

**BEFORE THE PUBLIC UTILITY COMMISSION
OF OREGON
UM 1460**

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

STAFF REPORT

Staff Report to the Commission Concerning Smart Grid Workshops

Interim Order 11-172 (Interim Order) in the UM1460 docket directed staff to hold workshops on four topics: Interoperability, Cyber and Physical Security, Utility Involvement in Home Energy Systems, and Privacy. The Interim Order also directed staff to compile an inventory of smart grid (SG) technologies, including investments made by utilities nationwide.

Overview of Approach to Staff Workshops

In response to the direction noted above, Staff held three workshops. Workshop #1 was on July 26th. Workshop #2 occurred on August 17th, and workshop #3 took place at PGE on September 7th. This is staff's written summary of those workshops. A draft of this report was released to the parties to assure that staff was accurately capturing parties positions. All parties to this docket, with the exception of the Oregon Department of Energy, were represented at each of the three workshops.

While the Interim Order identified issues to be examined, it was silent regarding how to approach the processes and what exactly the deliverables would be from those workshops. In the view of staff, the way to "...develop the information that the

Commission believes is necessary to establish useful planning guidelines and make suitable policy decisions,” was to use draft guidelines to focus workshop discussions. As a result, for each of the four workshop issues identified in the Interim Order, staff developed a short discussion paper that included the following (a) the draft guideline from Appendix A of staff closing comments, (b) a simpler guidelines that was less prescriptive, and (c) a discussion of the rationale for the changes.

What we have done is have workshop discussions on the issues with a preliminary guideline for each of the five issues. Staff understands that the Commission could still choose to (a) not issue a guideline on a particular issue, (b) issue the guideline developed in staff workshops, or (c) issue a guideline that is different from the language in the consensus position.

This workshop summary was sent to the parties for review. It includes what we collectively supported as well as alternatives. A summary of those discussions and what consensus decisions were made appears under each appendix.

At the first workshop Smart Grid Oregon (SGO) indicated that they may have additional issues. SGO ultimately proposed one additional issue – Customer Outreach and Education.

Turning to the staff investment inventory called for in the Interim Order, it was difficult to get significant utility participation. It appeared that they were somewhat reluctant to weigh in part to avoid being perceived as endorsing that staff Investment Inventory. More is said about the workshop discussion of the Investment Inventory in that appendix.

Parties commented that the Interim Order isn’t clear on the relationships between UM1460, UM1461 and UM1415. Staff provided no greater clarity other than encouraging parties to watch the other dockets. NWECC asked what happens to the

other issues that are in the docket but not in the order. Staff indicated that all the issues currently in the docket are still there.

PGE argued that there shouldn't be any limit on possible issues at this time and that the scope of the docket should still be wide open. Staff responded that we're limited by the 120-day limit and party's schedules. Staff indicated there isn't time to schedule a fourth workshop prior to the end of the 120-day deadline set forth in the Interim Order. Staff did indicate that other workshops could still occur after the 120-day deadline, but if that occurs, it's unclear how work from those workshops factor into Commission decisions.

A summary of discussion at the workshops attached are appendices that summarize the discussion of each of the issues raised in the Interim Order – Cyber Security, Interoperability, Utility Involvement in Home Area Networks, and Privacy - plus the additional one added in the second workshop – Customer Outreach and Education. Also included is a summary of discussions at each of the workshops of the Investment Inventory. Only a summary appears here as the Investment Inventory itself is a separate document.

Summary of Workshop Decisions

Consensus was reached on language for each of the four issues (privacy, HAN's, Interoperability, and Security) in the Interim Order, plus the fifth issue, Customer Outreach and Education, While consensus language was reached on each of these five issues, there were proposed additions made by various parties on one or more of the issues, These two statements are not contradictory in that various parties whose proposed additions were supportive of the agreed to language and staff indicated that the addition would be included in this report. Each appendix contains the language supported by all the parties.

Responses by the Parties to Draft of this Document

A draft of this document was sent to the parties on September 8. The parties were asked to review it and respond to staff with their views of it and any modifications they believe necessary. IPC wrote "We agree with the written report on the workshops and have no changes." CUB, PGE, NWECC, SGO and ECOtality also agreed with the report. There were several fairly slight (from staff's perspective) changes in phrasing that didn't materially change the report. PAC indicated they are generally supportive of the guidelines that were worked out. However, they are refraining from fully supporting them until they see additional direction from the Commission on the development of smart grid planning guidelines.

Parties Represented at the Three Workshops

The list of parties represented appears below.

Citizens Utility Board	ECOtality
Energy Trust of Oregon	Idaho Power
Northwest Energy Coalition	Pacific Corp
Portland General Electric	Smart Grid Oregon

This concludes the Staff Report.

Dated at Salem, Oregon, this 3rd day of October, 2011.



Robert J. Procter, PhD.
Senior Economist
Electric Rates & Planning

Appendix A – Data Access and Privacy

Consensus Guideline on Data Access and Privacy

“This Commission understands that customer privacy should be respected and must be addressed as new capabilities and technologies are added to the electric system. In keeping with this overall goal, the SGP of each utility must explain its policy for securing and sharing data and specifically address:

- a. Explain the utility’s approach to assuring and monitoring the security of CEUD in its possession.
- b. Explain the way(s) in which the utility provides to its customers access to their CEUD, and
- c. Under what conditions entities other than the customer may be provided these data.

Customer Electric Use Data means electricity usage data from the utility meter specified in a time interval measured by the utility.”

Summary of Discussion

This was the Big Ticket Item in the workshops and generated a good deal of discussion. Ultimately, consensus agreement was reached on a set of guidelines, and the consensus language appears at the bottom of this appendix.

Staff indicated that the focus on this issue in this docket is what guidelines are needed as part of the utility’s Smart Grid Plan (SGP). This meant that we were not opening a global discussion of a utility’s data access and privacy plans, or rules, standards, etc.

The Interim Order called for the workshop to examine ...”privacy issues and standards.” It also referenced two Oregon Administrative Rules (OARs) that the

Commissioners advised might be a good starting point. Staff explained that the two OARs aren't applicable as they apply to the obligation of one company to transfer the personal identification and services of a customer from its current supplier to a new supplier. Also, they don't really address any of the issues important to the privacy issues here. Staff asked if any party sees it differently. No party disagreed with staff's conclusion and PGE's attorney concurred with staff.

Noting the language in the Interim Order that refers to examining "...privacy issues and standards," PGE asked what the Commissioners want/expect from this process on privacy, since the Interim Order uses terms such as those. PGE appears to view that language as direction to staff to use the workshops to identify what privacy guidelines are needed and that a separate docket will be opened to actually establish them.

PGE proposed a list of ten issues/features that should be addressed in a set of privacy guidelines along with opening a separate docket where the guidelines would be established. PGE's proposed a list of eleven issues that a set of privacy guidelines should address. They proposed that this list be included in the SGP guidelines and that the guidelines themselves would be established using a separate docket.

Staff responded that it is possible to take this approach. Though, staff would prefer to first seek a middle ground position that addresses privacy reporting requirements for the utility's SG plans. Staff also indicated that in this docket, the reporting requirements would only pertain to what actions the utility was proposing in their SGP. That is, the scope of a reporting requirement is quite narrow.

Appendix B: Interoperability

Consensus Guideline on Interoperability

1. Describe the process you follow for evaluating interoperability standards.
2. Describe the rational(s) for the standard/approach that has been adopted, or will be adopted, for each Action Plan action and in the 5-yr period after the Action Plan.
3. For (2), also explain how Interoperability is being assured between the Action Plan actions and the legacy systems.
4. If you have plans for replacing any major utility system within the timeframe of this SGP, describe your approach to Interoperability standards for the replacement system.

We also came up with the following two descriptions:

Interoperability

It is the ability for two different devices or systems to pass information between them that both systems understand in the same way.

Interoperability Standard

A recognized specification that improves interoperability by lowering the utility's overall cost.

Summary of Discussion

Consensus agreement was reached on interoperability guidelines and the consensus guidelines appear at below. A very substantive discussion was had on this topic due largely to Conrad from PGE and James from SGO who are recognized experts in this area. Issues that came up included the following: what process moves a standard from a documented specification to a "broadly accepted standard," what should the interoperability standard be, what is the utility's role in ensuring interoperability of equipment purchased by the customer, how to deal with a related issue – the longevity of equipment that may be interoperable now but then is no longer so at a future date.

There was broad discussion about interoperability generally and with technologies on the customer's side of the meter. Discussion began focusing on the customer side of the meter. PGE indicated that they wouldn't install anything that wasn't interoperable w/ their own system. Questions were posed about interoperable w/ other systems and how to handle this across time in the absence of standards and when there are likely to be competing protocols.

Staff again led off the discussion with a summary of what was contained in Appendix A of Staff Closing Comments and proposed changes. Staff indicated that it's proposal would establish only a reporting requirement.

At the first workshop, SGO suggested that any interoperability standards required by government agencies should be discussed. They also raised a question about what happens if NERC finds deficiencies in a utility's approach. They wanted to know if the OPUC trusts NERC to get them corrected. Staff did not directly respond to the larger question of how the Commission might handle that issue. Staff did reiterate that in this docket was looking at gathering information and suggesting only a reporting requirement.

PGE proposed alternate language and SGO also noted that there is a significant difference between staff draft language and that offered by PGE. SGO argued that PGE's proposed language gets away from staff's proposed approach that presumed interoperability was required, and moves more towards just evaluating whether SGIP standards are cost effective. SGO supports aggressive adoption of interoperability standards. SGO supports PGE's concern over economic issues - that costs and benefits should be considered when making interoperability standards decisions - as long as PGE maintains agreement that interoperability and interoperability standards are in general a useful goal to include in smart grid actions.

PGE made the argument that interoperability is just a matter of degree. If you can get data to move from one device to another then they're interoperable. All the

utilities seemed to agree that one problem when it comes to interoperability is vendor claims to meet interoperability standards when they really don't. Regarding staff draft language about the utility meeting broadly accepted industry standard is that "Industry standard" doesn't have the same meaning as "broadly accepted" (Note: Staff draft language uses the phrase "...broadly accepted industry standard.")

PGE wanted to know what the utility's role might be in assuring equipment is interoperable. This was in response to SGO asking who it is that helps assure that hardware/software that a homeowner, for example, buys at Home Depot can communicate with the utility's system. Staff indicated that this commission has no jurisdiction over third-party firms that might build and sell energy management components at Home Depot, for example. We will not be delving into that issue in this docket.

IPC noted that they have already installed AMI, and it has limited ability to make changes for interoperability.

This topic was again discussed at the second workshop.

CUB raised a question concerning longevity: For example, what if one year down the road, the system that was just picked is wrong. Maybe there should be some minimum amount of time within which an SG investment decision remains in place.

Staff explained that the working model is that when the utility comes forward with a proposed program, say installs of energy management systems that the company will come to the commission and other stakeholders early rather than late. This means there will be 'multiple bites of the apple.' PGE added along this same line of thinking that there will be lots of advanced notice with IRP, then the SG plan/reports, then pilots that get notice/approval all allowing for changes prior to a major roll-out and before it hits a rate case/prudence review.

SGO raised a concern that staff draft only applies to utility-installed SG hardware/software. They wondered who watches out for consumers and that if consumers have difficulty using systems they purchase from say Home Depot that could be a huge problem for the utilities. Staff responded noting, the OPUC's authority does not extend to the private market of energy management system companies

PGE articulated that a utility's SGP should state its approach to the adoption of interoperability standards and then explain how the actions of its SGP are consistent with that approach.

Appendix C – Cyber Security

Consensus Guideline on Cyber Security

“The utility must explain how the Action Plan actions conform to its cyber and physical security requirements. If the utility has made a business decision to allow an Action Plan action to not conform to its cyber and physical security requirements, identify that Action Plan action, the business basis for that decision, and what lesser cyber and physical security requirement is being used in this case.”

Summary of Discussion

Staff began with the language in appendix A of Staff Closing Comments and proposed a revised approach to get discussion going. PGE offered some alternative language and expressed that it is important to allow for some Action Plan item to not be in compliance with PGE’s cyber and physical security standards if there is a business case for that decision. For example, they argued that the utility’s plan should provide basis/rationale for the company’s decision to implement, or not to implement, its security standard. PGE proposed that the utility will report on how SG activities conform to its own security requirement and where it may not conform.

SGO wondered what external security requirements are out there. It was concluded (I think) that it is NERC. SGO said that it would want to know where the utility’s security requirements came from and what options were considered. They also are interested in the risk analysis a utility has performed to reach a conclusion that the utility’s security plan meets the overall goal of grid protection. They are interested in knowing what the process is for evaluating the SG security program. Staff indicated that those are interesting questions and that it appears that at this time the approach

to this issue in this docket is for the guidelines to address SG Plan development and not to address evaluation of security approach included in an SG Plan.

PAC indicated that there aren't really security reporting requirements unless the utility itself finds a violation and self reports.

At workshop #2, discussion began with the revised language reflecting edits by PGE. This was a very short discussion and the language above was adopted.

Appendix D – Utility Involvement in Customer Energy Use Management

Consensus Guideline on Utility Involvement in Customer Energy Use Management

Utility Involvement in Customer Energy Use Management

- A. If the utility is installing hardware or software on the customer premises or is providing any funding for it, the utility must address both interoperability and consumer engagement and outreach in the appropriate sections of its SGP.
- B. What steps the utility is taking to inform the customer of what components are compatible with the utility's system.
- C. If some Action Plan action depends on the customer to separately provide hardware or software identify what
 - 1. Action Plan action requires the customer to incur costs
 - 2. The estimated customer cost,

Summary of Discussion

Staff asked parties what issues they would identify for this topic. This led to a fairly wide-ranging conversation with staff, PGE, and SGO participating.

SGO proposed three features of such a system – one that is

- 1. Able to respond to signals/prices from utilities,
- 2. Able to communicate with the utility,
- 3. Able to monitor EE; and,

They also suggested that perhaps the utility's financing ability can be tapped. ETO posed a question about designing pricing programs that doesn't require new technology to be purchased.

Staff broadened the focus to address not only utility involvement in home area networks, but to also include utility involvement in energy management in sectors other than the residential sector. As a result, the phrase “home area networks” was replaced by the phrase “energy management systems.”

Appendix E - Customer Outreach and Education

Consensus Guideline on Customer Outreach and Education

A. *Customer Outreach¹ and Education*

1. Explain your planned or existing Customer Outreach and Education support for Action Plan actions, where applicable, and the role that these efforts play in your overall Smart Grid Plan. Customer Outreach and Education efforts may include, but are not limited to, the following: fact sheets and key messages; direct mail, bill Inserts, email; social media and traditional media; workshops; outreach to key stakeholders; public service announcements; fairs and conference tabling.
 2. Explain why the utility expects its plans for Customer Outreach and Education and improved interaction will be effective. Information that could be relied on includes, but isn't limited to, results of your own pilots; results from pilots of other utilities you consider relevant; market research relevant to the Action Plan actions.
 3. Explain your plan for monitoring the effectiveness of your Customer Outreach and Education efforts in support of your Action Plan actions.
 4. Identify and explain what, if any, of the following efforts you participate in,
 - a. Local, regional, and/or national labeling or other standardization efforts.
 - b. Engaging with retailers and vendors to help educate customers about equipment and software that is available to manage their electricity use and that will work with your utility's system.
-

¹ SG related education and outreach should include education and outreach requirements for Electric Vehicle (EV) established UM 1461.

Summary of Discussion

Lisa Adatto, chair of the SGO policy committee presented a proposal at the second workshop. There appeared to be general support for the concept and importance of customer engagement. PGE expressed concerns about where the money will come from as there is limitation on “promotion & advertising” dollars; currently there is no program to attach SG to. However, outreach funding can be part of a specific program. There’s also the possibility of using rate tariffs to provide funding (note: I’m not sure how this works). PAC, in a rare comment, wanted to keep it simple in these guidelines. Staff indicated that the ‘who pays’ question is outside the scope of UM1460.

Staff and Lisa met to work out specific language and that language was brought back to the group at the third workshop. ECOTality asked if all the Oregon utilities will have a common definition of smart grid. That seems unlikely. Staff responded that it will not recommend that the Commission direct utilities to adopt a common definition, although it would be good if the definitions were generally consistent.

NWEC suggested an addition to the guidelines directing the utilities to work to tailor their messages to customers in different income strata or different “technically sophisticated” strata. IPC responded that the utilities should not discriminate among residential customers based on income level, or draw generalizations about technical ability based on income. PAC wanted to just keep the message simple.

Appendix F - Staff SG Investment Inventory

Consensus Investment Inventory

A consensus on a list of potential investments was reached. That list is contained in Table One of the Staff Report (Report) on the Smart Grid Investment Inventory (Investment Inventory).

Summary of Discussion

At the third workshop, various parties raised issues and questions about the specific four sections in the staff draft and a number of the specific items in each category of the staff draft. This discussion led to several changes in the staff draft Investment Inventory. The largest change involved cleaning up the terminology, particularly the way that they were being portrayed in the Transmission & Distribution section.

PGE proposed that utilities have the flexibility to evaluate the potential investments listed in Table One or a comparable alternative. Staff rejected that approach but agreed to add a paragraph to the Report summarizing PGE's addition.

The discussion on the Investment Inventory began at Workshop #1. Staff indicated that the inventory will be a broad set of technologies implemented across the country. Staff noted that the Interim Order indicated that these technologies do not need to be driven by a business case or by cost-effectiveness since the Interim Order indicated that the technologies "may" be beneficial to Oregon utility customers. Staff pointed out that the focus is on potential benefits to utility customers and that means there will be little if any consideration of societal issues. Staff also indicated in response to questions that it will be staff's inventory and that staff will own it.

PGE seemed to feel strongly that an Investment Inventory is of little value since there are various places where one can turn to right now to find a list of smart grid

technologies. There was some questioning about whether the Investment Inventory is a way to educate the Commissioners. They argued that many issues of organizational change must be considered before a technology is proven valid and worthy of investment. They also asserted that SG is not a list of technologies; it is about changing processes, which entails risk that must be considered. PGE indicated that they support a “Smart Grid Maturity Model” (SGMM) as a more comprehensive approach to assessing where the utility is on SG. (Note: the staff draft inventory that was sent to the parties contained a short discussion of the SGMM with references to it and some utilities that are using it).

IPC expressed a concern about the Investment Inventory including investments that are far off. Staff indicated that the inventory may include investments that appear farther out since the Investment Inventory itself is not driven by a business case rationale since that is beyond the scope of this process. Staff also indicated that utility participation in helping staff to refine the inventory is sought and welcomed. However, staff will ‘retain the pen’ on the inventory but utility executives will be present at the Commissioner’s workshop to provide the company’s views.

PacifiCorp (PAC) suggested that the language about “Investment in the next 3 to 5 years” appears to imply a business case has to show value for a technology to be on the inventory. Staff responded with several arguments. First, staff closing comments used a 10-yr time horizon broken into two periods, a 5-yr action plan period and a second 5-yr period. As a result, a longer timeframe is already in this docket. Second, this process (UM1460 docket) and the utility’s SG Plan will not address prudence. Therefore, the issue of arguments supporting or rejecting a business case for a given SG investment may or may not arise in the utility’s SG Plan; but, that set of issues will not be vetted in the reply to the Interim Order.

The larger report containing the Investment Inventory was also an agenda item in workshop #2. There were no comments on it. At workshop #3, staff presented a draft final version of the larger report and these were a reasonable amount of

discussion about Table One. Table One is staff's recommendation to the Commission on which investments the utilities should be directed to examine in their first SGP.

CERTIFICATE OF SERVICE

UM 1460

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 860-001-0180, to the following parties or attorneys of parties.

Dated this 3rd day of October, 2011 at Salem, Oregon.



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)

<p>*OREGON DEPARTMENT OF ENERGY</p> <p>VIJAY A SATYAL SENIOR POLICY ANALYST</p>	<p>625 MARION ST NE SALEM OR 97301 vijay.a.satyal@state.or.us</p>
<p>*OREGON DEPARTMENT OF JUSTICE</p> <p>JANET L PREWITT ASSISTANT AG</p>	<p>NATURAL RESOURCES SECTION 1162 COURT ST NE SALEM OR 97301-4096 janet.prewitt@doj.state.or.us</p>
<p>CITIZENS' UTILITY BOARD OF OREGON</p> <p>GORDON FEIGNER ENERGY ANALYST</p>	<p>610 SW BROADWAY, STE 400 PORTLAND OR 97205 gordon@oregoncub.org</p>
<p>ROBERT JENKS EXECUTIVE DIRECTOR</p>	<p>610 SW BROADWAY, STE 400 PORTLAND OR 97205 bob@oregoncub.org</p>
<p>G. CATRIONA MCCrackEN LEGAL COUNSEL/STAFF ATTY</p>	<p>610 SW BROADWAY, STE 400 PORTLAND OR 97205 catriona@oregoncub.org</p>
<p>COMMUNITY ACTION PARTNERSHIP OF OREGON</p> <p>JESS KINCAID ENERGY PARTNERSHIP COORDINATOR</p>	<p>PO BOX 7964 SALEM OR 97301 jess@caporegon.org</p>
<p>ENERGY TRUST OF OREGON</p> <p>JOHN M VOLKMAN GENERAL COUNSEL</p>	<p>851 SW 6TH AVE SUITE 1200 PORTLAND OR 97204 john.volkman@energytrust.org</p>
<p>GRID NET</p> <p>JOHN COOPER</p>	<p>360 BRANNAN ST, STE 501 SAN FRANCISCO CA 94107 john@grid-net.com</p>
<p>IDAHO POWER COMPANY</p> <p>CHRISTA BEARRY</p>	<p>PO BOX 70 BOISE ID 83707-0070 cbearry@idahopower.com</p>
<p>JAN BRYANT</p>	<p>PO BOX 70 BOISE ID 83707-0070 jbryant@idahopower.com</p>

LISA D NORDSTROM ATTORNEY	PO BOX 70 BOISE ID 83707-0070 lnordstrom@idahopower.com
MICHAEL YOUNGBLOOD MANAGER, RATE DESIGN	PO BOX 70 BOISE ID 83707 myoungblood@idahopower.com
MCDOWELL RACKNER & GIBSON PC ADAM LOWNEY	419 SW 11TH AVE, STE 400 PORTLAND OR 97205 adam@mcd-law.com
WENDY MCINDOO OFFICE MANAGER	419 SW 11TH AVE., SUITE 400 PORTLAND OR 97205 wendy@mcd-law.com
LISA F RACKNER ATTORNEY	419 SW 11TH AVE., SUITE 400 PORTLAND OR 97205 lisa@mcd-law.com
NW ENERGY COALITION WENDY GERLITZ SENIOR POLICY ASSOCIATE	1205 SE FLAVEL PORTLAND OR 97202 wendy@nwenergy.org
OREGON DEPARTMENT OF ENERGY DEANNA HENRY EMERGENCY PREPAREDNESS MANAGER	625 MARION ST NE SALEM OR 97301-3737 deanna.henry@state.or.us
PACIFIC POWER & LIGHT MICHELLE R MISHOE LEGAL COUNSEL	825 NE MULTNOMAH STE 1800 PORTLAND OR 97232 michelle.mishoe@pacificorp.com
PACIFICORP DOUG MARX	PO BOX 39 MIDVALE UT 84047 douglas.marx@pacificorp.com
PACIFICORP, DBA PACIFIC POWER OREGON DOCKETS	825 NE MULTNOMAH ST, STE 2000 PORTLAND OR 97232 oregondockets@pacificorp.com
PORTLAND GENERAL ELECTRIC DOUG KUNS RATES & REGULATORY AFFAIRS	121 SW SALMON ST 1WTC0702 PORTLAND OR 97204 pge.opuc.filings@pgn.com
PORTLAND GENERAL ELECTRIC COMPANY J RICHARD GEORGE	121 SW SALMON ST 1WTC1301 PORTLAND OR 97204 richard.george@pgn.com

<p>PUBLIC UTILITY COMMISSION OF OREGON</p> <p>MAURY GALBRAITH</p>	<p>PO BOX 2148 SALEM OR 97308 maury.galbraith@state.or.us</p>
<p>PUC STAFF--DEPARTMENT OF JUSTICE</p> <p>MICHAEL T WEIRICH</p>	<p>BUSINESS ACTIVITIES SECTION 1162 COURT ST NE SALEM OR 97301-4096 michael.weirich@doj.state.or.us</p>
<p>SMART GRID OREGON</p> <p>ROBERT FRISBEE</p>	<p>111 SW 5TH AVE, STE 120 PORTLAND OR 97204 rfrisbee@si-two.com</p>
<p>ROY HEMMINGWAY</p>	<p>111 SW 5TH AVE, STE 120 PORTLAND OR 97204 royhemmingway@aol.com</p>
<p>PHIL KEISLING</p>	<p>111 SW 5TH AVE, STE 120 PORTLAND OR 97204 pkeisling@gmail.com</p>
<p>SMART GRID OREGON/ECOTALITY COUNSEL</p> <p>BARRY T WOODS</p>	<p>5608 GRAND OAKS DR LAKE OSWEGO OR 97035 woods@sustainableattorney.com</p>

