



STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

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November 13, 2007

Mr. Steve Reynolds, President and CEO
Puget Sound Energy
P. O. Box 97034 Mail Stop: 15
Bellevue, Washington 98009-9734

Re: Puget Sound Energy's 2007 Integrated Resource Plan for Electricity and Natural
Gas Operations
Docket Nos. UE-071063 & UG-071074

Dear Mr. Reynolds:

Puget Sound Energy ("PSE") filed its 2007 Integrated Resource Plan ("IRP") for electric and natural gas operations with the Washington Utilities and Transportation Commission ("Commission") on May 30, 2007. The company also presented an overview of the IRP at an open meeting on October 10, 2007. After careful review, the Commission has determined that the plan was well done, and is consistent with the requirements set out in WAC 480-100-238 and WAC 480-90-238. The Commission reminds PSE that a finding that a least cost plan satisfies existing regulatory requirements does not pre-approve for ratemaking any expenditures or actions identified in the plan. The Commission will give due weight to the information, analysis, and strategies contained in this plan along with other pertinent information during any evaluation of PSE's services and rates.

Appended to this letter are several comments and recommendations for improving future plans. As it prepares its next plan – due no later than May 30, 2009 – PSE should carefully consider these recommendations, as well as future suggestions by Commission staff.

Sincerely,

Carole J. Washburn
Executive Secretary

Attachment



Washington Utilities and Transportation Commission Review of Puget Sound Energy's 2007 Electricity and Natural Gas Integrated Resource Plan

Overview

The Washington Utilities and Transportation Commission ("Commission") first adopted rules requiring electric and natural gas utilities to prepare Least Cost Plans in 1988.¹ Since that time Puget Sound Energy ("PSE") and its predecessors has prepared six electric plans and six natural gas plans.² Through these efforts, PSE has developed and steadily improved the analytical capabilities required to prepare these plans. The company's 2007 Integrated Resource Plan ("IRP") reflects this progression. Overall, this is a good plan that improves upon PSE's previous efforts. To continue this trend PSE should strive to incorporate the following comments in its next plan.

Electricity Planning

Projected Resource Needs

One of the most important elements of an integrated resource plan is the projection of resource needs. At its simplest level, resource needs are the difference between the electric load and the existing generation capacity plus existing power purchase contracts. PSE used a combination of econometric modeling and Monte Carlo-type simulation to estimate energy sales and peak loads. After comparing these estimates with its own resources, including reserve requirements the company projected its future resource needs. This part of the plan was well done.

The Preferred Resource Portfolio

Prior to constructing alternate resource portfolios, PSE considered the environment in which it was operating. The company specifically noted several factors that directly or indirectly limit its resource options. For example, transmission constraints and environmental laws present obstacles to importing wind resources from eastern Montana and Wyoming. The company also asserts that the cost of all new resources, including renewable resources, has risen precipitously. This presents new financial difficulties when acquiring the resources needed to meet projected loads. In addition, PSE contends that the full implications of new environmental laws and regulations on resource decisions are not known. These and other uncertainties create a challenging planning

¹ The Commission revised the regulations governing the preparation and content of Least Cost Plans in 2006. The revised regulations changed the name of these plans to Integrated Resource Plans.

² As part of the settlement allowing the merger of Puget Sound Power and Light with Washington Natural Gas to form Puget Sound Energy, the new company agreed to file a combined electric and natural gas plan. The joint filing allows for an economy of effort by PSE and the Commission.

environment for all energy companies. PSE has done well to take into account its operating environment as it determined its preferred resource portfolio.

PSE asserts that electricity generating resource alternatives are presently limited:

Few commercially viable resources are available at this time; only four are currently capable of producing generation in quantities large enough to impact the significant need faced over the 20-year planning horizon. These are demand-side resources, wind, natural gas, and coal. Only two – coal and gas – produce baseload generation which can be counted on to provide energy at virtually any time.³

To meet its projected resource needs, PSE constructed twelve alternative portfolios. Unfortunately, the IRP is unclear as to how those portfolios were developed. The IRP simply states that “combinations of supply alternative were constructed to provide analytical comparison groups composed of different renewable and thermal technologies.”⁴ In our letter acknowledging PSE's 2004 Least Cost Plan, the Commission recommended that the company “work toward a mathematically driven method of portfolio construction.” While the limited number of generating resource alternatives may have reduced the need for such a mechanical approach, the Commission expects a more thorough discussion of the rationale underlying each portfolio considered than was provided in this IRP.

PSE screened the alternative resource portfolios through six different scenarios intended to cover the range of futures the company was likely to encounter.⁵ Through this process portfolio 1a (Early power bridging agreements (“PBA”) and aggressive gas) and portfolio 3a (Early PBA and late Integrated Gasification Combined Cycle (“IGCC”)) were found to produce the lowest costs. PSE compared these two portfolios using two of the six future scenarios: “current trends” and “green world” and found that portfolio 1a was more likely to have lower costs than portfolio 3a with these two futures.

The Commission has two comments regarding this process. First, as noted in the IRP, “the quantitative analysis found that the cost differences between individual portfolios are small.”⁶ Indeed, it appears that only 2 to 3 percent separates the total cost of the least cost portfolio and the median cost portfolio for each future scenario. Given the uncertainties associated with any projection of the future costs of fuel and generating infrastructure, the Commission wonders whether the calculated cost differences are meaningful. Moreover, the lower cost portfolios all appear to have similar resource acquisition paths through 2017.⁷ Therefore, near-term efforts by PSE to acquire the

³ PSE's 2007 IRP, page 5-35.

⁴ PSE's 2007 IRP, page 5-45.

⁵ The future scenarios included Current Trends, Green World, Low Growth, Robust Growth, Technology Improvement, and Escalating Costs.

⁶ PSE's 2007 IRP, page 5-45.

⁷ “Most differences between portfolios involve choices occurring in the later half of the planning horizon.” PSE's 2007 IRP, page 5-55. The second half of the planning horizon begins in 2018 and ends in 2027.

resources identified in portfolio 1a should not prevent the company from altering its resource acquisition strategy as information regarding demand, fuel and resource prices, resource and transmission availability, and regulatory mandates evolves.

The Commission's second comment deals with PSE's decision to compare the portfolio 1a and 3a on the basis of just two scenarios. The IRP did not explain the rationale for this approach. If, in the company's judgment, these two scenarios are more likely to occur than the others, then all the scenarios should have been appropriately weighted during the initial screening of all the portfolios. On the other hand, if all scenarios have a similar probability, then the final analysis should have included all scenarios. In its next plan, PSE should weight the various scenarios according to its judgment of their relative probabilities. Alternatively, the company could detail why it based the final determination of the preferred resource portfolio on a subset of the scenarios developed.

Conservation Alternatives

PSE contracted with Quantec to assess the conservation potential within its service territory. The May 4, 2007 report, "Comprehensive Assessment of Demand-Side Resource Potentials, (2008-2027)", appears to thoroughly describe PSE's conservation options. The report concludes that 367 aMW of conservation resources may be reasonably achievable by the end of the 20-year planning period along with an additional 14 aMW of energy savings from emerging energy efficiency technologies and 40 aMW from existing and emerging distributed generation technologies.

On November 7, 2006, Washington voters approved Initiative Measure No. I-937, now codified as RCW 19.285. This new chapter requires large utilities, including PSE, to acquire all cost-effective energy conservation beginning in 2010. We expect that the Company's next IRP will describe what changes, if any, PSE has made to comply with this new mandate.

Finally, the Quantec report indicates that a curtailable load program and a critical peak pricing program both offer substantial technical potential but relatively low achievable potential.⁸ The company should investigate whether the achievable potential of these two programs could be improved at a reasonable cost.

Avoided Cost Estimates

The Commission's previous acknowledgement letter indicated that this IRP should "include avoided cost estimates for both capacity and energy, and the derivation of those estimates. Even better would be short- and long-term estimates for capacity and energy avoided costs." It appears that this IRP marginally conforms with this recommendation for the capacity figures.

⁸ Comprehensive Assessment of Demand-Side Resource Potentials, (2008-2027), May 4, 2007, Tables 13 - 14, pages 4-5, 4-6.

“For evaluating Demand Response, PSE provided Quantec an annual levelized cost of capacity resources. The all-in levelized number is calculated using \$36.77 per KW-year, escalating annually during the first period of 2008 through 2013, and a levelized \$90 per KW-year during the 2014 to 2027 period.”⁹

The only indication of avoided costs for energy is \$57.49 per MWh from the “static results for each scenario” table included in the summary of PSE’s preferred resource portfolio.¹⁰ The energy figure was not divided into short- and long-term estimates. None of these estimates were accompanied by any discussion of how it was derived.

In its next plan, PSE should include a section specifically discussing its energy and capacity avoided costs over both short- and long-term time frames. This section should include a discussion regarding how PSE derived these avoided cost numbers.

Natural Gas Planning

Natural Gas Demand

PSE uses econometric models of natural gas demand and consumption that are driven by use per customer, weather, price levels and conservation effects.

Natural Gas Supply

Capacity According to the IRP, PSE has sufficient resources to meet its forecasted load through the 2011-2012 heating season. Nevertheless, PSE is participating in an effort to increase the company’s withdrawal capacity from the Jackson Prairie natural gas storage facility by about 30 percent or 104,000 Dth/day. This new capacity is expected to be in service by November 2008.¹¹ PSE also evaluated participation in a regional Liquefied Natural Gas (LNG) storage facility to meet peak supply needs. The analysis indicated that participating in a LNG storage facility jointly owned with other parties and capable of providing a 10 day supply at full deliverability would be attractive. Finally, PSE’s analysis indicated the company does not need to expand its pipeline capacity prior to 2011.

Commodity The company, due to geography has little choice but to rely on the British Columbia, Alberta, and Rockies basins for commodity natural gas. However, within this limitation, PSE investigated options to increase access to the Alberta market hub in order to maintain diversity of supply.

The company noted that development of a west coast LNG import terminal could significantly expand its commodity options. A company study of hypothetical northern and southern terminals revealed that a southern LNG import facility located in Oregon

⁹ PSE’s 2007 IRP, Appendix I, page I-4.

¹⁰ PSE’s 2007 IRP, Appendix I, page I-32.

¹¹ PSE’s 2007 IRP, page 6-3.

and connected to the existing Northwest Pipeline Grants Pass lateral and the Gas Transmission Northwest pipeline at Malin would be helpful but a northern LNG terminal would not. While, several southern LNG facilities have been proposed, none has yet obtained the necessary permits or commenced construction. The IRP states that PSE will monitor the development of regional LNG import facilities.

DSM The Commission's previous acknowledgement letter noted that a weakness with PSE's 2005 assessment of efficiency savings is that "the plan incrementally increases the capacity of DSM programs. In reality, economics of scale dictate that efficiency programs be more 'lumpy'." This plan appropriately combined the various gas demand-side resources into assessment bundles.

The overall amount of achievable energy efficiency resources identified in this IRP is lower than in the previous plan by 1,611 MDth. This reduction comes despite higher projections for gas prices and conservation market potential. It is mainly due to a reduced estimate of the technical potential for energy efficiency. The technical potential declined compared to 2005 due to refined assumptions about baseline end use consumptions, savings, costs, and applicability of individual measures, which in turn reduced the magnitude of technical potential. Overall, PSE projects 6.97 million decatherms of conservation.

Further Recommendations For the Natural Gas Plan

In its next plan, PSE should:

1. Continue the analytical studies using the combined VectorGas and SENDOUT models; and
2. Work to develop synergies between natural gas and electricity strategic analysis techniques.

Additional Comments

Integration of natural gas and electric resource plan:

Our previous acknowledgement letter stated the following:

The least cost plan covers both natural gas and electricity. Despite being in a single document, the plans for natural gas and electricity are performed separately. There is no integration between the two plans. As submitted, the plan is really two documents. In its next plan, PSE should look for opportunities to integrate the two plans such as using a joint product planning model or a model that identifies opportunities to maximize the benefit of integrating energy products.

While this plan made some steps in this direction, the Commission expects much more effort directed towards integrating the electric and natural gas plans in PSE's next IRP. In light of the results outlined in the current IRP whereby PSE expects to acquire more

natural gas-fire baseload electric resources, the Company's ability to integrate its natural gas acquisition planning to the benefit of both natural gas and electric customers seems warranted. The use of a common gas commodity price forecast and shared gas purchasing would allow PSE to reduce the resources devoted to demand forecasting and, in turn, the Commission's effort in overseeing these forecasts. In addition, we would like the next plan to discuss the potential of fuel switching, i.e., the conversion from electricity to natural gas for water heaters, appliances and other applications, as a strategy to conserve energy and reduce emissions.

Response to Commission Recommendations

While the Commission is generally pleased with PSE's plan, there is one area that needs to be improved upon. In previous acknowledgement letters, the Commission made several recommendations on ways the company could improve the plan. This IRP conforms with some of those recommendations but not others. While there may be good reasons for PSE to elect not to proceed in the way suggested, those reasons were not discussed in the document. In some instances, the Commission's suggestion may have been discussed during one or more IRP technical advisory committee meetings and a collective decision may have been made to follow a different direction. However, any such decisions were not reported in the final document. In its next plan, the Commission expects that PSE will include as a separate section a listing of how the company complied with all of the Commission recommendations, or the rationale for not acting in accordance with them.

Finally

The Commission reminds PSE that the conclusion that this plan satisfies the requirements of WAC 480-100-238 and WAC 480-90-238, should not be construed as support for any resource acquisition or other costs for ratemaking purposes. In addition, the Commission staff commends PSE for improving its analytical abilities to better assess the advantages and disadvantages of alternative new resources that the company clearly needs during the term of this plan.