Regional
Technical Forum

Regional Technical Forum
2020-2024 Business Plan

October 2019

Introduction

The Regional Technical Forum (RTF) is an advisory committee to the Northwest Power and Conservation Council (Council). The RTF meets monthly to review analysis and make decisions on methodologies for estimating energy efficiency savings and demand response impacts. The RTF is supported by Council staff and outside contractors that manage the work flow and conduct technical analysis. This document describes the RTF's role, funding, operations and staffing, and planned activities for the 2020-2024 period.

Role of the RTF

The RTF was formed in 1999 as an advisory committee to the Council in response to a directive from Congress (1996) and the 1996 Comprehensive Review of the Northwest Energy System. The primary roles of the RTF have been, and continue to be:

- Developing and maintaining a readily accessible list of eligible conservation resources, the estimated lifetime costs and savings associated with those resources, and the estimated regional power system value associated with those savings;
- Establishing a process for updating the list of eligible conservation resources as technology and standard practices change, and an appeals process through which utilities, trade allies, and customers can demonstrate that different savings and value estimates should apply;
- Developing a set of protocols by which the savings and system value of conservation resources should be estimated with a process for applying the protocols to existing or new measures;
- Assisting the Council in assessing: 1) the current performance, costs and availably of new conservation technologies and measures; 2) technology development trends; and 3) the effect of these trends on the future performance, cost and availability of new conservation resources;
- Tracking regional progress toward the achievement of the region's conservation targets by collecting and reporting on regional research findings and energy savings annually.

For the 2020-2024 funding cycle, the RTF will expand upon its core mission to include:

- Developing and maintaining a list of natural gas and dual fuel energy efficiency resources, including methodologies for estimating lifetime energy savings and costs associated with those resources, and a process for updating those estimates as technology and standard practices change
- Conducting technical analysis on technologies that provide both energy efficiency and demand response potential to assist the Council in assessing the technical potential of the technologies

Funding

The RTF is funded by Bonneville, the Energy Trust of Oregon, investor owned utilities, and large generating public utilities in the region. The RTF Policy Advisory Committee (RTF PAC) established funding levels for 2020-2024 based on the planned activities described below in

more detail. The proposed funding level for the five-year period is $9,461,300, starting out at $1.8 million in 2020 and increasing annually at 2.5% to account for inflation. The five-year funding period provides a level of consistency to ensure long-term goals of the RTF are sufficiently supported, while providing flexibility to meet regional needs on an annual basis.

The RTF PAC agreed to use the allocation method developed by the Northwest Energy Efficiency Alliance (NEEA) for funding. The RTF PAC further agreed to the following methodology for sharing costs across the electric and gas utility funds:

- Electric ratepayer dollars are allocated to work that is intended to solely support electric demand side management programs (ex: electric-only energy efficiency measures and demand response)
- Gas ratepayer dollars are allocated to work that is intended to solely support natural gas programs (ex: gas-only efficiency measures)
- Costs will be shared for work that is intended to support all ratepayers (ex: dual fuel measures, tool development, and overhead) with 75 percent allocated to electric ratepayer dollars and 25 percent to gas ratepayer dollars

The resulting funding shares are as follows:

Table 1: Funding Shares and Five-Year Contribution

Organization	Proposed Funding Share	Total 5-Year Contribution
Bonneville Power Administration	30.03%	$2,841,100
Energy Trust of Oregon	22.54%	$2,132,800
Puget Sound Energy	18.99%	$1,796,500
Idaho Power Company	7.54%	$713,300
Avista Corporation, Inc	6.78%	$641,400
PacifiCorp (Washington)	2.08%	$197,200
PacifiCorp (Idaho)	1.78%	$168,200
NorthWestern Energy*	1.70%	$161,000
Seattle City Light	2.86%	$270,800
PUD No 1 of Clark County	1.02%	$96,800
Tacoma Power	0.77%	$73,200
Snohomish County PUD	0.54%	$51,400
Eugene Water and Electric	0.17%	$16,500
Chelan County	0.81%	$76,700
PUD No 1 of Cowlitz County	0.15%	$14,500
Cascade Natural Gas	1.66%	$157,000
NW Natural	0.56%	$52,900
Total	**100.00%**	**$9,461,300**

*NorthWestern Energy share adjusted to 52% of NEEA allocation share.

Operations and Staffing

The RTF is an advisory committee consisting of 20-30 voluntary members. The Council appoints the membership to ensure a fair balance in technical expertise for successful completion of the work plan. The RTF as a body meets approximately once a month for a full-day meeting at the Council's main office in Portland, OR.

To reduce the burden placed on the voluntary members, the RTF budget supports funding for one full-time manager and contracted technical support. The RTF Manager is a Council employee whose responsibility is to oversee day to day operation of the RTF. This includes developing and managing work plans, managing contracts, developing quarterly and annual reports, and interfacing with the Council. Approximately 10 percent of the RTF budget goes to this function.

The largest portion of the budget (around 70 percent) supports a team of dedicated contract analysts that conduct the bulk of technical analysis on behalf of the RTF. The RTF transitioned to this team approach from one-off contracts as a way of ensuring greater consistency in analysis across work products and providing flexibility in work flow for achieving annual work plan goals. The 2020-2024 funding levels are sufficient to support up to six contract analysts annually.

The remaining 20 percent of the budget is set aside for specific contracts in support of work plan goals. This work generally falls into one of the following categories: 1) contracting with a firm to act as a third party for quality control review, 2) supporting members attendance at meetings, and 3) expanding the technical capabilities of the team for specific projects or tool development.

Council Contribution

In addition to the funding described above, the Council contributes staff time and office and meeting space to the RTF. From a staffing perspective, the Council contributes a full time RTF assistant who provides day to day support of the operations, as well as a portion of others' time to support technical analysis, contracting and legal assistance, and other administrative tasks. These staff contributions are estimated in the table below.

Table 2: Annual Funding Levels

	2020	2021	2022	2023	2024
Contract RFP	$433,000	$431,400	$412,900	$440,400	$436,000
Contract Analyst Team	$1,193,000	$1,235,200	$1,295,400	$1,310,600	$1,358,700
RTF Manager	$174,000	$178,400	$182,800	$187,400	$192,100
Annual Funding	**$1,800,000**	**$1,845,000**	**$1,891,100**	**$1,938,400**	**$1,986,800**
Council Staff Contribution	$185,600	$190,300	$195,000	$199,900	$204,900

Activities and Budget

The specific tasks contained in this business plan are driven by existing measure work, anticipated growth for new measure requests, and expectations for future analysis tied to regional research or planning efforts. The specific work in any calendar year is largely driven by the existing measure needs and any requests received from parties within the region, primarily utilities, Bonneville, the Energy Trust of Oregon, NEEA, and Council staff. The RTF solicits topics from stakeholders through an annual request as part of the work planning and through an online form for proposing new measures. Each year, the RTF typically adjusts the allocation of resources among the categories in its work plan based on requests received, proposals, and the pace of multi-year projects. The RTF notifies the Council and its funders of all significant reallocation of resources or priorities.

Table 3 provides an overview of the anticipated allocation of work for the 2020-2024 business plan cycle, and

Table 4 provides a more detailed breakdown of activities for 2020. As shown in Table 3, the annual changes in budget represent shifts in work between measure analysis and other analytical support through tools and regional coordination. This section provides more detail on the proposed activities for 2020 and how those activities fit into the longer-term five-year business plan.

Table 3: Annual Funding, by high level category, excluding Council contribution

Subtotal Funders	2020	2021	2022	2023	2024
Measure Analysis	$971,000	$916,400	$883,600	$928,400	$1,029,800
Tools and Regional Coordination	$275,000	$360,800	$425,500	$413,500	$345,400
Demand Response	$50,000	$51,200	$52,500	$53,800	$55,200
RTF Management	$504,000	$516,600	$529,500	$542,700	$556,400
Total	**$1,800,000**	**$1,845,400**	**$1,891,100**	**$1,938,300**	**$1,986,800**

Table 4: Proposed 2020 Budget Levels

Category	Contract RFP	Contract Analyst Team Manager	Total Funders	Council Contribution	% of total
Existing Measure Maintenance	$92,000	$345,000	$437,000	$9,700	24%
New Measure Development	$44,000	$220,000	$264,000	$4,400	15%
Standardization of Technical Analysis	$40,000	$230,000	$270,000	$1,500	15%
Tool Development	$0	$120,000	$120,000	$16,500	7%
Regional Coordination	$0	$155,000	$155,000	$22,000	9%
Demand Response	$40,000	$10,000	$50,000	$10,000	3%
Regional Conservation Progress	$50,000	$0	$50,000	$45,000	3%
RTF Meeting Support	$163,000	$113,000	$276,000	$10,000	15%
RTF Management	$4,000	$174,000	$178,000	$66,500	10%
Total	**$433,000**	**$1,367,000**	**$1,800,000**	**$185,600**	**100%**

Measure Analysis

Approximately 50 percent of the five-year budget is anticipated to directly support measure analysis. This includes maintenance of the existing measure library, the addition of new measures, and activities associated with ensuring consistency in analysis approach across the entire measure suite.

Existing Measure Maintenance

One half of the measure analysis work is focused on the maintenance of existing measures. The pace of existing measure review and update is driven by the sunset dates of measures. The RTF assigns sunset dates that range from one to five years based on the specific circumstances of a measure. For example, the RTF typically applies shorter sunset dates for measures in markets that are changing rapidly to keep pace with that change, where as it applies longer sunset dates to more stable markets and measures. Other factors that will impact sunset dates are anticipated updates to Federal or state codes and standards, updates to ENERGY STAR specifications, or anticipation of new data. The number of anticipated measures sunsetting or otherwise requiring review in any given year of the funding cycle ranges between 16 and 26 measures. This assumption is in line with the 2015 to 2018 funding cycle, during which time the number of existing measures considered in any year ranged from 15 to 30.

The 2020 work plan assumes updates to 23 of its existing measures. The majority of these measures (21) are slated to sunset in 2020 and will require the RTF to reconsider the measure. This includes 10 dual fuel measures for which the RTF will develop robust electric and natural gas savings estimates. In 2020, the RTF is also expected to update two dual fuel measures that the RTF considered in 2019, focusing on adding in the natural gas savings estimates.

New Measure Development

The RTF is continually seeking ways to provide value to the region's utilities. As efficiency programs are successful in transforming markets, emerging technologies are going to be important for meeting future efficiency goals. To support this need, the RTF is allocating approximately 15 percent of its budget to assessing new measure opportunities. The estimate of new measure work varies each year, with the anticipation of between six and nine new measures annually. The exact number of measures in any given year is highly uncertain, as it is driven primarily by utilities' needs. For reference, the RTF developed between two and nine new measures in any given year of the 2015 to 2019 funding cycle.

The 2020 work plan assumes development of eight new measures. The primary driver for this assumption is that the ongoing work on the Council's 2021 Regional Power Plan, which is likely to identify a handful of fruitful measures for the RTF to consider. The work plan also assumes that the RTF will continue to focus on identifying opportunities to support more complex efficiency opportunities, such as whole building performance or behavior programs. The number of new measures drops off in the middle years of the funding cycle, increasing again in 2024 as the Council starts to launch efforts on the ninth power plan. The RTF also anticipates working on six new gas-only measures during the 2020 to 2024 cycle. This work will primarily take place in 2022 and 2023, allowing time for the RTF to build up any analytical tools necessary to support this work and for the natural gas efficiency programs to prioritize measure opportunities.

Standardization of Technical Analysis

The RTF has made attempts over the last several years to improve the consistency of its analysis across measures. Key to this was the development of Operative Guidelines and the establishment of a dedicated contract analyst team to perform the majority of the technical analysis. As part of the 2020 to 2024 funding cycle, the RTF is allocating approximately 15 percent of its budget to ensuring thorough and consistent analysis across all its categories.

The largest portion of this work is to support coordination and review across the contract analyst team. This work primarily takes place in the weekly contract analyst team meeting, during which the team reviews each other's analysis, develops recommendations to the RTF for consideration, and explores new analytical techniques.

Another piece of this work is the maintenance of the RTF Operative Guidelines and its Standard Information Workbook. For the 2020 to 2024 funding cycle, the RTF anticipates two updates to each of these products. The first set will take place in 2020 and will focus on making enhancements to the Guidelines and Standard Information Workbook, ensuring both products effectively support natural gas measures. The RTF anticipates another update to the Guidelines in 2022 to ensure they are keeping pace with RTF analytical work. The RTF also anticipates another update to the Standard Information Workbook in 2023 in advance of the Council's ninth power plan.

Support of Small and Rural Utilities

The RTF allocates a small portion of its new measure development ($40,000 annually) to support the needs of region's small and rural utilities. This includes a portion of one contract analyst's time to support a standing subcommittee that discusses the applicability of existing

RTF measures to small and rural utilities and explores potential refinements to measures to better meet their specific needs. This work also includes the development of new measures of specific interest to small and rural utilities that might not otherwise get developed for the RTF.

Tool Development

The RTF maintains a handful of tools to support measure development, including its cost-effectiveness tool (ProCost) and building simulation models to estimate energy savings. For the 2020 to 2024 funding cycle, the RTF is allocating approximately 7 percent of its budget to this function. The annual funding level varies, as much of the work is tied to other regional efforts. Additionally, the RTF will spend more time on tool development when there are fewer measures requiring update or development.

ProCost

The RTF uses and maintains the Council's cost-effectiveness tool. Given this, the ProCost development work is closely tied to the Council's regional planning cycles. The focus for 2020 will be enhancing ProCost to support natural gas efficiency measure assessment. A small portion of budget is also allocated to any other enhancements required for 2021 Power Plan analytics. The ProCost work is anticipated to pick up again in 2021, after completion of the regional power plan. At this time, the RTF will be responsible for incorporating the 2021 Power Plan findings into ProCost and will reevaluate the cost-effectiveness of all measures with respect to those findings. ProCost maintenance will drop off somewhat in 2022 and 2023, with another uptick in 2024 as the Council starts to prepare for its ninth regional power plan.

Building Simulation Models

The RTF uses building simulation models for estimating energy savings in residential and commercial buildings. Currently, the RTF uses SEEM[1] for modeling residential single family, manufactured homes, and low-rise multifamily buildings and uses EnergyPlus[2] to model commercial buildings. Much of the efforts in 2020 through 2024 are focused on ensuring that these models are well calibrated to the region's building stock. Earlier on in the five-year period, the RTF will focus more on its EnergyPlus models, leveraging the latest NEEA Commercial Building Stock Assessment. In the latter portion of the funding cycle, the RTF will shift to making updates to its residential building model in alignment with the next NEEA Residential Building Stock Assessment.

The RTF has also allocated some funding to explore alternative modeling tools and/or enhancements to existing tools that might improve its assessment of energy efficiency and demand response savings, with a focus on residential opportunities. This work is anticipated to take place in 2020 and 2021.

[1] The Simplified Energy Enthalpy Model (SEEM) is developed and maintained by Ecotope. More information, and the latest version of SEEM, can be found on the RTF's website: https://rtf.nwcouncil.org/simplified-energy-enthalpy-model-seem.

[2] EnergyPlus is a whole building energy simulation program developed by the Department of Energy. The RTF uses and adapts the building prototype models to better reflect buildings in the Pacific Northwest, based on regional data from NEEA's Commercial Building Stock Assessment.

Another component of building simulation is using weather files to represent weather sensitive loads. For its 2021 Power Plan, the Council is exploring opportunities to enhance existing weather files to better reflect future weather resulting from climate change. The RTF has allocated some funding in 2022 and 2023 to further expand this work to improve the RTF's analysis of weather dependent measures. This work is also expected to support the Council's ninth power plan efforts.

Regional Coordination

The RTF does not have funding for the primary research required to inform its savings analysis. Rather, the RTF relies on Bonneville, NEEA, the Energy Trust, the region's utilities, and others to conduct this primary research. The RTF has allocated approximately 9 percent of its budget to coordinating with those regional entities to help inform research, identify opportunities to leverage that research for RTF analysis, and connect RTF analysis to regional efforts. As with its tool development efforts, the annual work flow varies to better coordinate with regional efforts, while also providing a balance in the RTF work load when there are fewer measures requiring updates or development.

Research Coordination

The RTF's contract analysts are expected to coordinate with regional entities to help inform regional research. This includes working with specific utilities on defining upcoming research needs that might support RTF measure development and discussing the outcomes of the research to inform measure analysis. As directed by interested research funders, the contract analysts can support coordination of joint research projects funded by utilities in support of RTF analysis.

The RTF also allocates a portion of contract analyst time to help inform regional studies, such as the NEEA stock assessments. In preparation for the third Residential Building Stock Assessment, the RTF will allocate resources to providing recommendations to NEEA on future data needs and research design considerations based on lessons learned to date.

Market Analysis Review

The RTF, Council, and efficiency programs rely on market intelligence to inform baselines and program design. Over the last several years, Bonneville and NEEA have dedicated more resources to studying markets. During the 2020 through 2024 business cycle, the RTF will allocate resources to increased engagement in this research. The goal of this effort is to understand available data, provide recommendations on data analysis, weigh in on uncertainty around market factors, and support estimation of total market consumption.

In addition, a portion of the budget is allocated to understanding and supporting sub-regional market data analysis, as data are available and the need arises from regional utilities.

Savings Shape Development

Over the last few years, the region has increased its focus on understanding when energy efficiency measures save energy to inform how energy efficiency can provide capacity benefits. The RTF reviewed its existing load profiles to understand the relative quality of profiles and

where better data are needed to improve our understanding of the timing of savings. The region has also launched residential and commercial end use metering studies to collect more data on energy use. In this business plan, the RTF has allocated resources to using the results of the end use metering studies (and other data sources as available) to develop end use load profiles and measure savings shapes. The bulk of this work is anticipated to occur in the latter half of the funding cycle, as the data come in and in preparation for the Council's ninth power plan.

Council Plan and Other Regional Support

Being an advisory committee to the Council, one of the roles of the RTF is to provide technical support and analysis on energy efficiency measures. Most of this work is directly tied to the Council's power planning efforts. The Council's 2021 Power Plan is anticipated to be completed in early 2021. To that end, the bulk of the analytical work on energy efficiency will be complete by the start of 2020. The RTF has allocated some time in 2020 to support any additional analytical work required as the Council finishes the development of energy efficiency supply curves. Direct Council planning support then tapers off in 2021 and 2022, ramping up again towards the last two years of the funding cycle as the Council starts preparing for its ninth power plan.

In addition to supporting power planning analysis, the RTF has often been called upon to conduct technical studies on energy efficiency. For the 2020 to 2024 funding cycle, the RTF has allocated funding to support such a study. The anticipated timing is in the middle years of the funding cycle, after completion of the 2021 Power Plan. The specifics of any study are to be defined by the Council and/or other stakeholders.

Demand Response

The RTF has allocated 3 percent of its budget annually to support technical analysis on demand response technologies. The RTF will specifically look at technologies that provide both energy efficiency and demand response opportunities, as a way of leveraging the RTF's existing knowledge and thinking about these opportunities holistically. The RTF analysis will focus on technical considerations of the technologies, estimating the technical, per unit demand impact potential for technologies, absent any specific product design considerations. The purpose of this work is to be one input, of many, into Council and utility demand response supply curves.

The work in the 2020 to 2024 funding cycle builds upon the RTF's scoping effort in 2019. In 2020 and 2021, the focus of the work is on enhancing the RTF's analytical capabilities, including exploring enhancements to existing building simulation models or alternative modeling approaches. In the middle portion of the funding cycle, the demand response efforts are expected to build on the analysis around end use profiles, to help inform current timing of end use loads for the technologies of interest. The final two years of the funding cycle will focus on updates to the RTF's 2019 analysis, leveraging these new analytical tools and profiles.

Regional Conservation Progress Report

Per its charter, one of the roles of the RTF is to track the region's progress against the Council's power plan targets for energy efficiency. This is done through the annual Regional Conservation Progress (RCP) survey and report. Every year, the RTF collects data from Bonneville, Energy

Trust, NEEA, and the region's utilities on the energy efficiency savings and expenditures from the previous year. The 2020 to 2024 funding cycle allocates $50,000 annually, plus inflation, to contract out the data collection and analysis. This budget assumes that the RTF Manager, in coordination with the RTF Assistant and other Council staff, will be responsible for compiling the results into a final report for the Council.

RTF Management

The final 25 percent of the budget is allocated to management of the RTF, including support for RTF meetings and the RTF Manager.

Meeting and Member Support

The RTF meets approximately monthly for a one-day meeting at the Council offices. It is at these meetings where the formative work of the RTF occurs. Given the importance of these meetings, the RTF allocates approximately 15 percent of its budget to supporting this function. The most significant portion of this budget is ensuring that all the members and contract analysts are able to attend and participate in the monthly meetings in person. As noted above, the RTF members serve in a voluntary capacity. To ensure that all members can attend the meeting in person, the RTF supports travel costs and participation for some of the members. Additionally, several of the contract analysts have traditionally lived outside of Portland. Part of contract costs for these analysts includes the travel and time for attending the RTF meetings.

The RTF also allocates a small portion of the budget to contract out for meeting minute services, as well as phone lines and web conferencing. Each of these components is important to ensuring that the RTF meetings are publicly available, including to those that are unable to travel or attend a specific meeting.

Management and Administration

The final 10 percent of the RTF annual budget goes to support RTF management and administration. This is primarily the support of the RTF Manager, who provides the day to day management of the RTF.