MEMORANDUM

TO:       Council Members
FROM:     Jennifer Light
SUBJECT:  2018 Regional Conservation Progress Report

BACKGROUND:

Presenter: Jennifer Light

Summary: The Regional Conservation Progress (RCP) survey comprises energy efficiency savings data from Bonneville (on behalf of their public utilities), the region’s investor owned utilities, Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance. The report also includes data on total market savings, capturing additional savings occurring outside of direct program touch. The data provide an understanding of the cost-effective energy efficiency savings acquired in the region and related expenditures for 2016-2018.

The data reported for 2016 through 2018 show that the region is currently on track with the Seventh Power Plan energy efficiency acquisition milestones. Despite this good progress, there are a few areas of note that may impact whether the region will meet the six-year goal of 1400 aMW of energy efficiency:

- Savings from programs have declined annually between 2016 and 2018, and projections show a continued trend. If that holds true, it will require increasing amounts of savings from the NEEA Alliance and other market sources.
- Residential lighting has been a significant portion of the total regional savings over the past three years. Starting in 2020,
however, the Power Plan assumes a much more efficient baseline for general service lamps. This means that there will need to be a shift towards achieving savings in other end uses for the region to meet the goals.

- Bonneville is currently achieving less than 42% of the regional target. This trend is consistent with what was reported in the 2017 RCP.

Staff will present the findings of this survey to the Council, including more information on the accomplishments to date and on these trends to track in the coming years.

Relevance: The Seventh Power Plan established a goal of 1400 aMW of conservation acquisition by the end of the six-year Action Plan period (2021). This was broken into two-year milestones:

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Annual Energy Savings (aMW)</td>
<td>370</td>
<td>460</td>
<td>570</td>
</tr>
<tr>
<td>Cumulative Energy Savings (aMW)</td>
<td>370</td>
<td>830</td>
<td>1400</td>
</tr>
</tbody>
</table>

Per its charter, the Regional Technical Forum is responsible for tracking the region’s progress against the plan goals.

Workplan: B.1.1 Coordinate with regional entities to ensure the regional goal for cost-effective conservation is achieved.
2018 Regional Conservation Progress Survey Results

September 17, 2019
Council Meeting
Corvallis, Oregon
Background

- Annual survey conducted by the RTF on behalf of the Council
- Requested energy efficiency savings and expenditures for 2018 and corrections/orders to 2016 and 2017
  - Savings: Sought as much detail as possible, to the end-use
  - Expenditures: Sought to get total expenditures
  - Projections: Estimates for 2019-2020 to inform progress against Power Plan goals
- At this point, we are halfway through the Action Plan period
Data and Analysis Process

- Bonneville Data
- Data check
- Final Bonneville Program Data

- IOU Data
- Mid-C Utility Data
- NEEA Data
- Momentum Data

Regional Conservation Progress Database and Workbook

Northwest Power and Conservation Council
## Types of Savings in the RCP

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Market Savings</strong></td>
<td>Represents the total savings in the region relative to the Power Plan baseline. A look at the change in consumption for a whole market (efficient and inefficient). These savings are most comparable to the Power Plan goals.</td>
</tr>
<tr>
<td><strong>Program Savings</strong></td>
<td>Savings claimed by utilities, BPA, and Energy Trust of Oregon for specific measures that they have incentivized.</td>
</tr>
<tr>
<td><strong>NEEA Alliance Savings</strong></td>
<td>Savings reported by NEEA that represent efficiency in markets they track above the Power Plan baseline not claimed by programs.</td>
</tr>
<tr>
<td><strong>Momentum Savings</strong></td>
<td>Savings reported by BPA to reflect efficiency in the market, resulting from previous program activity, that are above the Power Plan baseline and not accounted for by Programs or NEEA.</td>
</tr>
<tr>
<td><strong>Codes and Standards Savings</strong></td>
<td>Savings from new buildings or equipment that meet a new code or standard not captured in the Power Plan baseline.</td>
</tr>
</tbody>
</table>
Each savings component represent slightly different perspectives

It is not accurate to sum these different components, without adjusting for double or under counting

Total Market Savings best reflect the savings compared to the Power Plan baseline and allow us to adjust for double counting or under counting

Where Total Market Savings are not available, savings represent the sum of specific components as reported
Total Market Savings

- For 2016-2018, Total Market Savings were included for the following residential markets:
  - Lighting
  - Refrigerators
  - Heat Pump Water Heaters
  - Clothes Washers
  - HVAC (only 2016 & 2017, except ductless heat pumps)
- Total Market Savings were also reported for non-residential lighting for 2016 & 2017

These markets represent 40% of the total 2016-2018 regional savings
Correcting for Different Perspectives

To ensure the sum of the parts equals the total, Council staff calculated a market adjustment for any market where we have Total Market Savings. This avoids double counting (or under counting) savings. Without this adjustment, savings components generally overstate total savings.
Other Caveats

- While Bonneville reports savings for the fiscal year, many others report on a calendar year
  - This will be smoothed out over multiple years of reporting
- Some types of savings, in particular industrial, are blocky and can vary significantly year by year
- Comprehensiveness of expenditure data vary year-by-year (ex: some utility self-fund expenditures)
- Savings may be updated in future years to account for adjustments to savings and the addition of data from new sources
Thank You Respondents!
Now for the Results
Regional Progress from 2016-2018

Total Regional Savings Compared to Seventh Plan Milestones

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestone</th>
<th>Regional Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>185</td>
<td>201</td>
</tr>
<tr>
<td>2017</td>
<td>185</td>
<td>208</td>
</tr>
<tr>
<td>2018</td>
<td>230</td>
<td>228</td>
</tr>
<tr>
<td>2019</td>
<td>230</td>
<td>230</td>
</tr>
<tr>
<td>2020</td>
<td>285</td>
<td></td>
</tr>
<tr>
<td>2021</td>
<td>285</td>
<td></td>
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</tbody>
</table>

Milestone | Regional Savings
---|---

Region is Ahead of Current Milestone Goals

Cumulative Accomplishments Compared to Plan Milestone

- Target: 600
- Total Regional Savings: 637
Significant Savings Remain to Reach Six Year Goals

Regional Progress Toward Six Year Goal

- Milestone: 1400
- Total Regional Savings: 763
- Achieved: 637
- Remaining: 126

Cumulative Savings (eMW)
Region is currently on track, but there are some areas to watch

- Program Savings
- NEEA Alliance and Momentum Savings
- Residential Lighting
- Bonneville’s Progress
Program savings are declining, and forecasts show this trend continuing.

Annual Program Savings and Expenditures, including Forecasts

Program Expenditures ($1M)
Program Savings (aMW)

BPA Program (EEI Funded)  BPA Program (Self-Funded)  IOU Funded  Mid-C Funded  Expenditures

2016  2017  2018  2019  2020
NEEA Alliance Savings increased in 2018, but are forecasted to decrease in 2020.

**Note:** About 60% of these savings to date are from residential lighting.
Residential lighting has been an important contributor to savings

- Residential lighting has provided significant, and increasing, savings
- About 35% of these savings are from general service lamps (GSL)
- Power Plan baseline assumed a more efficient baseline for GSL starting in 2020 based on Federal standard
- Only savings above the Power Plan baseline can be claimed against the goals
Despite success in lighting, significant potential remains in the residential sector.
Shifting the emphasis towards HVAC and water heating will help in meeting potential savings.
Reminder from 2017 RCP

Bonneville’s Progress Towards Milestone

Bonneville Achievements Compared to 2016 and 2017 Milestone

Accounts for total regional savings; where available
Additional total regional savings data may adjust this up or down
BPA is currently achieving less than 42% of Power Plan Goals
Determining BPA’s Savings

BPA’s savings represent Program Savings accomplishments plus 42% of the other regional accomplishments.
BPA Program Savings account for 30% of regional Program Savings

2016-2018 Program Savings Share
- BPA (Self Funded): 11%
- BPA (EEI Funded): 20%
- Mid-C: 5%
- IOU: 64%

2016-2018 Funding Shares
- BPA (Self Funded): 12%
- BPA (EEI Funded): 19%
- NEEA: 7%
- Mid-C: 1%
- IOU: 61%

Bonneville is achieving ~35% of its savings through self-funding
Only 25% of BPA utilities self-fund; 90% of self-fund savings come from only 6 utilities
Efficiency continues to contribute significant capacity savings to the region

2016-2018 Winter Savings: 1222 MW

2016-2018 Summer Savings: 801 aMW
Energy efficiency has provided almost 6900 aMW of savings since 1978.
Fun Facts: What does 6900 aMW represent?

- Equivalent to the annual energy consumption of around 5.5 million homes
- Roughly 2.5 times the generation of Grand Coulee
- Approximately 3 times the region’s wind capability
- Avoided more than 21.9 million metric tons of CO2
- CO2 equivalent of driving a Prius between the Portlands over 15,000 times
Energy efficiency continues to be a valuable resource and the region is currently on track for meeting Seventh Plan goals, but there are some areas to watch:
ADDITIONAL SLIDES
Efficiency is occurring outside of Program and NEEA Alliance Savings and do relate to the Plan goal.

Program and NEEA Alliance Savings represent only efficient units, while the Plan looks at all units.

Program Savings baselines may be different than the Plan baseline, and change throughout Plan period.

Program savings represent short-term savings, while the Plan represents long-term savings.