XI. ELECTRIC RESOURCE STRATEGY AND ACTION PLAN

A. Overview

This Least Cost Plan reinforces PSE's commitment to developing an executable electric resource acquisition strategy. As discussed throughout the document, long-term resource planning is conducted in an environment of increasing uncertainty. The challenge in developing the long-term resource strategy is to convert analytical results, key issues, and a consideration of risks and uncertainties into an actionable strategy.

An essential consideration in developing the resource strategy is recognition of the least cost planning cycle. While the Least Cost Plan develops a strategy for the 20-year planning horizon, the action plan covers the two years until the next Least Cost Plan is issued. Therefore, for some long-term resources, the action plan may call for feasibility work in this plan, while the final acquisition decision may not occur until after the next plan is issued.

The least cost planning cycle also requires a competitive acquisition process following the Least Cost Plan. Since PSE has identified a resource need (see Exhibit II-1), a draft resource acquisition request for proposals (RFP) is due to the Washington Utilities and Transportation Commission (WUTC) 90 days after this plan is filed. The Company does not presume to know the cost and availability of potential resources before the bid. Thus PSE's resource acquisition strategy acknowledges the competitive acquisition requirement and that actual resource cost will vary from the generic assumptions of this plan.

This chapter discusses how qualitative considerations and quantitative modeling results are combined to develop the electric resource acquisition strategy.

B. Quantitative Results

As detailed in Chapter X, PSE's analyses produced varying results depending on the scenario assumptions. PSE chose a scenario approach to explore a range of uncertainties and to test the sensitivity of results to changes in key assumptions. The six scenarios analyzed examine changes related to regional transmission availability, gas price forecasts, greenhouse gas regulation, and load growth. PSE acknowledges that there are innumerable other scenarios that could be created by varying input assumptions on key issues. The number of scenarios

and the scenario assumptions were chosen to address the key electric industry and PSE-specific challenges identified in this least cost planning process.

PSE did not assign likelihoods or weights to the various scenarios. Assigning weights is a subjective process and, given the large independent uncertainties, would provide combined results with little certainty or value. Without assigning weights, PSE was able to examine the results of all scenarios to assess which risk factors had the greatest impact upon portfolio performance across scenarios. Thus PSE concluded that assigning weights to the scenarios was not required to develop an executable resource acquisition strategy. The portfolio model results showed that, considering costs and risks across all scenarios, a resource portfolio with a diversified mix of renewable, natural gas, and coal resources is preferred.

C. Non-Quantified Factors

The summary quantitative result is the starting point for PSE's resource strategy. As discussed above, the use of scenarios allowed PSE to explore important areas of uncertainty. However, the quantitative analysis did not fully capture all factors that impact the resource strategy. The resource strategy is also informed by the non-quantified considerations discussed throughout this Least Cost Plan. This section considers some of the key non-quantified considerations.

Key Issues

Chapter VIII provides a detailed discussion of the key electric planning issues considered for this Least Cost Plan. These issues impact resource availability and costs. Proper consideration of these issues can determine whether PSE's resource strategy can be successfully implemented. The key issues not integrated into the quantitative analysis are as follows:

- Corporate Financial Considerations: Corporate financial considerations generally favor owned resources over long-term power purchase agreements (PPAs). Other financial considerations include the timing for regulatory recovery and the potential for placing "construction work in progress" costs for long-lead time resources into rate base.

- Development Process and Status of the Independent Power Producer Industry: The availability of suspended Independent Power Producer (IPP) plants that were in development during the energy crisis is diminishing. The new "development for hire" model discussed in Chapter VIII means that utilities are involved earlier in project

development and are required to take on more development risk. The development process for an IPP coal project is especially difficult, given the higher up-front costs, higher development risk, and long-lead time to carry costs.

- Existing Resources and Contract Renewals: Expiring contracts will cause a rapid increase in need from 2011-2013. PSE will explore contract renewal alternatives but the results of such discussions are unknown.

- Regulatory Environment: This Least Cost Plan assumes the current state regulatory model is maintained.

- New Technologies: Wind power is no longer considered a new or experimental technology. Today, technologies that appear to have commercial potential include wave technology and Integrated Coal-Gasification Combined Cycle (IGCC).

Although transmission costs, gas prices, and greenhouse gas regulation were considered in the quantitative analysis, it is important to recognize that PSE had to make assumptions about the timing and cost levels of these key variables in order to perform the analysis. Other non-quantified costs related to these challenges are stranded asset costs for transmission, and possible gas supply policy issues raised by the American Gas Federation that recommend restrictions on the use of natural gas for power generation

D. Key Analytical Findings and Strategy Conclusions

Chapter X describes PSE's key analytical findings. These findings, considered in the context of the planning environment and along with the non-quantified uncertainties, are the basis for the Company's resource strategy. Set forth below is the strategy discussion for each key analytical finding.

Findings and Discussion

Transmission availability is a key driver: PSE used publicly available data and the Company's own experience to develop representative transmission cost estimates for the analyses. However, these estimates are more uncertain than other data. The development process for new transmission is also unknown and subject to substantial risk. The resource acquisition strategy needs to focus on developing better cost and availability estimates for

transmission. Additionally, PSE needs to participate in regional efforts to clarify the transmission planning and development process.

Coal is cost-competitive with natural gas in all of the scenarios: Absent transmission considerations, coal would be the lowest direct-cost, long-term resource primarily because of the dramatic increase in forecast natural gas prices. However, the high transmission costs and high carbon risk could offset coal's low-cost advantage. PSE's resource strategy should explore electric transmission and coal transportation alternatives. PSE should also track and support new technology that may partially address environmental concerns, such as IGCC.

Accelerated energy efficiency is selected in all of the scenarios: PSE is already pursuing an accelerated conservation strategy based on the 2003 Least Cost Plan. The resource acquisition strategy will continue to include aggressive conservation acquisition.

Scenarios with quantified carbon dioxide costs cause portfolios that include natural gas resources to be cost-competitive with portfolios that include coal resources: Potential future greenhouse gas costs favor natural gas generation vs. coal generation. To partially mitigate future carbon emissions risk, PSE is maintaining its 10 percent renewable goal and continuing its accelerated conservation strategy. PSE will continue to track and participate in greenhouse gas initiatives as discussed in Chapter VIII.

Fuel conversion is selected in all of the scenarios: The model results indicate that PSE should acquire fuel conversion based upon the input assumptions. PSE will be working with regulators and stakeholders to address open issues associated with fuel conversion including: value to customers, free-riders, regulatory cost recovery mechanisms, and the capability of the gas delivery system.

Power bridging agreements (PBAs) appear cost-competitive given the assumptions used for the Least Cost Plan: PBA price and market depth are unknown. PSE's resource strategy will need to include actions to confirm market purchase opportunities.

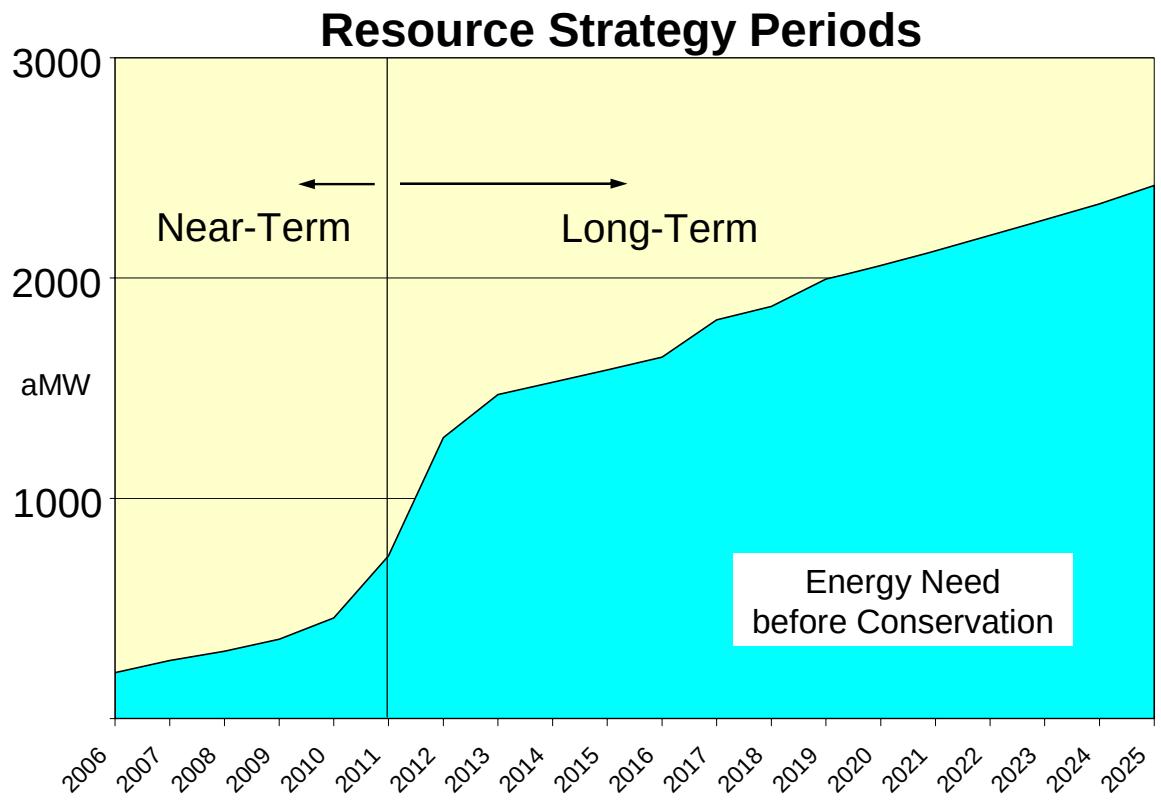
Overall, considering both cost and risk, the analysis supports the selection of a diversified portfolio including accelerated energy efficiency, early fuel conversion, renewables to meet the 10 percent target, and 50/50 gas and coal : The favored portfolio

performed well across all scenarios (see Chapter X). The diversity of this portfolio also limits PSE's exposure to fuel-specific cost risks. Natural gas plants are subject to high fuel price risk and volatility. Coal plants face permitting, transmission, and environmental cost uncertainties.

E. Resource Strategy and Actions

As noted earlier, over the planning period PSE has identified a pronounced time of rapidly increasing resource need from 2011-2013. This results from the expiration of several long-term PPAs as previously delineated. This distinct non-linearity also approximately coincides with PSE's estimates of when regional transmission solutions and long-lead resources may become available. Exhibit XI-1 illustrates PSE's energy need forecast and splits the planning period at the start of the rapid increase in 2011.

Exhibit XI-1



Prior to 2011, PSE anticipates a moderate resource need. Resource alternatives and constraints are relatively known. However, beyond 2011, PSE will have a much larger resource need, and resource cost and availability will be subject to high uncertainty. For these reasons, PSE has organized its resource strategy discussion into two periods. Near-term includes resources expected to come online between 2006 and approximately 2011. Long-term includes resources expected to come online between 2012 and the end of the planning period.

E.1 Near-Term (2006-2011)

Characteristics of the Near-Term

The primary constraint of the near-term is transmission. Access to prime wind and coal generation areas is restricted. Time constraints may also limit availability of long-lead time resources and green-field developments. PSE is expecting a decreasing pool of natural gas plants that were suspended in development during the Western energy crisis. FERC's market power tests (sections 203 and 206 rules) may also limit PSE's acquisition of existing IPP projects.

Strategic Objectives for the Near-Term

- Confirm costs and availability of specific generating resources.
- Test energy market for purchase opportunities.
- Convert demand-side supply estimates into specific programs.
- Resolve remaining issues with fuel conversion.
- Acquire diverse mix of available demand and supply resources.

Expected Resource Alternatives

Near-Term – Potential Resource Alternatives
• Energy efficiency • Small to medium renewables • Wind expansion (transmission limited) • Gas generation power bridging agreements • Remaining gas plants in development • Utility and marketer power bridging agreements

Acquisition Activities for the Near-Term

Energy Efficiency – Develop new electric and gas energy efficiency savings targets for 2006-2007 that are informed by Least Cost Plan analyses and file new program tariffs with the WUTC by the end of 2005.

Initiate an energy efficiency resource acquisition RFP process that complies with regulatory requirements. This RFP will address: 1) long lead times due to 2006-2007 targets and program commitments needing to be made before the RFP process can be completed; and 2) development of a "targeted" RFP, focused on specific markets and/or technologies that complement PSE's programs.

Fuel Conversion – Complete evaluation of single-family and multifamily fuel choice pilots and explore the feasibility of further developing fuel conversion programs.

Demand Management – Explore the feasibility of implementing one or more demand-response pilots, with input from regulators and stakeholders.

Green Power Program and Community Renewable Generation – By the end of 2005, develop a two-year goal for the Green Power program covering 2006-2007. Continue to encourage small-scale solar or other renewable energy demonstration projects.

New Electric Generating Resources – Initiate a competitive solicitation process for new electric energy resources by filing a draft RFP and accompanying materials with the WUTC within 90 days of the submittal of this Least Cost Plan.

E.2 Long-Term (2012-2025)

Characteristics of the Long-Term

- Potential regional transmission solution.
- Potential long-lead resource availability, such as coal and new combined heat and power with a capacity large enough to replace expiring contracts.
- Potential for new technologies or innovative mix of fuel transportation and energy transmission with new resource locations.

Strategic Objectives for the Long-Term

- Confirm the costs and availability of long-term resources evaluated in the Least Cost Plan.
- Identify and manage long-term risks.
- Maintain and establish access to a diverse mix of future resources.
- Read the "signposts" to identify likely future scenarios.

Expected Resource Options

Long-Term – Potential Resource Options
• Energy efficiency • Additional renewables (with transmission solution) • New gas plant development • New coal plant development (with transmission solution) • IGCC or new technology

Acquisition Activities for Resources Coming Online in Long-Term (2012-2025)

Note that PSE plans to perform the following activities over the next two years, for resources planned for 2012 and beyond.

New Electric Resources – Explore contract renewal discussions with expiring cogeneration projects to maintain resource availability.

Explore feasibility, partnering opportunities, and transmission alternatives for remote-located, coal-fueled and renewable generation.

Seek opportunities for emergent technologies including biomass, geothermal, and IGCC.