EXHIBIT NO. ______ (PJG-1T)
DOCKET NO. _______________
2001 PSE RATE CASE
WITNESS: PENNY J. GULLEKSON

BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,

Complainant,

v.

PUGET SOUND ENERGY, INC.

Respondent.

DIRECT TESTIMONY OF PENNY J. GULLEKSON

ON BEHALF OF PUGET SOUND ENERGY, INC.

NOVEMBER 26, 2001

PUGET SOUND ENERGY, INC.

DIRECT TESTIMONY OF PENNY J. GULLEKSON

I. INTRODUCTION

Q: Please state your name, business address and your position with Puget Sound Energy.

A: My name is Penny J. Gullekson. My business address is 411 108th Avenue N.E., Bellevue, Washington 98009-9734. I am Vice President Customer Services at Puget Sound Energy, Inc. ("PSE" or "the Company").

Q: What are your responsibilities in your present position?

A: I have overall responsibility for the Company's customer service activities including customer access, billing, payment processing, business office operations, credit and collections, marketing, conservation, energy efficiency, meter reading, metering equipment and technology, and all integrated customer service technologies.

Q: Please describe your work history.

A: In my 34 years with the Company, I have held positions in customer service, finance and accounting, information technology, field operations, standards/operations services, and new construction. Prior to the merger, I was responsible for all services provided in Puget Sound Power & Light's largest geographic Division. I have also been involved in numerous technology implementation projects throughout my career.

Q: What is the purpose of your testimony?

A: My testimony will describe PSE's activities and what PSE has accomplished in the area of customer service, including customer access, billing, payment processing, business office operations, conservation, energy efficiency, meter reading, metering equipment and technology, and all integrated customer service technologies.

Q: Please summarize your direct testimony.

A: I describe how PSE moved quickly after the merger between Puget Sound Power & Light ("PSPL") and Washington Natural Gas ("WNG") to address significant challenges posed by the need to consolidate the two companies, and how PSE successfully achieved efficiencies and cost savings from the merger while improving customer service.

I explain how the Company has used management processes and innovative technology to improve our ability to provide safe, efficient and reliable service to customers in a manner that is responsive to customer needs and concerns. I also describe PSE's efforts to promote conservation.

Finally, I describe how the Company is now positioned to improve our ability to respond to dynamic changes in the industry and provide further benefits to our customers by providing pricing options and personal energy use information. Such measures have the potential to provide enduring benefits to our customers and the region by promoting conservation and providing price signals for retail electric consumption.

II. PSE AGGRESSIVELY IMPLEMENTED MERGER EFFICIENCIES AND COST SAVINGS WITHOUT SACRIFICING QUALITY CUSTOMER SERVICE

Q: Please describe the Company's initiatives in the customer service area immediately following the merger between Puget Sound Power & Light and Washington Natural Gas.

A: Immediately following the merger, the main goal with respect to customer service was to attain merger synergy savings while increasing customer service. Initially, we focused on ways to limit negative impacts on customers and employees. Longer term, our goal was to provide quality service to all customers, regardless of fuel type (service would be of identical quality whether the service was for gas, electric, or both). In addition, we would leverage technology and proven customer service methods to make superior service more cost-effective.

Creating a single, focused work-group was a challenge. The initial teams were very diverse, located in three different places, represented by three different unions, and each with different work practices and varying levels of service. We were also dealing with two different Customer Information Systems ("CIS") and a wide variance in work rules and practices between the gas and the electric functions.

Despite these challenges, the Company immediately took major actions to develop a cohesive work group and attain merger synergies quickly, including:

- Immediately prior to the merger effective date, extensive cross-training of gas and electric systems, policies, and practices.
- Major reorganization and downsizing, i.e. within 90 days of the merger, three call centers located in Tacoma, Seattle, and Bellevue were consolidated in Bellevue.
- Consolidation of three separate unions into a single group represented by the International Brotherhood of Electrical Workers ("IBEW"), Local 77.

Within one year of the merger, our customer service synergy initiatives had been implemented and we had made significant progress regarding the quality and quantity of services provided. For example, in March 1997, at the time of merger call center consolidation, 6% of calls were answered in 30 seconds. By mid-year of 1998, the service level had risen to an average of 79% of calls answered in 30 seconds.

In addition, the Company increased service availability to 24-hours-a-day and 7-days-a-week, enabling any customer to talk with a service representative, regardless of the time or day. This also allowed our system operators to focus on system needs by relieving them from the responsibility for answering off-hours customer service calls. Shifting paperwork to this off-hour staff and eliminating the need for customers to call back allowed the hours to be extended with a negligible impact on cost, and improved customer service.

We also reduced costs by closing business offices that were of low volume. We continued to meet our customers' service needs through larger, full-service locations, better telephone service, and by increased service options over the Internet, as described below.

Q: Why did PSE move its customer service center from Bellevue to Bothell?

A: On a long-term basis, PSE's goal was to continue to evolve customer service into an organization that would provide customer care faster, leverage agent expertise and time more effectively, operate cost-effectively, and simplify call center management. To accomplish these goals, PSE's management believed that we would need to transition to the "next generation" of integrated technologies, which provided multi-media contact including fax, e-mail, web chat and internet.

Being located in PSE's Bellevue office severely restricted our ability to install new technologies because the 40-year old building could not accommodate these improvements. These limitations also prevented all agents from being on a generator during major storm outages, limiting our ability to serve customers when call volumes were at their highest. The Bellevue facility would also have required extensive remodeling to provide the level of security appropriate for a 24 x 7 operation.

While the Call Center in Bellevue was consolidated in one location (albeit on a number of floors), several other customer service departments were located in different facilities, limiting our ability to maximize efficiencies across the organization.

PSE chose to move to the Bothell facility for a number of reasons. It is located in an area where it provides a safe working environment, especially for those employees who work swing shift; and is amongst like corporate neighbors who are also security minded. The facility has appropriate power backup, which allows for uninterrupted operations in the event of a power outage. It was sized to allow for the consolidation of all customer service departments, improving communication, work sharing, and networking amongst employees and management. It also allowed for dedicated classroom training facilities, with a live training environment which mirrors the production environment

Q: Is PSE providing excellent customer service?

A.. Yes. Since the merger, we have used the Service Quality Indices approved by the Commission in 1996 as an indicator of whether we are providing high quality service performance. The SQIs relating to customer service are:

- **Overall Customer Satisfaction –** Percent of customers "satisfied" with PSE's overall performance (based upon third party sampling and surveying). Benchmark requires 90% of customers are satisfied.
- **Telephone Center Transaction Customer Satisfaction –** Percent of customers "satisfied" with service provided when calling the Company (based upon third party sampling and surveying). Benchmark requires 91% of customers are satisfied.

- **WUTC Complaint Ratio –** Number of complaints to WUTC per 10,000 PSE customers. Benchmark requires that PSE will have no more than five WUTC complaints per 10,000 customers.
- **Telephone Center Answering Performance –** Percent of calls answered live within 30 seconds. Benchmark requires that PSE will answer a minimum of 75% of customer calls within 30 seconds.
- **Disconnection Ratio –** Percent of customers disconnected for non-payment of energy bills when disconnection policy allows. Benchmark requires that PSE will not disconnect more than 3.8% of customers for non-payment.

Q: Would you please discuss PSE's SQI performance for customer service?

A: As shown in Exhibit PLG-2, customer complaints to the WUTC dropped from four complaints per 10,000 customers from our first report in September 1997 to three per 10,000 customers in 2001. The average number of customers disconnected for non-payment has dropped from 2.3% down to 2.1% in 2001.

Our "Telephone Answering Performance" improved from 53% of the calls being answered live within 30 seconds in 1997, to 75% of the calls being answered live within 30 seconds in 2001. It is important to note with respect to this SQI that in 1998, we managed the call center so that 81% of the calls were answered live within 30 seconds. However, customer satisfaction with the call center was not improved with quicker phone answering. As a consequence, we decided to staff the operation so that 75% of the calls are answered live within 30 seconds, and to increase our training to improve the quality of the interaction between customer and call center representative.

Q. Do you have any thoughts about why PSE's "Overall Customer Satisfaction" for 2001 has declined?

A. There appears to have been a widespread overall decline in customer satisfaction with energy utilities recently that is not limited to PSE. Several national surveys (the American Customer Satisfaction Index (ASCI)), the EEI National Residential Customer Monitor Survey, and the JD Powers Electric Utility Residential Customer Satisfaction Study all reflect significant declines in customer satisfaction. In an article written in the Wall Street Journal (May 21, 2001) on the ASCI, the author noted that there had been significant decline in energy utility scores, whose collective scores dropped 8% to a score of 69%. The EEI National Residential Customer Monitor Survey measured 78% customer satisfaction for the Spring 2001 survey, a 4% drop from the Spring 2000 scores. The JD Powers Electric Utility Residential Customer Satisfaction Study also reflected a decline of 2% in overall satisfaction as outlined in their July 19, 2001 press release.

PSE has also seen a decline in "Overall Customer Satisfaction" from our 1999 high of 92%. However, we believe our performance relative to the region and relative to the industry as a whole, has been maintained or has improved. In addition, there appears to have been considerable improvement between our first-half 2001 score and our second-half 2001 score, which were 83% and 88%, respectively.

Q. Do you have any observations on PSE's "Telephone Center Transaction Customer Satisfaction"?

A. Yes. PSE's 2001 90% customer satisfaction score did not meet the SQI benchmark requirement of 91%. Given the media coverage on the volatility and level of uncertainty in West Coast energy markets and our implementing significant changes that directly affect customers (*i.e.* billing format changes with the implementation of Personal Energy Management), we believe that holding at 90% is a significant accomplishment. Our October 2000 through September 2001 scores hovered around the 90%-91% level, with the only anomaly being the month of May 2001 with a low score of 86% customer satisfaction. This was most likely the result of implementing the PEM pilot program during that month, and PSE is requesting, as part of the SQI Report it is filing independent of this rate case, that the Commission excuse May 2001 as a temporary consequence of introducing a significantly different and new rate structure. Thereafter, our scores ranged between 95% and 91%. If this one low score month is excluded, we will meet our telephone center transaction customer satisfaction benchmark for the SQI year ending September 30, 2001.

Q: Has PSE undertaken customer service quality efforts other than those measured by the SQIs?

A: Yes. The Company has worked to provide increased customer convenience and choice, including:

- **24-Hour Customer Access:** PSE is one of the few utilities that provide a 24-hour per day, seven-day per week customer call center. Our customers can start/stop service, make billing inquiries and/or payment arrangements, report a gas odor or electric system outage, or undertake almost any other customer activity.
- **Agents at Home:** During large-scale emergency events (i.e. earthquakes or storms), our customers often want to reach us to report system damage and/or potential unsafe conditions. During the initial phases of an emergency, there is a need to quickly "ramp up" the number of representatives available to talk to customers. PSE developed an "agents at home" program, whereby PSE representatives have PSE equipment

installed in their home and they are allowed to work-from-home to answer customer calls. Employees selected for this work-from-home program must be willing to be "the first on" during unanticipated high call volume periods – regardless of the hour of the day or day of the week.

- **Personal Energy Management:** PSE is now able to take customer service to a new level, offering choices to customers that were never before available on a large-scale and to all customer classes. Personal Energy Management ("PEM") provides unprecedented information and options through the capabilities of technology. I will describe the PEM program in greater detail later in my testimony.

III. THESE EXCELLENT RESULTS WERE OBTAINED THROUGH PSE'S IMPLEMENTATION OF EFFECTIVE MANAGEMENT PROCESSES AND TECHNOLOGY

Q: What management processes contributed to the above results?

A: PSE's management team took a number of steps to establish a culture dedicated to high quality throughout the customer service team. Specifically we:

- Focused on establishing goals for all employees, whether union-represented, support staff, or management, and rewarding achievement of goals through incentive pay programs. Customer service was the first area to implement a pilot incentive pay plan for meeting goals in which union-represented employees participated. It was a success from the beginning, resulting in a significant improvement in call center service level. PSE's goals and incentives program is described in greater detail in the testimony of Mark Gordon.
- Built anticipated turnover of employees into our hiring practices, taking a more proactive approach and provided increased lead and supervision for

off-core-hour staff. We also initiated regular leadership team meetings including union-represented customer service leads.

- Increased training and implemented a mentor program. We also implemented a seating arrangement matching diverse levels of experience with specialists in gas and electric service expertise in close proximity to provide assistance quickly when needed. Experienced representatives were assigned to develop a quick reference guide for policies and procedures. Documented standards outlining employee performance expectations were provided to each employee.
- Expanded the "agent-at-home" program to 17 agents, allowing quick access to additional representatives in times of unanticipated high call volumes. We also shared resources among the customer service departments to balance workload, especially to cover the high call volumes experienced on Mondays and following holidays.
- Implemented practices to reduce call volumes through monitoring of calls and implementing problem/cause improvements.
- Continually analyzed hourly service level statistics, decreased adjustment time-frames to 15 minute increments, adjusting staffing levels and shift assignments.

Q: How has PSE utilized technology to enhance customer service?

A: Through development and implementation of a variety of systems including an Intranet and web-based access for customers, a Portal Contact Controller to enhance employee contacts with customers, a flexible and scalable CIS system called ConsumerLinX ("CLX") and expansion of Automated Meter Reading ("AMR") technology.

Q: Would you please describe PSE's web access for customers?

A: PSE has expanded its web on-line customer care feature, which now includes:

- Real-time web chat with customer service agents and e-mail monitored for response within 24-hours;
- Electronic billing and payment processing along with information about other payment options, such as automatic funds transfer, budget billing, and alternative bill payment locations; and
- Detailed rates brochures, energy efficiency and conservation materials, self-help energy management tools, and a contractor referral service.

Q: What is the Portal Contact Controller?

A: This technology provides for advanced routing and reporting of voice, email, and web inquiries to appropriate qualified agents' desktops. Agent skills sets determine which contacts they will receive by contact type (billing, start/stop service, gas leak, etc) and by media type (voice, email, web). The Portal Contact Controller also captures the customer's phone number and performs an automatic look-up of a customer in the CIS system, ConsumerLinX, which is described in greater detail below. The contact is delivered to the agent desktop as a "screen pop," which eliminates the need to manually access the customer's record. The system also records and provides information that enhances PSE's ability to manage its customer service center, such as the number of email versus telephone transactions, how many calls customer service agents are taking, and of what type.

Q: What are some other technologies that PSE has implemented to better serve customers?

A: We have implemented a staff scheduling and forecasting system, which provides employee scheduling for different skill levels of customer contact personnel. The system also provides real-time scheduling, allowing for prompt remediating action. This system aids in improving quality (right skill, quick response) and reducing cost (proper level of staffing). This technology also provides for advanced routing and reporting of voice, email, and web inquiries to appropriate qualified agents' desktops.

We have also invested in high-speed payment processing equipment capable of processing all payments the day they are received. The system captures and stores images of payments that are accessible by customer service representatives while the customer is on the line.

Finally, we have outbound automated call capabilities utilized to collect past due bills, notify interruptible customers of curtailments, and quickly provide any special event notification.

Q: Would you please describe why and how ConsumerLinX was developed?

A: In 1990, PSPL's management determined that it would need a new CIS system, as the existing system became increasingly difficult and expensive to upgrade. New applications and changes had overtaxed the inflexible architecture on which the system was built. Existing systems available in the marketplace were based on the same inflexible architecture as the PSE legacy system. So, PSE began working toward development of a new CIS system.

With the merger in 1997, PSE had two old systems and the need to bring the legacy systems together to serve the combined Company. PSE determined that the system that was in development was still the best designed system to meet the merged company's needs.

In April of 2000 the system, named ConsumerLinX (or "CLX"), was implemented at PSE for electric customers. The gas CIS implementation followed in November of that same year.

Q: What does CLX do, and how does it assist PSE in serving customers?

A: CLX has seven functional areas:

- Client Records Management – company information, client information usage points, location, products, product vacancy agreements, statements of account and geographic designations
- Billing – meter reading, price administration, charging, and statementing administration
- Accounts Receivable Management – account transaction types, automatic payment methods, bank memos, cashiering, general ledger accounting and refunds
- Credit and Collections – payment arrangements, deposits and guarantees, credit action suspension, bad debt, collection agency, bankruptcy
- Client Communications – communication events, inbound comments
- Service Orders integrated with work scheduling software
- Equipment integrated with meter read management software

As a highly flexible CIS solution, CLX provides configurable application functions. This flexibility provides the edge in meeting deadlines cost-effectively, implementing attractive products and consumer-friendly business practices, managing credit and collections effectively, and increasing customer service capabilities. The system provides for gas, electricity, merchandise, and other services to consumers.

A wealth of interfaces ensure that the CIS and other systems (both existing and new) can easily share information and leverage business processing code, as shown in Exhibit PJG-3. The flexibility of the system facilitates:

- System-wide support for customer and complex billing operations, replacing many independent systems

- Significant improvement in the capability to link information to consumers, accounts, locations, premises, meters, and parent companies
- Detailed customer and account information – in real-time – to any variety of utility employees – controlled through stringent security features
- A user-friendly interface for employees who have little experience with computers
- Automation of many customer service and billing procedures based on user-defined business rules
- Consolidation of disparate IT operations, by enabling the configuration of business rules

Q: Would you please describe why PSE utilizes Automated Meter Reading?

A: PSPL began exploring the potential of automated meter reading ("AMR") in 1995, to determine whether it could provide increased efficiencies, cost savings and reliability. By mid-1996, two pilot projects were underway utilizing two different technologies. Only one of these technologies turned out to actually provide the network read system that met PSE expectations.

The first bill was generated from the successful pilot in January of 1997. In October of 1997 a contract was signed with Cellnet for 700,000 electric and gas meters, and in April of 1998 the production rollout began. In October of 1998 an additional 100,000 meters were added to the plan, and since that time we have continued to expand the program to the nearly 1.4 million meters that are now operational on the network.

AMR provides a number of benefits, including reduction in labor required for manual meter reading of both gas and electric, reduction in estimated customer billing and increased read accuracy, reduction in fieldwork activities around billing issues, enhanced electricity outage notification, reduction in customer call volumes, and improved system reliability information. AMR also makes it possible to measure customer energy usage frequently enough to implement rates based on dynamic pricing, as described below.

IV. PSE'S EXISTING CONSERVATION EFFORTS

Q: Would you please describe some of PSE's existing conservation efforts?

A: PSE provides numerous conservation programs to its customers. PSE's Personal Energy Advisors provide customers with a single point of contact (with a toll free Energy Efficiency Hotline) for energy management related questions, including specific tariffed conservation programs that are available to customers. Such conservation programs include weatherization retrofits for residential low-income customers, rebates for installation of energy-efficient gas water heaters, provision of florescent lighting fixtures and rebates for installation of energy-efficient clothes washers to builders of multi-family units, support to housing assistance agencies associated with the purchase of energy-efficient refrigerators, and a number of other conservation support measures for small business, commercial and industrial customers.

Target spending and energy saving metrics for conservation were established with the WUTC at the time of the merger. In 1998 and early 1999, existing programs were reviewed again and new programs were considered in an open process with key stakeholders. In April 1999, the Commission approved a new slate of programs for all customer sectors. This set of programs/initiatives lasts through March 2002. We are currently exceeding the energy saving metrics for both gas and electric, and are on track for meeting or exceeding the target spending of $25 million over the three-year period established in April 1999.

PSE customers also achieve conservation and energy efficiency savings outside of the tariffed conservation programs through PSE's Contractor Referral

Service. This service provides customers with qualified contractors for products and services such as energy-efficient windows, doors and insulation.

PSE is committed to continuing to provide conservation alternatives for its customers, and is currently meeting with interested groups as part of its development of our next conservation proposal to be filed before March 2002.

V. PSE IS LEVERAGING ITS TECHNOLOGY PLATFORM TO PROVIDE EXPANDED CUSTOMER SERVICE AND INNOVATIVE WAYS OF INCREASING CONSERVATION AND MANAGING THE NEW UTILITY ENVIRONMENT OF DEREGULATED WHOLESALE POWER MARKETS

Q: Would you please discuss PSE's latest technology initiative?

A: Having implemented the CLX and AMR systems described above, PSE is now positioned to take customer service to a new level, offering choices to customers that were never before available on a large-scale and to all customer classes, through a new program which we call "Personal Energy Management" ("PEM"). PSE's vision of PEM is to provide unprecedented customer service through empowering customers to choose how they manage their use of energy in their home and business.

We began to implement PEM features in November 2000 through a time-of-day pilot program. We have had a high level of input from our customers through their letters, calls, and responses to our web site feature, "Tell us what you think." Their suggestions have initiated numerous upgrades to the PEM website as well as other program enhancements. In addition, we use Consumer Panels located throughout our service territory and customer focus groups to provide detailed specific customer input to the program design. At present, PEM includes the following features:

- Time-of-day billing pilot for approximately 300,000 residential customers and 20,000 business customers
- Time-of-day information-only pilot for approximately 80,000 customers. These customers receive a bill insert displaying market time-of-day trends, their own personal usage profile for the month, and additional information and referrals regarding conservation and load-shifting tips, but their bill is determined by their pre-existing rate.
- All customers receive bill stuffers containing articles on conservation and load-shifting.

In addition, the following PEM features are available through the PSE web:

- Display of energy usage daily, or by four-time-periods daily
- Quick comparison of energy usage daily and monthly
- Calculator to demonstrate how bills can be reduced by shifting or reducing energy usage, including comparison of a customers bill between existing time-of-day rates and flat rates.
- Increased energy efficiency and conservation materials
- Energy management self-help tools, including an energy management plan to set personal energy goals and track progress, and an energy profile to analyze where a customer is using energy
- Contractor referral service that connects the customers with pre-screened contractors that can help with selection, installation and maintenance of energy related systems in the home or business
- Energy store online where customers can shop for energy-smart products
- E-newsletters through which customers can receive periodic information targeted to help meet specific energy management goals

The PEM Program provides customers the knowledge to better understand and control how and when they use electricity in their home or business, the ability to help the environment by using electricity more wisely and efficiently, and the opportunity to save money by using electricity when overall daily demand for power – and the price of that power – is low.

Q: How have customers and the industry reacted to the PEM time-of-day pilot?

A: The acceptance by customers has been overwhelmingly positive. In an independent survey of 800 residential customers on the time-of-day billing pilot, customers said:

- They understood how the program works and understood their bill information
- Over 90% have taken actions to alter their energy use, of which 89% had shifted their use, and 49% had also reduced use
- 85% are satisfied with the program and nearly all would recommend it to others

Although customers have been given the option to "opt off" the pilot program, less than 1% have chosen to do so. Some customers who opted off at the beginning have requested to be returned to the program. We are also maintaining a waiting list for over 1,000 customers who have requested to be placed on the program if the pilot is opened for additional participants.

In June of 2001, PSE was presented the Edison Electric Institute's Edison Award "for distinguished leadership, innovation, and contribution to the advancement of the electric industry for the benefit of all" based on its development of the PEM program.

Q: Does PSE wish to expand the PEM program beyond the time-of-day pilot?

A: Yes. The restructuring of the electric wholesale market has created a new environment for utilities and their customers. The traditional model of flat rates does not provide price signals to consumers that would encourage them to reduce usage when rates are high. The lack of consumer response to electricity prices impedes the development of a functioning wholesale electricity market, and tends to drive prices higher rather than lower, particularly with respect to peak prices and spot markets. Implementation of technologies and rate structures that provide price signals to customers will be an important means of addressing such issues.

Expansion of the PEM program to provide time-of-use ("TOU") rates across PSE's customer base would provide such price signals to customers. The time-of-use element of this program will apply to all customers with the necessary metering equipment and implementation capability. The PEM time-of-use program ("PEM/TOU") would have two options: (1) a daily variable rate option that fluctuates based on market prices and other variable power costs, which will be implemented through a power cost adjuster; or (2) a fixed rate option, which will not vary from day to day during the year but in which the rates will be adjusted annually and will include the cost of locking in the price in advance. This allows for rates that more accurately reflect the Company’s costs. Over the long run, the PEM/TOU program will provide significant benefits, as described below and in Dr. Eric Hirst's testimony and in Dr. Peter Fox-Penner’s testimony.

Q: Under PSE's proposal, would all customers be on time-of-use rates?

A: Yes, eventually. All customers who have AMR technology which provides the necessary level of data transmission capability will be on time-of-use rates. This type of rate design most accurately matches energy costs which vary throughout the day and from day to day to individual, measured, customer usage patterns.

The remaining customers will transition to the time-of-use rates within the next few years as the technology becomes available.

Q: Would all customers be on a daily variable rate that fluctuates based on market prices?

A: No. Customers will have two choices:

- A daily variable rate that fluctuates based on market prices and other variable power costs and that is implemented through a power cost adjuster will be offered for customers who are interested in managing and monitoring their electric usage in accordance with current market conditions.
- A fixed rate (hedged) option will be available for customers who wish to maintain a constant rate throughout the year, where the rate will be adjusted annually and will include the cost of locking in the price in advance.

Q. How would the Company implement the PEM/TOU program?

A. At the time the Commission issues an order approving the program, PSE would initially place all customers who have the necessary metering equipment and implementation capability to participate in PEM/TOU on the time-of-use fixed, hedged rate for billing purposes. For two months thereafter, PSE would provide information about daily prices to all such customers, before moving any customers to the daily variable rate. By the end of the two-month informational period, customers would chose whether to remain on the fixed, hedged rate or to take future service under the daily variable rate.

Q. How would PSE communicate information about energy prices to its customers?

A. PSE would provide daily information about prices based on day-ahead projections through appropriate media, on the internet, and through various PSE telephone options. A mixed variety of communications methods will be considered and customer input solicited, as we have done throughout the PEM time-of-day pilot program.

Q. Has PSE evaluated whether expansion of the PEM program is cost effective?

A. Yes. PSE has evaluated the costs and benefits of PEM/TOU through a model described in greater detail in the testimony of William Gaines. Inputs to the model were provided by my group, as described below, and by Susan McLain's group, as described in her testimony.

PSE has determined that the estimated net present value of benefits net of costs for a ten year period beginning in the rate year will be positive under most assumptions, and has the potential to produce significant benefits. The results of the PEM/TOU net benefits model analysis are summarized as follows:

Results of PEM/TOU Net Benefits Model Analysis ($ x millions)

	Energy Reductions and Shifts		
	High Load	**Base Load**	**Low Load**
Lowest Forecast Price	$106.2	$9.0	- $70.0
Mean – Static Analysis	$152.8	$48.8	- $36.7
Mean – Monte Carlo	$163.3	$58.8	- $27.2
Highest Forecast Price	$363.4	$235.3	$125.8

Q. Does the analysis summarized in the table above capture all of the benefits of the expanded program?

A. No. The analysis set forth in the table above calculates net present value (NPV) of quantifiable estimated costs and benefits. Implementation of this proposal will produce options for PSE customer programs in the future. These future benefits to PSE customers have not been quantified. Other benefits not captured by this analysis include regional and environmental benefits, which are discussed in the testimony of Dr. Eric Hirst and Dr. Peter Fox-Penner.

Q: What assumptions did the Company make with respect to its PEM/TOU analysis?

A. PSE's key assumptions are summarized in the following table, then described in greater detail below.

KEY ASSUMPTIONS SUMMARY

	Energy Reductions and Shifts		
	High Load	Base Load	Low Load
Annual Energy Saved %	4.0%	3.0%	2.0%
Energy Shifted 2003 KWh/cust/month	14	14	14
Energy Shifted 2004 Peak to Off-peak	1.87% Res .94% C/I	1.87% Res .94% C/I	1.87% Res .94% C/I
Annual Growth Energy Shifted	10%	5%	0%
	Costs		
	High	Base	Low
Cost/Meter/Month 2003	$1.65	$1.65	$1.65
Cost/Meter/Month 2004-2012	$1.25	$1.52	$1.65
Cost Billing Services $ millions per year	$12.35	$12.35	$12.35
PSE Transmission Peak Cost $/kW	$203.00	$126.00	$50.00
PSE Distribution Peak Cost $/kW	$312.00	$225.00	$139.00

Q: What level of program participation did the Company assume for customer participation on the PEM/TOU programs?

A: We estimated that participating customers will increase from a level of 275,000 at the beginning of the rate year in October 2002 to 665,000 participating customers by the end of the rate year in September 2003, and that there will be 950,000 customers on the PEM/TOU program by year-end 2004.

Q: What types of savings did the Company consider when developing the benefits of the PEM/TOU program?

A: We considered three main categories of benefits. The first is the savings associated with the conservation of energy resulting from time-of-use rates and the power cost tracker. The second is the savings associated with the shifting of energy out of the two peak time periods resulting from the time-of-use rates. The third is peak capacity savings associated with both shifting of the peak demand and overall demand reduction both as a result of the time-of-use rates and the power cost tracker.

Q: What energy conservation effect did you estimate for the programs?

A: For the overall energy conservation effect due to the time-of-use rates, PSE estimated reduced consumption of 2-4%. This assumes a more conservative market transformation effect than assumed by the Northwest Energy Efficiency Alliance ("NEEA") based on the Pacific Northwest Region's current efforts. The NEEA 2000/2001 Annual Progress Report found that current energy efficiency initiatives in the Region have saved 42 average megawatts (aMW) over the last four years, and is projecting another 450 aMW saved over the next ten years, an annual growth in conservation effect of 30% per year. In addition, a NEEA-sponsored workshop on the future of electric energy use in March 2001 identified several lifestyle trends that are expected to increase energy efficiency in the Region. Such trends include real time pricing of electricity, the penetration of smart metering technology, and the integration of communication and energy technology.

Q: What assumptions did you make with respect to energy consumption shifting?

A: We estimated a shift of energy consumption from relatively high peak periods to relatively low peak periods. We assumed the majority of customer participation in the first year would be by residential customers and any shift by commercial or industrial customers in the first year of the PEM/TOU would occur at the shift rate observed in the current pilot program for residential customers. We think it is reasonable to assume that it could take a year for commercial and industrial customers to determine how best to participate in the program. Rather than select a fixed amount of shifting, we analyzed a range of potential outcomes.

At the low end of the scale, we estimated an energy consumption shift of 14 kWh/month/ customer (approximately 1.87% of summer residential load) for the first year of the study period. In subsequent years, we assumed a shift of 1.87% of residential load and about 0.94% of commercial and industrial load. As medium case scenario, we began with the same estimated first year residential load shift and second year residential, commercial and industrial load shifts, but assumed that energy consumption would shift an additional 5% per year in subsequent years. At the high end of the scale, we made the same beginning assumptions, but assumed an energy consumption shift escalating by 10% per year.

Q: What types of peak capacity savings did you estimate for the programs?

A: For the peak capacity avoided due to overall conservation and time-of-use shifting, we estimated approximately 156 MW. For the low load case, the peak reduction grew from 68 MW in the first year to 127 MW in the out years. In the high load shifting case, the peak reduction grew from about 100 MW in the first year to over 250 in the last year of the study.

Q: What will happen to customers who do not have the necessary metering equipment and implementation capability for the PEM time-of-use programs?

A: Such customers will be billed a monthly rate with two options: (1) a variable rate that fluctuates monthly based on average monthly market prices and variable power costs, which will be implemented through a power cost adjuster; or (2) a fixed rate option which will not vary from day to day or month to month during the year, in which the rates will be adjusted annually and will include the cost of locking in the price in advance.

Such customers will also all begin on the fixed, hedged rate with a two-month informational period about market prices, and will then chose between the variable rate and the fixed rate.

Q: What options will be made available to the Company's natural gas customers with respect to dynamic pricing?

A: Natural gas customers will be provided with the following two options: (1) a monthly variable rate that fluctuates based on market prices, which will be implemented through a gas cost adjuster; or (2) a monthly, fixed rate in which the rates will be adjusted annually and include the cost of locking in the price in advance.

Such customers will also all begin on the fixed, hedged rate with a two-month informational period about gas prices, and will then chose between the variable rate and the fixed rate.

VI. CONCLUSION

Q: Please summarize the key points of your testimony?

A: My testimony details how PSE moved quickly after the merger between Puget Sound Power and Light and Washington Natural Gas to gain merger synergy savings with the least possible impact on customers and employees. I have described how we implemented and integrated various technologies to increase the services available to our customers. Our automated network meter reading system and sophisticated customer information system capabilities are excellent tools for providing quality customer service and system reliability. However, they have also opened windows of opportunities to take customer service and resource management to a new level, through our Personal Energy Management program and time-of-use rates.

Q: Does this conclude your testimony?

A: Yes.

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