2013
Integrated Resource Plan
Kick-Off Meeting
May 7, 2012
Agenda

- Introductions
  - IRP Group and Support Team
- IRP preparation schedule
- 2013 IRP regulatory compliance
- Public process
- Modeling Methodology Changes
- Resource Acquisition Activities
- **Lunch Break (1/2 hour) 11:30 PT/12:30 MT**
- 2012 Wind Integration Study
- Action Plan status update: coal, demand-side management, transmission
IRP Group and Support Team

Stacey Kusters  
*Director, Origination*

Rick Link  
*Director, Structuring/Pricing*

Pete Warnken - **IRP Manager**  
**IRP Modeling Team**  
Dan Swan, Brian Osborn, Eric Arzola  
*Project Coordinator*  
Michael Liljenwall

- **Market Assessment**
- **Transmission Planning**
- **Demand-side Management**
- **Resource Development & Construction**
- **Load and Revenue Forecasting**
- **Commercial & Trading**  
  *Front Office*  
  (Origination, Structuring & Pricing, Short-Term Resource Planning, Wholesale Trading)
- **Environmental Strategy**
- **Finance/Business Planning**
- **Regulation**
- **Renewable Compliance Officer**
# IRP Preparation Schedule – Activity Timeline

## IRP Public Meetings*

<table>
<thead>
<tr>
<th>Activity</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kick-off/wind integration</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>DSM workshop/portfolio development</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>DSM/Distributed Gen. Potential Study (Data/Report)</td>
<td></td>
<td>X</td>
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<tr>
<td>Transmission workshop/portfolio development cases</td>
<td>X</td>
<td></td>
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<tr>
<td>State input meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource adequacy/wind integration follow-up</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Supply-side resources/environment compliance, coal</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Load, L&amp;R balance, and gas &amp; electricity price forecasts</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Portfolio development results</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Stochastic production cost and portfolio evaluation</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Preferred portfolio and Action Plan/Document draft</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

## IRP Development Schedule

<table>
<thead>
<tr>
<th>Activity</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Integration Cost Study</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>IRP Model Preparation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portfolio Development</td>
<td></td>
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<tr>
<td>Portfolio Risk Assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preferred Portfolio Selection and Analysis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRP Report Preparation, 1st Draft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Action Plan Development/Contingency Planning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Review of Draft IRP Report (30 days)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRP Report Preparation, Final Draft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commission Filing, 3/29/2013</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

* Specific meeting dates will be determined after considering state regulatory calendars, participant availability, and meeting preparation requirements.
IRP Preparation Schedule – Public Process

• Public input meeting schedule and topics
  – Early June 2012:
    • DSM technical workshop (DSM Potential Assessment study, Resource Modeling)
    • Portfolio development and evaluation technical workshop
  – Late June 2012:
    • Transmission planning technical workshop; Energy Gateway status
    • Portfolio development cases/sensitivities
  – Late July 2012:
    • Load & resource balance development; energy vs. capacity position
    • Resource adequacy (planning reserve margin, cost of “Energy Not Served”, flexible resource demand/supply)
    • Wind integration study follow-up
IRP Preparation Schedule – Public Process

– Late August 2012:
  • Supply-side resources (thermal, renewables, energy storage, distributed generation, other); electric vehicle penetration
  • Environmental compliance/coal unit replacement analysis, Renewable Portfolio Standard compliance, CO2/externality costs

– Mid September 2012:
  • Load forecast and L&R balances
  • Natural gas and electricity price forecasts

– Late October 2012:
  • Portfolio development results

– Early December 2012:
  • Stochastic production cost and portfolio evaluation

– Mid January 2013:
  • Preferred portfolio and Action Plan
  • Document draft overview
2011 IRP Process Issues being Addressed

• Move up IRP modeling schedule to allow for more stakeholder review time

• Continued stakeholder concern over model transparency
  – Investigate workable solutions; for example,
    • Stakeholder-directed sensitivity analysis requests
    • Third party consultant agreements to provide Ventyx model training/run support with PacifiCorp “sandbox” modeling system
    • Ventyx and/or PacifiCorp model instruction
Modeling Methodology Changes

• Revisit portfolio development process in response to stakeholder concerns regarding resource diversity and comparative consistency among portfolios
• Incorporate coal unit replacement analytical framework developed for 2011 IRP Update
• New process and criteria for evaluating transmission additions, focusing on benefit evaluation
• Revisit capacity planning reserve margin selection framework; issue of commissions acknowledging different PRM levels
• Upgraded IRP models should enable more granular representation of energy efficiency measure bundles
• Wind integration study with TRC
Regulatory Compliance

• 2011 IRP acknowledged/accepted in Oregon, Idaho, Washington, and Wyoming; not acknowledged in Utah
  – California acknowledgment exemption; filing requirements only tied to RPS compliance reporting

• New acknowledgment order requirements
  – Thirty new requirements covering:
    • DSM modeling
    • Renewables
    • Load forecasting
    • Portfolio development/performance evaluation
    • Resource adequacy/reliability
    • Transmission
  – Several are covered under the IRP Action Plan
  – Listed in tabular form by category and state commission in the presentation Appendix
Regulatory Compliance

• New State IRP Standards and Guidelines: Oregon Order 12-013
  – Flexible Resource Analysis
    • Forecast the demand for Flexible Capacity: The electric utilities shall forecast the balancing reserves needed at different time intervals (e.g. ramping needed within 5 minutes) to respond to variation in load and intermittent renewable generation over the 20-year planning period;
    • Forecast the Supply of Flexible Capacity: The electric utilities shall forecast the balancing reserves available at different time intervals (e.g. ramping available within 5 minutes) from existing generating resources over the 20-year planning period; and
    • Evaluate Flexible Resources on a Consistent and Comparable Basis: In planning to fill any gap between the demand and supply of flexible capacity, the electric utilities shall evaluate all resource options, including the use of EVs, on a consistent and comparable basis.
Resource Acquisition Activities

• Issue RFP for residential/small commercial energy efficiency programs for delivery beginning in 2013 (all states except Oregon, which is handled by the Energy Trust of Oregon)
• Residential energy use information pilot program to be implemented in 2012
• Issue market RFPs
• Issue RFP for interruptible products
Resource Acquisition Activities

- Evaluation of west-side irrigation load control/time-of-use program opportunities
- Follow-up to the 2010 geothermal resource study with continued evaluation of geothermal resource opportunities (use of “Request For Information” data)
- Update resource needs assessment based on updated loads, DSM and other resources prior to “best and final” shortlist bid evaluation for 2016 resource all-source RFP
Coal Study

• Studies completed
  – 2011 IRP Coal Utilization Study (Proof-of-Concept)
  – 2011 IRP Supplemental Coal Replacement Study
  – Coal Screening Analysis
  – 2011 IRP Update Coal Replacement Study

• Parties can comment on the 2011 IRP update
• Comments to be provided to the Company by June 8, 2012
• Company to evaluate any next steps on the completed studies based on comment provided by stakeholders
DSM Action Plan Update

• Class 1 load control - Acquire minimum 140 MW by 2013
  – 120 - 140 MW commercial curtailment currently under
• Commercial curtailment product Q2 analysis
  – Agreement and economic feasibility is in final review
• Economic feasibility analysis of west-side irrigation DLC Q2
  – Economic feasibility analysis underway
• RFP to re-procure delivery of Cool Keeper beyond 2013
  – Scenario planning underway
• Apply IRP analysis to inform 2012-13 WA I-937 forecast/targets
  – WUTC approved forecast/targets at Apr. 12 open meeting
• Acquire at least 900 MW/4,533 GWh of Class 2 resources by 2020,
  520 MW by 2016
  – On track to meet or exceed minimums
• By Q1 file a residential home energy report program in UT and WA
  – Filed in Utah, under review by WA advisory group for inclusion in I-937
    business plan, on-target for an August 2012 launch
DSM Action Plan Update, continued

- Plan to acquire energy efficiency resources from Special Contract customers by Q3
  - Internal planning underway
- Q1 release of system-wide direct install/distribution RFP
  - Released Mar 27 with responses due May 21
- Possible alternatives to current supply curve bundling and ramping methods for modeling energy efficiency
  - Public workshops planned in June, paper on alternatives by August
- Analysis of DSM staffing sufficiency
  - Internal review completed, pending scoping discussion with staff
- Update Conservation Potential Assessment to more accurately reflect Class 1 and Class 3 DSM resource opportunities/interactions
  - Update work awarded to Cadmus; work under-way
DSM Action Plan Update, continued

- 3rd Party report on how other utilities treat and reliance on Class 3 resources in the resource planning process
  - Survey is incorporated in conservation potential assessment update

- Subject to regulatory approval implement Home Energy Monitor pilots in UT and WA in conjunction with Home Energy Report pilots
  - Pending Home Energy Report program approvals/acknowledgements

- Dependent on the results of the west-side irrigation DLC economic feasibility study, investigate piloting irrigation TOU rates in Oregon
  - Pending results of west-side irrigation DLC analysis due Q2
Action Plan Update – Transmission

• Develop an evaluation process and criteria for evaluating transmission additions for which the Company requests acknowledgement
  – Using NTTG Order 1000 compliance efforts, PacifiCorp is exploring options for expanding its transmission benefit evaluation process beyond the traditional methods of net power cost and least-cost analysis
  – Opportunities for stakeholder input and involvement

• Review with stakeholders which transmission projects should be included and why
Wind Integration Study Plan – Proposed Schedule

• January 24 to April 2012 – Completed
  – Kickoff meeting and methodology review with TRC members

• May 7, 2012
  – IRP stakeholder kickoff meeting

• May to June 2012
  – Technical workshop to be scheduled
  – Comments from stakeholders on proposed methodology
  – Potential for an additional workshop after comments are received

• July 2012 to August 2012
  – Company preliminary wind integration cost findings to IRP stakeholders
  – IRP stakeholders can comments on the preliminary wind integration cost finding
  – The Company meets with the TRC to review wind integration study results and IRP stakeholder comments

• September 2012
  – The Company makes available to IRP stakeholders a draft 2012 WIS report

• October 2012
  – The Company reviews and addresses IRP stakeholder comments, receives final comments from the TRC, and finalizes the 2012 WIS report
Technical Review Committee

- Andrea Coon
  - Director, Western Renewable Energy Generation Information System (WREGIS) for the Western Electricity Coordinating Council (WECC)

- Matt Hunsaker
  - Manager, Renewable Integration for WECC

- Michael Milligan
  - Lead research for the Transmission and Grid Integration Team at the National Renewable Energy Laboratory (NREL)

- J. Charles Smith
  - Executive Director, Utility Variable-Generation Integration Group (UVIG)

- Robert Zavadil
  - Executive Vice President of Power Systems Consulting, EnerNex
The capacity figures in the table include all wind resources in PacifiCorp’s balancing authority areas.
Proposed Approach - Methodology

- Prepare input data
- Receive methodology input from the TRC
- Calculation of Forecast Errors and corresponding component reserves requirements
- Determination of Regulation Reserves Requirements
- Evaluate Regulation Reserves Cost
- Consider TRC and IRP stakeholder feedback
Input Data

• Data from 2007-2011 actual operations
• 10-minute system load data
  – East and West Balancing areas including net wholesale and retail load, Pi System
• 10-minute average wind production data
  – Includes owned and non-owned generation assets in the Company’s balancing areas, Pi System
• Day-ahead load and wind forecast data
Create Operational Forecasts

• Load Following
  – Forecast hour-to-hour volumetric load variation
  – Forecast is based upon prior interval grown at similar-day trend

• Load Regulating
  – Forecast shape variation of load over ten-minute intervals
  – Forecast is based on line of intended schedule

• Wind Following
  – Forecast hour-to-hour volumetric variation in wind generation
  – Persistence forecast (20 minutes past the hour sets the next hour)

• Wind Regulating
  – Forecast shape variation of wind generation over ten-minute intervals
  – Forecast is based on line of intended schedule
Operational Forecast: Load Following

- Vertical arrows represent following errors
Operational Forecast: Load Regulating

- The black arrow represents the continuation of the “line of intended schedule” to the next-hourly load forecast.
Operational Forecast: Wind Following

- Black arrow represents wind following error for the middle hour depicted
Operational Forecast: Wind Regulating

- The black arrows represent two of the wind regulation errors in this data, between the line of intended forecast (red) and actual wind output.
Calculate Forecast Errors

• The Forecast Error Recording phase follows a pattern:
  – Each of the short-term operational forecasts developed from the data (per slides 9-12) is compared to the actual value of wind generation or load for the interval in question
  – Any difference is considered to require regulation reserves – up or down

• The forecast errors, which correspond to component reserves demands, are recorded for 10-minute intervals (regulating), hourly intervals (following)

• The forecast errors are grouped by month and by the forecast quantity for each interval in question.
Calculate Regulation Reserves Requirements

- Sort forecast errors into bins based on forecast quantity of load or wind and sample key values based on reliability target

- The resulting relationships between component forecasts and their respective reserves demands are treated as operational rules to be applied to operational data

- Produce backcast to determine how much reserves capacity is required in each hour.
  - Apply the rules above to operational data
  - Each interval’s component reserve requirements are combined into a total reserve requirement using a root-sum-square calculation as

\[
\sqrt{\text{Load Following}^2 + \text{Load Regulating}^2 + \text{Wind Following}^2 + \text{Wind Regulating}^2}
\]

- Note average monthly and hourly total reserves requirements
Average Component Reserves Demand Calculation
Calculate Regulation Reserves Cost

- Incorporate regulation reserves as described on slide 14 in production cost models.
- PaR model will be used to isolate costs due to additional reserves requirements and day-ahead forecast errors through calculation scenarios below.
- High and low natural gas price scenarios will also be calculated.
- Wind Integration Cost is the sum of the Regulation Reserve Cost and System Balancing Integration Cost.

<table>
<thead>
<tr>
<th>PaR Model Simulation</th>
<th>Forward Term</th>
<th>Load Profile</th>
<th>Wind Profile</th>
<th>Incremental Regulation Reserve</th>
<th>Day-Ahead Forecast Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2013</td>
<td>Actual</td>
<td>Ideal Shape</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>2</td>
<td>2013</td>
<td>Actual</td>
<td>Actual</td>
<td>Yes</td>
<td>None</td>
</tr>
</tbody>
</table>

**Regulation Reserve Cost** = System Cost from PaR Simulation 2 less System Cost from PaR Simulation 1

| 3                    | 2013         | Day-Ahead Forecast | Day-Ahead Forecast | Yes | None |
| 4                    | 2013         | Actual             | Day-Ahead Forecast | Yes | For Load |
| 5                    | 2013         | Actual             | Actual             | Yes | For Load and Wind |

**System Balancing Cost** = System Cost from PaR Simulation 5 (which uses the unit commitment from Simulation 4) less System Cost from PaR Simulation 2
Appendix:
PacifiCorp 2011 IRP Acknowledgment
Order Requirements/Recommendations
# 2011 IRP Acknowledgment

## Requirements/Recommendations

<table>
<thead>
<tr>
<th>Req. No.</th>
<th>Topic</th>
<th>Req. Type</th>
<th>Source</th>
<th>Reference</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CO2/externality Cost</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 17</td>
<td>We generally accept the Company’s approach [on externality cost values] and suggest continued discussion in the IRP public input process to determine a reasonable and manageable range of values. This could also include the notion that once a permit has been obtained, the external costs addressed through the permit are internalized; all other values should be treated as uncertainties through scenario development and a range of potential values.</td>
</tr>
<tr>
<td>2</td>
<td>DSM</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 15</td>
<td>Any Potentials Study used to inform the IRP should be filed concurrently with the IRP.</td>
</tr>
<tr>
<td>3</td>
<td>DSM</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 21</td>
<td>The Company should conduct a meeting to explain its development of DSM resource bundles. This meeting could be in an IRP technical conference, a DSM Advisory Group meeting or an IRP public input meeting. The Company should address its plans to closely monitor DSM resource acquisitions for adherence to IRP forecasts in its next IRP.</td>
</tr>
<tr>
<td>4</td>
<td>Hedging</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 18</td>
<td>[The Company should] explore ideas for addressing the remaining issues concerning hedging practices. For example, future settlement costs could be estimated by using an average of past settlement costs. Further, information developed from the collaborative process could be brought, as appropriate, to the IRP process for evaluation.</td>
</tr>
<tr>
<td>Req. No.</td>
<td>Topic</td>
<td>Req. Type</td>
<td>Source</td>
<td>Reference</td>
<td>Requirement</td>
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</tbody>
</table>
| 5       | Load Forecast          | IRP Ack. Order  | UPSC   | 11-2035-01, p. 20 | The Company should consider hosting a public input meeting to discuss the objectives of and options for addressing long-term load volatility and long-term load-growth uncertainty and to respond to the five GDS recommendations. The Company should provide interested parties with any analysis it performs regarding the five GDS recommendations in advance of the meeting. GDS recommendations:  
1. PacifiCorp should obtain and examine economic forecasts from one or two vendors in addition to IHS Global Insights.  
2. GDS continues to contend that use of a measure of commercial and industrial output (e.g., retail sales or gross regional product) would be a better theoretical driver in the commercial and industrial sales models.  
3. We recommend that PacifiCorp initiate an investigation into line losses for Utah and Oregon, specifically, and for any other jurisdictions that exhibiting a strong trend over the last seven years and adjust their line loss projections accordingly.  
4. GDS recommends the Company review economic range forecasts prepared by other utilities and produce ranges that have greater uncertainty built into them as the forecast horizon expands.  
5. GDS recommends the Company move from a 1-in-10 year weather scenario to a 1-in-20 year weather scenario to produce an even more extreme weather case. |
| 6       | Load Forecast          | IRP Ack. Order  | UPSC   | 11-2035-01, p. 20 | We have also found the state historic load information contained in IRPs to be valuable and prefer the Company include a ten year history of monthly energy, coincident peak, and non-coincident peak, by state, in all future IRPs.                                                          |
## 2011 IRP Acknowledgment
### Requirements/Recommendations

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</thead>
<tbody>
<tr>
<td>7</td>
<td>Portfolio Development</td>
<td>IRP Ack. Order</td>
<td>OPUC</td>
<td>Order No. 12-082, p. 8</td>
<td>The first workshop should address the development of candidate resource portfolios for the next IRP. PacifiCorp currently uses the System Optimizer model to develop the candidate resource portfolios it will consider in an IRP. The company identifies future scenarios comprised of key model inputs and the System Optimizer model selects an &quot;optimal&quot; resource portfolio for each scenario. We are concerned that the resource portfolio with the best combination of cost and risk for the utility and its ratepayers may not be &quot;optimal&quot; for any one particular scenario. In other words, the best portfolio may be one that performs well across a wide range of future scenarios but is not &quot;optimal&quot; for any one scenario. We are concerned that the process used by PacifiCorp to develop candidate resource portfolios may be limiting the diversity of portfolios considered in the IRP.</td>
</tr>
<tr>
<td>8</td>
<td>Portfolio performance evaluation</td>
<td>IRP Ack. Order</td>
<td>WUTC</td>
<td>UE-100514, pp. 3-4</td>
<td>The next Plan should contain more analysis and discussion of the timing of the acquisition of the resources called for in the Company's preferred portfolio. For instance, the Plan could examine how lower load growth affects resource acquisition or risk-to-market exposure.</td>
</tr>
<tr>
<td>9</td>
<td>Portfolio performance evaluation</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, pp. 7-8</td>
<td>For acknowledgement in the future, the Company should provide all stochastic portfolio performance measures for the Preferred Portfolio and identify the additional cost associated with addressing the non-modeled objectives cited by the Company, e.g., social concerns, and cost recovery risk of geothermal resources. As required by Guideline 4.h., the Company should identify who will bear this financial risk, shareholders or customers.</td>
</tr>
<tr>
<td>10</td>
<td>Portfolio performance evaluation</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 13</td>
<td>The Company should fully vet changes in methods or evaluation criteria with public participants. The public input process schedule needs to be better managed to fully consider comments provided on the draft IRP.</td>
</tr>
</tbody>
</table>
## 2011 IRP Acknowledgment
### Requirements/Recommendations

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</table>
| 11       | Portfolio performance evaluation     | IRP Ack. Order | UPSC   | 11-2035-01, pp. 13-14              | Going forward, the Company, in its next IRP, should spend more effort developing comparable cases and ensuring consistent and comparable evaluation of alternative resources.  
-- The Company should allow public input for developing a strategy to specify cases, and alternative “future” scenarios.  
-- The Company should also ensure this strategy provides a sufficient number of cases with common sets of inputs, with consistent assumptions, to perform meaningful comparisons of cases and scenarios.  
-- The next IRP should identify the cost tradeoffs to achieve different levels of performance with respect to the public interest criteria.  
-- Criteria the Company previously identified and addressed by manually modifying a given portfolio at the end of the evaluation process should be identified at the beginning of the IRP process. Cases should then be developed and evaluated using all criteria to determine cost, risk and reliability consequences.  
We will evaluate the success of this approach when the next IRP process concludes. |
| 12       | Procedural                           | IRP Ack. Order | IPUC   | Order No. PAC-E-11-10              | The Commission orders the Company to advise the Commission of any changes made to its system-wide IRP methodology or IRP results emanating from the review conducted by another state utility Commission. [In response to Idaho Conservation League's recommendation that the Commission should wait until after the Utah and Oregon Commissions finish their IRP review proceedings before issuing any final order on this IRP.] |
| 13       | Procurement                          | IRP Ack. Order | UPSC   | 11-2035-01, p. 21                  | UAE suggests the next IRP include the cost increase of alternative acquisition strategies. The Company should explore this suggestion. (From UAE comments: "the next IRP should also include the estimated increase in cost of the alternative near and long term acquisition strategies" [shown in Table 9.2]) |
| 14       | Procurement                          | IRP Ack. Order | UPSC   | UT 09-2035-01, p. 35               | In the future, the Company is directed to omit from its core cases any resource for which it does not already have a signed final procurement contract or certificate of public convenience and necessity. However, this does not preclude the Company from including such resources in sensitivity cases. This will assist with the consistent and comparable treatment of resources going forward. |
## 2011 IRP Acknowledgment

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</thead>
<tbody>
<tr>
<td>15</td>
<td>Public Process</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 13</td>
<td>The Company argues steps to address model transparency will be expensive and time consuming. Rather, the Company recommends stakeholders identify specific modeling or assumption development concerns which the Company could investigate based on a clearly defined scope of work, considering schedules and analytical priorities, in the next IRP. This could involve additional model runs. The Company argues this type of validation strategy would be on-going and makes sense given evolving models and study requirements. We generally concur with the Company’s suggested approach for the next IRP.</td>
</tr>
<tr>
<td>16</td>
<td>Rate Design</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 11</td>
<td>UAE [Utah Association of Energy Users] notes IRP 2011 provides no discussion of rate design as required in Guideline 4.g. The Company should include this information in future IRPs.</td>
</tr>
<tr>
<td>17</td>
<td>Renewables</td>
<td>IRP Ack. Order</td>
<td>WUTC</td>
<td>UE-100514, p. 2</td>
<td>The Company should provide more analysis and explanation of how it intends to meet the RPS requirements in Washington just as it describes the depth of its length (or shortage) in meeting capacity and energy.</td>
</tr>
<tr>
<td>18</td>
<td>Renewables</td>
<td>IRP Ack. Order</td>
<td>WUTC</td>
<td>UE-100514, p. 2</td>
<td>The Company should consider in future Plans the addition of more localized resources, such as anaerobic digesters that may develop in Yakima, Grant, Benton and Franklin counties. Since the Company states that West Control Area resources options reflect its recent cost studies and project experience, we believe it should monitor opportunities to purchase the output of biodigesters in this part of its service territory.</td>
</tr>
<tr>
<td>19</td>
<td>Renewables</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 10</td>
<td>We find the Company has provided insufficient information in IRP 2011 regarding the cost impacts to customers associated with the change from geothermal to wind resources in its Preferred Portfolio. This incremental cost of replacing the geothermal resources with wind resources could be included by the Company in its IRP update, along with a statement regarding whether the customer or shareholder should bear this cost.</td>
</tr>
<tr>
<td>20</td>
<td>Renewables</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 11</td>
<td>In its next IRP, the Company should evaluate the geothermal resource cost recovery risk directly. Since the geothermal cost already includes a development cost estimate, the Company in future IRPs could evaluate higher estimates, and compare this risk with the risks of other portfolios. Finally, we note the action plan contains no action item to address the cost recovery risk issue. The Company should also identify the actions it is taking to address this issue i.e., obtaining regulatory or legislative relief in other states, and include an action plan item in the IRP update to this end.</td>
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## 2011 IRP Acknowledgment
### Requirements/Recommendations

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<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 21</td>
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</table>

- **21**: The Company should perform sensitivity and scenario analyses around key renewable resource cost assumptions in its next IRP.
- **22**: We agree with the Office [of Consumer Services] the Company should prepare a new wind integration study in connection with the next IRP. This should include a technical review committee to direct and evaluate work related to the study and include expertise from Utah participants. Further, this committee should examine recent rate case values forecasted by the Company.
- **23**: The second workshop should address the development of the company's load and resource balances for both capacity and energy and the appropriate capacity planning reserve margin. The workshop should also address the development of an IRP action plan that identifies the contribution of each planned resource to the company's capacity and energy balances. In PacifiCorp's IRP it is often difficult to identify the contribution of each planned resource to the energy balance. Our overall concern is that it is difficult to identify how the planned resource actions are matched to meeting the capacity and energy needs of the company.
- **24**: Contrary to parties’ comments, it appears the Company explained this capital cost credit and provided supporting analysis which parties did not address. The Company should provide sensitivity analyses, including stochastic analyses, in future IRPs to examine the impact of this adjustment on the selection of wind and solar resources to confirm the cost credit adjustment is in the public interest.
- **25**: The Company should continue to provide the western market analysis in support of its reliance on market purchases.
- **26**: We accept a 13 percent planning reserve as reasonable for this IRP and recommend continued analysis of this issue [of the appropriate PRM level], both through LOLP and tradeoff analysis, and the testing of the 1.5 percent adjustment [for reserve sharing among Northwest Power Pool participants].
- **27**: The Company should continue to provide sensitivity analysis [on the assumed cost of Energy Not Served] and to discuss this issue in future meetings. This reliability measure is intended to identify the cost differences between portfolios. The Company could host a discussion regarding this measure and the extent to which the ENS measure is accomplishing this goal.
### 2011 IRP Acknowledgment

#### Requirements/Recommendations

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<td>28</td>
<td>Transmission</td>
<td>IRP Ack. Order</td>
<td>WUTC</td>
<td>UE-100514, p. 3</td>
<td>Wallula to McNary (Energy Gateway Segment A): While we recognize that the Company is obligated to provide sufficient transmission capacity to interconnect such generators pursuant to FERC policies, the IRP should conduct a detailed and separate analysis on how this additional transmission capacity benefits native load customers, whether it is necessary to meet increased load in this service territory or to provide enhanced reliability.</td>
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<tr>
<td>29</td>
<td>Transmission</td>
<td>IRP Ack. Order</td>
<td>WUTC</td>
<td>UE-100514, p. 3</td>
<td>West of Hemingway (Energy Gateway Segment H): At a minimum, we encourage the Company to participate actively in the various regional and sub-regional transmission planning efforts currently underway that are relevant to Hemingway to better inform its planning.</td>
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<td>30</td>
<td>Transmission</td>
<td>IRP Ack. Order</td>
<td>UPSC</td>
<td>11-2035-01, p. 10</td>
<td>We conclude additional consistent and comparable metrics are necessary to reach general or meaningful conclusions about the benefits of the full Energy Gateway expansion. We remind the Company its existing system should represent only facilities which have already received a certificate of convenience and necessity (if required) or for which the Company has a binding contract in place. All other facilities should be included in core or sensitivity cases as options.</td>
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</table>
Contact Information

- We prefer written questions be sent to the IRP email address for tracking purposes
- Please alert us of email address changes or in-bound security restrictions

PacifiCorp
Integrated Resource Planning
825 N.E. Multnomah, Suite 600
Portland, Oregon 97232

Phone: (503) 813-5245
Fax: (503) 813-7247
Email: IRP@PacifiCorp.com