

Legal Requirements and Other Reports

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PSE is submitting this IRP pursuant to state regulations contained in WAC 480-100-238 regarding electric resource planning, and WAC 480-90-238 regarding natural gas resource planning. Section I of this chapter outlines the regulatory requirements for electric and gas integrated resource plans, and where each of these requirements are addressed within the IRP. Section II reports on the electric and gas resources action plans put forward in the previous IRP. Section III offers two additional reports. The first is a table illustrating the consistency of PSE's electric demand-side resources assessment with the Northwest Power Planning Council's methodology. The second is a table summarizing the load-resource balance information presented in this IRP.

This IRP is the product of robust analysis that considered a wide range of future risks and uncertainties. PSE believes this plan meets applicable statutory requirements, and seeks a letter from the WUTC accepting this filing.

1. Regulatory Requirements

Tables B-1 and B-2 delineate the regulatory requirements for electric and natural gas integrated resource plans, and identify the chapters of this plan that address each requirement.

Figure B-1
Electric Integrated Resource Plan Regulatory Requirements

| Statutory/Regulatory Requirement | Chapter |
|--|--|
| <p>WAC 480-100-238 (3) (a) A range of forecasts of future demand using methods that examine the effect of economic forces on the consumption of electricity and that address changes in the number, type and efficiency of electrical end-uses.</p> | <ul style="list-style-type: none"> • Chapter 4, Key Analysis Components • Appendix H, Demand Forecasts |
| <p>WAC 480-100-238 (3) (b) An assessment of commercially available conservation, including load management, as well as an assessment of currently employed and new policies and programs needed to obtain the conservation improvements.</p> | <ul style="list-style-type: none"> • Chapter 5, Electric Analysis • Appendix K, Demand-side Resources Analysis |
| <p>WAC 480-100-238 (3) (c) An assessment of a wide range of conventional and commercially available nonconventional generating technologies.</p> | <ul style="list-style-type: none"> • Chapter 5, Electric Analysis • Appendix D, Electric Resources |
| <p>WAC 480-100-238 (3) (d) An assessment of transmission system capability and reliability, to the extent such information can be provided consistent with applicable laws.</p> | <ul style="list-style-type: none"> • Chapter 7, Delivery System Planning • Appendix E, Regional Transmission Resources |
| <p>WAC 480-100-238 (3) (e) A comparative evaluation of energy supply resources (including transmission and distribution) and improvements in conservation using the criteria specified in WAC 480-100-238 (2) (b), Lowest reasonable cost.</p> | <ul style="list-style-type: none"> • Chapter 5, Electric Analysis • Chapter 2, Developing the Plan • Appendix E, Regional Transmission Resources • Appendix I, Electric Analysis |

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| Statutory/Regulatory Requirement | Chapter |
|---|--|
| <p>WAC 480-100-238 (3) (f) Integration of the demand forecasts and resource evaluations into a long-range (e.g., at least ten years; longer if appropriate to the life of the resources considered) integrated resource plan describing the mix of resources that is designated to meet current and projected future needs at the lowest reasonable cost to the utility and its ratepayers.</p> | <ul style="list-style-type: none"> • Chapter 5, Electric Analysis • Chapter 2, Developing the Plan |
| <p>WAC 480-100-238 (3) (g) A short-term plan outlining the specific actions to be taken by the utility in implementing the long-range integrated resource plan during the two years following submission.</p> | <ul style="list-style-type: none"> • Chapter 1, Executive Summary |
| <p>WAC 480-100-238 (3) (h) A report on the utility's progress towards implementing the recommendations contained in its previously filed plan.</p> | <ul style="list-style-type: none"> • Appendix B, Legal Requirements |
| <p>WAC 480-100-238 (4) Timing. Unless otherwise ordered by the commission, each electric utility must submit a plan within two years after the date on which the previous plan was filed with the commission. Not later than twelve months prior to the due date of a plan, the utility must provide a work plan for informal commission review. The work plan must outline the content of the integrated resource plan to be developed by the utility and the method for assessing potential resources.</p> | <ul style="list-style-type: none"> • 2011 Integrated Resource Plan Work Plan filed with the WUTC in May 2010 • Chapter 1, Executive Summary (Action Plans section) |
| <p>WAC 480-100-238 (5) Public participation. Consultations with commission staff and public participation are essential to the development of an effective plan. The work plan must outline the timing and extent of public participation. In addition, the commission will hear comment on the plan at a public hearing scheduled after the utility submits its plan for commission review.</p> | <ul style="list-style-type: none"> • Appendix A, Public Participation |

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Figure B-2
Gas Integrated Resource Plan Regulatory Requirements

| Statutory/Regulatory Requirement | Chapter |
|---|---|
| <p>WAC 480-90-238 (3) (a) A range of forecasts of future natural gas demand in firm and interruptible markets for each customer class that examine the effect of economic forces on the consumption of natural gas and that address changes in the number, type and efficiency of natural gas end-uses.</p> | <ul style="list-style-type: none"> • Chapter 4, Key Analysis Components • Appendix H, Demand Forecasts |
| <p>WAC 480-90-238 (3) (b) An assessment of commercially available conservation, including load management, as well as an assessment of currently employed and new policies and programs needed to obtain the conservation improvements.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis • Appendix K, Demand-side Resources Analysis |
| <p>WAC 480-90-238 (3) (c) An assessment of conventional and commercially available nonconventional gas supplies.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis |
| <p>WAC 480-90-238 (3) (d) An assessment of opportunities for using company-owned or contracted storage.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis |
| <p>WAC 480-90-238 (3) (e) An assessment of pipeline transmission capability and reliability and opportunities for additional pipeline transmission resources.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis • Chapter 2, Developing the Plan • Appendix J, Gas Analysis |
| <p>WAC 480-90-238 (3) (f) A comparative evaluation of the cost of natural gas purchasing strategies, storage options, delivery resources, and improvements in conservation using a consistent method to calculate cost-effectiveness.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis |
| <p>WAC 480-90-238 (3) (g) The integration of the demand forecasts and resource evaluations into a long-range (e.g., at least ten years; longer if appropriate to the life of the resources considered) integrated resource plan describing the mix of resources that is designated to meet current and future needs at the lowest reasonable cost to the utility and its ratepayers.</p> | <ul style="list-style-type: none"> • Chapter 6, Gas Analysis • Chapter 2, Developing the Plan |

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| Statutory/Regulatory Requirement | Chapter |
|---|--|
| <p>WAC 480-90-238 (3) (h) A short-term plan outlining the specific actions to be taken by the utility in implementing the long-range integrated resource plan during the two years following submission.</p> | <ul style="list-style-type: none"> Chapter 1, Executive Summary |
| <p>WAC 480-90-238 (3) (i) A report on the utility's progress towards implementing the recommendations contained in its previously filed plan.</p> | <ul style="list-style-type: none"> Appendix B, Legal Requirements |
| <p>WAC 480-90-238 (4) Timing. Unless otherwise ordered by the commission, each natural gas utility must submit a plan within two years after the date on which the previous plan was filed with the commission. Not later than twelve months prior to the due date of a plan, the utility must provide a work plan for informal commission review. The work plan must outline the content of the integrated resource plan to be developed by the utility and the method for assessing potential resources.</p> | <ul style="list-style-type: none"> 2011 Integrated Resource Plan Work Plan filed with the WUTC in May 2010 Chapter 1, Executive Summary (Action Plans section) |
| <p>WAC 480-90-238 (5) Public participation. Consultations with commission staff and public participation are essential to the development of an effective plan. The work plan must outline the timing and extent of public participation. In addition, the commission will hear comment on the plan at a public hearing scheduled after the utility submits its plan for commission review.</p> | <ul style="list-style-type: none"> Appendix A, Public Participation |

2. Report on Previous Action Plans

A. 2009 Electric Resources Action Plan

The following section includes each item from the electric resource plan from the 2009 IRP, along with the progress that was made in implementing recommendations included in that plan, per WAC 480-100-238 (3) (i).

2009 IRP Action Plan Item: Assessment of Resource Needs

The 2009 IRP illustrates that PSE is relying on 1,200 MW of short-term market resources (less than three years in duration) to meet approximately 20 percent of our customers' resource needs. As the region becomes increasingly capacity constrained, physical liquidity of short-term market will become more of a concern. During the two-year action plan, we will focus efforts on assessing whether this level of reliance on short-term markets should be revised. Additionally—and in light of our reliance on short-term markets—we will continue to refine the resource need assessment pertaining to the 5 percent loss of load probability and interaction of operating and planning reserve margins.

Progress Made to Address Recommendations

- Active Participation in Northwest Regional Resource Adequacy Forum: PSE has been actively engaged in both the steering committee and technical committee of this organization. This included draft reports and analysis indicating the region will not appear to be falling short of established adequacy metrics for the next five years.
- White paper titled “Reserves in Capacity Planning, a Northwest Approach,” available on the Pacific Northwest Utilities Conference Committee's (PNUCC) website: PSE spearheaded an effort to coordinate with other utilities in the region with respect to alternatives for reflecting operating reserves in calculation of planning margins¹.

¹ The white paper is available on PNUCC's website at:
<http://www.pnucc.org/documents/ReservesinCapacityPlanningFinal.pdf>

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- IRP Addendum Filed: After working with others in the region via PNUCC System Planning Committee on the white paper mentioned above, PSE updated our LOLP analysis and planning margin calculation to accurately reflect the impact of operating reserves. Results were included in the Addendum to the 2009 IRP, filed with the WUTC in January 2010.

2009 IRP Action Plan Item: Electric Demand-side Resources

PSE will plan and implement electric demand-side resource programs, mainly energy efficiency programs, consistent with the guidance provided in this plan. Electric energy efficiency targets and programs will also be established to comply with the requirements of the Washington Energy Independence Act, RCW 19.285. We will work with external stakeholders in the Conservation Resource Advisory Group (CRAG) process to develop program goals, targets, and tariff filings to implement this strategy. Such processes will rely on updated avoided cost inputs and more specific assessments of achievability based on specific programs that are designed.

Progress Made to Address Recommendations

Development of Electric and Gas Demand-side Resources Programs and Targets: PSE involved commission staff and the public in the development of the company's ten-year conservation potential and the two-year conservation target over the period of several years. Public discussions of development of conservation potentials and targets have taken place since April 2008. The form of discussions has been varied: public meetings, public IRPAG meetings, CRAG meetings, WUTC Open Meetings, WUTC-hosted public meetings, meeting with WUTC Staff, and emails to interest groups. The table below summarizes the various meetings and identifies the participation by commission staff and the public in those meetings.

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Figure B-3

WUTC Staff and Public Involvement in Development of Ten-year Conservation Potential and Two-year Conservation Target

| Type of Meeting/Communication | Date | Commission Staff | Public |
|---|----------------|------------------|--------|
| Public IRPAG meeting | April 3, 2008 | X | X |
| Public IRPAG meeting | Nov. 20, 2008 | X | X |
| Public IRPAG meeting | Jan. 22, 2009 | X | X |
| Public IRPAG meeting | April 23, 2009 | X | X |
| Public IRPAG meeting | June 25, 2009 | X | X |
| CRAG meeting | June 25, 2009 | X | |
| Public WUTC meeting | Sept. 3, 2009 | X | X |
| CRAG meeting | Sept. 15, 2009 | X | |
| IRP comment period | Aug. 28, 2009 | X | X |
| Public Open Meeting | Sept. 10, 2009 | X | X |
| CRAG meeting | Sept. 15, 2009 | X | |
| CRAG meeting | Oct. 14, 2009 | X | |
| Draft Tariff Program Schedules provided to CRAG | Nov. 2, 2009 | X | |
| Meeting with WUTC staff | Nov. 17, 2009 | X | |
| Program Tariff Schedule Filing | Nov. 30, 2009 | X | X |
| Public IRPAG meeting | Dec. 15, 2009 | X | X |
| Email to IRPAG and CRAG | Dec. 31, 2009 | X | X |
| Program Tariff Schedules go into effect | Jan. 1, 2010 | X | X |
| Email to IRPAG and CRAG | Jan. 25, 2010 | X | X |
| Conservation Council provides updated 5 th Plan Calculator on its public website | Jan. 27, 2010 | X | X |
| Public meeting to review development | Jan. 27, 2010 | | X |

- Updated Avoided Costs Inputs: As indicated in Figure B-3, PSE distributed a draft of our 2010 - 2011 Program Tariff Schedule Filing to the CRAG for review in November 2009, prior to filing it with the WUTC. A description of PSE's avoided cost inputs was included in Appendix C of the filing. No comments about avoided costs were received from the CRAG.

2009 IRP Action Plan Item: Wind and Other Renewables

PSE will continue working toward meeting our obligations under Washington's renewable portfolio standard. We will continue to implement strategies of moving deeper into the development process for renewables. Additionally, we will continue to explore cost-

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effective opportunities as they appear during the formal RFP process, as well as other market opportunities that may present themselves.

Progress Made to Address Recommendations

- **Move Deeper Into Development Process:** PSE acquired development rights to the Lower Snake River wind project in 2008 and 2009.
- **Acquisition Process:** PSE requested offers for renewable energy and unbundled Renewable Energy Credits (RECs) in its 2010 All Source RFP. The company received 31 proposals for renewable generation resources and two proposals for RECs in response to the RFP process. The company also considered a wide range of unsolicited proposals and other projects through commercial activity outside the formal RFP process.
- **Development of Lower Snake River Phase I (LSR Phase I) Wind Project:** Development of LSR Phase I, on a timeline sufficient to qualify for a Section 1603 U.S. Treasury grant, was found to be the lowest reasonable cost way to meet the company's renewable energy needs. PSE began construction of LSR Phase I in spring 2010. Located in Garfield County, Wash., the 343 MW wind project is scheduled to be completed in the first or second quarter of 2012.

2009 IRP Action Plan Item: Thermal Resources

PSE will look to fill the remaining resource needs with a combination of purchased power agreements and/or natural gas-fueled power plants: peakers and combined cycle combustion plants. Our goal will be to meet resource needs through the formal RFP process, seek opportunities to acquire resources through bilateral negotiations, and consider self-build natural gas alternatives. PSE will also actively monitor and participate in policy, regulatory, and technology developments affecting the viability of new resources.

Progress Made to Address Recommendations

- **Acquisition Process:** PSE is pursuing negotiations with counterparties for contracts from the formal RFP process. We're also pursuing several contracts that were not submitted through the RFP. The company is expecting to execute contracts with a few of these counterparties within the next few months.
- **Monitoring Policy, Regulatory, and Technology Developments:** PSE continually monitors developments at the federal, state and local levels for changes in policy

or regulation that could affect the operation and development of future thermal generating resources. PSE also investigates and explores new technologies that may provide new methods for generating energy with thermal and renewable resources. Examples include investigations into biomass and new technologies for peaking products.

B. 2009 Gas Resources Action Plan

The following section includes each item from the gas resource plan from the 2009 IRP, along with the progress that was made in implementing recommendations included in that plan, per WAC 480-90-238 (3) (i).

2009 IRP Action Plan Item: Gas Demand-side Resources

PSE will plan and implement natural gas demand-side resource programs consistent with the guidance provided in this plan. We will work with external stakeholders in the CRAG process to develop program goals, targets, and tariff filings to acquire cost-effective and achievable energy efficiency savings. Such processes will rely on updated avoided cost inputs and more specific assessments of achievability based on specific programs that are designed.

Progress Made to Address Recommendations

- See **2009 IRP Action Plan Item: Electric Demand-side Resources** on pages seven and eight of this appendix. This information provided in this section applies to both electric and gas demand-side resources.

2009 IRP Action Plan Item: Diversity of Supply Considerations and Pipeline Expansions

PSE is currently exposed to a single supply basin for the majority of our natural gas supplies, a situation that places the company and our customers in a position of physical supply and price risk. A thorough investigation into the benefits of such a strategy needs to take place, so that PSE may evaluate the costs and benefits of increasing supply diversity in a comprehensive way.

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Progress Made to Address Recommendations

- Study on Regional Impact of Increased Supplies from Rockies/GTN: PSE contracted with Global Insight to develop a gas price forecast to examine the impact on relative market prices by expanding pipeline capacity from GTN to PSE's service territory to access incremental Rockies or Alberta supplies. That study demonstrated that while such increased access to additional supplies would put downward pressure on gas prices at Sumas, the lower prices did not appear to be sufficient to offset the higher expansion pipeline costs. However, PSE continues to work with regional entities to evaluate infrastructure projects that will be required to meet long-term forecasted demand, including a cross-Cascades pipeline project.

2009 IRP Action Plan Item: Regional LNG Storage

PSE will continue working with others in the region to identify and more fully define regional LNG peaking opportunities. This will entail exploring whether the needs identified in the gas resource plan can be met by expansion of existing facilities in the region. PSE also will include initial activity to begin assessing development of self-build alternatives.

Progress Made to Address Recommendations

- Discussion on Existing Resources: PSE has discussed potential expansion of the Mt. Hayes project in Terasen's service territory on Vancouver Island. This could be a viable peaking alternative, with gas supplies delivered to PSE's system via displacement or Northwest Pipeline.
- Initial Self Build Activity: Some alternative locations for LNG storage have been scoped. Since LNG storage is a resource further out into the planning horizon, additional commercial work was not necessary.

3. Other Reports

A. Electric Demand-side Resource Assessment: Consistency with Northwest Power Planning Council Methodology

There are no legal requirements for the IRP to address the Northwest Power Planning Council's (Council) methodology for assessing demand-side resources. Such comparison, however, may be useful for PSE and stakeholders in implementing sections of WAC 480-109. PSE has worked closely with Council staff on several aspects of our analytical process, including approaches to modeling demand-side resources. We're most grateful for the dialogue, and very much appreciate the opportunity to work with Council staff. WAC 480-109 does not define "methodology." PSE developed the detailed checklist that follows to demonstrate that our process in the IRP is consistent with the Council's methodology². This checklist was used in IRP Advisory Group meetings. It was particularly useful in discussions as to whether it was appropriate for PSE to include non-energy benefits (NEB) and the 10 percent conservation credit, which, as the checklist illustrates, PSE did implement. Additional information on consistency with Council methodology can be found in Cadmus report, attached as Appendix K to the IRP.

² References in Figure B-4 refer to the Council's assessment of its methodology, found at: <http://www.nwcouncil.org/energy/powerplan/6/supplycurves/1937/default.htm>

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Figure B-4

PSE is consistent with NW Power and Conservation Council's Conservation Assessment Methodology

| | | | |
|---------|--|--|--|
| Council | <p>See 2. a & b</p> <ul style="list-style-type: none"> - Wide array tech, all sectors - Saturations - New or existing units - Measure life or substitutions - Measure shapes - Measure interactions | <p>See 3. a - e</p> <ul style="list-style-type: none"> - Economic screening – total resource cost - Shaped energy or capacity - Full incremental cost - Transmission and distribution savings and losses - Environmental benefits - Non-energy benefit or 10% credit | <p>See 4. a - c</p> <ul style="list-style-type: none"> - Targets from IRP analysis - Demand-side management versus all resources - Benefits and costs from economic screen - Lost opportunity / discretion - Adjusted historic ramps - Revise based on experience |
| | <p>Technical Potential</p> | <p>Economic Potential</p> | <p>Achievable Potential</p> |
| PSE | <p>See 2. a & b</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Wide array tech, all sectors <input checked="" type="checkbox"/> Saturations <input checked="" type="checkbox"/> New or existing units <input checked="" type="checkbox"/> Measure life or substitutions <input checked="" type="checkbox"/> Measure shapes <input checked="" type="checkbox"/> Measure interactions | <p>See 3. a - e</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Econ Screening - Bundles <input checked="" type="checkbox"/> Shaped energy or capacity <input checked="" type="checkbox"/> Full incremental cost <input checked="" type="checkbox"/> Transmission and distribution savings and losses <input checked="" type="checkbox"/> Environmental benefits <input checked="" type="checkbox"/> Non-energy benefit and 10% credit | <p>See 4. a - c</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Targets from IRP analysis <input checked="" type="checkbox"/> Demand-side management versus all resources <input checked="" type="checkbox"/> Benefits and costs from economic screen <input checked="" type="checkbox"/> Lost opportunity / discretion <input checked="" type="checkbox"/> Adjusted historic ramps <input checked="" type="checkbox"/> Revise based on experience |

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B. Integrated Resource Plan Cover Sheet: Department of Commerce

The WUTC is required to provide summary information about IRPs of investor owned utilities to the Department of Commerce. Information for the cover sheet is included in Table B-5, below.

Figure B-5

Load-Resource Balance Summary

Resource Plan Year: 2012
 Base Year Start: 1/1/2012
 Base Year End: 12/31/2012
 Five-year Report Year: 2017
 Ten-year Report Year: 2022

| Report Years Period Units | Base Year | | | 2017 | | | 2022 | | |
|---|----------------|----------------|-----------------|----------------|----------------|-----------------|----------------|----------------|-----------------|
| | Winter (MW) | Summer (MW) | Annual (MWa) | Winter (MW) | Summer (MW) | Annual (MWa) | Winter (MW) | Summer (MW) | Annual (MWa) |
| Loads | 5,090 | 3,272 | 2,755 | 5,582 | 3,647 | 3,078 | 6,067 | 4,024 | 3,410 |
| Exports | | 300 | 47 | | 300 | 47 | | 300 | 47 |
| Resources | | | | | | | | | |
| Conservation/ Efficiency | 68 | | 44 | 447 | | 296 | 749 | | 554 |
| Demand Response | 10 | | | 52 | | | 144 | | |
| Cogeneration | | | | | | | | | |
| Hydro | 924 | | 542 | 958 | | 544 | 901 | | 527 |
| Wind | 101 | | 222 | 101 | | 254 | 106 | | 344 |
| Other Renewables | | | | | | | | | |
| Thermal - Gas | 1,717 | | 905 | 2,466 | | 905 | 2,462 | | 905 |
| Thermal - Coal | 657 | | 597 | 657 | | 597 | 657 | | 597 |
| Long Term: BPA Base Year or Tier 1 | | | | | | | | | |
| Net Long Term Contracts: Other | 12 | | 4 | -16 | | -5 | -5 | | -6 |
| Net Short Term Contracts | | | | | | | | | |
| Contracts | 1,287 | | | 1,907 | | | 1,942 | | |
| Other | | | | | | | | | |
| Imports | 508 | | 201 | 308 | | 50 | 308 | | 50 |
| Total Resources | 5,283 | -300 | 2,469 | 6,880 | -300 | 2,595 | 7,289 | -300 | 2,946 |
| Load Resource Balance | -193 | 3,572 | 286 | -1,298 | 3,947 | 483 | -1,222 | 4,324 | 464 |