MEMORANDUM

TO: Council Members

FROM: Tom Eckman, Manager, Conservation Resources
      Gillian Charles, Energy Policy Analyst

SUBJECT: Report on 2011 Conservation Achievements

In 2011, once again the region’s utilities exceeded the Sixth Power Plan’s goal for energy efficiency achievements. In addition, the achievements were low cost, at or below what was shown in the Sixth Power Plan. At the September Council Meeting in Astoria, Council staff will present the detailed results of the 2011 regional conservation achievements and the projections for 2012-2014. The Council will issue a press release following the meeting to announce the good news.

The Sixth Power Plan’s five year target for 2010-2014 is 1,200 average megawatts. The target for 2011 was 220 average megawatts. As a reminder, in 2010 the region acquired 254 average megawatts of conservation savings, far exceeding the Council’s target of 200 average megawatts. The levelized cost of the 2010 savings were just under $18/MWH.

Every year the Council surveys the region’s utilities, Bonneville Power Administration, and the Systems Benefit Charge Administrators for the previous year’s conservation achievements and expenditures and projections for the current year. This year, the Council asked for actual achievements and expenditures for 2011 and projected achievements and expenditures for 2012. In addition, the Council, in coordination with PNUCC, asked for projected achievements and expenditures for 2013 and 2014 in order to estimate and gage the region’s progress towards the Sixth Power Plan’s five-year target (2010-2014) of 1,200 average megawatts.

The response from the survey was strong, with 92 utilities submitting reports for 2011 achievements (representing ~93% of the region’s retail sales). The remaining share is obtained from data collected directly from Bonneville and NEEA. In response to the request for projections for 2012-2014, the number of utilities submitting reports fell from over 90 utilities...
representing over 90% of retail sales to less than 80 utilities representing just over 70% of retail sales. Most utilities indicated that their lower response rate was due to uncertainties regarding future budgets and an unwillingness to set forth expectations that they could not commit to meeting.

Staff wish to thank the respondents for submitting the survey information and to PNUCC for encouraging participation in this effort.
Progress Toward the 6th Plan’s Regional Conservation Goals

2011 Achievements
2012 – 2014 Predictions

September 12, 2012
2011 Regional Conservation Achievement Report

• Annual Survey Conducted by RTF
• Requested Actual Conservation Savings and Expenditures for 2011
• At the request of PNUCC, also requested Projected Savings and Expenditures for 2012 – 2014 to compare against 6th Plan’s targets
• Data was requested from all utilities, SBC Administrators, NEEA and Bonneville.
Utilities Filing Regional Conservation Progress (RCP) Reports*

- 2008: 87
- 2009: 88
- 2010: 98
- 2011: 92
- 2012: 86
- 2013: 85
- 2014: 80

*Includes Energy Trust of Oregon, and PNGC and IDEA that file on behalf of multiple utilities
Share of Regional Retail Sales Covered by RCP and Other Sources*

*The Council/RTF obtains data directly from NEEA and Bonneville for public utilities that do not file RCP reports and for programs Bonneville funds directly.
2011 Results:
So Far, So Good
2011 Regional Accomplishments

Exceeded Council Plan Target by 26%
Accomplishments Have Exceeded Plan Targets Every Year Since 2005
2000-2011:
Longest Sustained Period of PNW Utility Energy Efficiency Acquisitions in 30 Years

Annual Savings (aMW)

Commercial and Industrial Savings Continued to Grow the Most

U.S. utility investment in efficiency in 2011 was just over $5.23 billion (2006$). Northwest investments represent about 8% of the total, but just under 5% of the U.S. population.
NEEA Continues to Contribute Significant Savings

Annual Savings (aMW)

- NEEA
- BPA and Utility Programs

Average Utility Cost of Conservation, While Increasing Remains Low

<table>
<thead>
<tr>
<th>Year</th>
<th>Levelized Cost of Savings (2006$/MWH)</th>
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<tbody>
<tr>
<td>2005</td>
<td>$16</td>
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<tr>
<td>2006</td>
<td>$16</td>
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<tr>
<td>2007</td>
<td>$10</td>
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<td>2008</td>
<td>$12</td>
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<tr>
<td>2009</td>
<td>$14</td>
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<tr>
<td>2010</td>
<td>$18</td>
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<tr>
<td>2011</td>
<td>$20</td>
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</table>
Projections for 2012 – 2014 Savings by RCP Reporting Utilities*

*Excludes savings from NEEA, BPA direct acquisitions and utilities not filing RCP Reports.
6th Plan’s Target of 1200 aMW Can Be Met If 2012-2014 Savings Average 225 aMW/yr*

*This is roughly 85% of the Plan’s Annual Targets for 2012 -2014
**Projections for 2012: Close to 2011**

Forecast savings for IOUs approximately 10% below 2011 levels. Forecast savings for POUs roughly at 2011 levels.*

<table>
<thead>
<tr>
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<th>2011 Reported Savings</th>
<th>2012 Projections</th>
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<tbody>
<tr>
<td>Savings for all Utilities/SBC Providing Projections for 2012 (86 utilities representing 91% of Regional Retail Sales)</td>
<td>212</td>
<td>193</td>
</tr>
<tr>
<td>% of 2011 Savings</td>
<td></td>
<td>91%</td>
</tr>
<tr>
<td>IOUs (Avista, ETO, IPC, NW, PacifiCorp &amp; PSE)</td>
<td>133</td>
<td>116</td>
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<tr>
<td>% of 2011 Savings</td>
<td></td>
<td>87%</td>
</tr>
<tr>
<td>Publics Only (Includes 80 utilities)</td>
<td>79</td>
<td>77</td>
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<td>% of 2011 Savings</td>
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*Assumes non-RCP reporting POUs sustain similar level of savings.
# Projections for 2013: 15% Below 2011

Forecast savings for IOUs approximately 10-13% below 2011 levels
Forecast savings for POUs 20% below 2011 levels*

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<td>% of 2011 Savings</td>
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**Projections for 2014: Also 15% Below 2011**

Forecast savings for IOUs approximately 15% below 2011 levels
Forecast savings for POUs 20% below 2011 levels*

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<td>51</td>
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<td>% of 2011 Savings</td>
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<td>80%</td>
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**Summary: It Looks “Doable”**
But Low Response Rate Makes Projections Highly Uncertain

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• Bonneville “overspent” its FY2011 budget by 33% ($40 million)
  – Good news: Savings were more than 1/3 higher
  – Bad news: lean 2013-2014 budgets place more reliance on public utility cost sharing

• West Coast wholesale market surplus (created in part by RPS), combined with low natural gas prices
  – Good news: short run wholesale electricity market prices are low
  – Bad news: Retail prices are increasing (to pay for RPS) and low market prices will increase pressure on conservation budgets

• ARRA funding and federal and Oregon energy tax credits ending or significantly reduced, likely to result in increased need for utility/SBC funding to sustain savings level
  – PECI laid off ~15% of staff after ARRA funded projects ended

• Minor skirmishes and/or distractions
  – OR: “fuel wars” over EE incentives for heat pumps and proposed “PURPA for EE”
  – ID: IPUC focused on NEEA “benefits to Idaho ratepayers”
  – MT: Rural utilities need BPA/NEEA/RTF support to identify and pursue efficiency opportunities
  – WA: Larger public utilities want more independence from Bonneville
Average Cost of Utility Acquired Savings Has Been Lower and Less Volatile Than Wholesale Market Electricity Prices

![Graph showing the comparison between the levelized cost of utility efficiency acquisitions and the average wholesale market price at Mid-C Trading Hub. The graph indicates that the levelized cost has remained relatively stable and lower than the volatile wholesale market prices.](image)
Levelized Cost of Combined Cycle Combustion Turbine at Alternative Natural Gas Prices and Lifetime Capacity Factors Compared to Utility Cost of Conservation

Levelized Cost (2006$/MWH)

$0 $50 $100 $150 $200 $250

Lifetime Capacity Factor

10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

PNW Minimum CCCT Capacity Factor (17%)
PNW Average CCCT Capacity Factor (51%)
PNW Maximum CCCT Capacity Factor (79%)

$1.00/MMBtu $2.00/MMBtu $4.00/MMBtu $6.00/MMBtu

Historical Utility Cost of Efficiency

Northwest Power and Conservation Council
Levelized Cost of Combined Cycle Combustion Turbine at Alternative Natural Gas Prices and Lifetime Capacity Factors Compared to Utility Cost of Conservation

![Bar chart showing levelized cost at different natural gas prices and lifetime capacity factors.]

- **PNW Maximum CF (79%)**
- **PNW Average CF (51%)**
- **PNW Minimum CF (17%)**
- **Historical Utility Cost of Efficiency**
PNW Efficiency “Supply Curve”
Technically Achievable Potential by 2030

Real Levelized Cost (2006$/MWH)

Technically Achievable Potential (MWa)
Over 2000 MWa of Achievable Retrofit Potential
Exist <$40 MWH
Over 2000 MWa of Achievable Lost-Opportunity Potential* Exist at Cost Below <$40 MWH

*Cumulative Available Potential by 2030
Over 4000 MWa of Achievable Potential* Exist at Cost Below <$40 MWH

*Lost-Opportunity Potential is Cumulative Amount Available Potential by 2030
Regional Utility/SBC Energy Efficiency Investments Per Person Are Slightly More Than Double the US Average
Share of Regional Retail Electric Revenue Invested in Energy Efficiency

<table>
<thead>
<tr>
<th>Year</th>
<th>Share of Revenues for Non_EE</th>
<th>Share of Revenues for EE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1.76%</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1.73%</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.68%</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>1.97%</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>2.48%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>3.21%</td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>3.63%</td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>1.48%</td>
<td></td>
</tr>
</tbody>
</table>

Average

Share of Regional Retail Electric Revenue

- Share of Revenues for Non_EE
- Share of Revenues for EE
Utility/SBC-Funded Savings Equaled Just Under 1.4% of Regional Electricity Sales in 2011
Almost Three Times the US Average
Efficiency Has Met Over 50% of PNW Load Growth Since 1980
Since 1978 Utility & BPA Programs, Energy Codes & Federal Efficiency Standards Have Produced Over 5000 MWa of Savings
So What’s 5000 MWa?

• It’s enough electricity to serve the nearly *entire state of Oregon*

• It saved the region’s consumers nearly $3.1 billion in 2011

• It lowered 2011 PNW carbon emissions by an estimated 19.8 million MTE.
Energy Efficiency is Now the Region’s Third-Largest Resource

- Hydropower: 46%
- Coal: 18%
- Energy Efficiency: 16%
- Natural Gas: 11%
- Nuclear: 4%
- Wind: 4%
- Geothermal: <1%
- Petroleum & Pet Coke: <1%
- Biomass: 1%

Based on Estimate of 2010 Actual Resource Dispatch/Contribution

- Conservation Savings 1978 - 2011 = 5,050 MWa
- Annual Firm Energy Output (MWa):
  - Rocky Reach: 1,869
  - The Dalles: 1,105
  - John Day: 802
  - Chief Joseph: 610
  - Grand Coulee: 536