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July 9, 2019

MEMORANDUM

TO: Council Members

FROM: Jennifer Light

SUBJECT: Regional Technical Forum 2018 Annual Report

BACKGROUND:

Presenter: Jennifer Light

Summary: The Regional Technical Forum (RTF) submits its 2018 Annual Report to the Council. This report is intended to inform the Council and stakeholders of the RTF's activities in the previous year and to provide an update on the ongoing work in the current calendar year.

In 2018, the RTF focused on its core efforts of developing consistent and reliable energy savings estimates and methodologies. Much of the work in 2018 focused on enhancing the analysis around lighting measures, including residential applications, upgrades to lighting in non-residential buildings, advanced lighting systems in new construction, and program targeting lighting distributors directly. In 2018, the RTF also developed several new measures. These new measures ranged from new opportunities in commercial buildings, expanding the suite of measures that save both water and energy, and adding some measures specific to small and rural utility needs.

Another area of focus in 2018 was informing the region's understanding of when energy efficiency measures save energy. This work draws on the findings from the Council's Seventh Power Plan and complements other regional efforts.

Going forward, the RTF continues to identify opportunities to provide increased value to regional stakeholders. In 2019, the RTF has made progress in supporting efficiency program efforts of estimating savings from whole building approaches (rather than traditional end use by end use approaches). The RTF has explored potential opportunities for conducting technical analysis on the capacity impacts of technologies that provide both energy efficiency and demand response opportunities.

Relevance: The RTF is an advisory committee to the Council. It is funded by Bonneville, Energy Trust of Oregon, and regional utilities. The Council also contributes to the RTF through staff, office, and meeting space.

Workplan: B.1.3. Continue to lead the Regional Technical Forum and engage in the development and approval of measure savings estimates and protocols.

Background: Per its charter, the RTF is required to publish an Annual Report by mid-year. The 2018 Annual Report provides work highlights and financials for the 2018 calendar year. It also provides a preview of progress made to date in 2019.

RTF 2018 Annual Report

Jennifer Light
July 2019 Council Meeting
Butte, Montana

Presentation Overview

- Background on the RTF
- 2018 Highlights
 - Measure development
 - Focus on capacity benefits
 - Expansion to whole building
 - Financials
- 2019 Progress
 - Emphasis on HVAC
 - Exploration of demand response



20th Anniversary of the RTF!



Formation of the RTF

- In 1996 Congress directed the Council and Bonneville to create a regional technical forum
- Focus on regionally consistent evaluation standards for energy efficiency
- Council created the RTF in 1999

Senate Report, Energy & Water Development Appropriations Act of 1996 (11/27/95)

BONNEVILLE POWER ADMINISTRATION FUND

The Bonneville Power Administration is the Federal electric power marketing agency in the Pacific Northwest, a 200,000-square-mile service area that encompasses Oregon, Washington, Idaho, western Montana, and small portions of adjacent Western States in the Columbia River drainage basin. Bonneville markets hydroelectric power from 20 Corps of Engineers and Bureau of Reclamation projects, as well as thermal energy from non-Federal generating facilities in the region. Bonneville also markets and exchanges surplus electric power intraregionally over the Pacific Northwest Pacific Northwest Inter tie with California, and in Canada over interconnections with utilities in British Columbia.

Bonneville constructs, operates and maintains the Nation's largest high-voltage transmission system, consisting of 14,800 circuits of transmission line and 350 substations with an installed capacity of 25.7 gigawatts.

Public Law 92-464, the Federal Columbia River Transmission System Act of 1974, placed Bonneville on a self-financed basis. With the passage in 1982 of Public Law 97-601, the Pacific Northwest Electric Power Planning and Conservation Act, Bonneville's responsibilities were expanded to include meeting the net firm load growth of the region, investing in cost-effective, replicable energy conservation, and acquiring generating resources to meet these requirements.

Borrowing authority.—A total of \$3,782,000,000 has been made available to Bonneville as permanent borrowing authority. Each year the Committee reviews the budgeted amounts Bonneville plans to use of this total and reports a recommendation on those borrowing requirements. For fiscal year 1996, the Committee recommends an additional increment of \$18,000,000 to new borrowing authority, the same as the budget request, for transmission system construction, system replacement, energy resources, fish and wildlife, and capital equipment programs.

The Committee continues to support the concept of financing a portion of capital investments from revenues and alternatives such as the use of short-term financing to extend the availability of the current total borrowing authority. The Committee also supports the effort to date to review current spending programs. With the severe budget constraints expected in the future, the Committee anticipates additional funds to replenish Bonneville's borrowing authority will be very difficult.

Budget reviews and notification.—The Committee expects Bonneville to adhere to the borrowing authority utilization recommendations by the Congress and promptly inform the Committee of any exceptional circumstances which would necessitate a request for Bonneville to stabilize borrowing authority in excess of such amounts.

Repayment.—During fiscal year 1996, Bonneville plans to pay the Treasury \$75,000,000, of which \$200,000,000 is to repay principal on the Federal investment in these facilities.

Limitation on direct loans.—Language was requested permitting Bonneville to make direct loans—language not in excess of \$20,000,000. The Committee has an interest in providing and certifying that no new direct loans be made in fiscal year 1996.

Regional technical forum on conservation program evaluation and verification.—Bonneville's retention of conservation is intended to allow utilities to develop and implement conservation strategies that are better tailored to their local situations. As a consequence, the Northwest can anticipate a more diversified approach to conservation evaluation. With this diversification comes the need to develop regionally consistent evaluation standards and protocols for assessing the energy savings produced by these more varied programs, and ensuring that the region continues to meet the Northwest Power Planning Council's targets for securing cost-effective conservation. In order to facilitate development of such standards and protocols, Bonneville and the Northwest Power Planning Council should promptly convene a regional technical forum as a conservation program evaluation and verification. The forum's membership should include individuals with technical expertise and experience in conservation program planning, implementation, and evaluation. Its services should be available to all Northwest utilities, and its immediate priority should be to develop consistent standards and protocols for verification and evaluation of energy savings, in consultation with all interested parties. By developing standards and protocols of guaranteed applicability, the forum should help utilities improve program quality and reduce program costs.

Renewable energy.—The Committee has been interested in Bonneville's efforts to support the development of renewable energy in the Pacific Northwest. Given Bonneville's mission, it is important for Bonneville to play a leadership role in ensuring that renewable energy is included in the mix of the region's resources. The Committee understands that Bonneville is developing a green power product to market the power from renewable resources. The Committee expects that Bonneville will be aggressive in these marketing efforts. The Committee understands that Bonneville is reevaluating its current portfolio of renewable resources and urges Bonneville to support renewable resource development. The Committee supports the efforts of Bonneville and the project developers to bring the most of the proposed projects.

Residential energy.—The Committee is concerned that in the recently proposed rate case for the Bonneville Power Administration, there is a proposal to reduce rates for public power and direct service loadings but substantially increase the cost of power exchanged with some residential customers of investor-owned and utility-owned facilities. The Committee has been told that this increase in residential rates results from the implementation of a change in the Pacific Northwest Electric Power Planning and Conservation Act. It has been suggested that some of the changes have been applied unilaterally, while others argue that it has been done properly. The Committee would be greatly interested if the provision has been applied unfairly or inappropriately. Bonneville is directed to provide the Committee with an explanation and justification of its proposal at the earliest possible date.

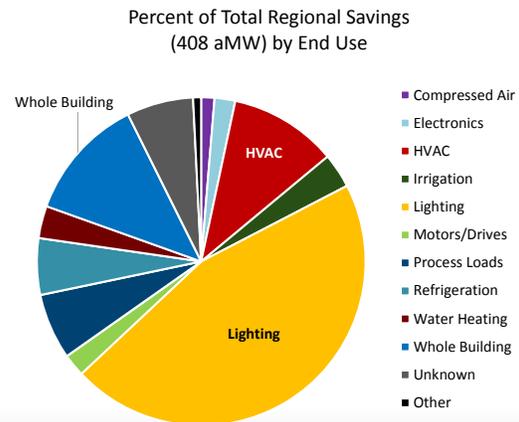
About the RTF

- Composed of individuals with technical expertise in planning, implementation, and evaluation
- Creates estimates used in program planning and evaluation through non-biased expertise, public processes, and transparent methods
- Is data driven and develops work products in response to regional interest and need
- Conducts annual survey of regional conservation progress from regional efficiency efforts

HIGHLIGHTS FROM 2018

Continued Measure Maintenance

- **Much of the year was spent on enhancing the lighting measure suite**
 - Cover all building types
 - Include downstream and midstream approaches
 - Focused on consistency across measures
- **Also updated 16 other measures**



Exploring New Areas

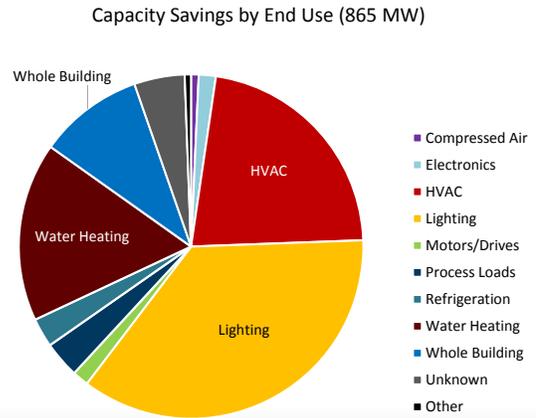
- **RTF added 8 new measures in 2018**
 - More applications for DHPs
 - Commercial office secondary glazing systems
 - Commercial connected thermostats
 - Faucet aerators
 - Small/rural measures
- **Started exploration into whole building analysis**



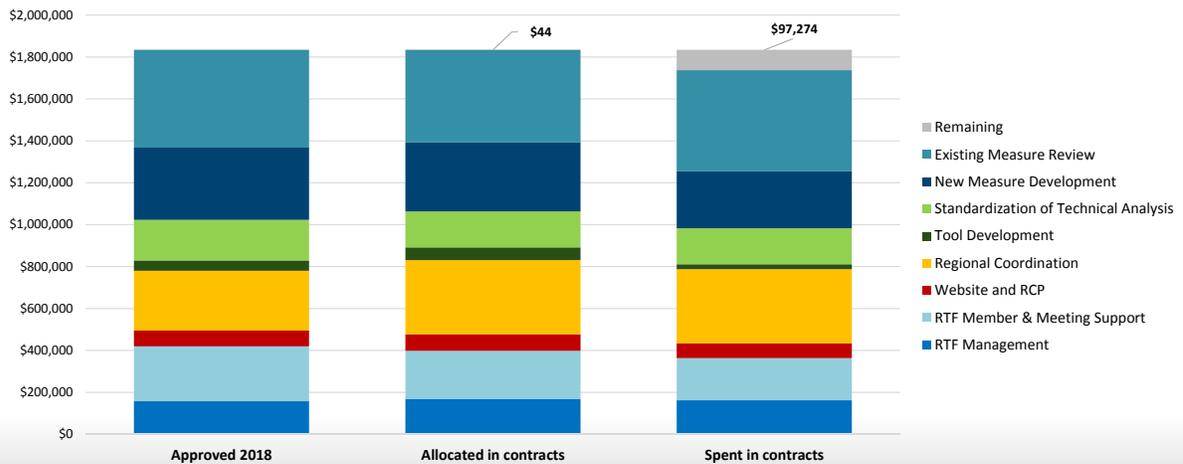
Reliability of Capacity Benefits Estimates

How well do we know when an efficiency measure saves energy?

- Completed review of hourly profiles to inform on relative quality
- Identified priority shapes for improvement
 - Simulated new shapes
 - Look to leverage regional end-use research once complete
- Completion of ANLYS-10



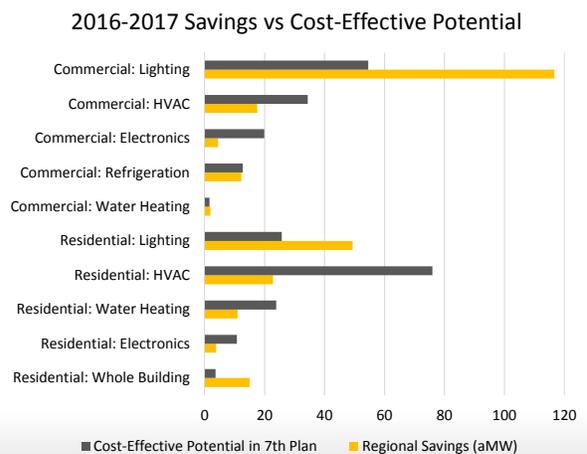
2018 Year End Financials



PROGRESS IN 2019

Measure Emphasis in 2019: HVAC

- Using most recent Residential Building Stock Assessment to improve modeling
- Planning updates to all single family and manufactured home HVAC and weatherization measures
- Updates to multifamily weatherization also planned

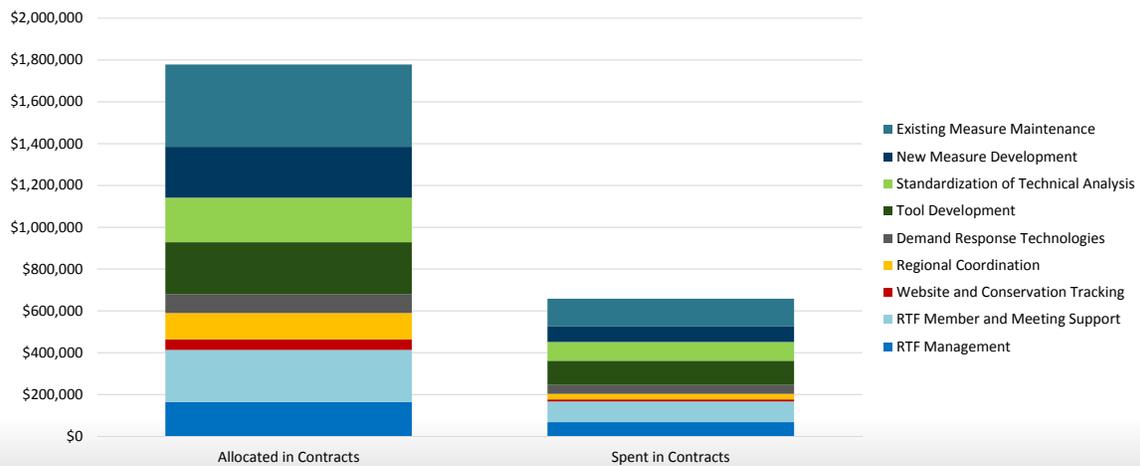


Looking at Demand Response

- **Conducting analysis of the technical per unit capacity impact of six technologies:**
 - EV Battery Chargers
 - Residential water heaters
 - Residential connected thermostats
 - Commercial lighting controls
 - Irrigation pump controls
 - Refrigeration warehouse controls
- **Intended to support supply curve development**



Year-to-Date Financials (May 31)



Questions

