An Introduction to Regional Energy Efficiency Organizations

Version 1, September 2012

Northwest Power and Conservation Council

www.nwcouncil.org

Regional Technical Forum and Policy Advisory Committee

www.nwcouncil.org/rtf

Bonneville Power Administration

www.bpa.gov

Northwest Energy Efficiency Alliance

www.neea.org

Overview of Regional Organizations

NORTHWEST POWER AND CONSERVATION COUNCIL

General Overview: The Council was created by the Northwest Power Act of 1980 to develop and maintain a regional power plan and a fish and wildlife program to balance the Northwest's environmental and energy needs. The Council's three tasks are:

1. Develop a 20-year electric power plan to provide adequate and reliable energy at the lowest economic and environmental cost to the Northwest;
2. Develop a program to protect and rebuild fish and wildlife populations affected by hydropower development in the Columbia River Basin;
3. Educate and involve the public in the Council's decision-making processes.

Roles and Responsibilities Related to Energy Efficiency:

- Sets the regional energy efficiency target through power plans. The Sixth Power Plan set public power's share of the regional target at 504 aMW for 2010-2014.
- Calculates "Total Resource Cost" (TRC), which is used to determine measure cost effectiveness.
- Oversees the Regional Technical Forum (RTF).

REGIONAL TECHNICAL FORUM (RTF)

General Overview: The RTF was formed by the Council in 1999. The RTF selects, develops, and maintains methods for estimating savings, costs, and lifetimes from the delivery of energy efficiency measures. The RTF creates "deemed measures" (technically referred to as "unit energy savings" or UES) by verifying savings estimates of commonly used measures to help streamline implementation. The RTF also produces standard protocols for measures with variable savings and guidelines for evaluating savings from custom measures and program impact evaluations.

The RTF helps review the technical elements of energy efficiency in the Council's power plan, including review of the region's progress toward its energy efficiency goals. The RTF is a volunteer organization made up of 20-30 voting members and 60+ corresponding members. Voting members are selected based on technical expertise (evaluation, statistical, engineering, etc.) and are appointed to the RTF by the Council. The RTF also has 15-20 subcommittees that work on specific topics and bring recommendations to the full RTF.
The RTF meets on a monthly basis; all RTF and subcommittee meetings are open to the public and are available via telephone and webconference. All materials are available on the RTF's website.
Roles and Responsibilities Related to Energy Efficiency: Determines measure cost, energy savings, and specifications for a limited set of energy efficiency measures.

BONNEVILLE POWER ADMINISTRATION (BPA)

General Overview: BPA is a public service organization that works in concert with others to assure the Pacific Northwest:

1. An adequate, efficient, economical, and reliable power supply;
2. A transmission system that transmits power from federal and non-federal generating units, provides service to BPA's customers, provides interregional interconnections, and maintains electrical reliability and stability; and
3. The Federal Columbia River Power System's effects on fish and wildlife are mitigated.

BPA is committed to cost-based rates and public and regional preference in its marketing of power. BPA sets its rates as low as possible consistent with sound business principles and the full recovery of all of its costs, including timely repayment of the federal investment in the system.

Roles and Responsibilities Related to Energy Efficiency: Consistent with the Northwest Power Act of 1980, BPA supports the acquisition of public power's share of energy efficiency as a top priority in meeting the region's power needs, consistent with the Council's power plan. As part of these responsibilities BPA:

- Promotes energy efficiency and new and emerging technologies through numerous channels, including programmatic efforts, market transformation, and non-programmatic savings.
- Guides the delivery of energy efficiency opportunities and programs, and provides tools, technical support, and financial resources to its utility customers.

More specifically, BPA does the following related to energy efficiency:

- Participates in the Council's processes for developing regional power plans.
- Coordinates with the RTF on developing and maintaining methods to estimate savings, costs, and lifetimes of energy efficiency measures.
- Sets measure reimbursement levels available to utility customers.
- Determines measure reporting requirements and qualified energy savings.
- Designs and manages regional programs for acquiring energy savings.

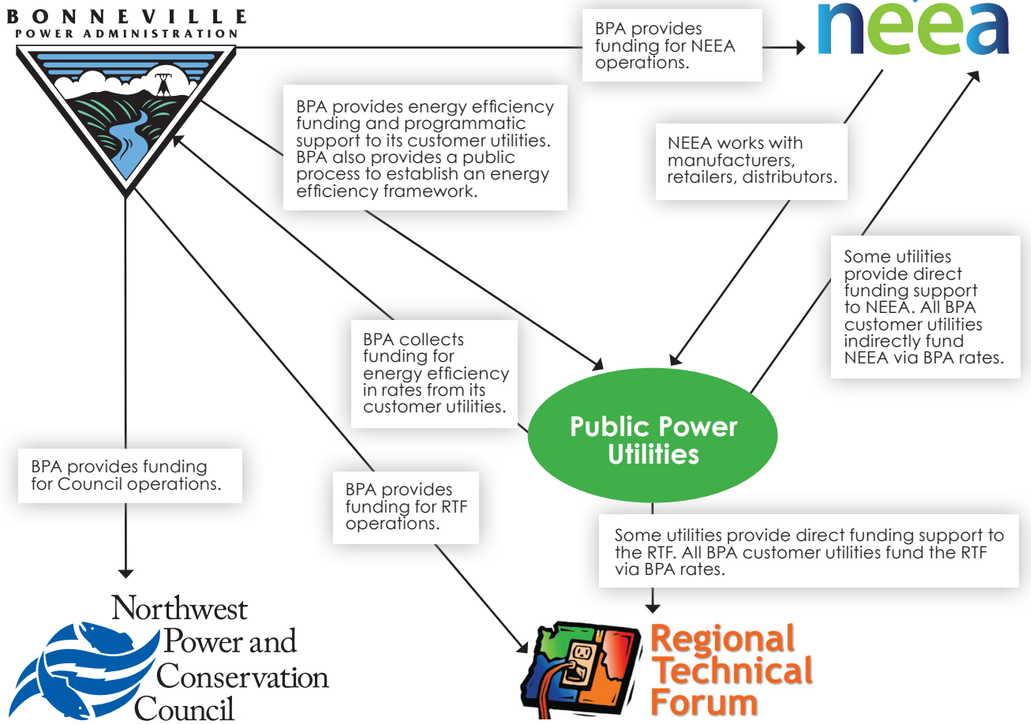
NORTHWEST ENERGY EFFICIENCY ALLIANCE (NEEA)

General Overview: NEEA is a non-profit organization working to increase energy efficiency to meet our future energy needs. NEEA is supported by, and works in collaboration with, BPA, Energy Trust of Oregon, and more than 130 Northwest public and investor-owned utilities on behalf of more than 12 million energy consumers to accelerate the innovation and adoption of energy-efficient products, services, and practices.

NEEA leverages the region's market power within the commercial, industrial, and residential sectors to remove barriers to adoption of energy-efficiency measures, aggregate and synthesize knowledge, convene and collaborate with the region, and provide an independent perspective.

Roles and Responsibilities Related to Energy Efficiency: Between 2010-2014, NEEA and the region are striving to achieve 200 aMW of total regional savings as part of NEEA's five-year business plan. NEEA will do this primarily through long-term market-transformation strategies.

Flow of funding and resources



*A glossary of acronyms and terms is available at the end of the document.

Lifecycle of Unit Energy Savings (UES) Measures

The Council creates the Power Plan which sets the region's energy efficiency savings target comprised of existing and emerging technologies. Measures resting on these technologies play a vital role in achieving the savings target. The chart below provides a high level look at the lifecycle of a measure and the roles the regional energy efficiency entities play throughout.

Measure returns to Approval stage due to various drivers: changes in codes and standards; updated measure analysis and data (e.g., from evaluations, reports, field testing); corrections for errors; market saturation.

	New-Opportunity Scanning Stage	Assessment and Validation Stage	Measure Approval Stage	Measure Acceptance Stage	Measure Implementation Stage	Savings Reporting Stage	Evaluation Stage
Northwest Power and Conservation Council (Council)	Works with stakeholder groups to assess the resource potential of emerging technologies for inclusion in the Power Plan.					Tracks reported savings against the regional target; manages the Power Plan's midterm review	
Regional Technical Forum (RTF)		Provides input on research plans to obtain data needed to validate savings estimates.	Reviews measures; approves measure savings and costs; determines cost-effectiveness; provides measure recommendations to the region				Provides guidance on evaluation plans to ensure compliance with the RTF guidelines for savings validation.
Bonneville Power Administration (BPA)	Manages Emerging Technology program for technologies that have zero to little market saturation with unknown energy savings; collaborates with NEEA.	Manages demonstration/ pilot projects aimed at documenting a technology's estimated savings; performs lab testing and modeling	Takes measures to the RTF for approval	Receives measure recommendation from RTF; sets BPA's "willingness to pay" for the measure's savings; adds measure to the deemed measure list; updates the Implementation Manual, published in October and April	Develops and manages regional programs (e.g., Simple Steps, Smart Savings; Energy Smart Grocer; Energy Smart Industrial); manages the Implementation Manual	Reports savings to the Council to count towards the regional savings target	Performs measure evaluations
Northwest Energy Efficiency Alliance (NEEA)	Manages emerging technology program for technologies that have zero to little market saturation with unknown energy savings; collaborates with BPA.	Manages pilot projects aimed at documenting a technology's estimated savings; performs lab testing and modeling	Takes measures to the RTF for approval		Coordinates regional marketing efforts. Develops and manages upstream initiatives, e.g., ductless heat pumps, electronics, etc.	Reports savings to utilities and BPA	Performs measure evaluations
Public Power Utilities		Participate in pilot projects to document a technology's savings potential	Takes measures to the RTF for approval	Utility Sounding Board and utility focus groups review proposed Implementation Manual changes	Develop local programs; implement measures	Report savings to BPA	Perform measure evaluations
Regional Program Implementors (e.g., PECI, Cascade, Fluid)					Implements regional programs by working with utilities and end-use customers	Report savings to BPA	
Public Utility Engagement Opportunities, i.e., where, when, and how to provide feedback and input	RTF meetings and agendas are provided well in advance and published on RTF website	Feedback also conveyed to and through member organizations (NRU, PNGC, PPC, etc.)	Brown bags and Roundtables are regularly scheduled to allow opportunities for utilities to provide input or share concerns	Opportunities to participate in field tests of emerging technologies are offered to the utilities	Feedback often provided to and through BPA Energy Efficiency Representatives (EERs)		
Challenge Points	Periodic review of cost effectiveness dictates that some measures be removed from the qualifying measure list	Reason for de-listing qualified measures may not be clearly communicated to utilities	Limited travel budgets and long distances can preclude utilities (especially SRRs) from actively participating in the process	Mixed bag of sector profiles of individual SRRs creates programmatic challenges	Utility ease (or lack thereof) of program implementation creates administrative challenges	Business case for utility engagement in energy efficiency process not clearly communicated	Utilities may lack adequate resources to actively engage in the process

Other avenues for energy efficiency savings beyond the formal RTF process

Below are additional avenues for the region to capture energy efficiency savings beyond deemed measures that are formally approved by the RTF.

1) BPA Qualified:

BPA Qualified is a measure approval status that allows installation of non-RTF approved measures. Through these measures, BPA collects data and performs analysis, with the eventual goal of securing RTF approval. Measures are more likely to be BPA Qualified if they fit within the following criteria:

- The measure's estimated achieved savings are less than 1 aMW of annual savings.
- The RTF rejected the measure because of a lack of data.
- The measure has estimates and reliable sources of per-unit savings, incremental costs, and measure life.
- The measure is expected to have a Total Resource Cost (TRC) greater than 1.
- A thorough plan for data collection and evaluation has been established.

For BPA Qualified measures,BPA requires an initial review of the measure by the RTF to ensure BPA will collect the necessary data needed for eventual RTF approval of the measure. After the RTF's initial review, BPA assesses preliminary cost-effectiveness, develops a Monitoring and Verification (M&V) plan and generally evaluates the measure for BPA Qualified status. After evaluation, if BPA decides to proceed with the measure, BPA develops the measure design and presents evaluation results to the RTF for review. The RTF is expected to complete its review within two RTF meetings.

Once BPA Qualified, BPA enters the measure into the Implementation Manual. BPA also sets expiration dates for claiming measure savings in order to ensure information is available for research and evaluation. In some instances, the customer may need to submit additional information in order to claim the measure (typically research data). If additional information is required, it will be noted in the Manual.

During implementation, BPA counts planned savings toward its energy efficiency target and after evaluation, adjusts savings for BPA historic tracking and decides whether and how to continue the measure. In the event of minimal uptake, BPA may forego evaluation and count no savings toward the measure. Individual utility accomplishments are not adjusted.

2) Small Savers:

The RTF may determine that the likely savings from a measure are too small to warrant the resources needed to meet the unit energy savings (UES, formerly deemed measures) quality criteria for provisional or active status. In making this determination, the RTF will consider the amount of regional end use that is affected by the measure or the magnitude of the likely savings. Measure specifications and the information for the proposed stage is required for small savers and must be provided before the RTF can designate a measure as a small saver. For small savers, the RTF may choose to convene an expert panel to consider the proposed measure and to formulate a consensus opinion on the likely UES values. This process is intended to promote consistent treatment of these measures throughout the region, not to confer RTF-approval on the proposed UES values.

3) Custom Projects:

1. All measures or projects that do not have a BPA deemed reimbursement level, deemed busbar energy savings, or for which cost-effectiveness has not been determined, must be submitted as custom projects.
2. The measures must be designed to result in improvements in the energy efficiency of electricity distribution or use and must have a savings life of at least one year. The proposed baseline annual energy usage for each measure must be documented and provide a basis for establishing annual energy savings.
3. Custom projects are limited to one sector each and must have a minimum Benefit/Cost (B/C) ratio of 0.5 at the proposal stage for Option 1 customers and at the invoice stage for Option 2 customers.
    a. Under Option 1, BPA shall manage the B/C ratio at a program level.
    b. BPA reserves the right to reject individual custom projects with B/C ratios of less than 1.0 to ensure the aggregate B/C ratio for all custom project proposals/reports remains 1.0 or greater.
    c. Under Option 2, the customer must manage the B/C ratio at the invoice level and ensure that the B/C ratio is at least 1.0.
4. The measure must not have been ordered, purchased or installed prior to approval of the custom project by BPA (Option 1) or the customer (Option 2).
5. The expected project simple payback (project cost/annual energy cost savings) must be six months or greater.

4) Custom Programs:

1. A custom program is similar to a custom project expect it covers multiple end-user ties with one or more measures. Single site projects must use the custom project process.
2. Custom program must be Total Resource Cost (TRC) cost-effective (TRC > 1.0) on a prospective (planning) basis, and must be TRC cost-effective retrospectively, as outlined in reporting and reimbursement requirements.
3. Reimbursement will be based on savings produced after the custom program is approved by BPA (Evaluated Custom Program) or the project starts (Pre-approved M&V Custom Program).

The customer must secure BPA's approval of its custom program. Customers may submit to BPA Evaluated Custom Programs or Pre-approved M&V Custom Program Proposals. See BPA's Implementation Manual for more details.

Cost-effectiveness Overview

The Council's Power Plan's definition of "cost-effectiveness" comes from the 1980 Regional Power Act and means that an energy efficiency measure or generating resource must be forecast:

- to be reliable and available within the time it is needed
- to meet or reduce the electric power demand of the consumers *at an estimated incremental* system cost no greater than that of the least-cost similarly reliable and available alternative measure or resource, or any combination thereof.

Under the Power Act, the term "system cost" means an estimate of all direct costs of a measure or resource over its effective life, including the cost of distribution and transmission to the consumer; waste disposal costs; end-of-cycle costs; fuel costs (including projected increases); and such quantifiable environmental costs and benefits as are directly attributable to such measure or resource.

The Power Act's definition of cost-effectiveness seeks to minimize the total cost of meeting the region's need for the services provided by electricity, i.e., its goal is economic efficiency. Accordingly, the Council and BPA use a "Total Resource Cost" (TRC) test to calculate cost-effectiveness. The TRC test is a type of benefit/cost (B/C) ratio that considers all benefits and costs regardless of who accrues them.

$$\text{B/C Ratio} = \frac{\textbf{Present Value of All Benefits}}{\textbf{Present Value of All Costs}}$$

- Incorporates all benefits, e.g., shape of saved kWh, life of savings, transmission & distribution deferrals, non-energy benefits, quantifiable externalities, etc.
- Incorporates all costs, e.g., capital & labor, operations and maintenance, periodic replacement, program administration & non-energy costs, regardless of who pays.
- Incorporates time value of money for both benefits and costs.

Using a TRC test ensures that energy efficiency expenditures are good for the power system, the consumer and society and allows energy efficiency to be compared to other resources considered for development by including all quantifiable costs and benefits. It is important that BPA and public power utilities acquire only cost-effective savings because doing otherwise:

It's Unfair – Non-participants' rates go up to subsidize others for savings that are not cost-effective.

It's Uneconomic – Both the utility system and society could serve the same needs at a lower cost and money spent on non-cost-effective savings reduces the amount available to secure these energy services from lower cost options.

It's Illegal – BPA is restricted by the 1980 Power Act to acquire only cost-effective energy efficiency savings.

Glossary

ACRONYMS

B/C ratio – benefit/cost ratio

BPA – Bonneville Power Administration

M&V – measurement & verification

NEEA – Northwest Energy Efficiency Alliance

NRU – Northwest Requirements Utilities

PECI – Portland Energy Conservation, Inc.

PNGC – Pacific Northwest Generating Cooperative

PPC – Public Power Council

RTF – Regional Technical Forum

SRR – small and/or rural and/or residential utilities (self-defined by utilities rather than by BPA)

TRC – Total Resource Cost (all quantifiable costs & benefits regardless of who accrues them. Includes participant and others' costs.)

UES – unit energy savings

TERMS

Baseline annual energy usage – Energy usage prior to implementation of energy efficiency measures. Used to calculate energy savings.

Cascade – Cascade Energy, Inc. Contractor for BPA's Energy Smart Industrial (ESI) program.

Council – Northwest Power and Conservation Council, established by the Northwest Power Act of 1980.

Energy Efficiency Representatives (EERs) – BPA staff working directly with customer utilities to promote and implement BPA's energy efficiency programs.

Energy Smart Grocer (ESG) – BPA regional program targeting commercial refrigeration energy efficiency potential to grocers and others with commercial refrigeration load.

Energy Smart Industrial (ESI) – BPA regional program designed to deliver cost-effective energy efficiency savings in the industrial sector.

Energy Trust of Oregon (ETO) – Independent nonprofit organization dedicated to helping customers of Portland General Electric, Pacific Power, NW Natural, and Cascade Natural Gas benefit from saving energy and generating renewable energy.

Evaluated Custom Program – Type of BPA Custom Program that is completed and evaluated before being approved by BPA for reimbursement.

Federal Columbia River Power System – A series of 31 federally-owned hydropower projects on the Columbia and lower Snake rivers that collectively provide about 30% of the electricity used in the Pacific Northwest and about 60 percent of the region's hydroelectric generating capacity. The system is a unique collaboration among three U.S. government agencies – the Bonneville Power Administration, the U.S. Army Corps of Engineers, and the Bureau of Reclamation – to maximize the use of the Columbia River by generating power, protecting fish and wildlife, controlling floods, providing irrigation and navigation, and sustaining cultural resources.

Fluid – Fluid Market Strategies – Contractor for BPA's residential products promotions.

Implementation Manual – BPA's manual describing the implementation requirements for energy saving measures and projects reported to BPA.

Market transformation – Strategic process of intervening in a market to create lasting change in market behavior by removing identified barriers or exploiting opportunities to accelerate the adoption of all cost-effective energy efficiency as a matter of standard practice.

Measure – Material, equipment, or activity that achieves energy efficiency.

Non-programmatic savings – Energy savings that are 1) occurring outside of BPA and utility programs, for which BPA and public power utilities do not pay a reimbursement and 2) measures for which the efficiency is higher than that specified in the 6th Power Plan baseline. These include energy savings from new building codes and appliance standards, and market-induced adoption of energy efficiency.

Northwest Power Act of 1980 – Pacific Northwest Electric Power Planning and Conservation Act – Established the Pacific Northwest Electric Power and Conservation Planning Council and directed the Council to adopt a regional energy conservation and electric power plan and a program to protect, mitigate and enhance fish and wildlife on the Columbia River and its tributaries. The Act also set forth provisions the Administrator must follow in selling power, acquiring resources, implementing energy conservation measures, and setting rates for the sale and disposition of electric energy.

Option 1 customers – BPA utility customers that have chosen to submit and receive BPA's approval of 1) a custom project proposal and 2) a custom project completion report prior to receiving reimbursement for a custom project.

Option 2 customers – BPA utility customers that have chosen to be responsible for approving and managing custom projects with minimal technical assistance from BPA.

Pre-approved M&V Custom Program – Type of BPA Custom Program that is approved by BPA prior to implementing individual projects. Reimbursement is allowed after each project under the program is installed and energy savings measured according to its M&V plan.

Programmatic savings – Energy savings achieved through BPA's customer utilities and BPA direct acquisition programs, funded through BPA reimbursement and direct utility funding. These savings are achieved in each sector through a mix of deemed savings, calculated measures, custom projects and third-party programs.

Project simple payback – Length of time before the cost of energy saved pays for the project's implementation, calculated as project cost/annual energy cost savings.

Sector profiles – Breakdown of types of energy efficiency available (residential, commercial, industrial) in a utility service area.

Simple Steps, Smart Savings – BPA regional program promoting compact fluorescent bulbs and low-flow showerheads.

Unit energy savings (UES) – Stable unitized savings that can be reliably forecast through the period defined by the measure's sunset criteria. UES measures can reduce program delivery cost by simplifying the data that must be collected. Formerly known as "deemed" savings.