase reliability or available generating capacity or ancillary services, including but not limited to, those designed to enhance customer distributed resource interconnection, coordinated management of distributed resources, optimized electric vehicle charging, and dispatch from electric vehicles or other storage.
7. The extent relevant, the utility must address reliability and system awareness enhancements at the transmission level.

C. *Education and Information - Customer Energy Use Management*

1. The utility must identify and describe customer education efforts focused on helping the customer to (a) better understand and use SG technologies, including systems on the customer side of the meter; (b) understand SG and how it can lead to improved reliability, security, economics, efficiency, environmental friendliness,

[6] "Systems reliability" means the electric system components and all the communications and data components required to assure and improve both continued power deliveries and power quality. Systems reliability means not only assuring power delivery, but also power quality and the ability of the system to react to potential problems before they occur and recover from problems after they occur. It also refers to communications and all information systems.

and safety; (c) understand the broad SG framework; (d) understand and influence approaches to assuring usage data are secure; (e) understand how the customer can help influence the direction of plans for retrieving use data directly and in near real-time from an in-premises device; and (f) if appropriate, this section may also include details about the utility's activities describing how the utility plans to coordinate with retailers and vendors to help educate customers about other equipment and software to manage electricity use.

2. The utility must discuss how it plans to enhance interactivity with customers. This means the degree to which the system implementing the application helps the power system and its users react to each other's needs. It also means support, through some kind of collaborative approach that helps customers to impact the direction of the Smart Grid transition.
3. The utility must explain how it plans to work collaboratively with stakeholders in the design of consumer education programs and in the development, targeting, and delivery of program-specific information or tools.

D. *Communications and IT Infrastructure*

This section of the SGP will include sufficient detail (including estimates of costs) to allow the Commission to determine the adequacy of the utility's communications and IT planning to support actions in the SGP. The utility is encouraged to organize this information along functional lines (generation, transmission, distribution, customer level).

1. The utility must address the following issues each of the following design issues as they relate to its proposed communications and IT actions:
    a. Capacity (bandwidth) -- the ability of a communications link to carry data, including the impact of factors such as latency, data volume, and event rate;
    b. Technical maturity and risk -- the level of certainty that the technology will meet the requirements of the application;
    c. Openness and "standardization"[7] – Open technologies lack barriers to implementation or integration, and have few or no royalties or license fees.
    d. Reliability – the degree to which systems associated with the application can automatically recover from power, communications and component failures, in order to minimize the impact on the customer and the systems;

[7] "Standardization" is the degree to which the technologies used to implement the application are recognized by official organizations and the user community.

e. Manageability -- the degree to which devices, systems, and data must be configured, synchronized, tracked, diagnosed or maintained in order to implement the application. Manageability includes the ability to measure the health and the performance of the system;

f. Upgradeability -- the degree to which the devices and systems that implement the application can be changed to adapt to future conditions; and

g. Scalability --The utility must identify anyhow its design permits future expansion.

2. The utility must identify any Federal Energy Regulatory Commission (FERC) and Federal Communications Commission (FCC) standards that the utility is relying on. The utility must further identify any proposed NERC or NIST standards for communications protocols that are incorporated or relied upon by the SGP.
3. The utility must indicate where planned investments might be inconsistent with these standards and the likely implications of such inconsistency. The utility must explain its decision to not incorporate or adopt any standards or technologies that are recommended by the NIST Smart Grid Interoperability Framework.
4. The utility must explain how it is planning for adequate latency, range, and quality of service (prioritizing critical messages).

E. *Cyber and Physical Security*[8]

1. The utility must identify steps it has, or is considering taking, to ensure an adequate level of system security. ”Security”” means the system’s[9] ability to withstand both physical and electronic attacks.[10] Specifically, the utility must explain its approach in the following four areas 1) environmental design, 2) mechanical and electronic access control, 3) intrusion detection, and 4) video monitoring.
2. The utility must address cyber and physical security irrespective of whether the utility has classified any of the involved assets as "critical." It is important that the SGP address cyber and physical security for SGP actions that involve the utility’s distribution system regardless of whether the NERC CIPs include distribution.
3. The utility must identify all FERC, NERC, or NIST security standards it has adopted.

[8] This section is not intended to substitute for CIP compliance reporting requirements.
[9] “System”” means both the electric delivery components (e.g.: generation, sub-stations, etc.) as well as all the supporting communications and IT technologies, including those systems involved in customer data collection, management, billing, and the like.
[10] This definition is from the Illinois Collaborative.

4. The utility must identify where planned investments might be inconsistent with the standards in 5(E)(3) above. The utility will identify where it or the Western Electric Coordinating Council (WECC) plan to apply to the FERC for exemptions to adopted standards or where either entity intends to challenge proposed standards. The utility must also identify how it plans to protect Critical Energy Infrastructure Information (CEII).
5. The utility is not required to identify the details of its security plans nor its vulnerabilities or the specific details of its security measures for the information it provides in this section.

F. *Distribution of SGP Benefits and Costs*

Note that Commission's acknowledgement of a utility's SGP may not be dependent on the content of this section. .

1. The utility must identify the possible (estimated) distribution of benefits and costs using the groups described below, or a different list of groups if that revised list better reflects the facts for the utility:
   a. Retailers
   b. Consumers
   c. Low Income Customers on Fixed Incomes and the Elderly
   d. Small Commercial Customers
   e. Large Commercial Customers
   f. Industrial Customers
   g. Local Governments
   h. Utility/Grid Operators
   i. State and Local Economies
2. The utility is encouraged to stay alert to, and advise the Commission of, potential or actual threats to any of its businesses that currently contribute revenue for cost recovery.[11]
3. The utility must identify (including a cost estimate) any SGP actions that require customer investments to fully realize any benefits identified in the SGP.

[11] At this time, the Commission does not have a list of such threats. These issues arose with direct access legislation and rules concerning retail de-regulation. They have also occurred in other regulated industries, such as telecommunications as its industry structure changed. With that said, one example would be a high-efficiency low-cost natural-gas fuel cell that generated electricity and provided space heat and water heat at a lower overall cost than traditional utility service.

G. *SG-Enabled Pricing Options*

1. The utility must evaluate and make a recommendation about the applicability of price-based demand response alternatives and plans for introducing them in the next five years.
2. The utility must assess the potential benefits and costs of deploying AMI within the Action Plan timeframe.
3. The utility will include a discussion of whether and when AMI deployment will occur, and if AMI will *not* be deployed, the utility will explain the basis for this decision.
4. If the utility has not enacted dynamic pricing (DP) or price-based demand response in its service area, it must discuss and explain its plan for doing so.

H. *Risk and its Mitigation*[12]

1. The utility must summarize the risk and discuss risk management actions identified in detail in other sections of the SGP
2. The utility must identify any financial and operational risks that have not already been previously discussed that arise from actions set forth in the SGP.
3. The utility must a discussion of risk mitigation actions it is taking. This discussion must include such issues as the potential for, and cost of, risk mitigation, risk exposure absent mitigation, and how the SGP affects existing risk. The discussion will further include steps the utility plans to take in an effort to reduce these risks. The utility is encouraged to separate these risks.

6. ***SGP Submission Schedule and SGP Timeframes***

A. The utility will use a 20-year planning horizon for all economic analysis.

B. The first SGP will cover the period 2011 – 2031.

C. Unless parties agree to a staggered schedule,[13] a second SGP will be due no later than June 30, 2014. Utilities may submit this second plan at any time during the 2012-2014 timeframe. Absent an agreement between the utilities, each utility will file its second SGP, with a beginning date no later than June 30, 2015.

D. The 20-year timeframe will be split into three periods as follows:

[12] We encourage the utility to separate these risks sub-sections: Generation; Transmission; Distribution; Customer Level.

[13] If utilities, Staff, and other stakeholders reach agreement on a staggered schedule, they may file a request with the Commission for a schedule that has the final utility filing its second SGP on or before June 30, 2015.

1. A five-year Action Plan that will identify actions the utility intends to take during the first five years of the SGP. That is, given the submission deadline described in Guideline Seven, the Action Plan will cover a five-year period (i.e.: 2011 - 2016). For both the second and third SGP, the five-year Action Plan will begin on the SGP submission date.
2. The SGP will also identify potential actions, measures, and programs over two additional time periods: a mid-term period; years 6-10, and a long term period; years 11-20.

E. If the utility intends to implement or proposes a pilot program or tariffs as part of its Action Plan, it will identify: the length of the pilot, level of how participation will be determined, the pilot's purpose(s), and its estimated cost.

F. Staff will submit a report to the Commission on SG planning effort before the end of the five-year period for the third SGP efforts. As part of that report, Staff will recommend next steps.

7. *Filing Requirements*

Pacific Power, Idaho Power, and Portland General Electric will submit an SGP no later than six months from the Commission's Order in this docket.

8. Annual Updates

The utility must submit an Annual Update during each year of the Action Plan. The utility will submit the Annual Update for its initial SGP by the 12-month anniversary of its submission. The Annual Update will include the following:

A. Changes to the SGP and a discussion of reasons for the changes, and
B. Progress on Action Plan implementation.

9. SGP and Annual Update Review

A. Within 30 days of receipt of the SGP or an Annual Update that requests acknowledgement of material changes to the last SGP, The assigned ALJ will hold a Prehearing Conference to adopt a procedural schedule. The schedule should include a public hearing before the Commission within 6 months of the Prehearing Conference.

B. That schedule will allow for review and the filing of comments by Staff and all parties, and a hearing.

C. The Commission may acknowledge the SGP as submitted or it may withhold acknowledgement and make recommendations to the utility that, if adopted, will achieve Commission acknowledgment. Acknowledgement of the SGP has the same meaning and effect as it does for the Integrated Resource Plan.

D. The Annual Update will receive a focused review to determine whether significant changes have occurred in either the utility's proposed actions or its implementation of its Action Plan.

E. The utility will summarize its Annual update at a Commission public meeting.

F. If the Commission determines that the Annual Update contains non-significant changes from the acknowledged SGP, it may include the Annual Update simply as part of the original filing.

G. If any party asserts that the Annual Update includes a significant change, Staff's comments, and those of other parties, will be presented at the same Commission public meeting where the utility summarizes its Annual Update. Any party submitting comments about the Annual Update, and any utility responses, will become part of the original filing.

CERTIFICATE OF SERVICE

UM 1460
OPENING COMMENTS

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 860-13-0070, to the following parties or attorneys of parties.

Dated at Salem, Oregon, this 16th day of November, 2010.

Kay Barnes

Kay Barnes
Public Utility Commission
Regulatory Operations
550 Capitol St NE Ste 215
Salem, Oregon 97301-2551
Telephone: (503) 378-5763

UM 1460
Service List (Parties)

***DEPARTMENT OF JUSTICE** JANET L PREWITT **(W)** ASSISTANT AG	NATURAL RESOURCES SECTION 1162 COURT ST NE SALEM OR 97301-4096 janet.prewitt@doj.state.or.us
***OREGON DEPARTMENT OF ENERGY** VIJAY A SATYAL **(W)** SENIOR POLICY ANALYST	625 MARION ST NE SALEM OR 97301 vijay.a.satyal@state.or.us
ANDREA F SIMMONS **(W)**	625 MARION ST NE SALEM OR 97301-3737 andrea.f.simmons@state.or.us
CITIZENS' UTILITY BOARD OF OREGON GORDON FEIGHNER **(W)** ENERGY ANALYST	610 SW BROADWAY, STE 400 PORTLAND OR 97205 gordon@oregoncub.org
ROBERT JENKS **(W)** EXECUTIVE DIRECTOR	610 SW BROADWAY, STE 400 PORTLAND OR 97205 bob@oregoncub.org
G. CATRIONA MCCRACKEN **(W)** LEGAL COUNSEL/STAFF ATTY	610 SW BROADWAY, STE 400 PORTLAND OR 97205 catriona@oregoncub.org
RAYMOND MYERS **(W)** ATTORNEY	610 SW BROADWAY, STE 400 PORTLAND OR 97205 ray@oregoncub.org
KEVIN ELLIOTT PARKS **(W)** STAFF ATTORNEY	610 SW BROADWAY, STE 400 PORTLAND OR 97205 kevin@oregoncub.org
JOHN STURM **(W)** STAFF ATTORNEY	610 SW BROADWAY, STE 400 PORTLAND OR 97205 john@oregoncub.org
COMMUNITY ACTION PARTNERSHIP OF OREGON JESS KINCAID **(W)** ENERGY PARTNERSHIP COORDINATOR	PO BOX 7964 SALEM OR 97301 jess@caporegon.org
DEPARTMENT OF JUSTICE MICHAEL T WEIRICH ASSISTANT ATTORNEY GENERAL	BUSINESS ACTIVITIES SECTION 1162 COURT ST NE SALEM OR 97301-4096 michael.weirich@doj.state.or.us

IDAHO POWER COMPANY CHRISTA BEARRY **(W)**	PO BOX 70 BOISE ID 83707-0070 cbearry@idahopower.com
JAN BRYANT **(W)**	PO BOX 70 BOISE ID 83707-0070 jbryant@idahopower.com
LISA D NORDSTROM **(W)** ATTORNEY	PO BOX 70 BOISE ID 83707-0070 lnordstrom@idahopower.com
MICHAEL YOUNGBLOOD **(W)** MANAGER, RATE DESIGN	PO BOX 70 BOISE ID 83707 myoungblood@idahopower.com
MCDOWELL RACKNER & GIBSON PC ADAM LOWNEY **(W)**	419 SW 11TH AVE, STE 400 PORTLAND OR 97205 adam@mcd-law.com
WENDY MCINDOO **(W)** OFFICE MANAGER	419 SW 11TH AVE., SUITE 400 PORTLAND OR 97205 wendy@mcd-law.com
LISA F RACKNER **(W)** ATTORNEY	419 SW 11TH AVE., SUITE 400 PORTLAND OR 97205 lisa@mcd-law.com
NORTHWEST ENERGY COALITION STEVEN WEISS **(W)** SR POLICY ASSOCIATE	4422 OREGON TRAIL CT NE SALEM OR 97305 steve@nwenergy.org
PACIFIC POWER & LIGHT MICHELLE R MISHOE **(W)** LEGAL COUNSEL	825 NE MULTNOMAH STE 1800 PORTLAND OR 97232 michelle.mishoe@pacificorp.com
PACIFICORP DOUG MARX **(W)**	PO BOX 39 MIDVALE UT 84047 douglas.marx@pacificorp.com
PACIFICORP, DBA PACIFIC POWER OREGON DOCKETS **(W)**	825 NE MULTNOMAH ST, STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com
PORTLAND GENERAL ELECTRIC DOUG KUNS RATES & REGULATORY AFFAIRS **(W)**	121 SW SALMON ST 1WTC0702 PORTLAND OR 97204 pge.opuc.filings@pgn.com

PORTLAND GENERAL ELECTRIC COMPANY J RICHARD GEORGE **(W)**	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 richard.george@pgn.com
PUBLIC UTILITY COMMISSION MAURY GALBRAITH	PO BOX 2148 SALEM OR 97308 maury.galbraith@state.or.us
SMART GRID OREGON ROBERT FRISBEE **(W)**	111 SW 5TH AVE, STE 120 PORTLAND OR 97204 rfrisbee@si-two.com
ROY HEMMINGWAY **(W)**	111 SW 5TH AVE, STE 120 PORTLAND OR 97204 royhemmingway@aol.com
PHIL KEISLING **(W)**	111 SW 5TH AVE, STE 120 PORTLAND OR 97204 pkeisling@gmail.com
SMART GRID OREGON BARRY T WOODS **(W)**	5608 GRAND OAKS DR LAKE OSWEGO OR 97035 woods@sustainableattorney.com