

March 28, 2012

***VIA ELECTRONIC FILING  
AND OVERNIGHT DELIVERY***

Washington Utilities & Transportation Commission  
1300 S. Evergreen Park Drive, S.W.  
P.O. Box 47250  
Olympia, WA 98504-7250

Attn: David W. Danner  
Executive Director and Secretary

**Re: Docket No. UE-12 \_\_\_\_\_  
Compliance Filing – Work Plan for 2013 Integrated Resource Plan**

Dear Mr. Danner,

Please find enclosed an original and two (2) copies of PacifiCorp's Work Plan for the 2013 Integrated Resource Plan. This filing is submitted in accordance with WAC 480-100-238(4).

It is respectfully requested that all formal requests regarding this filing be addressed to the following:

By E-mail (preferred): [datarequest@pacificorp.com](mailto:datarequest@pacificorp.com)

By regular mail: Data Request Response Center  
PacifiCorp  
825 NE Multnomah, Suite 2000  
Portland, OR 97232

If there are any informal inquiries concerning this filing, please contact Pete Warnken, Manager Integrated Resource Planning at (503) 813-5518 or Carla Bird, Regulatory Manager, at (503) 813-5269.

Sincerely,

 RBD

William R. Griffith  
Vice President, Regulation

Enclosure

cc: David Nightingale (w/o enclosures)



**Work Plan  
For the  
2013 Integrated Resource Plan**

**For the  
Washington Utilities and Transportation Commission**

March 28, 2012

## **INTRODUCTION**

In compliance with the Washington Utilities and Transportation Commission's ("Commission") Integrated Resource Planning (IRP) rules (WAC 480-100-238(4)-(5)), PacifiCorp submits this work plan for its 2013 integrated resource plan ("2013 IRP"). As required in the rule, PacifiCorp outlines the content of its 2013 IRP, the general method for assessing potential resources, and the anticipated timing and extent of public participation.

This work plan is based on the best information available to the Company at this time, and may change for the following reasons:

- While the Company received orders from Oregon, Washington, Idaho, and Wyoming acknowledging the 2011 IRP, Utah's order, issued March 22, 2012, did not acknowledge the 2011 IRP. The Utah commission's guidance for the next IRP is currently being reviewed by the company.
- The 2013 IRP is being developed in conjunction with the preparation of PacifiCorp's annual business plan for 2013-2022 ("2013 Business Plan"). 2013 IRP work plan schedule adjustments may occur in response to changes in the 2013 Business Plan schedule.
- During the public process, the Company will consider stakeholder input and may implement methodology changes, as appropriate, to support the 2013 IRP.
- Market or regulatory developments may prompt the need for additional system modeling or impact assessment.

## **CONTENTS OF THE 2013 INTEGRATED RESOURCE PLAN**

The contents of the 2013 IRP are expected to be similar to that for the 2011 IRP, and will consist of two volumes: the main document and the appendices. The main document, or Volume I, will contain the following chapters:

- "Executive Summary"
- "Introduction." This chapter will describe the context for resource planning during this IRP cycle, summarize significant events and accomplishments, and provide an overview of the report contents.
- "The Planning Environment". This chapter will profile the major external influences that impact the Company's long-term planning (market conditions, legislative and

regulatory events, etc.) as well as summarize activities supporting the development of the annual 10-year business plan and resource procurement.

- “Transmission Planning”: This chapter describes the Company’s long-term transmission planning initiatives, focusing on activities associated with the Energy Gateway Transmission projects and other regional planning efforts.
- “Resource Needs Assessment”: This chapter presents PacifiCorp’s findings of resource need. The basis of the chapter is load/resource balances that characterize the Company’s capacity and energy positions on a system and control area basis for the next 10 years.
- “Resource Options”: This chapter provides background information on the resources considered in the 2013 IRP, detailing selection criteria for portfolio evaluation, cost and performance attributes, and current market outlook. Resources covered include utility-scale generation technologies, demand-side management (“DSM”), distributed generation, energy storage technologies, and firm market purchases by market hub.
- “Modeling and Risk Analysis Approach”: This chapter describes the modeling methods and portfolio evaluation techniques that are applied to determine relative portfolio cost/risk performance attributes and the overall ranking of portfolios.
- “Modeling and Portfolio Results”: This chapter summarizes the portfolio development and production cost modeling results, and presents the company’s preferred resource portfolio developed as a result of its portfolio evaluation process. A comparison of the advantages and disadvantages of the top-performing portfolios will also be provided.
- “Action Plan and Resource Risk Management”: This chapter presents the Company’s action plan and an acquisition path analysis that describes how resource acquisition strategies will be modified in response to load growth assumption changes and potential regulatory and market events. A discussion of other resource risk management issues will also be provided.

Volume II will consist of appendices that cover (1) detailed model simulation results, (2) information on PacifiCorp’s system models, (3) how the 2013 IRP complies with multiple state IRP requirements, (4) load forecasts developed for each state, (5) the public input process, (6) investment cost-benefit analyses of the Energy Gateway Transmission project, (7) capacity planning reserve margin analysis, (8) a new wind integration analysis, (9) the results of a study on grid flexibility for integrating renewables, and (10) a follow-up to a consultant geothermal resource report prepared for the 2011 IRP.

## GENERAL METHOD FOR ASSESSING POTENTIAL RESOURCES

The work plan for the 2013 IRP represents refinement of the one used for the 2011 IRP. The main elements of the work plan include the following:

1. Revisit strategic assumptions (resource adequacy, market depth, carbon dioxide regulatory scenarios and cost adders, etc.) and update model data appropriately.
2. Implement modeling and methodology enhancements to improve the IRP process and address new analytic requirements from the state commissions or in response to public stakeholder recommendations. For example, the Public Utility Commission of Oregon has directed the Company to conduct workshops on resource diversity of portfolios developed for the IRP, as well as development of the capacity and energy L&R balances.
3. Use PacifiCorp's modeling systems to define a set of least-cost candidate portfolios, and perform risk analysis by simulating them with a detailed stochastic production cost model. PacifiCorp will use Present Value of Revenue Requirements ("PVRR") as the main cost-effectiveness measure for comparing portfolios.
4. Apply an initial portfolio screening process that focuses on two key metrics—mean stochastic PVRR and upper-tail PVRR—followed by a final screening process based on measures such as risk-adjusted PVRR, carbon dioxide emissions, supply reliability, customer rate impact, and others.

A key enhancement for the 2013 IRP work plan is that coal unit retirement and replacement will constitute a future resource option for all portfolios developed rather than applied as a sensitivity analysis for a select number of portfolios. The modeling for coal unit retirement options will follow the general approach outlined in the 2011 IRP Supplemental Coal Replacement Study<sup>1</sup> as well as reflect additional enhancements described in the 2011 IRP Update filed with the Commission for informational purposes. An updated DSM potential study will also be conducted to support portfolio modeling and compliance with Washington I-937 conservation target setting and forecast requirements.

Figure 1 summarizes the inputs and major modeling steps under the 2013 IRP work plan. This plan is based on the use of two computer systems: *System Optimizer*, a linear programming-based optimization program designed for automated development of

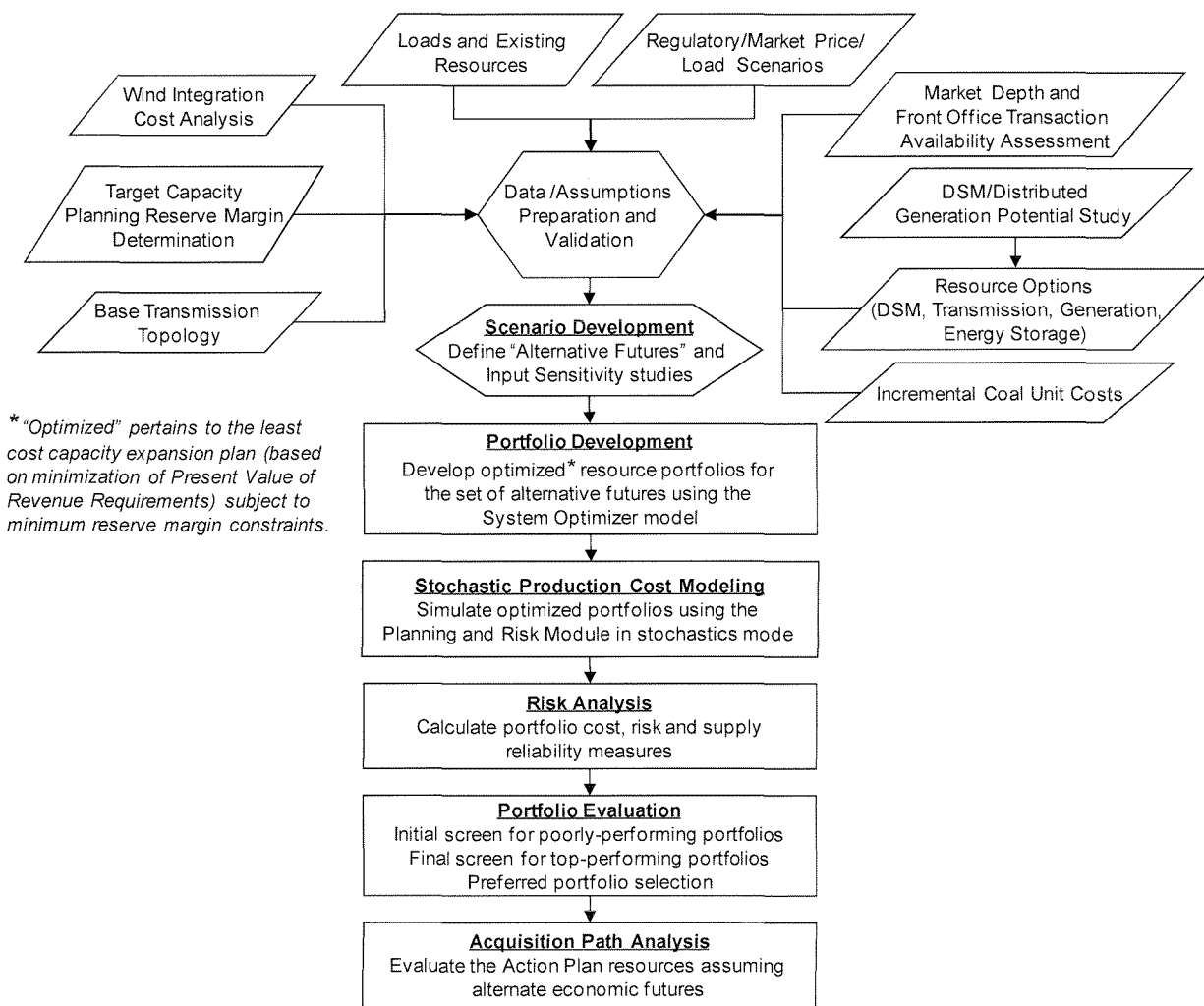
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<sup>1</sup> The public version of the Supplemental Coal Replacement Study can be downloaded from PacifiCorp's IRP Web site using the following hyperlink:

[http://www.pacificorp.com/content/dam/pacificorp/doc/Energy\\_Sources/Integrated\\_Resource\\_Plan/2011IRP/2011IRP-Supplement\\_CoalReplacementRpt\\_Redacted.pdf](http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2011IRP/2011IRP-Supplement_CoalReplacementRpt_Redacted.pdf)

portfolios, and the *Planning and Risk* (“PaR”) model, a market simulation tool integrated with the PROSYM chronological unit commitment/dispatch simulation engine and Monte Carlo modeling capabilities. Both modeling tools are proprietary software products from Ventyx Energy LLC, a subsidiary of ABB. PacifiCorp is currently upgrading System Optimizer to a version that uses the same database and data processing platform as the PaR model. This enhanced interoperability will streamline IRP model management and data maintenance, resulting in a more efficient modeling process.

**Figure 1 – Modeling Process Flow Diagram, 2011 IRP**



Using existing resources and a representation of the Company’s transmission system as the starting point, PacifiCorp will perform System Optimizer runs with a set of new resource options (supply-side, demand-side, energy storage, and transmission). Each

run will be defined with a combination of input variables based on low, medium, and high values. The input variables will include carbon dioxide (“CO<sub>2</sub>”) regulatory costs, natural gas/electricity prices and load growth. PacifiCorp will also develop additional CO<sub>2</sub> and renewable portfolio standard regulatory compliance scenarios to further analyze regulatory uncertainty as required by the state commissions. The purpose of the alternative future scenario analysis is to determine how portfolios and their associated resources perform under a variety of input assumptions, serving as an indicator of portfolio robustness. As was done for the 2011 IRP, the Company will evaluate several alternative Energy Gateway transmission scenarios.

The second stage of IRP modeling consists of simulating the optimized portfolios from stage 1 using the PaR model. Monte Carlo sampling of load, electricity price, natural gas price, hydro availability, and thermal unit availability input variables will be used to perform 100 Monte Carlo simulation iterations. Portfolio costs are calculated as the mean PVRR of the 100 iterations plus the portfolio real-levelized fixed costs (capital and fixed operations and maintenance) from the associated System Optimizer run. This cost, along with worst-outcome (or upper-tail) costs and supply reliability risk measures, constitute the main metrics for determining the portfolio risk performance profile.

PacifiCorp will also evaluate the preferred portfolio and associated resource acquisition strategies in the context of potential changes to planning assumptions and procurement risks, referred to as acquisition path analysis.

## **PLANNED MODELING ENHANCEMENTS AND ANALYSIS PROJECTS**

PacifiCorp’s 2013 IRP work plan accounts for the following key modeling and analysis projects that are planned or underway:

- Update the DSM resource supply curves based on a new potentials study to be completed in 2012. Distribution energy efficiency will be included as a resource option. The Company also agreed to conduct an analysis of alternatives to the current energy efficiency supply curve approach prior to the start of portfolio modeling as requested by the Public Utility Commission of Oregon. Additionally, as part of the DSM potentials study, the consultant performing the potentials study will review how other utilities treat price-responsive products (PacifiCorp’s Class 3 DSM) in their resource planning processes.
- Conduct a new wind integration study in 2012 with a public process that incorporates review and input from a Technical Review Committee.

- Conduct a study of the need and benefits/costs of flexible resources (load control, energy storage, fast-ramping gas resources, etc.) for accommodating wind and solar resources on the PacifiCorp system.
- Evaluate the portfolio marginal stochastic costs of alternative planning reserve margin levels.

## ANTICIPATED TIMING AND EXTENT OF PUBLIC PARTICIPATION

The timeline for 2013 IRP public meetings is shown in Figure 2. The 2013 IRP meeting schedule will consist of a combination of general public meetings and status report conference calls if needed. At least seven public meetings will be held throughout the 2013 IRP development cycle, with additional ones scheduled if required. PacifiCorp is also planning to set up state-specific stakeholder meetings during late May and June 2012 to discuss topics of regional interest—a practice that was instituted for the 2008 and 2011 IRP processes. The first general public meeting, scheduled for late April 2012, represents the kick-off meeting for the 2013 IRP process, and will cover the 2013 IRP schedule, public process, modeling and analysis objectives, lessons learned from the 2011 IRP process, and the 2011 IRP Revised Action Plan. An email announcement for the kick-off meeting will be sent to IRP stakeholders once meeting dates have been identified.

As mentioned above, the Company is also conducting a public process for its 2012 wind integration study, the first public stakeholder meeting of which is being scheduled for late May 2012. A Web page devoted to the Company's wind integration studies will be updated with the wind study schedule, announcements, presentations, and project documents.<sup>2</sup>

Figure 2 also shows the high-level 2013 IRP development schedule. Filing of the 2013 IRP is scheduled for March 29, 2013, in accordance with WAC 480-100-238(4). PacifiCorp expects to issue a draft 2013 IRP for a 30-day public comment and review period in early February 2013.

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<sup>2</sup> The hyperlink to the wind integration study Web page is:  
[http://www.pacificorp.com/es/irp/wind\\_integration.html](http://www.pacificorp.com/es/irp/wind_integration.html).



Figure 2 – 2013 IRP Public Meeting and Development Schedule

	2012												2013		
	Feb	March	April	May	June	July	August	Sept	Oct	Nov	Dec	Jan	Feb	March	
<b>IRP Public Meetings*</b>															
General Public Meetings				X		X		X		X		X		X	
State-specific public stakeholder meetings															
Wind integration study					X		X								
Status report/issue resolution conference calls	To Be Determined														
<b>IRP Development Schedule</b>															
Wind Integration Cost Study															
IRP Model Preparation															
Portfolio Development															
Portfolio Risk Assessment															
Preferred Portfolio Selection and Analysis															
IRP Report Preparation, 1st Draft															
Action Plan Development/Contingency Planning															
Public Review of Draft IRP Report (30 days)															
IRP Report Preparation, Final Draft															
Commission Filing, 3/29/2013														X	

## CONCLUSION

PacifiCorp’s 2013 IRP work plan represents its current view as to the processes and activities needed to file an IRP by March 29, 2013 that meets state IRP standards and guidelines and aligns with the Company’s 2013 business plan and procurement activities. As discussed above, a pending state acknowledgment order and other factors may require adjustment to the schedule.

PacifiCorp encourages Washington stakeholders to attend public meetings and actively be involved in this planning process. To join the 2013 IRP participants list, send an email request to [IRP@PacifiCorp.com](mailto:IRP@PacifiCorp.com) or call the PacifiCorp IRP phone line at (503) 813-5245.