Western Wind and Solar Integration Study Stakeholder Meeting
Next Steps

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Additional Scenarios and Analysis

• Original plan was to analyze 2 additional scenarios, e.g.,
  – High solar penetration
  – High geographic diversity
  – High load correlation

• We aren’t seeing a huge difference between the 3 scenarios (In-Area, Local Priority, Mega Projects)

• Lack of quality solar data for large PV systems on short timescales makes it difficult to look at high solar penetration
Some Options for Follow-on Scenarios and Analysis

- Run 20% wind / 3% solar in both WestConnect footprint and rest of WECC
  - Need this to really understand what happens when we jump from 20% wind / 3% solar to 30% wind / 5% solar. Is it because of the penetration jump within the footprint or the penetration jump in the rest of WECC?

<table>
<thead>
<tr>
<th>In Footprint</th>
<th>Rest of WECC</th>
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<tbody>
<tr>
<td>Wind Solar</td>
<td>Wind Solar</td>
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<tr>
<td>10% 1%</td>
<td>10% 1%</td>
</tr>
<tr>
<td>20% 3%</td>
<td>10% 1%</td>
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<tr>
<td><strong>20% 3%</strong></td>
<td><strong>20% 3%</strong></td>
</tr>
<tr>
<td>30% 5%</td>
<td>20% 3%</td>
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New Penetration Mix
More Options

• Investigate value of energy storage
  • Long term storage – pumped hydro
  • Short term storage – for regulation or spinning reserve
  • PHEV and/or demand response

• Change the non-renewable portfolio
  – Look at different retirement scenarios and replacement of inflexible units

• Implications of market operations
  – Evaluate market alternatives for including wind in day-ahead markets

• Carbon pricing sensitivity

• Others?
Feedback

• Analysis Results
  – Do the assumptions make sense?
  – Do the results make sense?

• Proposed follow-up analysis
  – What important follow-up pieces of analysis need to be done?
  – Are there other questions that need to be answered that aren’t addressed here?

• Usefulness and relevance
  – Are we answering the right questions?
  – Is this applicable to your utility’s concerns and decision?

Comments requested in writing by August 12, 2008.
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