2013
Integrated Resource Plan

Portfolio Case Development and Transmission Benefits Analysis

July 13, 2012
Agenda

• Portfolio Case Development
  – “Strawman” portfolio cases
  – Stakeholder comments and next steps
• Transmission Scenarios in Portfolio Case Development
  – Energy Gateway Scenarios
  – Prior perspectives on IRP/transmission
  – Action items and goals from 2011 IRP
  – Inclusion of transmission projects
• Lunch Break (1/2 hour) 11:30 PT/12:30 MT
• Transmission Benefit Analysis
  – Drivers and objectives
  – FERC Order 1000
  – Benefit identification and valuation example
STRAWMAN PORTFOLIO DEVELOPMENT CASES
Strawman Portfolio Development Cases

- Strawman cases and accompanying background paper distributed to IRP Stakeholders by email on June 28, 2012 for review
- In addition to considering feedback today, PacifiCorp will accept written comments through Wednesday, August 1
- A draft set of portfolio development cases incorporating stakeholder comments will be distributed by mid-August
- A final set of portfolio development cases will be distributed by mid-September (planned start of portfolio modeling)
  - As noted in the strawman case development paper, PacifiCorp may revisit case definitions and consider proposed stakeholder changes after initial portfolio results are distributed
TRANSMISSION SCENARIOS IN PORTFOLIO CASE DEVELOPMENT
For each Gateway scenario, the Company could run the System Optimizer with the same set of portfolio core cases; strawman list currently includes 21 core cases, resulting in 105 portfolios.

- Transmission capital costs included as out-of-model fixed cost adjustments.
- Use average PVRR across each set of EG scenarios to inform selection of final EG scenarios for preferred portfolio selection.
- Evaluate EG scenarios as part of acquisition path analysis.

These scenarios are an additional overlay to the transmission benefit analysis.

### Energy Gateway Scenarios

<table>
<thead>
<tr>
<th>Five Energy Gateway Scenarios</th>
<th>Segments</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Reference</td>
<td>C</td>
<td>Mona-Oquirrh-Terminal</td>
</tr>
<tr>
<td>2 – System Improvement</td>
<td>C, D, and G</td>
<td>2013 Business Plan</td>
</tr>
<tr>
<td>3 – West/East Balancing Area Consolidation</td>
<td>C, D, E, G, H</td>
<td>Increase interchange between PACE and PACW</td>
</tr>
<tr>
<td>4 – Triangle</td>
<td>C, D, G, F</td>
<td>East side wind and improved reliability</td>
</tr>
<tr>
<td>5 – Full Gateway</td>
<td>C, D, E, G, H, F</td>
<td>All Energy Gateway segments</td>
</tr>
</tbody>
</table>
Prior Perspectives on IRP/Transmission

• Transmission traditionally planned around resource needs
  – Treated as IRP output vs. input prior to 2008
• Difficult to commit to transmission, as IRP resource portfolios change each cycle
• Loads & Resource submittals and IRP needs provided a 20+ year view of load service needs
• Energy Gateway was designed as a scalable strategy to meet these needs
2011 IRP/Transmission Approach

• Stakeholders requested analysis of more/ varied scenarios than 2008 IRP provided
• 2011 IRP evaluated multiple Gateway scenarios among varying assumptions
• Presented two future resource scenarios:
  – Green Future vs. Incumbent Future
• Based on policy uncertainty and significant lead time for transmission, asked stakeholders – what is the best investment based on an assumed future state?
Transmission Planning Principles

• Look at all options and secure capacity for the long-term benefit of customers
• Customer load service needs first, regional needs second
• Support multiple resource scenarios
• Secure regulatory and community support—acknowledgment of process
• Execute on prudent, justified projects
Transmission-Related IRP Action Items

• In the scenario definition phase of the IRP process, the Company will address with stakeholders the inclusion of any transmission projects on a case-by-case basis.
  – Develop an evaluation process and criteria for evaluating transmission additions
  – Review with stakeholders which transmission projects should be included and why.

• Based on the outcome of these steps, PacifiCorp will provide appropriate transmission segment analysis for which the Company requests acknowledgement…
Portfolio Development Goals

• Address public stakeholder concerns that portfolios don’t exhibit enough resource diversity for risk assessment

• Integrate Energy Gateway scenarios as part of core case evaluation using consistent set of input assumptions
  – Utah 2011 IRP Acknowledgement Order states:
    “We remind the Company its existing system should represent only facilities which have already received a CPCN or for which the Company has a binding contract in place. All other facilities should be included in core or sensitivity cases as options.”

• Range of core cases should distinguish economic performance of each Energy Gateway scenario
Energy Gateway Project Segments

This map is for general reference only and reflects current plans. It may not reflect the final routes, construction sequence or exact line configuration.

February 2012
Inclusion of Transmission Projects

• Inclusion of the “Reference Case” in the proposed approach to modeling Energy Gateway scenarios addresses concerns

• The Company will seek acknowledgement for:
  – Transmission projects for which the company has in place CPCNs/binding contracts
  – A course of action related to planned transmission projects (i.e., permitting and siting activities)
TRANSMISSION BENEFIT ANALYSIS
Background

• Past stakeholder input asking for additional benefit analysis
• Exploration of transmission benefit metrics
  – IRP and FERC Order No. 1000
• Identification and valuation of possible benefits
## Transmission Drivers and Objectives

<table>
<thead>
<tr>
<th>Primary Driver</th>
<th>Reliability</th>
<th>Policy</th>
<th>Economic / Market Efficiency</th>
<th>Interconnect / Merchant</th>
</tr>
</thead>
<tbody>
<tr>
<td>NERC Transmission Planning criteria</td>
<td>NERC Transmission Planning criteria</td>
<td>Statutory or regulatory directive</td>
<td>Facilitate market transactions</td>
<td>Tariff-driven</td>
</tr>
<tr>
<td>Objective</td>
<td>Reliability</td>
<td>Policy compliance</td>
<td>Lower costs to customers</td>
<td>Merchant-proposed</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Load growth / reliability</td>
<td>Optimize resources and transmission</td>
<td>Quantitative benefits</td>
<td>Projects must comply with standards</td>
</tr>
</tbody>
</table>

### Evaluation Metrics

<table>
<thead>
<tr>
<th>Metric 1</th>
<th>Reliability benefits</th>
<th>Public Policy benefits</th>
<th>Economic benefits</th>
<th>Reliability benefits</th>
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</thead>
<tbody>
<tr>
<td>Metric 2</td>
<td>Economic benefits</td>
<td>Reliability benefits</td>
<td>Public Policy benefits</td>
<td>Economic benefits</td>
</tr>
<tr>
<td>Metric 3</td>
<td>Public Policy benefits</td>
<td>Economic benefits</td>
<td>Reliability benefits</td>
<td>Public Policy benefits</td>
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<td>Additional Metrics</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
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*March 2012 IRP Update – Table 2.2, Transmission Expansion Project Categories*
FERC Order 1000

• Regional compliance filing due October 2012
• Regional transmission planning reforms
• Cost allocation for regionally beneficial projects
• Northern Tier Transmission Group approach
  – Researched other regions
  – Explored common benefit metrics
  – Agreed on 2-step approach to benefit measurement
    • Conservative approach for October 2012 compliance filing
    • Continue to explore additional metrics for NTTG adoption
• Approach for IRP and NTTG
Potential Transmission Benefit Metrics

- Reliable customer load service and generation delivery
- Operational improvements
- System energy losses
- TPL standards
- System flexibility - access to reserves
- Resource integration – Pac and Third Party
- Third-party cost sharing
  - FERC Order 1000 regional cost allocations
  - Joint ownership alternatives
  - Incremental wheeling revenues
Segment Benefit Valuation Example

1. Populus
   - Incremental ATC – wheeling revenue
   - Energy line loss savings
   - Capacity line loss savings
   - Reliability benefits during N-1
   - Load loss
   - Reduced JB tripping
   - Ability to serve WY network load
   - Avoided additional capital

2. Bridger
   - Incremental ATC – wheeling revenue
   - Energy line loss savings
   - Capacity line loss savings
   - Reliability benefits during N-1, N-1-1
   - Load loss
   - Reduced risk of system disturbances
   - Ability to serve WY network load
   - Avoided additional capital

3. Aeolus
   - Incremental ATC/wheeling
   - Energy line loss savings
   - Capacity line loss savings
   - Reliability during N-1, N-1-1
   - Load loss
   - Reduced system disturbances
   - Ability to serve WY network load
   - Avoided additional capital

1. Assess combined benefits/synergies of 2 sub-segments
2. Assess combined benefits/synergies of all 3 sub-segments
Moving Forward

• Stakeholder input
• Additional benefit identification
• Evaluation
• Results/reporting