Review of Utility Resource Plans in the West
Resource Strategies for a “Hybrid” Market

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San Francisco, CA
March 25, 2004
LBNL Research Project for CREPC: “Review of IRP in West”

• Project Scope: Comparative analysis of recently filed IRP plans

• Objectives:
  - Review & analyze emerging issues
    ▼ Treatment of conventional & emerging resource options
    ▼ Portfolio management & risk analysis
    ▼ Regulatory & market conditions
    ▼ Reserve adequacy criteria
  - Summarize key drivers underlying resource choices
  - Create information tools for CREPC that can facilitate work on related projects (e.g. resource adequacy metrics, transmission and other infrastructure)
The Extent of IRP in the West

Percent of Retail Sales

- IOU - CA Procurement: 22%
- IOU - With IRP: 32%
- IOU - No IRP: 10%
- Public Power: 36%

Figure prepared by Matt Lowry (WEIB)
Based on EIA Electric Sales and Revenue, 2002
Today’s Presentation

• Provide preliminary summary of current and projected utility capacity positions for sub-set of IOUs with IRP
  - Peak demand growth
  - Loss of resources
  - Standardized definitions employed to enable consistent comparisons

• Summarize resource strategies suggested by IRP Action Plans

• Highlight the role of Demand Response resources in meeting projected capacity deficiencies
Project Status

• Plans reviewed to date
  - Avista - 2003 Integrated Resource Plan
  - Idaho Power - 2002 Integrated Resource Plan
  - NorthWestern Energy - 2004 Electric Default Supply Resource Planning and Procurement Plan
  - PacifiCorp - 2003 Integrated Resource Plan
  - Puget Sound Energy - 2003 Least Cost Plan and August 2003 Update

• Future plans to review
  - BC Hydro - 2004 Integrated Resource Plan
  - Idaho Power - 2004 Integrated Resource Plan
  - Public Service Company of Colorado - 2004 Least Cost Plan
  - Sierra Pacific Power - 2004 Integrated Resource Plan
  - California IOU Long Term Procurement Plans
Current Capacity Position

Long/medium-term resources minus peak load

<table>
<thead>
<tr>
<th>MW</th>
<th>Avista</th>
<th>Idaho Power</th>
<th>Nevada Power</th>
<th>NWE</th>
<th>PacifiCorp</th>
<th>PGE</th>
<th>PSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>400</td>
<td>-200</td>
<td>-200</td>
<td>-800</td>
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<td>-600</td>
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</tbody>
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% of Peak: 36% 0% -8% -49% 1% -13% -9%

- Average weather conditions
- Operating reserves not included
- Short-term resources not included
Retail Peak Demand Growth by 2010

- Major issues/uncertainties:
  - Population growth (Idaho, Nevada)
  - National and regional economic trends/recovery
  - Load serving obligations and retail market development (Oregon, Montana, Nevada)
Loss of Resources by 2010

- Majority of resource losses associated with contract expirations
  - PPAs, exchange contracts, BPA subscription benefits
- Several plant retirements
- Minimal loss of hydro capacity due to relicensing
Capacity Deficit Projected in 2010

- Combination of current capacity position, load growth, retirements (few), and contract expirations
- Application of operating and/or planning reserves adds to these deficits
Proposed Resource Acquisitions by 2010

- Includes **specific** resource acquisitions proposed in IRP Action Plans, where quantities were explicitly identified (& not redacted)
- **Driving factors**
  - Load growth and contract expirations (and some retirements)
  - New planning margins
  - RPS and renewables policy goals
  - Resource diversification

Energy Analysis Department
Supply-Side Procurement Strategies

- Resource ownership specified in IRP or determined following RFP (PacifiCorp, PGE)
- Contract resources: PPAs, seasonal exchanges, tolling contracts, shaped products, etc.
## Energy Efficiency Resource Acquisitions Through 2010

<table>
<thead>
<tr>
<th>Utility</th>
<th>EE Activities</th>
<th>2010 Target (aMW)</th>
<th>% of Load Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avista</td>
<td>New DSM resource acquisitions are based on a continuation of current funding levels.</td>
<td>29</td>
<td>10%</td>
</tr>
<tr>
<td>Idaho Power</td>
<td>No targets were established in 2002 Plan, but following approval of new conservation rider, efforts by EE Advisory Group have initiated several new programs.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nevada Power</td>
<td>Continue existing programs, and evaluate additional programs proposed for study. IRP requests extension of current funding levels.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>NorthWestern</td>
<td>IRP establishes a 10-yr DSM plan with targets for annual EE acquisitions and expenditures, including existing USB programs. Specific program activities will be determined through DSM planning efforts.</td>
<td>33</td>
<td>34%</td>
</tr>
<tr>
<td>PacifiCorp</td>
<td>Design and implement specific &quot;base level&quot; EE programs, and identify new programs for additional cost-effective acquisitions (including 3rd party programs)</td>
<td>~300</td>
<td>~35%</td>
</tr>
<tr>
<td>PGE</td>
<td>None. (Energy Trust of Oregon administers programs).</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PSE</td>
<td>EE acquisition targets based on the results of achievable potential study. Specific program activities will be determined through DSM planning efforts.</td>
<td>137</td>
<td>78%</td>
</tr>
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# Demand Response Resource Acquisitions Through 2010

<table>
<thead>
<tr>
<th>Utility</th>
<th>DR Activities</th>
<th>2010 Target (MW)</th>
<th>% of Peak Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avista</td>
<td>Residential TOU discussed, but determined to be not economically viable at present.</td>
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<tr>
<td>Idaho Power</td>
<td>No DR programs identified in 2002 IRP, but a residential A/C direct load control program has subsequently been initiated.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Nevada Power</td>
<td>Continued expansion of A/C direct load control program. Additional projects proposed for study, including C&amp;I RTP.</td>
<td>9</td>
<td>1%</td>
</tr>
<tr>
<td>NorthWestern</td>
<td>No DR resources in current plan, but intention to include DSM activities that encourage load shifting within future plans.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PacifiCorp</td>
<td>Introduce a new A/C direct load control program and an irrigation load control pilot, and potentially new interruptible/curtailment tariffs, pending results of further study.</td>
<td>154</td>
<td>14%</td>
</tr>
<tr>
<td>PGE</td>
<td>Existing residential TOU pilot will be expanded, and large customer RTP pilot will be offered, but capacity not explicitly valued. Dispatchable and fixed-term DR from large customers may be pursued. Residential DLC programs considered, but determined to be uneconomic.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>PSE</td>
<td>A preliminary study indicated &gt;200 MW cost-effective potential for winter peak clipping. No action items indicated in IRP.</td>
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Next Steps

- Review remaining utility resource plans and associated filings
- Create information tools
  - spreadsheets and databases for comparative analysis, key technical inputs
  - integrate with other related CREPC projects
- Complete comparative analysis on identified emerging issues and topics