



STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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August 28, 2001

William S. Weaver, President and CEO
Puget Sound Energy
P. O. Box 97034 Mail Stop: 15
Bellevue, Washington 98009-9734

Re: Puget Sound Energy 1999 Integrated Resource Plan - Docket No. UG-992027

Dear Mr. Weaver:

The Washington Utilities and Transportation Commission (Commission) has reviewed Puget Sound Energy's (PSE) 1999 Least Cost Plan (LCP or plan) and found it consistent with Washington Administrative Code 480-90-238 and 480-100-238.^{1, 2} This finding does not pre-approve for ratemaking any expenditures for resources or actions identified in the LCP or its integrated Action Plan. The information, analysis, and strategies contained in the plan will be considered with other pertinent information when the Commission evaluates PSE's services and rates.

PROCESS

To aid its review of Puget Sound Energy's plan, the Commission held a special open meeting on July 25, 2001, to hear public comment. A wide range of stakeholders spoke at the meeting, or submitted written comments. Stakeholders included representatives of PSE, Commission staff, the Public Counsel Section of the Attorney General's Office, the Washington State Office of Trade and Economic Development, the NW Energy Coalition, Puget Sound Energy customers and customer organizations.

Generally, commenters acknowledged that today's utility industry is very different from the one Puget Sound Energy (and most other observers) envisioned when this plan was completed

¹ The electric and gas least cost planning regulations were previously found at WAC 480-90-191 and WAC 480-100-251, respectively. These regulations require natural gas and electric utilities under the Commission's jurisdiction to prepare least-cost resource plans and specify the subject matter required to be included in such plans.

² A number of regulatory proceedings over the last year made scheduling of the public meeting to discuss the plan difficult and delayed our review. We regret the lateness of this notice and any inconvenience our delay may have caused.



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two years ago. Several commenters stated that the plan lacked sufficient robustness to guide utility behavior and decision making through the recent energy market turmoil. Others argued that the plan needed a strategy to deal with short-term shortage in energy supplies. Another common concern was the lack of attention paid to identifying and implementing cost-effective conservation and energy efficiency measures. Finally, many commenters called for Puget Sound Energy and the Commission to draw upon the lessons reaped from the last two years to improve future least cost plans.

The Commission generally agrees with commenters on these points. The utility world has indeed changed dramatically since Puget Sound Energy filed its plan. The wholesale markets for both natural gas and electricity experienced significant volatility leading the Federal Energy Regulatory Commission to implement price controls over certain wholesale power transactions. The Pacific Northwest hydroelectric system entered a period of historically low river levels placing the reliability of the region's power system in question. Finally, PSE sold its share of the Centralia Power Plant, faced the prospect of unexpected new demand when the Internet support business sector, and is adding over 200 MW of new generating capacity. Puget Sound Energy's plan did not contemplate scenarios that even approach this combination of events.

REVIEW

We begin our comments by emphasizing that the fundamental responsibilities of public service companies enumerated in Washington State law have not changed. Puget Sound Energy has a statutory obligation to meet the electricity and natural gas needs of its customers. To meet this service obligation reliably and at reasonable cost, utilities need well-developed resource acquisition strategies and business plans.

Evolving federal regulation has created a wide range of opportunities and risks in the commodity market for natural gas, and more recently for electricity. For most retail customers in Washington state, however, service is not unbundled or subject to competition. For most retail customers, the utility is the exclusive agent operating in the wholesale market. As such, the utility remains uniquely situated and better equipped than the majority of its customers to manage the risks and opportunities presented by the wholesale marketplace for natural gas and electricity.

The evolution of opportunities and risks in the wholesale natural gas and power markets, and the recent upheaval in the electricity service industry revealed short-comings in the current plan. However, rather than dwell on these short-comings, this letter is forward-looking—so that it may inform PSE's next plan. Specifically, we expect that PSE's next plan will address weaknesses we identify in the current plan:

- **Risk Management.** The least-cost planning rule requires utilities to develop integrated resource plans that meet “current and future needs at the lowest cost to the utility and its customers.” In fulfilling this rule, PSE must balance price, supply, and weather risks

against the directive to minimize costs. The recent energy debacle revealed price and supply risks that few utilities or energy consumers had heretofore recognized. The Commission is keenly interested in the procurement and other strategies utilities use to manage these risks (e.g., acquisition of additional generating capacity, long- and short-term power purchases, fixed and floating price derivatives, and other hedges and risk-management instruments). A detailed description of risk-management strategies and how those strategies advance the twin goals of low and stable retail rates should be a critical component of PSE's next plan. Moreover, the plan should empirically support the chosen strategies with a short-term evaluation of their economic effects.

- **Supply Resource Planning.** A related area needing additional discussion is Puget Sound Energy's involvement with wholesale power markets. The current plan expects PSE will supply increasing demand through the commodity markets, rather than by building new generation. However, the plan provides little explanation or support for this decision. The next plan should assess the volatility and cost trade-offs (core customer benefits and risks) of acquiring power by building new generation facilities (large base-load, medium-size combustion turbines-term generation, peaking units), by securing bi-lateral contracts, or through market products. Studying the many types of generation resources and wholesale market products may reveal robust supply strategies not yet considered. Finally, the plan should describe how participating in the market furthers Puget Sound Energy's portfolio management responsibilities.

In addition, the next plan's supply resource planning should consider:

- * *Demand Side Management (DSM)* Traditional supply resources and market purchases dominated the plan's supply acquisition strategy to the point that conservation opportunities are considered separate and apart from physical supply alternatives. PSE should integrate DSM into the planning for other types of supply (e.g., physical assets, renewable resources, market purchases, etc.). In addition, Puget Sound Energy should: update its list of cost-effective and technically available DSM options (the Regional Technical Forum could aid this effort); determine the circumstances whereby DSM becomes a practical and cost-effective tool to address short-term and volatile situations or introduce new technologies; balance load management opportunities with energy efficiency programs within the DSM portfolio; and re-consider fuel conversion opportunities in appropriate parts of the service territory.
- * *Electric Portfolio Analysis* As stated above, Puget Sound Energy's current plan would purchase electricity from the commodity market rather than build new generation facilities to supply future demand. This decision appears to be supported by the AURORA computer model fed long-run price trends and demand scenarios. What is unclear is whether the computer model's preferred portfolio mix would change if real-world volatility were introduced. Puget Sound Energy should re-run

the model using various scenarios of market volatility to see if the low-cost outcome changes.

- * *Gas Portfolio Analysis* The UPLAN-G system has been a mainstay of the modeling at Washington Natural Gas and now at Puget Sound Energy. For long-run scenarios involving transmission capacity, storage capacity and commodity contracts, the model has proven useful. However, the analysis of commodity contracts themselves--for example, mixing short- and long-term indexed and swapped (fixed) prices--deserves separate treatment, particularly in light of volatility in gas supply prices.
- * *Distributed Generation and Conservation* The plan should establish criteria for assessing when distributed generation and conservation will improve PSE's localized distribution or system-wide operation, cost, and reliability. With those criteria, PSE should identify opportunities for deploying distributed generation and conservation.
- **Demand Forecasting.** The LCP demand forecasts were based on relatively simplistic linear models. PSE should consider using or at least discuss more robust analytical techniques such as Monte Carlo simulation, quadratic or constrained optimization procedures, and combinations of econometric and operations research. An advantage of these methods over the current approach is that they allow estimation of confidence intervals for seasonal or annual demand forecasts.

The next plan should pay special attention to forecasting industrial loads. The recent appearance of internet data centers illustrates the difficulty that a few unanticipated large industrial loads can cause. Industrial loads are difficult to forecast because of their unique features. Nevertheless, given the industrial sector's potential to affect overall demand, the company should closely monitor the sector for both new entrants and systemic changes in composition. Finally, PSE should consider whether potential changes in industrial load affects its preferred resource strategies.

Demand forecasting should also incorporate other factors that influence variability in energy usage. One example of these other important factors is weather. PSE should reevaluate the current plan's approach of using a relatively small sample of weather observations. Ascertaining patterns of weather requires long-term series data. The weather normalization techniques could be improved by using more targeted samples, perhaps corresponding with billing cycle by customer class.

- **Integrated Resource Planning.** Puget Sound Energy used computer models to create a series of static supply portfolios based on various scenarios (e.g., high vs. low gas prices, high vs. low growth rate electric demand, distributed generation vs. centralized generation). This approach works well if the various scenarios lead to the same supply portfolio. However, it has limited usefulness if the various scenarios lead to substantially different portfolios. This latter situation requires an approach that provides insight into the flexibility, costs, risks, and benefits of different supply portfolios: an approach that

identifies the points at which changes to critical assumptions leads to a different supply portfolio.

PSE should consider using more flexible and robust modeling techniques that emulate real world conditions in its next plan. For example, dynamic modeling and simulation techniques can capture short-run fluctuations in demand and alternative resource options, including DSM, volatility in market prices, and contracts of varying lengths. PSE may need to enhance its analytical computer software to supplement the integrated resource planning tools it now employs.

- **Short-Term Component.** The LCP evaluates resource supply alternatives against long-term patterns in energy demand, supply and costs. The LCP, however, also needs a short-term component—a plan to cope with real-world prices, supply and/or demand contingencies that are substantially outside of the expectations contained in the Integrated Resource Plan.
- **Two Year Action Plan.** The two-year action plan should describe how the utility intends to implement the results of the integrated resource model, not simply list future activities as the current action plan does. At a minimum, the action plan should be a guide for putting the results of the integrated resource model into practice. While not firmly committing to specific activities, Puget Sound Energy's next plan should clearly state the actions needed to align utility business practices with the integrated resource plan.
- **Pricing Mechanisms** Puget Sound Energy recently initiated an experiment in time-of-use electricity pricing. Other alternatives to traditional flat-rate pricing include seasonal pricing, and purchased-gas-adjustment pricing. Alternative pricing mechanisms are intended to modify retail demand in specific ways. The plan should describe, perhaps as part of the DSM analysis, the expected consequences of alternative pricing mechanisms (and present the empirical data supporting these expectations). We are specifically interested in the effect on retail demand, implementation costs, and customer acceptance. The plan should also discuss whether alternative pricing mechanisms alter the balance of risks and opportunities between retail customers and PSE. Finally, the plan should consider the pricing mechanism's effect on the capacity and energy demand forecasts.

The dramatic market fluctuations vividly demonstrate the vital importance of utility planning and Commission oversight through the LCP development process. The planning process should consider a *range of outcomes* and develop *contingencies to address those outcomes*. Customers and shareholders shoulder the consequences of the decisions the utility makes as it confronts risks and opportunities. A well-developed plan provided a utility with the best opportunity to operate in ways that protect and benefit customers and shareholders alike in an uncertain future.

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The Commission looks forward to Puget Sound Energy's next least-cost plan. As you consider the issues we have identified above, we encourage you to make full use of input from your Technical Advisory Committee and other avenues for public input.

If you have questions, please contact Nicolas Garcia, Policy Strategist, at 360-664-1346.

Sincerely,



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Executive Director

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