



# Regional Technical Forum 2010 Annual Report

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AND 2011 PROGRESS UPDATE

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## Letter From the RTF Chair

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We are just beyond the 12-year anniversary of the Regional Technical Forum.

When I gaveled the first meeting to order in 1999, the RTF was a small entity working in the fledgling field of verifying and evaluating energy efficiency savings. Efficiency is a major resource in today's utility portfolios. As a result, the RTF and its mission have taken on a more prominent role in the Northwest's energy picture.

The RTF has put out progress statements in the past, but the growing interest in our work calls for more visibility and enhanced communications with stakeholders. Over the past year, we have responded with a quarterly newsletter and this, our first official annual report. It is a summary of our work last year and an update on where we're headed in 2011.

I would like to inaugurate this report with a sincere thank you to the RTF sponsors, who make our work possible, and to our members, who spend many hours each month helping to build our catalogue of measures and savings. We look forward to expanding our conversations with the region and particularly with those who have a stake in the RTF's work.



Tom Eckman, Chair  
Regional Technical Forum



## Letter From the Council Chair

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The Council is pleased to release the Regional Technical Forum's 2010 Annual Report.

The report, the first for the RTF, signals an important milestone in its mission to help the Pacific Northwest meet its energy efficiency goals.

With the growth of wind power and initiatives to reduce carbon emissions as new considerations for planners, energy efficiency continues to be a key tool to ensure a reliable and economical power supply. The RTF's expanding areas of work and participation reflect this awareness. This report highlights the RTF's accomplishments to verify and evaluate energy savings of the past year, its finances, and regional support.

Moving forward, the Council's newly established policy advisory committee will make sure that the RTF and the region are working together to meet the Council's Sixth Power Plan efficiency targets. Doing so will enable us to meet most of our future demand for the next 20 years through improved energy efficiency, saving consumers money while also protecting the environment.



Bruce A. Measure  
Council Chair

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# Introduction

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The Regional Technical Forum (RTF) has been part of the Northwest's energy efficiency infrastructure for over a decade. Chartered by the Northwest Power and Conservation Council (Council) in 1999, the roots of the RTF go back several years earlier to an act of Congress and from recommendations of the Governor's Comprehensive Review of the Northwest Energy System.

As energy efficiency programs in the region grew and diversified in the mid-1990s, Congress recognized the region would need a standardized and systematic way to value savings. Utilities were counting on savings to forestall building new generating plants, and BPA needed a method to determine reimbursements under its conservation program offerings. The RTF would corral the technical expertise to carry out the mission.

On the heels of a 1996 Congressional directive, the region's Comprehensive Review recommended the Council and the Bonneville Power Administration form a Regional Technical Forum. They outlined a multifaceted mission for the RTF: develop standardized protocols for verifying and evaluating energy efficiency and renewable resource performance; track progress toward the region's conservation and renewable resource goals; provide suggestions for improving the effectiveness of conservation and renewable resource

programs and activities; and conduct periodic reviews of the progress toward regional goals at least every five years.

After a months-long public process, the Council voted to form the RTF in April 1999. The goals adopted by the Council corresponded to the charge from Congress and the Comprehensive Review.

In its early days, the RTF focused on BPA's program, offering recommendations for what became the conservation and renewable resource discount program (C&RD), an incentive for utilities to offer efficiency programs and develop renewable generation. The RTF developed the data, specifications and evaluation protocols, and the tracking and reporting software for BPA to use in the C&RD. The Council and BPA provided all the funds for the RTF budget in its first few years.

## An RTF Evolution

The RTF expanded its emphasis in 2003 and 2004 to ensure it was providing work and services to benefit all of the region's utilities. This led to efforts to spread the cost of supporting RTF activities among other parties, and a number of entities stepped forward to contribute. To encourage utility participation, BPA decided

contributions to the RTF would be eligible for credit under its C&RD program.

Since 2005, when the Council released its Fifth Power Plan, the emphasis on energy efficiency as a resource to meet load growth has increased significantly in the region. . With a major push being made on energy efficiency, the RTF's role has taken on new significance. Utilities and BPA, anxious to meet efficiency targets in the Fifth and Sixth (2010) Power Plans and in their own integrated resource plans, are looking to the RTF for services. These include deemed savings for an increasing catalogue of measures and guidance on carrying out measure and program impact evaluations.

The RTF is evolving to meet the region's needs and respond to increased prominence and scrutiny. In 2010 and the early months of 2011, the RTF made significant achievements on items in its annual work plan and, at the same time, has posted big gains toward creating a more formal business structure and budget process to meet the requirements of a growing workload and a bigger role in bolstering the region's energy efficiency performance.

## 2010 Accomplishments

The RTF now has approximately 30 voting members appointed by the Council. Members, who serve three-year terms, are selected based on their technical expertise and experience and include engineers, statisticians, evaluators, and program planners and implementers. Additional participation includes over 50 corresponding members of similar experience and expertise.

In 2010, the RTF met 12 times to tackle its annual work plan. Key elements of the plan included projects to review, compare, and document the RTF's and other's deemed measure savings; identify what small and rural utilities need to support their energy efficiency programs; develop simplified measurement and valuation protocols for measures that do not warrant deemed savings; continue research on the potential for savings with rooftop heating, ventilation and air-conditioning (HVAC) units; and upgrade the RTF website.

The RTF completed and/or made progress on most of the work plan tasks. Some tasks, however, were deferred due to revised priorities, lack of funding, and insufficient staff resources.

## 2010 Work Plan Items

End-Use Load Study – Phase 2
Review RTF Measures Against Energy Star and Consortium for Energy Efficiency Specifications
Provide Direction for Measure Life
Simplify Measurement and Valuation Protocols and Calculators for Non-deemable Measures
Identify Measures and Protocols Applicable to Small/Rural Utilities
Provide Technical Support to Ductless Heat Pump Evaluation
Support Heat Pump Water Heater Research
Develop Consistent Methodology for Energy Use Indexes for Commercial Buildings
Respond to NEET Recommendations for RTF
Support Roof Top HVAC Work
Support Development of Savings Methodologies for Rooftop HVAC
Revamp RTF Website
Support BPA's Planning Tracking and Reporting Upgrade
Track Regional Conservation Progress
Conduct Measure/Technology Reviews
Review and Adopt Information Technology Measurement and Valuation Protocol

## New Elements in the 2010 Work Plan

The RTF develops its own work plan, which is driven by requests from utilities, BPA, the Energy Trust of Oregon, the Northwest Energy Efficiency Alliance (NEEA), and state energy agencies. A draft work plan and budget are sent out for public comment prior to adoption. Requests generally entail developing and reviewing the following:

- cost and savings associated with new and existing energy efficiency measures
- measurement and verification protocols used to estimate savings
- energy efficiency program specifications.

The RTF is also asked to identify the need for and scope of evaluations, research, and demonstration (pilot) activities to improve savings estimates.

Recommendations from the Northwest Energy Efficiency Taskforce (NEET) influenced the RTF's 2010 budgeting and work plan. NEET, which was formed to study the region's readiness to accelerate its energy efficiency achievements, released its recommendations in October 2009. The first item in its final 10-point action plan was to call for an independent review of the RTF to determine how it could best meet the region's needs in data collection, analysis, evaluation, and dissemination of findings.

An RTF review group was formed and tasked with evaluating the RTF's structure, scope, governance, funding mechanisms, accountability, and future role. The group identified specific areas where the RTF's administrative and operational processes could be improved. Specifically, the reviewers said the RTF should take steps to clarify its policies and procedures and work toward a stable funding process that links clearly to the region's energy efficiency priorities.

The suggestions bolstered efforts by the RTF to build up its administrative structure and business procedures in 2010. The RTF's annual budget proposal departed from the past practice of establishing a minimal operating budget and raising additional money throughout the

year through subscriptions to specific projects. In 2010, all expenses for the RTF's work plan were folded into a \$1.04 million budget in anticipation of replacing a piecemeal funding mechanism with a truly regional approach to paying for RTF activities.

The RTF's response to the reports and recommendations of NEET and its successors is a work in progress. A number of the issues raised will take time and additional regional consideration. The RTF is, however, on a path to implement a number of changes and to assure that its operations are transparent, accountable, and in line with the region's energy efficiency priorities.

## Reinforcing Operations Process

RTF meetings, proceedings, recommendations, and data have always been open to the public. The RTF invested time in 2010 to build up its administrative functions. A formal conflict of interest policy was put into place to assure the quality and integrity of RTF work. The policy, which must be signed by all RTF members at the beginning of their service, is intended to promote accountability and transparency.

During 2010, the RTF also formed an operations subcommittee to help with planning and organizing meeting agendas, reinforcing business practices and operations, and recommending budget priorities. The operations subcommittee drafted RTF bylaws, and reviewed the RTF charter and suggested amendments. The draft bylaws and proposed revisions will be sent to the Council for consideration and adoption.

The RTF uses subcommittees to review and provide oversight and guidance on some elements of RTF projects. During 2010, the RTF augmented its work with contributions from a number of subcommittees, which provided a level of attention to detail not possible at the monthly RTF meetings. Subcommittees offer technical feedback used to develop and update measure savings and assumptions; assist in developing requests for proposals and selecting contractors; and review work products from contractors.

Subcommittees are made up of RTF members, corresponding members, and other interested parties. The use of subcommittees expanded in 2010, and they have become an essential part of RTF operations and success.

Subcommittees are formed periodically to address short-term or specific needs of the RTF. Currently, the RTF has the following active subcommittees:

- Direct Use of Natural Gas
- Grocery Refrigeration
- Ground Source Heat Pump
- Information Technology Sector
- Operations
- Performance Tested Comfort Systems (PTCS)
- Residential Weatherization and Ventilation
- Rooftop Unit Work Group – Phase 4

- Small Commercial Weatherization
- Standardized M&V and Deemed Measure Protocols
- Small/Rural Utilities Efficiency Measures
- Variable Capacity Heat Pump

Work got under way in 2010 to significantly improve the RTF website and create a more user-friendly tool with increased search capabilities. Council staff developed a database of energy efficiency measures that catalogs all measures passed through the RTF and offers links to related items. Recent work has improved the website further, and the database now includes easy toggle and filtering capabilities between measures, decisions, and meetings. Another enhancement is the creation of individual web pages for each subcommittee, providing progress reports, meeting information, supporting documents, and contact information.

The screenshot shows the website interface for the Regional Technical Forum. On the left is a navigation menu with categories like Measures, Meetings, Work plan, Subcommittees, and Policy/admin. The main content area is titled "RTF deemed measures and supporting documentation" and includes instructions on how to use the table. Below the instructions is a table with columns for Sector, Measure, Status, UnderReview, UploadDate, Version, LatestRTFDecision, SunsetDate, and MeasureLife. The table lists various measures such as Irrigation Hardware, Motor Rewind, Motors, Stock Watering Tanks, and Variable Frequency Drives.

Sector	Measure	Status	UnderReview	UploadDate	Version	LatestRTFDecision	SunsetDate	MeasureLife
Agricultural	<a href="#">Irrigation Hardware</a>	Out-of-compliance		5/12/2010	v2.1	<a href="#">2/1/2011</a>	<a href="#">2/5/2011</a>	4 to 15
Agricultural	<a href="#">Motor Rewind</a>	Deemed	unassigned	9/27/2010	v1.2	<a href="#">7/7/2009</a>	7/6/2014	8 to 12
Agricultural	<a href="#">Motors</a>	Out-of-compliance		5/12/2010	v1.2	<a href="#">2/1/2011</a>	8/3/2014	15
Agricultural	<a href="#">Stock Watering Tanks</a>	Deemed	unassigned	5/12/2010	v1.3	<a href="#">7/7/2009</a>	7/6/2014	10
Agricultural	<a href="#">Variable Frequency Drives - Dairy</a>	Deemed	unassigned	1/14/2011	v1.1		1/1/2013	10
Agricultural	<a href="#">Variable Frequency Drives - Potato/Onion Shed</a>	Deemed	unassigned	10/1/2010	v1.2	<a href="#">4/7/2009</a>	4/6/2014	10
Commercial	<a href="#">Appliances - Clothes Washers</a>	Deemed	unassigned	5/12/2010	v1.3	<a href="#">8/4/2009</a>	9/3/2014	7
Commercial	<a href="#">Appliances - Dishwashers</a>	Deemed	unassigned	5/12/2010	v1.1	<a href="#">11/9/2009</a>	11/8/2014	12
Commercial	<a href="#">Appliances - Ice Makers</a>	Deemed	unassigned	5/12/2010	v1.0	<a href="#">5/27/2008</a>	5/26/2013	10
Commercial	<a href="#">Appliances - Refrigerator/Freezer Decommissioning</a>	Deemed	unassigned	7/20/2010	v2.3	<a href="#">6/29/2010</a>	6/29/2012	6 to 9
Commercial	<a href="#">Appliances - Refrigerators and Freezers</a>	Deemed	unassigned	5/12/2010	v2.5	<a href="#">3/2/2010</a>	3/1/2015	12
Commercial	<a href="#">Computer Power Management</a>	Provisional	S&W	7/20/2010	v2.0	<a href="#">3/1/2011</a>	5/4/2012	4
Commercial	<a href="#">Cooking Equipment - Combination Ovens</a>	Deemed	unassigned	5/12/2010	v1.1	<a href="#">11/9/2009</a>	<a href="#">5/9/2011</a>	12

## Strengthening Technical Protocols

The RTF provides standardized protocols for estimating savings and regional power system value for energy efficiency measures and programs. It maintains and updates a database of measures and programs that includes their incremental cost, savings, benefit/cost ratios, and carbon reduction over the measure life. Through a petition process, utilities and vendors can propose new measures or savings verification protocols and/or request modification of protocols, savings, and cost assumptions for existing measures.

In addition, the RTF, with financial support from BPA, maintains an internet-based system for Planning Tracking, and Reporting (PTR) the region's conservation progress. The PTR system, which was originally developed in 2001, is now undergoing a complete reconstruction. The new system, which is referred to as EE Central, is also being funded by BPA. Once EE Central is operational in late 2011, it is expected to serve a range of energy efficiency program providers, including: the region's public utilities, Washington utilities that must report annual conservation savings to the state auditor, BPA, investor-owned utilities, the Energy Trust of Oregon, and other entities.

The RTF issued two requests for proposals in 2010 in response to regional feedback and recommendations from the NEET-sponsored independent review. The first was a review to strengthen technical analyses and input assumptions for the RTF's library of over 90 measures with unit energy savings estimates. A second request for proposal was to describe how the RTF selects, develops, and maintains approved methods for estimating savings from energy efficiency measures and to develop standard protocols for this process. Both proposals were awarded to SBW Consulting.

By the end of 2010, SBW in consultation with the RTF subcommittee, produced detailed reviews and recommendations for 22 measures and developed approaches that will lead to specifications for seven others. The work entailed a major review of inputs, methods, assumptions, data sources, calculations, and savings estimates, as well as comparisons with savings estimates that were developed elsewhere. The contractor made recommendations for the RTF to consider. This work will continue in 2011, with plans to update about 60 additional measures.

Another product from this review was the development of draft guidelines that detail how the RTF develops and maintains its estimates of measure savings. The draft guidelines compile the processes the RTF intends to use to develop reliable savings estimates.

This work, which is being carried out with the support of the RTF subcommittee, will assure the technical integrity of the analyses of energy efficiency measures and solid documentation for unit energy savings. It will give clearer guidance to those who propose and evaluate measures and will contribute to more methodical deliberations and uniform decision making. The draft guidelines are expected to be forwarded to the Council in June 2011.

The RTF guided the development of several new measures and savings protocols in 2010. Among these is a simplified method to measure cooling and fan energy savings in commercial buildings with rooftop HVAC equipment. The method culminated several years of research coordinated by the New Buildings Institute and conducted in collaboration with BPA, several electric utilities, and service contractors.

In addition, the RTF adopted protocols that estimate savings from voltage optimization on utility distribution systems and from NEEA's efficient-television initiative. The RTF also approved savings estimates for about 30 other measures.

## News on Conservation Progress

In September 2010, the RTF released the results of its annual survey of conservation achievements in the region. The savings represent the activities of 127 utilities that account for just over 99 percent of the Northwest's retail electricity sales.

The region acquired 219 average megawatts of savings in 2009, capping off a remarkable five-year run. Between 2005 and 2009, the Northwest captured 942 average megawatts of savings, leaving the 700 average-megawatt target in the Council's Fifth Power Plan in the rearview mirror. Savings for the five-year period are equivalent to the annual output of a large nuclear power plant.

In each year of the Fifth Power Plan, the region exceeded the annual target. As Figure 1 shows, the savings in 2008 and 2009 were particularly impressive.

Figure 1: 5th Plan's Savings Were Exceeded in Every Year

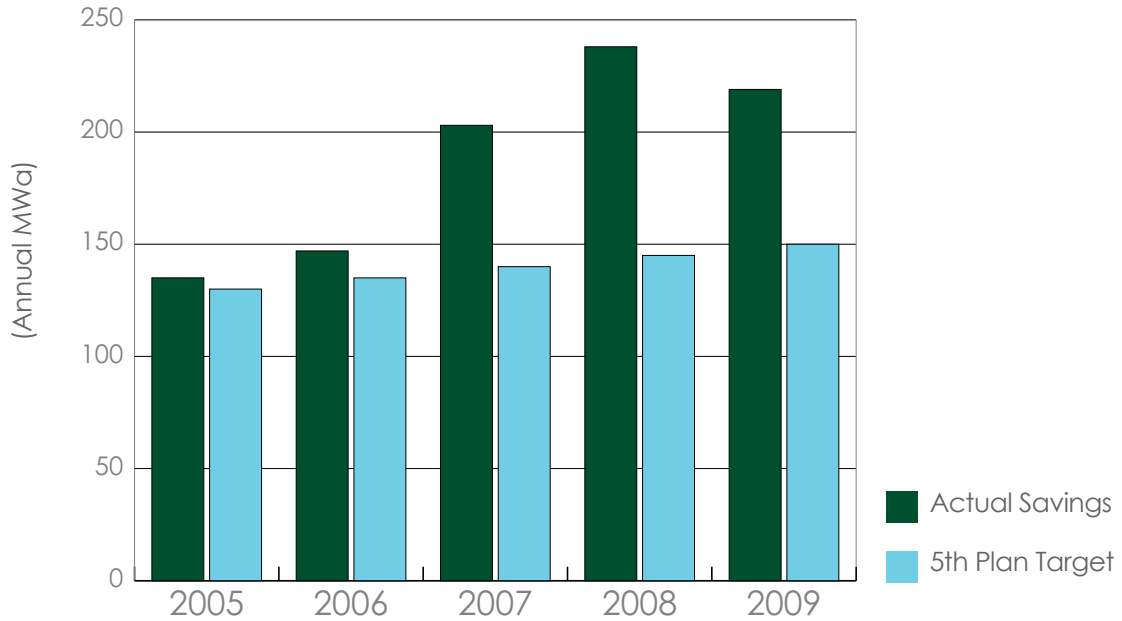
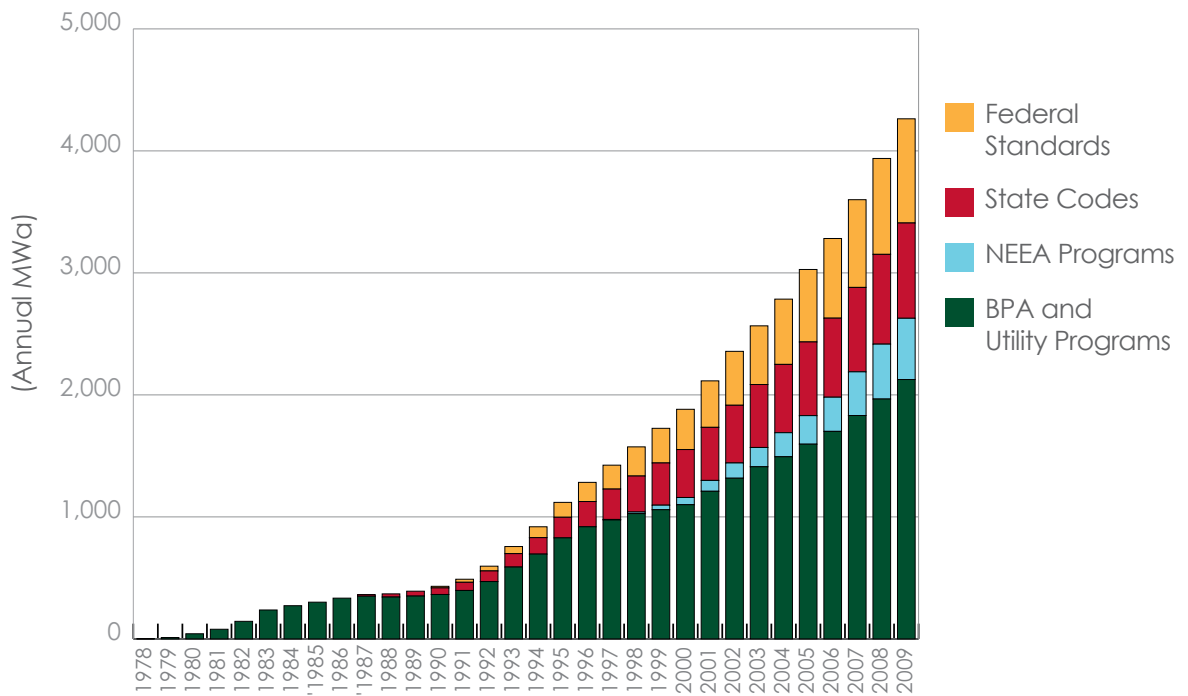


Figure 2: Cumulative Regional Savings



# Financial Information

The RTF covers a lot of ground with a modest budget. Table 1 shows the 2010 budget divided according to general categories of expenditure.

Table 1: 2010 Budget Categories and Allocations

Category	2010 Budget	Percent
Develop draft guidelines for RTF savings estimation methods	\$470,000	45%
Review of measures, specific technologies, identified high-priority measures & unsolicited proposals	\$265,000	26%
Website, Database support, Conservation Tracking	\$ 35,000	3%
RTF member support, contract staff & administration	\$270,500	26%
<b>Total</b>	<b>\$1,040,500</b>	<b>100%</b>

RTF funding received in 2010 from sponsorships and subscriptions is presented in Table 2. Sponsorship funds cover the majority of RTF work, while subscription funding was dedicated specifically to two requests the RTF received: an Oregon Department of Energy-funded request for a review of savings associated with proposed building code revisions (\$22,207); and a BPA and NEEA-funded addition to the small/rural utility technical needs project to address specific programmatic and process recommendations (\$10,000).

Table 2: Summary of 2010 Funding and Allocations

2010 Funding Received	
Sponsorships	\$1,039,149.00
Subscriptions	\$32,207.50
<b>Total Funding Received</b>	<b>\$1,071,356.50</b>
2010 Funding Allocated	
Contract Allocations	\$997,655.03
Expenses	\$7,300.27
<b>Total Allocations &amp; Expenditures</b>	<b>\$1,004,955.30</b>
<b>Total Unallocated 2010 Funds</b> (Rollover to 2012 work plan and budget)	<b>\$66,401.20*</b>

\*Unaudited figure. Actual audited funds will be rolled over to 2012 RTF budget.

The budget figures in Table 3 are five-year projections developed in 2009. These projections will come under further review as the Council considers mechanisms to ensure stable funding for the RTF in the future.

Table 3: Budget Projections for 2010 – 2014

CY 2010 Budget	CY 2011 Budget	CY 2012 Budget	CY 2013 Budget	CY 2014 Budget
\$1,040,500	\$1,400,000	\$1,510,000	\$1,060,000	\$1,060,000

## RTF Sponsors

The following organizations provided funding (sponsorship) for RTF activities in 2010:

Avista Utilities	Northwestern Energy
Bonneville Power Administration	PacifiCorp
Clark County PUD	Puget Sound Energy
Cowlitz PUD	Seattle City Light
Energy Trust of Oregon	Snohomish County PUD
Eugene Water and Electric Board	Tacoma Power
Idaho Power	

## Update on 2011 and Future Outlook

The RTF adopted a 2011 work plan at its September 2010 meeting, and after multiple rounds of comments, the plan was backed up by a \$1.4 million budget. A primary objective in 2011 and 2012 is to continue to work to bring all energy efficiency measures in the RTF catalogue into compliance with the new guidelines. Table 4 shows general categories of expense in the 2011 RTF budget.

Table 4: 2011 Budget Categories and Allocations

Category	2011 Budget	Percent
Standardization of Technical Analysis & Existing Measure Review	\$660,000	47%
Review of New Measures, Specific Technologies, Identified High-Priority Measures & Unsolicited Proposals	\$300,000	21%
Develop plan, funding and data warehouse for end-use load research	\$100,000	7%
Website, Database support, Conservation Tracking	\$30,000	2%
RTF Member Support, Contract Staff & Administration	\$310,000	22%
<b>Total</b>	<b>\$1,400,000</b>	<b>100%</b>

Over the first few months of 2011, SBW Consulting has worked closely with RTF staff and subcommittee members to revise and improve the draft standard protocols and assure they will work as intended. The RTF will seek contractors to complete the review of existing RTF measures, develop guidelines for measure cost and non-energy benefits, and develop guidelines for determining the effective life of an energy efficiency measure. This work will codify 11 years of RTF decisions on measures and test previous determinations against the new guidelines.

Day-to-day operations have been bolstered in 2011 with the addition of a second half-time staff person. In addition to the staff support provided by the Council, the RTF now has full-time assistance in carrying out its administrative and technical functions and in providing support to subcommittees and contractors.

A newly formed RTF Policy Advisory Committee (PAC), which the Council authorized in April 2011, will provide policy recommendations to the Council on how best to meet the needs of the RTF's stakeholders, while ensuring the RTF maintains its role as the pre-eminent independent technical body on energy efficiency in the region. In approving the PAC, the Council is seeking comment and advice on the RTF's organization and operating procedures; work plan priorities; funding structure; policy implications of RTF technical recommendations; and RTF progress toward its objectives and completing its work plan.

The RTF will be working with the PAC as it takes shape and carries out its advisory function to the Council. RTF staff, in particular, will be responding to PAC recommendations and information requests as needed.

## 2011 Regional Technical Forum Members

Voting Members	Affiliation
Brad Acker	University of Idaho, Integrated Design Lab
Rich Arneson	Tacoma Power
Mike Bailey	ECOS Consulting
Andie Baker	Tacoma Power
Eric Brateng	Puget Sound Energy
Jeff Brooks	Idaho Office of Energy Resources
Bruce Cody	Independent
Tom Eckman, Chair	Northwest Power and Conservation Council Staff
Ryan Fedie	Bonneville Power Administration
Lauren Gage	Bonneville Power Administration
Charles Grist, Vice Chair	Northwest Power and Conservation Council Staff
Adam Hadley	Hadley Energy Engineering, LLC
Jeff Harris	Northwest Energy Efficiency Alliance
Jay Himlie	Mason County PUD 3
Erin Hope	Bonneville Power Administration
Mark Jerome	Pacific Air Comfort
Don Jones, Jr.	PacifiCorp
Ken Keating	Honorary RTF Member
Bill Koran	Quantum Energy Services
Jim Lazar	Microdesign Northwest
Tom Lienhard	Avista Utilities
Jim Maunder	Ravalli Electric Cooperative
Nick O'Neil	Energy Trust of Oregon
Graham Parker	Pacific Northwest National Laboratory
Brady Peeks	Northwest Energy Works
Travis Reeder	Eugene Water and Electric Board
Kerstin Rock	PECI
Eugene Rosolie	Cowlitz County PUD
Kevin Smit	EES Consulting
Jill Steiner	Snohomish County PUD
David Thompson	Avista Utilities

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## RTF Staff

Tom Eckman, Chair  
Charlie Grist, Vice Chair  
Adam Hadley, RTF Staff  
Mark Kendall, RTF Staff  
Gillian Charles, RTF Management

