Regional Conservation Savings
Since the 5th Plan’s Adoption

Are We Meeting the Plan’s Targets?

March 14, 2008

5th Plan Conservation Resource
Acquisition Targets
2005 – 2009 = 700 aMW

- Residential - Lost Opportunity
- Commercial - Lost Opportunity
- Irrigated Agriculture - Retrofit
- Industrial - Retrofit
- Residential - Retrofit
- Commercial - Retrofit

Resource Potential (aMW)
**Total Resource Acquisition Cost**

2005 – 2009 = $1.64 billion

- Residential - Lost Opportunity
- Commercial - Lost Opportunity
- Irrigated Agriculture - Retrofit
- Industrial - Retrofit
- Residential - Retrofit
- Commercial - Retrofit

Average Levelized Cost = 2.4 cents/kWh (2000$)

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**Regional Technical Forum’s Utility System Conservation Accomplishments Survey**

- Online Survey of All Utilities and System Benefits Charge Administrators
- Conducted Annually
- Supplemented By
  - Utility program reports submitted to Bonneville
  - Northwest Energy Efficiency Alliance regional evaluation of energy efficiency market changes
How "Good" Are the Numbers?

<table>
<thead>
<tr>
<th>Survey Year</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Regional Load</td>
<td>99%</td>
<td>98%</td>
<td>86%</td>
</tr>
<tr>
<td>Number of Utilities Covered</td>
<td>107</td>
<td>105</td>
<td>83</td>
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</tbody>
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The Region Is **Exceeding** the 5th Plan’s Targets With Utility Funded Programs Alone!
When Overall Market Changes Are Considered, The Region Set An All Time Savings Record in 2007

- 5th Plan Target
- Non-Programatic Market Effects
- Bonneville Funded Conservation (Flurry Over)
- Alliance Programs (Utility, SBC, and Bonneville Funded)
- Bonneville Funded Conservation
- Utility & SBC Funded Conservation

Regional Utility, SBC Administrator and Bonneville Conservation Investments

- Bonneville Funded Conservation (Imputed Cost of Carry Over)
- Alliance Programs (Utility, SBC, and Bonneville Funded)
- Bonneville Funded Conservation
- Utility & SBC Funded Conservation
Distribution of Savings Across Sectors (Excludes NEEA)

- Residential: 38%
- Low-Income Weatherization: 1%
- Agriculture/Irrigation: 4%
- Commercial: 29%
- Industrial: 24%
- Other: 4%

Distribution of Savings Across Sectors with NEEA

- Residential: 58%
- Low-Income Weatherization: 1%
- Agriculture/Irrigation: 3%
- Commercial: 20%
- Industrial: 16%
- Other: 2%

60% of Residential Sector Savings Come from CFLs – This is consistent with 5th Plan’s Assessment of sector conservation potential
Residential Sector Savings Comprise Nearly 60% of the Total

![Bar chart showing the share of total savings between 2007 Plan Target and 2007 Actual for different sectors: Residential, Industrial, Commercial, Agriculture/Irrigation.]


![Line chart showing the levelized cost of savings from 1991 to 2007. The costs are below $20/MWH in each year.]

10 Largest Utilities/Program Administrators
2007 vs 2006 Savings

Annual Savings (MWh)

<table>
<thead>
<tr>
<th>Utility</th>
<th>2006</th>
<th>2007</th>
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<tbody>
<tr>
<td>Energy Trust</td>
<td></td>
<td></td>
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<tr>
<td>PSE</td>
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<tr>
<td>IPC</td>
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<tr>
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<td>Clark County</td>
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<tr>
<td>Cowiltz County</td>
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</tr>
</tbody>
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Year-Over-Year Change in Savings

<table>
<thead>
<tr>
<th>Utility</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy Trust</td>
<td>0%</td>
</tr>
<tr>
<td>PSE</td>
<td>50%</td>
</tr>
<tr>
<td>IPC</td>
<td>100%</td>
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<tr>
<td>Pacificorp - ID/WA</td>
<td>150%</td>
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<tr>
<td>Seattle</td>
<td>200%</td>
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<tr>
<td>Snohom PUD</td>
<td>250%</td>
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<tr>
<td>Avista</td>
<td>300%</td>
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<tr>
<td>NorthWestern</td>
<td>350%</td>
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<tr>
<td>Clark County</td>
<td>400%</td>
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<tr>
<td>Cowiltz County</td>
<td>400%</td>
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Initial Direction on Conservation Supply Curves
6th Power Plan

Describe the Characteristics of Conservation Available to be Developed

- Amount of conservation available
- At what cost
- Over what time frame
Typical Supply Curve
Amount & Cost

Levelized Cost in Cents per kWh

Amount Available by 2030 in MWa

Suite of Supply Curves
Depending on Timeframe Available

- **Lost-Opportunity**
  - Available only as new homes & businesses, new appliances or equipment
  - Only incremental cost & savings
  - ‘Lost’ as a resource, at that cost, if not developed
  - Amount available tied to economic forecast

- **Non-Lost-Opportunity (Retrofit)**
  - Available any time over forecast period
  - But practical limits on developable pace
Revisions to 5th Plan Conservation Supply Curves - Major Changes

- Calibrate to new load forecasts
  - Units: Number homes, appliances, businesses, new population
- Remove completed conservation measures
  - Conservation 2005-2009: CFLs, LED Traffic Lights...
- Remove adopted codes & standards
- Revise key existing measures
- Add new measures
  - Industrial supply curves expanded
  - Distribution efficiency added
  - New technologies added

Test Curve - Lost Opportunity

Lost-Opportunity Potential by 2030

<table>
<thead>
<tr>
<th>Technical Potential MWh Achievable by 2030</th>
<th>Levelized Cost mills per kWh in $2006</th>
</tr>
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<tbody>
<tr>
<td>5P Proxy</td>
<td>6P Proxy</td>
</tr>
<tr>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>29</td>
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<td>52</td>
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<td>99</td>
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<td>168</td>
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</tbody>
</table>
Test Curve – Retrofit 2030

Retrofit Potential by 2030 (Non-Lost-Opportunity)

Levelized Cost mills per kWh in $2006

Technical Potential MWa Available by 2030

- 6P Proxy
- 5P