Northwest **Power** and **Conservation** Council

November 8, 2016

MEMORANDUM

TO: **Council members**

FROM: **Jennifer Light and Charlie Grist**

SUBJECT: **Regional Conservation Progress Survey**

BACKGROUND:

Presenter: Jennifer Light and Charlie Grist

Summary: The Regional Conservation Progress (RCP) survey comprises data from Bonneville (on behalf of their public utilities), the region's investor owned utilities (IOU), Energy Trust of Oregon, and the Northwest Energy Efficiency Alliance (NEEA). The data collected in the RCP provides and understanding of the energy efficiency savings acquired in the region and expenditures for 2015.

The 2015 RCP represents the last year under the Sixth Power Plan. Major findings for energy efficiency acquisition during the Sixth Plan period are:

- The region as a whole, including program, NEEA, codes and standards, and market momentum savings, surpassed the regional target of 1,490 aMW by acquiring 1,739 aMW of energy efficiency between 2010 and 2015.
- In 2015, utility program and NEEA savings were 284 aMW. This is just shy of the 2015 target of 290 aMW. When adding in market accomplishments outside of direct utility programs, the region surpassed its 2015 target.
- Bonneville surpassed its share of the Sixth Plan Target (defined as 42 percent of the regional target) by achieving 700 aMW of energy

efficiency from programs, NEEA, and market savings from 2010 through 2015.

- The utility-funded energy efficiency acquired in 2015 represents approximately 498 MW in associated capacity savings.
- Cumulative savings from 1978 through 2015 from utility and NEEA programs, state codes, and federal standards now total 5,962 aMW aMW. Conservation remains the region's second largest resource after hydroelectricity.

Following are some of the survey's major findings for energy efficiency costs:

- In aggregate, regional utility investments in energy efficiency in 2015 were $440 million. One note, is that this data may not account for all public utility self-funded conservation not captured in the RCP.
- The average levelized cost for conservation continues to remain low. The average levelized cost to utilities of 2015 savings was $16.50 per megawatt hour (2006$).
- Utility-funded conservation savings for 2015 are equivalent to 1.4 % of the regional electricity sales,[1] on average. The data also shows that a handful of utilities capture large savings relative to their share of retail electric sales.

Relevance: The Sixth Power Plan established a target of 1,490 aMW of energy efficiency acquisition from 2010 through 2015. Per its charter, the Regional Technical Forum is responsible for tracking energy efficiency savings in the region against plan targets.

Workplan: A.1.1 Coordinate with regional entities (e.g. NEEA, BPA, utilities, regulators) to ensure the regional goal for cost-effective conservation is achieved.

Background: The Council's Regional Technical Forum is charged with conducting an annual survey to assess progress towards the Sixth Power Plan's conservation goals. Council staff, with the assistance of RTF contract analyst and an outside contractor (Cadmus), recently completed the 2015 survey and will present their findings at the November Council meeting.

More Info: N/A

[1] This is compared to 2014 regional electricity sales based on EIA data.

Regional Conservation Progress Survey Results

November 15, 2016

Council Meeting

Coeur d'Alene, Idaho

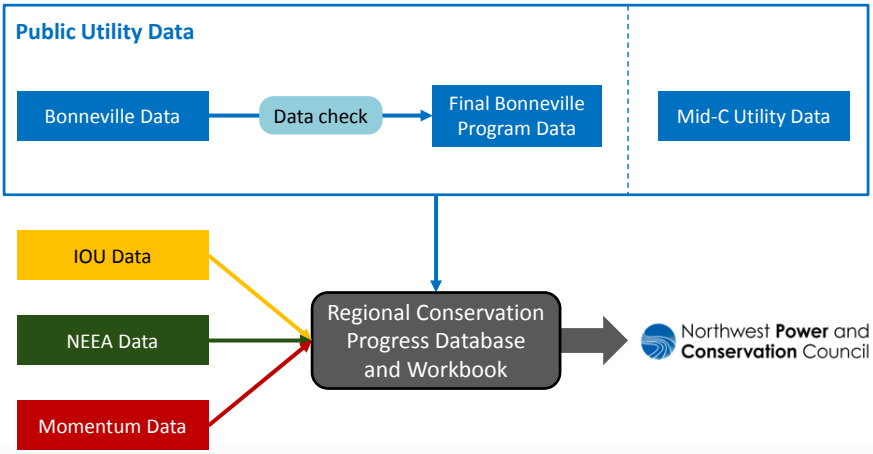
Northwest Power and Conservation Council

Background

- Annual survey conducted by the RTF on behalf of the Council
- Requested energy efficiency savings and expenditures for 2015
  - Savings: Sought as much detail as possible
  - Expenditures: Sought to get total budget
- Data requested from BPA and NEEA on efficiency savings from outside utility-funded programs
- This is the last look at the how the region did against the Sixth Plan targets!

Northwest Power and Conservation Council

Data and Analysis Process



Challenge 1: Avoiding double counting of savings

Utility Program Savings: BPA-directed **and federal programs**, local programs, and IOU and ETO programs	**NEEA Adjusted Savings:** NEEA Savings minus NEEA code and standard savings	**State Code Savings:** State code savings adjusted for overlap with federal and state standards	**Standards Savings:** Federal and state standards savings, net of overlapping state codes	**Market Momentum:** Total market savings after netting out standards, codes, NEEA, and utility programs.

Challenge 2: Not all reported savings are directly comparable

- Some utilities report fiscal year, others report calendar year
  - Generally minor, and gets washed out with multiple years of reporting
- Not all utilities count savings from the same starting place
  - Continuing to think about how we might improve here
  - More on this later...

Challenge 3: Not all data are final at the time of the RCP request

- Program data may not be final
  - Ex: Bonneville utilities have around 9 months after the end of the rate period to report
- Programs may have updates to prior years based on evaluation results
- Market studies are always at least a year behind

Challenge 4: Not all public utility data are reported to Bonneville

- Some data may be reported, but after the RCP request
  - Over the long-term these gaps are resolved
- Some utilities run programs that are considered "not reportable"
  - Programs not in the Implementation Manual
  - Programs that don't strictly follow all BPA requirements

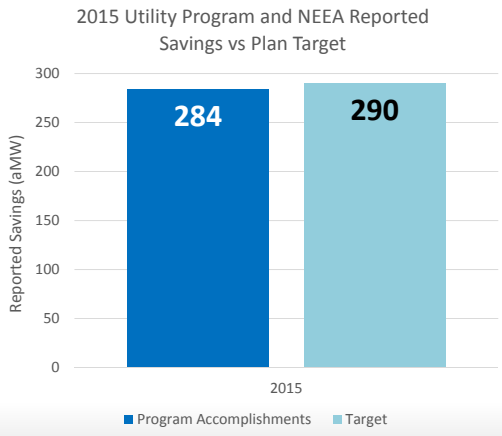
Thank You Respondents!

- Savings and expenditures data from 143 reporting utilities (essentially the whole region)
- Survey responses from 8 utilities to inform the forward looking improvements

Now for the Results!

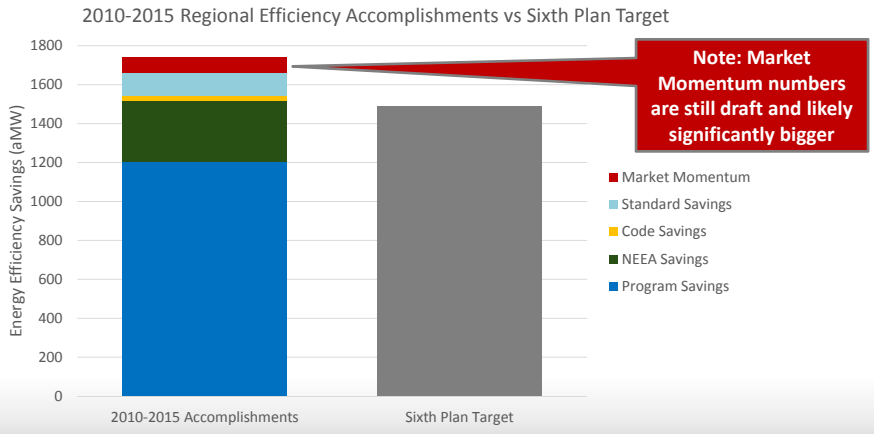
Reminder: This is a look back into the Sixth Plan world

Utility programs and NEEA acquired 284 aMW of energy efficiency in 2015



Note: NEEA savings include code and standards claims

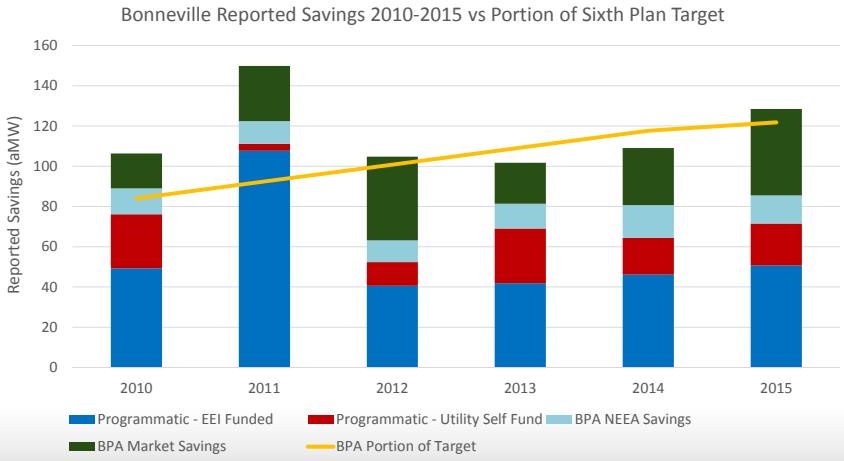
With codes, standards, and market momentum, the region surpassed the Sixth Plan targets



Northwest Power and Conservation Council

11

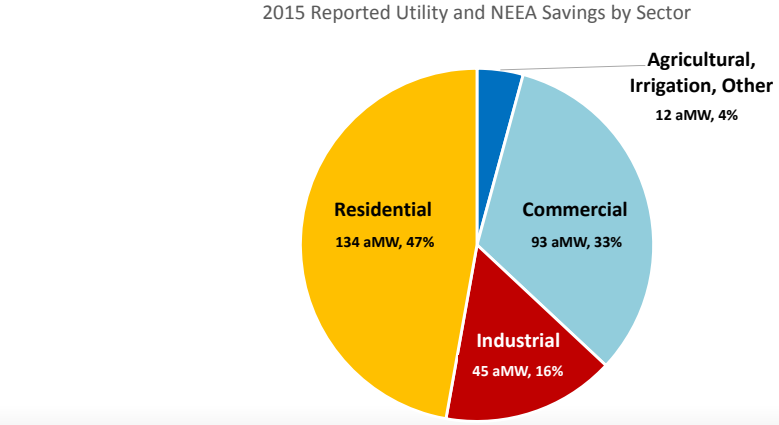
Bonneville surpassed its share of the target in the Sixth Plan



Northwest Power and Conservation Council

12

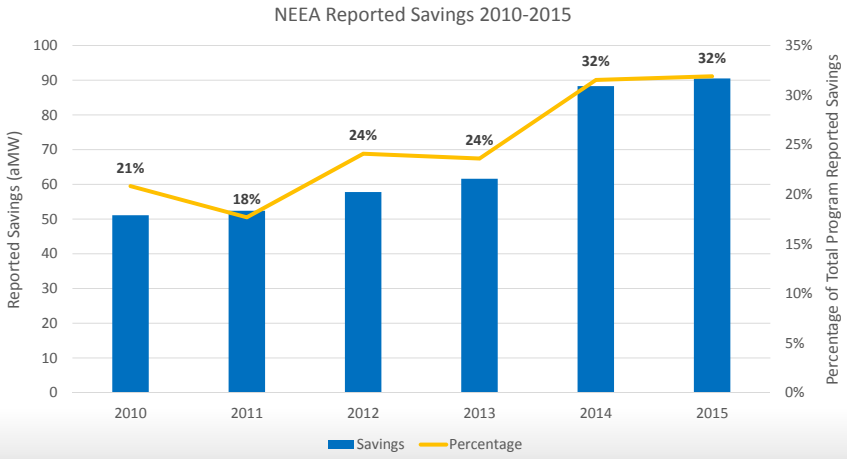
Most utility-funded program savings were acquired in the residential sector



Northwest Power and Conservation Council

13

NEEA continues to contribute to significant energy efficiency acquisition



Northwest Power and Conservation Council

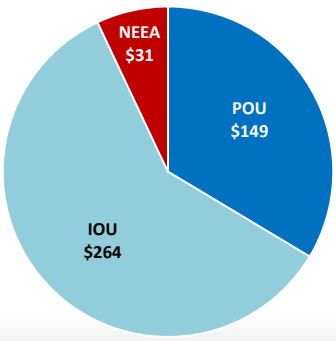
14

Energy efficiency continues to provide associated capacity benefit

- 288 aMW results in approximately 498 MW of associated capacity savings
  - 1.7 MW per aMW saved
- Calculated based on provided measure data
  - For known measures, assigned load shape based on load shapes used in the 7P
  - Applied associated capacity factor to less defined savings

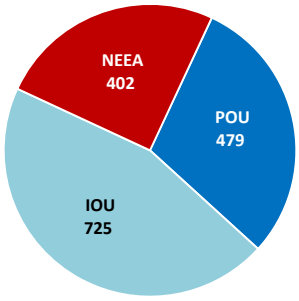
Programs invested over $440 million in energy efficiency in 2015

Reported Expenditures for Energy Efficiency Programs in 2015
(in million dollars)

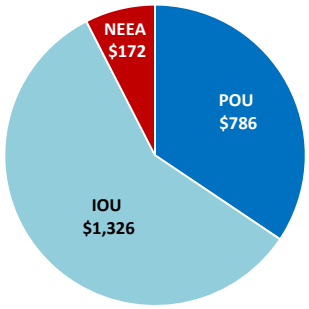


Programmatic Savings and Expenditures by Source

Cumulative Savings
2010-2015 (aMW)



Cumulative Expenditures
2010-2015 (2006$ millions of dollars)



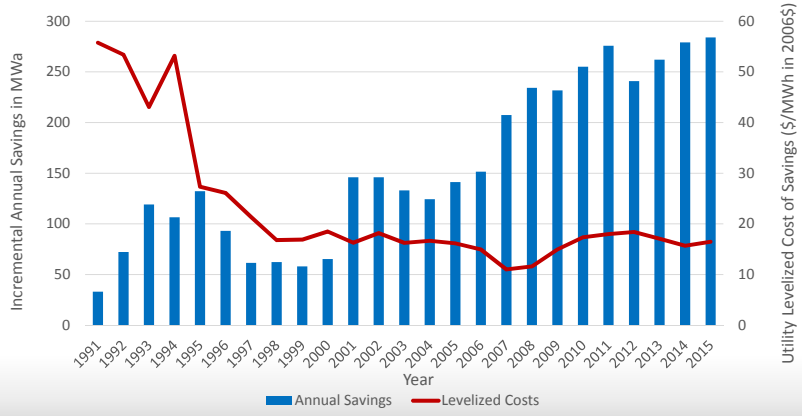
Note: POU savings have been updated for prior years, but expenditures data has not

Northwest Power and Conservation Council

17

Annual savings have tripled since the 1990s, while costs have fallen

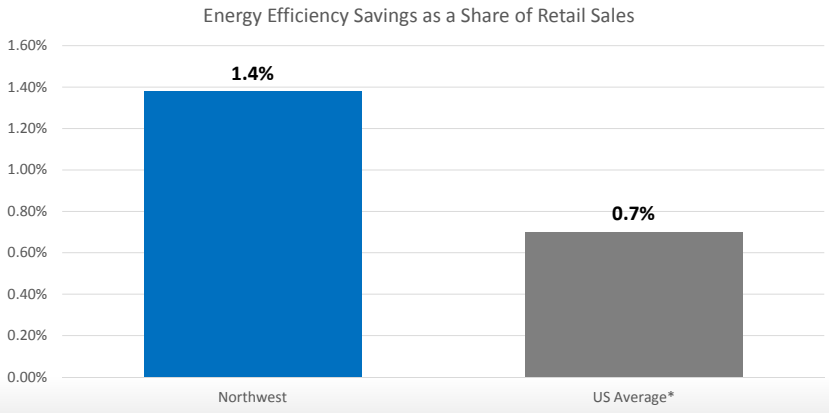
Annual Incremental Savings and Levelized Costs from PNW Utility and NEEA Conservation Programs (1991 – 2015)



Northwest Power and Conservation Council

18

Efficiency savings are equivalent to 1.4 % of regional electricity sales; nearly double US average

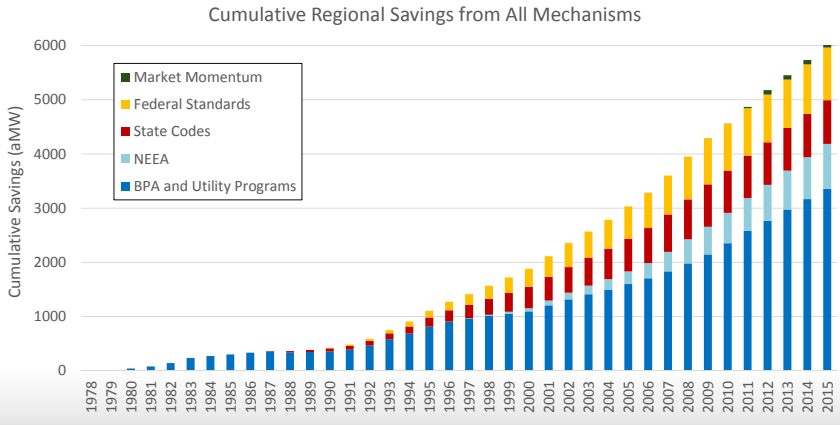


*Source: ACEEE 2015 State Energy Efficiency Scorecard

Northwest Power and Conservation Council

19

Region has achieved almost 6,000 aMW of conservation, making it the second largest resource behind hydro



Northwest Power and Conservation Council

20

What does 6,000 aMW of energy efficiency mean to the region?

- Represents enough energy savings to save the region's electricity consumers $4.06 billion in 2015
- This level of conservation lowered carbon emissions by an estimated 23.5 million metric ton equivalent
  - Almost 5 million passenger vehicles

Now a look forward

Better Understanding Baselines and Capacity Benefits

- Conducted a survey to inform how the RCP might better address (1) associated capacity savings and (2) baseline reporting to ensure more apples to apples
- Responses from:
  - Avista
  - Bonneville
  - Energy Trust of Oregon
  - Idaho Power
  - PacifiCorp
  - Puget Sound Energy
  - Seattle City Light
  - Snohomish PUD

Survey Results: Capacity

- Most utilities include capacity impacts in cost-effectiveness tests, but less than half actually track these impacts
- There is a need to improve our definitions around capacity to provide a more consistent answer to this question
- Need to consider whether we are interested in regional vs local capacity benefit
  - The existing method is a reasonable approach to addressing the regional without adding additional reporting burden

Survey Results: Baselines

- All utilities expressed the ability to provide information on baselines but cautioned about overburdening respondents
- The RTF is a source for many (but not all) baseline assumptions, and might provide a simplification for those measures
- Utilities able to provide source data and quantitative data
  - We will need to think through where this matters most for ensure apples to apples comparisons

Continued Improvement

Continued coordination with NEEA and Bonneville is needed to ensure we avoid double counting of codes, standards, and market savings

We are exploring options for getting better information about program baselines to ensure more apples and apples when comparing data

Planning improved protocols for updating past data as new information is available

Measure level data will help us understand what is in the missing data and will work with Bonneville and utilities to ensure consistency