UTC / PSE

Electric Operations Meeting

September 7, 2007

UTC Areas of concern:

- Communities or neighborhoods that have chronic electric service problems such as outages, voltage spikes and voltage sags.
- Adequacy of company investments in maintenance of existing plant.
- Willingness to make needed system improvements that benefit existing customers.

Electric system reliability:

A. What measurements does PSE employ to determine that it is providing adequate electric service to specific geographic areas? How does PSE divide its system up when making such an analysis?

Discussion:

SAIDI and SAIFI are the primary measurements that PSE uses to monitor company-wide electric service reliability for PSE's customers. PSE also monitors sub-system information relating outages by county, circuit, and cause. A third perspective includes customer concerns about service quality and reliability, received either firsthand or through the Commission.[1] PSE planners evaluate trends in system performance from these metrics as well as from other data such as load readings, maintenance needs, municipal concerns and feedback from our customers and field employees. The analysis is divided into the following eight geographic planning areas with a planning team reviewing the electric service – Whatcom, Skagit/Island, North King, South King, Pierce, Thurston, Kitsap/Jefferson and Kittitas.

B. Does PSE track customer complaints about over or under-voltage in addition to outages? If yes, what data does PSE collect?

C. What level of customer complaints about over or under voltage would trigger changes to the electric facilities, including reconstruction, reconfiguration or improvement of existing distribution circuits?

Discussion for B & C:

Yes. Overall, PSE's distribution system is designed to conform to no more than 5% voltage variation above or below the standard voltage, and the total voltage variation shall not exceed 8% of the standard voltage, measuring from upper to lower variation.[2] Among

[1] Refer to PSE's 2006 Electric Service Reliability Report for detailed information regarding company-wide performance and specific geographic performance.

[2] Refer to PSE Standard Specifications 0650.2000 – Service Voltage; 0650.4050 – Solving Voltage Complaints; 0650.4100 - Voltage Flicker

other things, PSE's substation inspectors routinely inspect our substations for voltage level within the standard specifications.

PSE does track customer voltage complaints. These complaints are recorded in our client management system (CLX) as these issues are brought to our attention. PSE will collect the customer information and the nature of the complaint. For individual customers, a PSE first responder is dispatched to investigate and will either correct the problem, refer to second response for repair (crew work) or refer to engineering if the issue is not resolved and appears to be on the PSE system. For larger area problems, PSE must take readings, analyze the system and performance of the circuit taking into account customer and field employee inputs in a particular geographical area. After reviewing the inputs, system alternatives are developed to resolve the system performance issue. Depending on the nature of the system issue, repair is authorized or a system project is proposed and submitted for the upcoming budget competing against other projects for funding. There are very short duration voltage disturbances that may be perceived by customers as voltage problems when in fact they are simply physical characteristics of a normal electric system operation. The portfolio of projects funded each year provides the optimal benefit for the budgeted dollars.

PSE will correct voltage problems within our control to comply within our standard specifications. There is no threshold of complaints that PSE must receive before taking action to repair, restore or evaluate corrective solutions.

D. What data does PSE keep regarding the number of outages due to aging underground cable?

E. What metrics does PSE use to determine which underground cables to replace first?

Discussion for D & E:

PSE tracks a variety of information for cable outages, including the details of the outage, and the condition of the cables. This information is then used to determine which cables will be remediated under our cable remediation program. A more detailed discussion of this process can be found in the information that was recently provided by PSE in response to WUTC Complaint 98705, which is attached to this document. In addition, refer to PSE response to UTC Data Request 005 – Electric Service Reliability Report – 2006 Annual Report.

F. What process does PSE have in place to ensure that accurate outage information is passed from the field locations to PSE's customer service centers?

Discussion:
Emergency First and Second Responders relay outage information directly from the field to PSE's System Operations Center where employees update CLX with current outage information as it is received. This information is then used by PSE's Customer Access Center as well as our Major and Business Account representatives to provide customers with up to date outage information. System Operations Supervisors work with staff at our

Customer Access and System Operations Centers to assist in customer communications and to ensure a consistent flow of accurate and timely information is maintained.

Currently a new workforce management system (Mobile Workforce) is being implemented for the gas and electric field workforce. System rollout for gas will be completed in 2007 and is expected 1st quarter of 2008 for the electric first responders. Using GPS, this system links both the emergency responder and outage event locations making it possible for dispatch to determine which responder is most likely to arrive on scene the soonest. It also allows the First Responder to enter outage and other key information directly into the system from the job site. These enhancements are intended to ensure timely response and streamline information flow from the field to our customer service representatives. This in turn, enables us to provide more timely updates to our customers.

Electric system maintenance spending.

A. What is the annual cost of maintenance on PSE's electric system?

Discussion:

The historical and estimated future maintenance costs are shown in the responses to questions C and D below. These costs support our overall system maintenance plan which includes mandated, proactive and unplanned activities such as vegetation management and equipment inspection, reconditioning, or replacement. The annual costs will vary from year to year due to things such as variations in the work portfolio that is planned, the ability to coordinate with other system work, neighboring utilities, continual improvement efforts, and other work priorities across the system.

B. How do you determine whether this is an appropriate amount based on size, condition and age of electric infrastructure?

Discussion:

Several different things are done to determine if the maintenance plan is appropriate. These include the following:

We measure the impact that equipment performance has on system performance metrics, such as those that are communicated as part of our collection of SQIs. As a part of this work, we will also consider how the equipment performance may have affected a specific area of the company (as described in the response to question A in the previous section), and how the performance issue may vary based on things like equipment location or type. This helps us determine if the maintenance plan should be adjusted, and where these efforts could be focused.

Another measurement activity involves a review of maintenance documentation to understand what our maintenance field personnel are observing during equipment maintenance activities. This information is useful in determining if there may be equipment maintenance issues that are developing, but not yet resulting in system performance issues such as outages. This measurement activity is augmented by

discussions between the various technical personnel who support the maintenance plan, to make sure that we capture as much information as possible.

In addition to the internally focused reviews that are described above, we also focus externally in our efforts to determine if the maintenance plan is appropriate. Examples of this include participation in third party studies, and consultation with peers at other organizations. This provides the opportunity to compare plans with other organizations, and identify new ideas that we may want to evaluate for application at PSE.

C. Please provide a year-by-year summary of the last five years electric maintenance / replacement budgets.

Discussion:

Funding levels vary from year to year as previously noted. Increases, for example, may result from the need to perform additional maintenance on items that are nearing the end of their useful lives. At the same time, decreases result as we find new ways to perform maintenance through the application of new approaches or technologies. For example, in 2005, we developed a new approach for the maintenance of a certain type of substation circuit breaker. In 2006, this allowed us to maintain the reliability of the target population more efficiently and to reallocate the funding on other maintenance issues.

Electric O&M and Capital Expenditures (in million dollars)

	Year					
Category	2002	2003	2004	2005	2006	2007 *
O&M w/o Storm	$43	$42	$41	$46	$46	$49
Capital	$28	$38	$55	$69	$71	$67
Total Reliability	$71	$80	$95	$115	$117	$116

*Budget

D. How far into the future does PSE budget for maintenance/replacement of electric facilities? Please provide forecasted maintenance/replacement budgets for as many years into the future as these are available.

Discussion:

Detailed budgets are developed for the year following the present year; as an example, we are presently working to develop the budget for 2008. In order to support planning efforts across the organization, we maintain a long range plan that provides an estimate of construction and maintenance workload, and associated spending for the next five years. The plan is updated annually in an effort to make sure that the cost and workload estimates are based on the most current information. Spending estimates for electric system maintenance and replacement are shown in the table below. Due to the dynamics of the

customers we serve, and the many different factors which can impact our long-range plan, we expect that it will change during subsequent updates.

Electric O&M and Capital Budget - 5 Year Plan

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E. Provide us with an annual ratio of PSE expenditures on electric system maintenance vs. new construction over the previous five years.

Discussion:

Attached is the table showing the annual ratio of PSE expenditures on electric system maintenance versus new construction over the 2002-2006 time period. It should be noted that some projects funded under new construction eliminate aging infrastructure and improves system reliability.

	Year					
Category	2002	2003	2004	2005	2006	2007 *
Reliability (Capital and O&M in million $)	$71	$80	$95	$115	$117	$116
NCC and Increase Capacity (in million $)	$50	$37	$52	$75	$81	$106
Annual ratio	1.4	2.1	1.8	1.5	1.4	1.1

*Budget