

Energy Efficiency Implementation Manual

October 1, 2009



This document is available online at
www.bpa.gov/energy/n/implementation.cfm



Note

The October 1, 2009 edition of the Implementation Manual, or the “Manual” as it is called, takes effect on the first day of the new rate period. This rate period ushers in the start of a host of changes that include a new contract, the Energy Conservation Agreement (ECA), a new Power Plan and the conclusion of the Post 2011 process. Each change impacts the Manual making it difficult to keep the Manual current, clear and understandable. More importantly, it takes time to communicate and coordinate changes with vendors and end-use decision makers so they have the information they need when upgrading the efficiency of homes and businesses. The most immediate change to the Manual is the introduction of the ECA. Other changes will follow as decisions are made relating to the Sixth Power Plan and the Post 2011 structure. Engagement in these processes will certainly help plan for changes that will ultimately be reflected in the Manual.

With regard to changes relating to the ECA, references to the Conservation Acquisition Agreement (CAA) have been removed and the Manual revised to reflect the structural design of the ECA. We also stepped back and, after input from a few customers individually and the USB collectively, added an “Implementation Manual Timeline.” This timeline illustrates the plan we follow internally when producing the next version of the Manual. Placing this schedule in the Manual serves the primary purpose of informing BPA customers of the timeline so, if there are questions about upcoming changes, customers can check in with their EER. This is especially important as we have heard customers say they don’t feel they are hearing enough about pending Manual changes. Another change is the creation of a “Multi-Sector” chapter. The idea behind this chapter is to reduce the number of pages by eliminating requirements that are repeated in more than one sector chapter.

Lastly, the individual sections on CAA and CRC funding have been combined into a “BPA Funding Sources” section. With the transition to two-year rate periods and having conservation projects and programs that extend for more than two years, planning funding for such conservation programs and projects takes on a new dimension. Planning funding for projects over a horizon longer than the two-year rate period is especially important given the fact that decisions have yet to be made for the Post 2011 period. With the region’s conservation targets expected to be larger in the Sixth Power Plan, certainty of funding (regardless of source – BPA or utility self-funded) is key to vendors and end-use decision makers continuing to start new projects and keep the conservation pipeline full.

As always, my goal is to make the Manual current, clear and understandable. To that end I would like to hear ideas you have that will make this work better for you.

Michael A. Rose

Table of Contents

For a quick way to get to a particular section if you are viewing an online or other electronic WORD version of this document, click on the item you want to view.

OCTOBER 2009 CHANGES SUMMARY	i
IMPLEMENTATION MANUAL TIMELINE	iv
DEFINITIONS	v
1. INTRODUCTION	1
1.1 POLICY FOR MEASURE CHANGES/ADDITIONS	2
1.2 OFFICIAL INTERPRETATIONS.....	2
1.3 REIMBURSEMENT STRATEGIES AND LEVELS	2
1.4 METHODS OF DETERMINING REIMBURSEMENT LEVELS AND GENERAL REQUIREMENTS.....	2
1.5 FEDERAL AGENCY PROGRAM.....	3
1.6 ROLE OF THE RTF	3
2. BPA FUNDING SOURCES	7
2.1 BILATERAL FUNDING.....	7
2.2 CRC FUNDING.....	7
2.3 RULES FOR POOLING ORGANIZATIONS	10
2.4 NON-STANDARD AGREEMENTS	10
3. GENERAL REQUIREMENTS	12
3.1 REPORTING REQUIREMENTS	12
3.2 OVERSIGHT REVIEW PROCESS	15
3.3 PERFORMANCE PAYMENT.....	16
3.4 FUNDAMENTAL REQUIREMENTS RELATED TO FEDERAL DUE DILIGENCE	17
4. AGRICULTURAL SECTOR	20
5. COMMERCIAL SECTOR	30
6. INDUSTRIAL SECTOR	44
7. RESIDENTIAL SECTOR	53
8. MULTI-SECTOR	94
8.1 PROCESSES	95
8.2 MEASURES AND INITIATIVES	104
9. RENEWABLES OPTION	108

October 2009 Changes Summary

This summary includes new changes only.
 It does not include errata or updates issued after the last publication.
 Changes that will take effect in six months are highlighted in grey.

Title	Description	Page #
General		
Changed Name of Implementation Manual	The name of the Manual has been changed to simply "Implementation Manual" rather than "Conservation Rate Credit and Conservation Acquisition Agreement Implementation Manual."	Cover Page
Implementation Manual Timeline	The Manual now includes a timeline outlining BPA's internal process in Manual preparation.	iv
New "BPA Funding Sources" section	The separate sections on the Conservation Rate Credit and the Conservation Acquisition Agreement (CAA) have been merged into one section – "BPA Funding Sources" - and because the CAA is ceasing with the introduction of the Energy Conservation Agreement, the references to the CAA have been replaced with references to "funding under a bilateral contract."	7
New "Multi-Sector" section	A "Multi-Sector" chapter has been added that includes processes, measures and initiatives that apply across two or more sectors. Each sector includes references at the end of its respective chapter referencing the additional opportunities in the Multi-Sector chapter.	94
Agricultural		
Variable Frequency Drives for Hardware	BPA added a BPA Qualified measure for variable frequency drives in agricultural hardware applications.	26
Commercial		
Chapter Reorganized	The chapter has been reorganized by major measure category, with principle opportunities highlighted.	30
Non-deemed Commercial New Construction	Non-deemed commercial new construction will be reimbursed on a performance-based approach that reimburses the lesser of \$0.27 per kWh or 2 percent of whole building as-built contracted cost (excluding land costs).	31
Expired 80 Plus Program Deleted	The 80 Plus efficient computer program, which was no longer accepting subscriptions, has been deleted as it draws to a close.	n/a
Energy Smart Grocer Program Participation Updated	The program is now only offered using Direct Acquisition.	32
New Measures Added	New commercial kitchen equipment deemed measures have been added: Commercial Food Service Reach-in Refrigerators and Freezers; Commercial Ice Makers; Commercial Kitchen Steamers; and Commercial Kitchen Hot Food Holding Cabinets.	33
ENERGY STAR Commercial Clothes Washers – six month	ENERGY STAR standards for commercial clothes washers changed on July 1, 2009. BPA is currently analyzing the impact of these changes on energy savings and anticipates a potential reduction in deemed savings values as well as rebate amounts in the April 1,	40

notice	2010 Manual.	
Industrial		
Energy Smart Industrial program added and significant chapter rewrites	The chapter has been completely rewritten with the advent of the new Energy Smart Industrial program.	44
Incentive Pass-through requirement – six month notice	On April 1, 2010, the customers enrolled in Energy Smart Industrial will be required to pass through the full incentive to the end user.	47
New Construction Reimbursement Level Change – six month notice	On April 1, 2010, custom project incentives for new construction projects will decrease from \$0.27/kWh to \$0.25/kWh.	48
Residential		
Ductless Heat Pumps – measures added	In addition to providing reimbursements for DHPs in single family homes with electric zonal heat or electric forced air furnaces, BPA now provides reimbursements for DHPs in manufactured and multifamily homes with electric zonal heat.	57
Ductless Heat Pump – six month notice	On April 1, 2010, BPA will discontinue reimbursement for DHPs in single family homes with electric forced air furnaces, until more data is available to confirm savings in these applications.	57
Clarification of PTCS documentation requirements	The PTCS sections have been revised to clarify the documentation requirements for PTCS measures. Previous documentation language that read: "List from Ecos Consulting of PTCS certified units as found at www.ptcsnw.com " has been revised to: "Proof that the PTCS form, for unit being claimed, has been submitted to and entered into the PTCS Registry of certified units at www.ptcsnw.com . In addition, the unit must be labeled 'Accepted,' in the PTCS Registry."	59
Definition of Specialty CFLs – six month notice	On April 1, 2010, the definition of specialty CFLs will be revised to indicate that specialty CFLs are defined to include the following screw-base bulbs: candelabras, G-lamps (globe), R-lamps & PAR-lamps (reflectors), torpedoes, dimmable and three-way.	66
Energy Star CFLs (retail markdown) – six month notice	On April 1, 2010, BPA will reduce the savings attribution and reimbursement for CFLs acquired via customer or BPA sponsored retail markdowns to reflect changes anticipated in the Northwest Power and Conservation Council's Sixth Power Plan.	67
Energy Star CFLs (Direct-mail) - six month notice	BPA is currently researching best practices for Direct-mail CFLs. On April 1, 2010, BPA will reduce savings attribution and may reduce reimbursement for Direct-mail CFLs and/or impose a per household limit.	67
Energy Star CFLs – specific measures for recording retail markdown and Direct-mail units	BPA has created specific measures in the PTR system for the purpose of recording and tracking CFLs acquired through customer or BPA sponsored retail markdowns and Direct-mail distribution methods.	68

2.5 gpm showerheads for Multifamily – six month notice	On April 1, 2010, BPA will discontinue reimbursement for showerheads with a gallon per minute (gpm) greater than 2.0 to reflect changes anticipated in the Northwest Power and Conservation Council’s Sixth Power Plan.	80
Multi-Sector		
Measures and processes added	The following sections have been moved to the Multi-Sector chapter: Custom Projects, Direct Acquisition, Third Party Contributions, Lighting, Green Motors and Small Compressed Air System.	94
Direct Acquisition Self-funding	Customers wishing to self-fund must notify BPA prior to initiating work and BPA will tell customers how to report their savings.	102
Green Motors	On April 1, 2010 the CRC Repayment Option will no longer be available.	106

Implementation Manual Timeline

Action	Personnel on Point	Static Due Date	April 2010 Due Date ¹
Prepare Manual for publishing and send out for first round of revisions	BPA Energy Efficiency Implementation Manual Coordinator	9 weeks before Manual publication date	January 25, 2010
Complete first round of revisions and return to BPA Energy Efficiency Implementation Manual Coordinator	BPA Energy Efficiency Staff (Sector Leads ² , Contracts Manager, Programs Manager) and Renewables Managers	7 weeks before Manual publication date	February 9, 2010
Incorporate first round of revisions and send out for second round of review	BPA Energy Efficiency Implementation Manual Coordinator	5 1/2 weeks before Manual publication date	February 19, 2010
Complete second round of revisions and return to BPA Energy Efficiency Implementation Manual Coordinator	BPA Energy Efficiency staff, Renewables Managers, Utility Sounding Board Members	3 1/2 weeks before Manual publication date	March 5, 2010
Incorporate second round of revisions	BPA Energy Efficiency Implementation Manual Coordinator	2 weeks before Manual publication date	March 18, 2010
Convert Manual to PDF and create bookmarks and hyperlinks	BPA Energy Efficiency Implementation Manual Coordinator	7 days before Manual publication date	March 24, 2010
Send Manual to BPA information technology group for posting online, and coordinate with BPA Energy Efficiency Marketing to provide notice to customers and staff	BPA Energy Efficiency Implementation Manual Coordinator	3-5 days before Manual publication date	March 26, 2010
Submit Manual print requests to Implementation Manual Coordinator	BPA Energy Efficiency staff and other interested parties (e.g. customers)	15th day of month after Manual publication date	April 15, 2010
Send Manual print request to BPA Media Services and distribute to requesting parties upon completion	BPA Energy Efficiency Implementation Manual Coordinator	16th day of month after Manual publication date	April 16, 2010

¹ This column will be updated every six months to reflect the dates of the upcoming publication.

² Sector Leads are expected to (1) engage customers on proposed Manual changes prior to submitting changes to the Implementation Manual Coordinator and (2) work with program managers in revising chapters (i.e., all revisions must funnel through the Sector Lead before going to the Implementation Manual Coordinator). Sector Leads must comply with all Energy Efficiency decision making policies.

Definitions

(Definitions associated with the Renewables Option are provided in Section 9).

aMW	Average megawatt of electricity. An average measure of the total energy delivered in one year -- 8,760,000 kilowatt-hours per year
Bilateral Funding	"Implementation Budget" as used in the Energy Conservation Agreement
BPA	Bonneville Power Administration
CEC	California Energy Commission
CEE	Consortium for Energy Efficiency
Completed Unit	As used in the Energy Conservation Agreement includes "in-service date," "completion date" and other terms describing measures properly installed, operating and, when applicable, commissioned in accordance with the manufacturer's requirements and specifications for normal operations and, as applicable, having met specifications and requirements set forth in this Manual, or its successor, and the Planning, Tracking and Reporting system.
Conservation	Any reduction in electric energy consumption resulting from an increase in the efficiency of electric energy use, production or distribution.
COTR	Contracting Officer's Technical Representative
Council	Northwest Power and Conservation Council
CRC	Conservation Rate Credit
Customer	A utility or certain other regional entity that purchases power from BPA
Custom Project	Energy savings work performed under the custom project section of this Manual
Custom Project Proposal	A proposal for energy savings work made under the custom project section of this Manual
DA	Direct Acquisition
Deemed Measure	A measure for which energy savings per unit can be estimated because of a history of measured results and an ability to replicate energy savings
DHP	Ductless Heat Pump
ECA	Energy Conservation Agreement
EER	Energy Efficiency Representative
End user	Ultimate consumer of product(s)
Energy Savings	The ascribed, deemed, calculated, estimated, evaluated, or verified conservation, in first year kilowatt-hours (kWh) attributable to completed units
ENERGY STAR®	The registered name for a joint national energy efficiency program of the U.S. Environmental Protection Agency and the U.S. Department of Energy
EPP	Environmentally Preferred Power (rate schedule)
ETO	Energy Trust of Oregon

Evaluation	The testing of the assumptions made in planning when measures are installed by real people and used by real people (generally not part of oversight, does not affect payments and is used to refine or confirm the planning assumptions for future use)
FAF	Forced Air Furnace
Fiscal Year (FY)	The BPA FY is from October 1 through September 30.
HWM	High Water Mark
HP	High Performance, Heat Pump, OR horsepower, depending on context
HVAC	Heating, Ventilation, and Air Conditioning
HZ	Heating Zone
Implementation Budget	The amount of money BPA makes available to a customer (through its Energy Conservation Agreement) to expend on Implementation Costs during the implementation period
Implementation Period	The period of time from the effective date of a customer's Energy Conservation Agreement through September 30, 2014
Incremental cost	Energy efficiency improvement related costs above what would be required by standard practice or code; in some situations, the full cost of measures, especially in retrofit situations or when a measure is completely incremental to standard practice. Incremental cost also means "implementation cost" as used in the ECA.
kWh	Kilowatt-hour – measure of electric energy
LED	Light-Emitting Diode
Low-income	As defined for the Federal Weatherization Assistance Program, 200 percent of the poverty income levels posted on the program Web site: www.waptac.org (If a statewide definition has been approved for the federal low-income weatherization program in that state, that level will substitute for the default level provided above.)
M&V	Measurement and Verification
Measure	Materials or equipment installed or activities implemented to achieve conservation
Measurement	Readings taken to establish energy use or improvements in energy use, such as testing duct leakage or measuring loading factors and run time in factories. (It usually involves post and/or pre-post measurement. Large end users often measure to make sure that they are getting what they pay for or to better understand their system operations. The prevalence of required measurement for audits or for payment has varied in the field of energy efficiency, but the general rule is the more uncertainty, the greater the risk of performance, the greater the need for actual measurement. BPA requires some level of M&V for projects for which the reimbursement is established by the energy savings achieved.)
Multifamily	Five or more dwelling units within the same structure, three stories or less
MW	Megawatt – measure of electric energy
MWh	Megawatt-hour – measure of electric energy

NEEA	Northwest Energy Efficiency Alliance
NEMA	National Electrical Manufacturers Association
NR	New Resource (rate schedule)
Oversight	A contract management activity, designed to assure the government that it is getting what it pays for with some level of certainty
Performance Payment	Application of funds to cover internal customer administrative costs incurred in support of energy savings activities described in this Manual
PF	Priority Firm (rate schedule)
PTCS™	Performance Tested Comfort Systems (certification for duct sealing and heat pump commissioning)
PTR system	Planning, Tracking, and Reporting system
RD&D	Research, development and demonstration
Regional Technical Forum (RTF)	An advisory committee established in 1999 to develop standards to verify and evaluate Energy conservation (Members of the RTF are individuals experienced in conservation program planning, implementation and evaluation and are appointed by the Northwest Power and Conservation Council.)
Reimbursement	A term representing monetary incentive levels for the installation of energy efficiency measures; includes monetary amounts allocated against a customer's Conservation Rate Credit as well as reimbursements under a customer's Energy Conservation Agreement
RO	Renewables Option
RS&L	Reimbursement Strategies and Levels
SEER	Seasonal Energy Efficiency Ratio
Single Family	Less than five dwelling units within the same structure or site built home
SIS	Scientific Irrigation Scheduling
TRC	Total Resource Cost
TRCs	Tradable Renewable Certificates
TSP	Technical Service Provider
Utility	A public customer that purchases power from BPA
Verification	A process or procedure designed to produce evidence confirming accuracy or truth of claims made to BPA, which may minimally involve obtaining and retaining documentation or may require site inspection(s) of the measure(s)
VO	Voltage Optimization (formerly Conservation Voltage Regulation)
Willingness to Pay (WTP)	The amount BPA is willing to reimburse for measures installed in accordance with applicable specifications, manufacturer's requirements and, as applicable, commissioned to ensure proper operation
Working day	Monday, Tuesday, Wednesday, Thursday and Friday, excluding federal holidays or other days federally deemed to be non-working days

1. Introduction

The Bonneville Power Administration (BPA) Energy Efficiency Implementation Manual (Manual) is based on the "Final Post-2006 Conservation Structure" (June 28, 2005) posted on the BPA Energy Efficiency Web site³ at www.bpa.gov/Energy/N/archives/pdf/post06_program_structure.pdf.

To achieve the conservation targets established in the Northwest Power and Conservation Council's (Council) Power Plan,⁴ BPA offers a variety of options BPA customers can choose from to best meet their service area needs. While not limited to those listed below, the portfolio of options includes the following:

1. A variety of deemed measures and a custom project process providing energy savings opportunities in all end-use sectors
2. An option for BPA's implementation of various third party initiatives through Direction Acquisition (DA) approaches
3. An ability to negotiate non-standard agreements when benefits can be achieved for BPA and the customer
4. A variety of funding sources (bilateral, Conservation Rate Credit (CRC) and self-funding) available for reimbursement

The Manual, together with specifications in the Planning, Tracking and Reporting (PTR) system incorporated herein, sets forth requirements for implementation of the various options.

Organization of the Manual

Section 1 provides general information about the Implementation Manual.

Section 2 contains information specific to BPA funding.

Section 3 contains general requirements for customers using BPA funding.

Sections 4 through 8 contain information about specific sectors (Agricultural, Commercial, Industrial, Residential and Multi-Sector).

Section 9 contains information about the Renewables Option of the CRC.

³ Materials referenced on the BPA Energy Efficiency Web site are located at: www.bpa.gov/energy/n/index.cfm unless otherwise noted. Customers without Internet access should contact their Energy Efficiency Representatives for more information or for copies of the referenced materials.

⁴ The Power Plan, together with the Regional Technical Forum (RTF) recommendations, establishes the data set (list of Measures), baseline conditions and requirements necessary for achievement of the energy savings estimated for the Measure. BPA attaches willingness to pay and implementation requirements that comprise the full set of requirements necessary for reimbursement from BPA.

1.1 Policy for Measure Changes/Additions

BPA updates the Manual every six months, on October 1 and April 1. BPA reserves the right to make changes to policies, procedures and measure eligibility, specifications and requirements.

Customers will be given at least six months notice for changes that decrease a measure reimbursement, increase requirements or delete an existing measure.

Changes that increase a measure reimbursement, decrease requirements or add a new measure may be implemented any time of year without notice. In these cases, the BPA Energy Efficiency Web site acts as an extension to the Manual, allowing BPA to communicate positive changes to existing measures as well as requirements for new measures before publication of the next Manual. At publication of the subsequent Manual, these changes will be incorporated into the newly published version of the Manual.

1.2 Official Interpretations

Only the BPA Contract Administration Manager or Director of Energy Services may issue interpretations, determinations and findings related to the Manual that are binding and/or have implications across the program, unless delegated to other BPA staff (e.g., COTRs). Such decisions will be provided to the customer in writing. Only written statements (including e-mail) by BPA officials acting within the scope of their authority in administering the Manual are official BPA statements.

1.3 Reimbursement Strategies and Levels

The BPA Reimbursement Strategies and Levels (RS&L) establish the BPA Willingness to Pay (WTP). The RS&L are designed to balance BPA's overall portfolio cost in order to achieve acquisition of the conservation at the lowest possible cost. BPA reimbursements⁵ made for energy savings reported are based on busbar energy savings, which is generally 7.625 percent above the site energy savings.⁶

The reimbursement is also based on estimated or verified energy savings that will persist over the life of the measure. The BPA WTP and the energy savings estimates are derived from program evaluations and research projects that are directly related to the standards and quality assurance processes embodied in the programs.

1.4 Methods of Determining Reimbursement Levels and General Requirements

There are two methods used to determine the reimbursement level:

⁵ References made in this Manual to requirements include and are applicable to Irrigation Rate Mitigation Discount and customer self-funded measures reported to BPA. Both are countable toward the HWM pursuant to the Long-Term Regional Dialogue Policy.

⁶ Slice customers will receive site energy savings plus five percent distribution line losses, unless otherwise agreed to by BPA.

1. Deemed: The deemed reimbursement level is determined by (1) multiplying the RTF deemed estimate of busbar energy savings by a set dollar amount or (2) BPA setting the reimbursement levels for individual measures based on the BPA WTP. For other measures with a deemed reimbursement, the PTR system may require additional calculations to arrive at energy savings. When this occurs, the measure is referred to as “calculated” but is still a deemed measure.
2. Custom Projects: The custom project reimbursement level is determined by multiplying the accepted, verified energy savings⁷ by the BPA WTP. Measures for which this method is used to determine the reimbursement must meet the specification and funding source requirements for certain sectors or other measurement guidelines, as applicable.

1.5 Federal Agency Program

BPA funds federal agency conservation projects and implements projects funded by federal agencies. Energy savings accomplished in directly and non-directly served federal agencies are counted toward BPA’s share of the regional targets. Interagency agreements are used with federal agencies that fund their own projects.

BPA funds are only used for installation of cost-effective conservation, as defined by the Total Resource Cost (TRC) test in the Northwest Power and Conservation Council’s (Council) most recent Power Plan. When BPA funds are used, the Manual requirements apply.

Post-2006 TRC Test Compliance

Before any new federal conservation acquisition capital budget request is prepared, the proposed project(s) or measure(s) must meet the TRC test using the same assumptions and test format for custom project proposals. If the present value total energy cost savings project cost benefit/cost ratio is greater than 0.5, using the regional Planning, Tracking, and Reporting (PTR) system’s TRC calculator, the funding budget request may be submitted for review and approval.

Positive program TRC results do not assure that the proposed project funding request will be approved. All other due diligence review requirements must be fulfilled before determining that BPA Energy Efficiency should purchase the energy savings from the project.

1.6 Role of the RTF

The RTF collects, reviews and distributes protocols for the verification, evaluation and development of new methods of achieving energy savings.

⁷ Energy savings are included in the BPA accepted completion report in the custom project template available in the PTR system.

Regional conservation tracking:

1. The RTF has developed standardized forms and data definitions for retail electricity distribution customers, state and local low-income weatherization service providers and renewable resource developers.
2. The RTF compiles data submitted and publishes an annual regional summary, which it presents to the Council. This summary compares the level of activity and expenditures reported with the Comprehensive Review's "public purpose" goals. In addition, the RTF assesses what has been accomplished through those expenditures - energy savings achieved, low-income end users served, renewable resource production achieved - and at what cost.

Specifically, the RTF makes recommendations to BPA regarding the following:

1. Cost-effective conservation and estimated energy savings associated with those measures
2. Changes in technology and standard practices through which customers can demonstrate that different energy savings and value estimates apply
3. A set of protocols by which the energy savings and system value of measures/programs not on the list could be estimated including complex commercial or industrial projects
4. Criteria for renewable resource projects
5. Protocols for measurement and evaluation of energy savings or production

The RTF is independent of BPA. The RTF recommendations to BPA are for advisory purposes only and reflect the legal requirement that decisions affecting BPA rates must ultimately be made by BPA. Consequently, BPA shall decide whether to accept, reject or modify the recommendations of the RTF.

Customers may petition the RTF to review the eligibility of new measures or measures previously deemed as not regionally cost-effective. If the RTF recommends a proposed measure as cost-effective, BPA shall review the RTF recommendations to determine whether or not BPA will pay an incentive for the measure.

1.6.1 Process for Petitioning the Regional Technical Forum

Parties may initiate the process by contacting the chair of the RTF via letter or e-mail. The party making the proposal should explain the change proposed. If a new measure is proposed, the proposal should cite the RTF criteria under which the measure qualifies for inclusion in the RTF list. If a change in evaluation methodology is proposed, the proposal should include the rationale for the change. For example, in the case of a proposed change in protocol, the proposal should explain why the change would improve the analytical quality of the protocol. In the case of a proposed changed assumption, the proposal should present evidence that the changed assumption more closely reflects the real

world. A standard form is available on the RTF Web site, which sets forth the minimum level of information needed to file the proposal.

If the proposal includes all necessary information, the RTF staff shall assess the validity of supporting arguments and evidence and make a recommendation to the RTF to accept or reject. RTF members will receive copies of all information provided by the appealing party in support of its proposal.

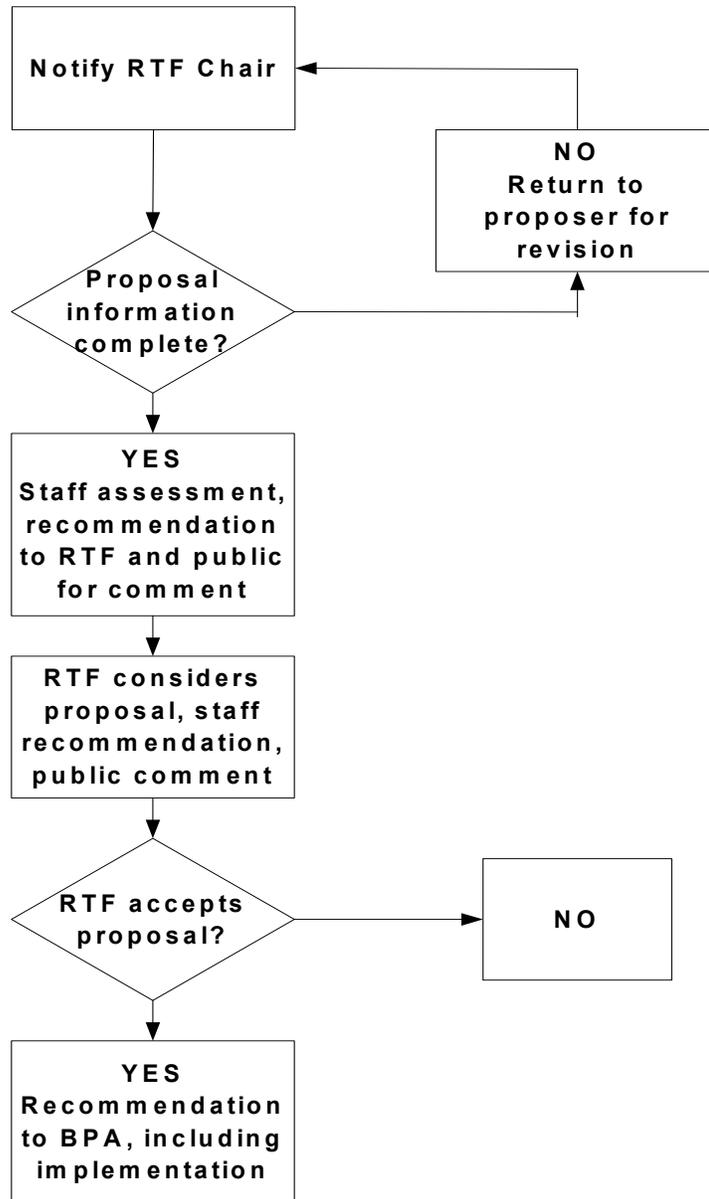
If the RTF staff assessment is that the proposal should be accepted, or that the proposal is sufficient to merit more discussion by the RTF, the proposal will be put on the agenda for discussion at the next RTF meeting. If the staff assessment is that the proposal has no merit, staff shall assign the proposal to a consent agenda for rejection. If any RTF member disagrees with the assignment, it will be moved from the consent agenda to the discussion agenda.

The RTF anticipates that it will normally make decisions on proposals within 90 days after receiving them, although complex issues could take longer and some issues (e.g., issues regarding health and safety) could take less time. Notice of pending actions on matters under appeal will be provided in the RTF meeting announcements and agendas. The figure below depicts the flow of a proposal through the RTF process.

The RTF shall consider the proposal, staff's assessment and recommendation, and any public comment and accept or reject the proposal. Acceptance or rejection requires a 60 percent vote by the RTF. The party making the proposal may make a presentation directly to the RTF and may contact individual RTF members prior to the meeting. Members are obligated to disclose such contacts when the proposal is under consideration.

Accepted proposals will be submitted in writing to BPA as RTF recommendations with advice for implementing the changes. BPA shall respond within 30 days of the RTF recommendation, either by approving the request, denying the request or by requesting more information. For more complex requests, BPA may need more time, but shall respond with a proposed course of action and completion date within 30 days of the RTF recommendation.

RTF Process Flowchart



2. BPA Funding Sources

The Energy Conservation Agreement (ECA) serves as an umbrella agreement which replaces the Conservation Acquisition Agreement (CAA) and transitions Work in Progress projects across rate periods. (Funding under the ECA as with the CAA is generally referred to as bilateral funding).

An ECA must be executed with BPA in order to (1) have bilateral funding and (2) have assurance that projects completed in a rate period in which CRC funding is not available will receive reimbursement from BPA.

Customers may request an ECA with bilateral funds through written notice sent to their Energy Efficiency Representative (EER). BPA shall review the request submitted and, if the request is accepted, develop a draft ECA. Generally, BPA provides a draft ECA to the customer for review. Once the ECA is in final form, two originals shall be sent to the customer with a request that both be signed and one original be returned to BPA.

The effective date of the ECA is the date that both Parties have signed the agreement. ECAs with effective dates prior to October 1, 2009 incorporate CRC, CAA and Customer-Funded High Water Mark (HWM) Work in Progress projects started prior to October 1, 2009. ("Started" means: Custom projects with a BPA custom project proposal approval date prior to October 1, 2009 and deemed measures not yet reported to BPA with in-service dates prior to October 1, 2009.)

Unless otherwise agreed to by BPA in writing, if an ECA has an effective date of October 1, 2009 or later and a CRC is not available, BPA shall not be liable for reimbursements for measures started prior to the effective date of the ECA.

2.1 Bilateral Funding

Bilateral funding (referred to as implementation budget in the ECA) requirements are described in the ECA. Unless otherwise specified, bilateral funds may be used for all BPA-funded measures in the PTR system.

2.2 CRC Funding

BPA does not guarantee availability of the CRC in any rate period. In the event a CRC is available, the following requirements apply.

2.2.1 General Overview of the CRC Program

1. The CRC is available to BPA Priority Firm Power (PF), Industrial Power (IP), and New Resource Firm Power (NR) customers who take action to achieve cost-effective conservation and renewable resource development in the region.
2. Each customer is eligible for a CRC set at 0.5 mills per kWh applied to its PF, IP, and NR purchases. The CRC will be included in the rate schedules.

3. Individual participants in the CRC will make investments in cost-effective conservation or renewable resource development in the region to earn reimbursements at least equal to the sum of the CRC given during the Rate Period.
4. BPA shall make available in the PTR system information about eligible measures and specific activities that can be implemented to satisfy CRC obligations.
5. The PTR system will provide the specific dollar amount of eligibility for each measure or provide a means for calculating such amount.

2.2.2 Calculation of the CRC

The monthly CRC will be reflected as a deduction on the customer's monthly total power bill. The CRC will be applied after BPA has determined all other charges and credits on the participating customer's power bill, and BPA shall provide the CRC even in those months when the CRC amount is larger than the customer's total power bill amount. The following sources qualify as CRC load data:

1. For Block purchases and full or partial requirements customers, BPA shall use the monthly average, rounded to the nearest whole dollar, of the projected eligible purchases for the duration of the rate period from the BPA FY 2009 Wholesale Power Rate Case Sales Forecast.
2. For Slice purchases, BPA shall use the Slice Initial Critical Inventory Amount (7,070 average-megawatts) to determine the average monthly load, rounded to the nearest whole dollar.

2.2.3 Information on Participating in and Discontinuing the CRC

The following describes the process for participating in and discontinuing the CRC, including (1) the final true-up and (2) discontinuation requirements.

1. Final True-up (Reconciliation)
 - a. Within 30 calendar days of the end of the rate period, each customer shall submit a final annual report to BPA.
 - b. If a participating customer's final annual report shows that the total accumulated monthly CRC received from BPA exceeds the customer's total CRC qualifying expenditures, the customer may take an additional month (for a total of two months after the end of the rate period) to make the necessary additional qualifying expenditures and prepare a final true-up report.
 - c. The final true up report is due to BPA within two months of the end of the rate period. If the customer's total CRC qualifying expenditures still do not equal or exceed its total CRC accumulated

monthly CRC, the customer must reimburse the difference to BPA according to the CRC schedule in 2.2.4, below.

- d. No reimbursements are required of any participating customer whose total CRC qualifying expenditures over the rate period are equal to or exceed the total CRC accumulated monthly rate credit received from BPA.
- e. Any payment received after the due date shall be subject to a late payment charge as described in the customer’s subscription contract.
- f. Once BPA is satisfied that the customer has met all of the CRC program requirements, BPA shall notify the customer in writing.

2. Discontinuation Requirements

A customer may elect to discontinue CRC participation any time during the rate period. If a customer decides that it wants to discontinue receiving the CRC on its power bill, it must notify BPA in writing, and BPA shall remove the CRC from the customer’s future power bills. Unless otherwise specified by BPA, the customer must submit a final report as would be required at the end of the rate period.

2.2.4 CRC Schedule

Due Date	Description of Activity
10/31/09	Biannual CRC report for FY 2009 for April 1 to September 30
12/1/09	Final true-up report for FY 2009 from participating customers
1/31/10	Reimbursement from customers whose qualifying activities/expenditures do not equal or exceed their cumulative CRC amount
4/30/10	Biannual (first half) CRC report for FY 2010 for October 1 to March 31
9/30/10	Year one of the CRC/Rate Period ends (October 1, 2009, to September 30, 2010)
10/31/10	Biannual (second half) CRC report for FY 2010 for April 1 to September 30
4/30/11	Biannual (first half) CRC report for FY 2011 for October 1 to March 31
9/30/11	Year two of the CRC/Rate Period ends (October 1, 2010, to September 30, 2011)
10/31/11	Biannual (second half) report summarizing CRC qualifying expenditures and accumulated CRC for the pervious rate period (for April 1 to September 30)
11/30/11	Final true-up report summarizing CRC qualifying expenditures and accumulated CRC for the pervious rate period (If final true-up report shows accumulated CRC exceeds CRC-qualifying expenditures, customer may take an additional month to make qualifying expenditures and create a revised final true-up report.)
3/31/12	Reimbursement from customers whose qualifying activities/expenditures do not equal or exceed their cumulative CRC amount

2.3 Rules for Pooling Organizations

Forming pooling organizations to implement cost-effective conservation is a contractual relationship among the pooling members. BPA will not monitor contractual relationships or activities of pooling organizations. Unless otherwise agreed to by BPA, the following requirements apply to pooling organizations:

1. Pooling customers, regardless of the size of individual loads, can only claim a maximum of 20 percent of their qualifying budget as a performance payment.
2. Pooling customers are responsible for reporting their individual conservation costs and savings for determining their CRC. Customers in the pool may assign this responsibility to the pooling organization but are still responsible for what the pool reports on their behalf. In the case of renewables, the customer would report the CRC allocated by the pool based on the output of the qualified renewable resource.
3. The pooling organization shall provide a summary report to BPA on a semi-annual basis documenting the conservation costs and savings reported by each participant. The savings and CRC for both conservation and renewables are allocated and determined by the pool. Double counting of credits is not permitted.
4. A customer may put all or a portion of its bilateral or CRC funds toward a pool and withdraw under the terms and conditions agreed to by the pool, not under terms specified by BPA. Pool membership can expand or contract as determined by the pool.
5. Trading of the funds is allowed within the pool.

2.4 Non-Standard Agreements

Non-standard agreements are arrangements BPA negotiates with a customer that result in a variation from requirements of the Manual, including, but not limited to, BPA's WTP and standardized processes and procedures. A non-standard agreement is not a "custom project proposal" submitted to BPA through the PTR system.

BPA will, if acceptable terms are agreed to, enter into non-standard agreement when there is a benefit to BPA. The benefits include, but are not limited to, a reduction in the reimbursement amount paid or the staff time spent administering an agreement. BPA expects customers entering non-standard agreements will benefit from such agreements as well.

Non-standard agreements made by BPA are subject to the overarching principles written into the BPA Final Record of Decision (February 2005) on the short term

Regional Dialogue, as well as the overarching requirements of the Manual in effect at the time of the negotiations. Agreements must address cost-effectiveness, M&V, documentation, oversight, reporting, reimbursement and the programs/measures planned for installation by the customer. Customers may use their own avoided cost for custom projects, provided the methodology used is equivalent to that used by the Council.

Through the negotiations, BPA shall strive to:

- Develop agreements providing flexibility and ease of administration.
- Provide consistency among BPA and the customer self-funded projects to minimize complexity and ease PTR system reporting.
- Develop smooth transitions from existing activities to new activities, as well as plan for transitions to subsequent agreements.

Customers requesting a non-standard agreement must submit a proposal to their EER that includes the following:

1. Measures to be installed
2. M&V method to be used
3. Proposed reimbursement rate
4. Estimated measure installation cost
5. Total implementation budget amount
6. Proposed measure delivery approach

BPA shall review the proposal submitted, may ask clarifying questions and, if acceptable for purchase, negotiate final terms for the agreement.

The terms of non-standard agreements will be made effective through execution of an ECA. Non-standard terms will apply to all funding sources.

3. General Requirements

The General Requirements section discusses requirements applicable to customers using BPA funding, including reporting requirements, performance payment, and federal due diligence requirements. For measure requirements, please see the appropriate sector section.

3.1 Reporting Requirements

Customers shall submit reports⁸ to BPA using the PTR system. Reports submitted may only include information on completed units installed during the implementation period. Customers may report no more often than once per month for reimbursement of bilateral funds for the term of the ECA. Customers shall report biannually in rate periods in which a CRC is available as follows.

- CRC participants shall submit a report by April 30 for the period October 1 to March 31 for each year during the rate period.
- CRC participants shall submit a report by October 31 for the period April 1 to September 30 for each year during the rate period.

Unless otherwise accepted by BPA, measures shall be reported in the period in which they become a completed unit. Unless otherwise accepted by BPA, only measure completion dates within the eligibility period for that measure are eligible for reimbursement.

Customers shall establish and maintain files and supporting documentation for each submitted report. The files shall be clearly designated so as to be identifiable with the report submitted. Customers shall submit to their COTRs, through attachment or referenced e-mail, required supporting documentation for measures included in the submitted report. Supporting documentation submitted through separate means must include a unique identifier so it can be matched with submitted reports. The unique identifier shall also be kept by the customer for files and supporting documentation not submitted to BPA. The supporting documentation retained shall comply with the documentation requirements of this Manual.

⁸ The deemed measure list in the PTR system indicates if a measure is cost-effective. Deemed measures funded by BPA may be claimed regardless of cost-effectiveness. Deemed measures not funded by BPA that are cost-effective may only be claimed as self-funded for HWM credit. Deemed measures not funded by BPA that are not cost-effective may only be claimed as self-funded.

BPA will, as part of its review process for reports submitted, ensure that the report is reasonable and corresponds with any and all attachments. BPA may accept, return for modification or reject submitted reports. BPA may also delete specific measures reported if supporting documentation necessary for the COTR to complete the review is not submitted within three working days of the date the PTR system report was submitted to BPA.

Should there be a disagreement regarding a submitted report, BPA and the customer agree to work together to correct errors in the report and make any revisions as agreed. BPA or the customer shall take reasonable efforts to make adjustments as soon as possible after such agreement is reached.

3.1.1 PTR system

The PTR system can be found at www.ptr.nwcouncil.org. Unless otherwise approved by BPA, BPA shall not provide reimbursement for measures not reported in the PTR system.

When submitting reports for reimbursement, the PTR system will guide the customer through the submittal requirements, which include the following:

1. Confirmation that the customer implemented the items for which it is claiming reimbursement in compliance with the Manual and applicable contracts
2. Identification of the percentage of performance payment the customer claims for the reported items

3.1.2 Documentation Requirements

Documentation is required for all claims made to BPA. All customers must follow the general requirements (listed below), while some measures have additional specific requirements. Where additional measure specific requirements exist, they are included under "Additional Documentation Requirements" in the section for that measure. Measures may be claimed in the first reporting period following the end of the eligibility period, provided the documentation illustrates the measures were purchased and were in service (installed and operating) during the eligibility period.

The following are the general documentation requirements for all deemed measures and custom projects:

1. End user address/facility name and address
2. Contact name and telephone number for commercial, industrial and custom projects
3. Unique identification number (e.g., address power meter number) for end users (for most measures)

4. Unique identifying PTR system-generated number from the system report (i.e., annual or biannual report for CRC and the report/invoice for bilateral funds) or invoice
5. Supporting documentation for performance payments
6. Invoice or other document showing purchase date (relevant for eligibility period) and validating that equipment is new (Note: Rebuilt nozzles are considered "new.")

Dates are required on all documentation and vary by measure and program requirements (deemed or custom). Below are generalized requirements for dates:

1. For custom projects, the dates for equipment purchases must be after BPA approval of the M&V Plan.
2. The pre-measurement date must occur before installation and the post-measurement date after installation.
3. For deemed measures, the purchase date must be after the effective date of the contract.
4. For ENERGY STAR homes and manufactured homes, the certification date must be after the effective date of the agreement.
5. Inspection and verification dates must be after equipment installation and before the Report/Invoice date.

In some situations, one document is sufficient for a category of measures. Customers are encouraged to periodically review and update these types of documents. Examples include:

1. High Performance Lighting Cut Sheet – if the same equipment is installed in several facilities, a single Cut Sheet may be retained as documentation for the measure.
2. List of ENERGY STAR appliances – this list can be printed from the ENERGY STAR Web site and kept in the file.

Documentation must be retained by customers for claims made when requesting reimbursements and for claims for energy savings attributable to the HWM. Depending on the measure, all or some of the information about the measure installed must be entered into the PTR system.

Customers shall keep all program report records for no less than three years after the term of the ECA or through September 30, 2017, whichever is later. Records must be organized and maintained in such a manner that pertinent records can be found when needed.

3.2 Oversight Review Process

As a part of the oversight review process, BPA shall (a) perform end user site visits and customer record reviews and (b) make program evaluations.

1. Site and Record Review

BPA has the right to conduct oversight inspections of all measures, monitor or review the customer's procedures and records and conduct site visits to oversee implementation and verify reported energy savings. The number, timing and extent of such inspections shall be at the discretion of BPA and will be coordinated with the customer. BPA shall provide written notice not less than 30 days prior to such an inspection, and inspections will occur at BPA expense. Customers shall make arrangements for site inspections when requested by BPA. BPA may contact appropriate federal, state or local jurisdictions regarding environmental, health or safety matters related to any activity reimbursed under this Manual. Financial audits must be in compliance with the audit standards established by the Comptroller General of the United States.

2. Program Evaluation

- a. BPA may conduct, and the customer shall cooperate with, evaluations of conservation impacts and project implementation processes to assess the amount, cost-effectiveness and reliability of conservation in the customer's service area or region. This includes provision of billing data for participating customers and contact information for participant surveys. After consultation with the customer, BPA shall determine the timing, frequency and type of such evaluations.
- b. BPA anticipates that many evaluations will be done collaboratively with other organizations to share costs and improve usefulness. In some cases, the evaluation will be managed by another party on behalf of BPA.
- c. BPA shall determine the specific requirements for evaluations with consideration to the schedules and reasonable needs of the customer and the customer's end users.
- d. Any evaluation of the project initiated by BPA will be conducted at BPA expense or shared regional expense, and such costs will be excluded from the implementation budget. Customers or other entities that cooperate with the evaluation are recognized as providing some resource/cost, but the cost is not eligible for direct reimbursement by BPA.

3.3 Performance Payment

The performance payment is intended to cover internal customer administrative costs incurred in support of energy savings activities described in this Manual. The performance payment is above and beyond the BPA WTP parameters. Customers may decide, with each report or invoice they submit, the performance payment amount (up to the limit) they wish to claim. A customer is allowed to have different percentages for the CRC and bilateral funding sources.

BPA is considering changing the performance payment to a payment made based on energy savings delivered.

In general terms, allowable expenses include, but are not limited to, staff costs, marketing costs and other operating costs. Each of these categories is described below.

Staff Costs (actual labor costs used to operate the customer's conservation program, including program planning, design and implementation):

1. Direct costs incurred for the implementation of conservation activities, including customer program staff and sub-contracts
2. Contracted staff support required for activities such as data entry for the PTR system, administering reimbursement, verifying installations or other end use activities
3. Management personnel involved in the supervision of program staff and contractors
4. Administrative support such as secretarial support, contractors and managers associated with the customer's program-related activities
5. The customer's conservation-related share of indirect overhead

Marketing Costs:

1. Market research, development of advertisements and promotional materials
2. Production of materials for mass distribution
3. Marketing material distribution costs
4. Airtime on radio or television in support of conservation

Other Costs incurred in operating program:

1. Computer hardware
2. Technical equipment (metering equipment and software programs)
3. Marketing training and technical training, including certain training for engineers for specific applications and other required technical training

4. Transportation/travel costs capped at the level allowed under the Federal Travel Regulations (see www.gsa.gov)

3.3.1 CRC Performance Payment Guidelines

A qualifying claim is one that qualifies for the performance payment and is defined as a cost-effective electric measure installed in compliance with the Manual. Claims that do not qualify for performance payments include, but are not limited to, the following:

1. Renewables claims
2. Third party contracts for cost-effective energy conservation, unless specifically approved by BPA as qualifying for administrative cost recovery
3. Northwest Energy Efficiency Alliance (NEEA) contributions
4. Energy Trust of Oregon contributions

Customers with more than 7.5 average megawatts (aMWs) of net requirements load may claim up to 20 percent of their qualifying claims as a performance payment. Customers with 7.5 or less aMW of net requirements load may claim up to 30 percent of their qualifying claims as a performance payment. Customers are allowed discretion on the amount and timing of performance payment claims during the rate period.

3.3.2 Bilateral Funds Performance Payment Guidelines

A customer's performance payment is claimed as a percentage of its invoiced measures reported with each invoice.

BPA shall pay a performance payment of up to 20 percent of the actual accepted invoiced amount (up to 30 percent for customers with 7.5 or less aMW of net requirements load). On each invoice submitted, the customer may elect up to the maximum percentage for that invoice.

3.4 Fundamental Requirements Related to Federal Due Diligence

3.4.1 Purchase of Energy Savings

Pursuant to Section 3(a) of the ECA, BPA agrees to provide reimbursement for energy savings with bilateral funds, or when available, CRC funds for the purchase of energy savings from completed units installed in accordance with this Agreement.

3.4.2 Other Sources of Funding

1. If requested in writing and approved by BPA, BPA and the customer may agree to allocate costs among various funding sources.

2. BPA shall not pay for any portion of the cost of a project where the cost has been or will be reimbursed by another BPA funding source.

3.4.3 Other Requirements

BPA shall remove or change any Project, measure or completed unit or make revisions to a Project, measure or completed unit when necessitated by other requirements.

3.4.4 Suspension and Withholding Payment

1. BPA and the customer agree to an immediate suspension of any measure that presents a significant environmental, health or safety threat to end users.
2. BPA shall not accept a report for reimbursement for any suspended measure during the suspension period. The customer shall remedy or take actions agreed to by BPA to correct the environmental, health or safety threat to end users. The customer shall have a number of days, as agreed to in writing by BPA, to remedy or complete the corrective actions. The customer shall notify BPA when the remedy or corrective actions are complete.
3. If BPA determines the customer is not in compliance with an environmental, technical or record-keeping requirement of this Manual, BPA shall provide a written notice to the customer suspending implementation of all or specific activities and identifying the specific nature of the noncompliance. The customer shall have a number of days, as agreed to in writing by BPA, to correct the noncompliance identified and notify BPA when the corrective actions have been completed. BPA shall provide comments on what activities are required to bring the activity into compliance. BPA shall not accept reports for any measure implemented under a suspended activity.
4. BPA shall review the corrective actions and shall notify the customer of its determination on lifting or maintaining the suspension. If BPA lifts the suspension, the customer may begin implementation of the activity with the changes required by BPA.
5. If the customer does not complete the remedy or corrective actions required, BPA may terminate the Agreement.
6. The customer shall bear the costs of compliance.

3.4.5 Environmental Provisions

The customer shall

1. Comply fully with all applicable environmental laws and regulations.

2. Assist and cooperate with meeting all environmental obligations to the fullest extent economically and technically practical.
3. Provide, upon request, a copy of the pollution abatement plans as required by the Clean Air Act, by the Clean Water Act, by other federal statutes, or by an agency having jurisdiction; and, within a reasonable time, submit evidence such plans have not been objected to by agencies with jurisdiction.

3.4.6 Liability

1. Except for Direct Acquisition initiatives, BPA and the customer assert that neither is the agent or principal for the other; nor are they partners or joint venturers, and BPA and the customer agree that they shall not represent to any other party that they act in the capacity of agent or principal for the other.
2. In no event will either BPA or customer be liable to each other for any special, punitive, exemplary, consequential, incidental or indirect losses/damages from any failure of performance howsoever caused, whether or not arising from a party's sole, joint, or concurrent negligence.

4. Agricultural Sector

Please check the key changes summary on page i of this document to see if significant changes were made to any of the measures in this sector.

This section contains general information about the Agricultural Sector, including irrigation and measure-specific information, with a description of the measures and any related changes, technical specifications (some specifications may be located in the PTR system), reimbursement levels and associated tables and any documentation requirements.

Freeze Resistant Stock Water Tanks/Fountains.....	21
Irrigation-Related Measures.....	21
Irrigation System Upgrades.....	21
Irrigation System Motors.....	22
Scientific Irrigation Scheduling.....	24
Scientific Irrigation Scheduling Light.....	25
Variable Frequency Drives.....	25
Variable Frequency Drives on Small Milking Machines in Dairies and Other Approved Applications.....	25
Variable Frequency Drives in Spud and Onion Storage Facilities.....	26
Variable Frequency Drives in Agricultural Hardware Applications.....	26
Transformer De-energization.....	27
New Agricultural Construction.....	28
Other Agricultural Measures.....	28
Multi-Sector Opportunities.....	29

The Agricultural Sector includes electrical energy used by a farm business of which the primary purpose is land cultivated for food production, land used for breeding or raising of domestic live stock (including fish, oysters, etc.) or any land involved in major irrigation loads, regardless of the purpose.

The distinction between the agricultural and industrial sector generally rests with the property line. On-farm processes are agricultural (with the exception of major processing of farm products on-site); off-farm processes are industrial.

Examples:

- Dairies and storage of milk while on farm are agricultural; pasteurizing, homogenizing, dehydrating, and bottling of milk and its derivatives are industrial.
- Fruit and vegetable storage (such as potatoes, onions, apples) on-farm is agricultural; storage at a co-op, middle-man, or processor is industrial.
- Pumping for fish farms and refrigeration of fish before shipping is agricultural; freezing, storing and canning fish is industrial.
- Wineries where grapes are grown, stored, pressed and wine is cooled and bottled on the farm are agricultural; wineries with storage and processing performed off-site are industrial.

Freeze Resistant Stock Water Tanks/Fountains

Requirements and Specifications

Installation of freeze resistant stock water tanks/fountains is available as a measure in heating zones two and three.

Electric resistance stock tank heater(s) must be removed or permanently disabled and the new freeze resistant stock water tanks/fountains must meet the RTF specifications available in the PTR system.

Additional Documentation Requirements

No additional requirements.

Reimbursement Levels and Strategies

BPA shall reimburse \$165 per freeze resistant stock tank/fountain in heating zone two and \$225 per freeze resistant stock tank/fountain in heating zone three.

Irrigation-Related Measures

Irrigation System Upgrades

Requirements and Specifications

Energy efficiency upgrades to new or existing irrigation systems and water management must be designed, constructed and verified in compliance with the most recent irrigated agriculture specifications available in the PTR system, under Downloads.

Additional Documentation Requirements

For nozzles and sprinklers, the customer must document equipment invoices and maintain a unique ID number or a field location identifying the site of installed measures.

Reimbursement Levels and Strategies

Sprinkler Equipment	Rebate	Est. Energy Savings
1. New flow controlling type nozzle for impact sprinklers	\$3.00/nozzle ¹	20 kWh/yr
2. (a) Rebuilt or new impact sprinklers. (b) New nozzle for impact sprinkler replacing existing worn nozzle of same flow rate or less.	\$3.75/sprinkler ¹ \$0.25/nozzle ¹	25 kWh/yr 15 kWh/yr
3. New rotating type sprinklers that replace impact sprinklers. (Entire pivot ² must be upgraded. Flow may not be increased.)	\$4.00/sprinkler ¹	40 kWh/yr

Sprinkler Equipment	Rebate	Est. Energy Savings
4. New gasket for wheel lines, hand lines or portable main line	\$1.00/gasket	30 kWh/yr
5. (a) New low-pressure regulators. (Entire pivot ² must be upgraded.) (b) New rotating type sprinklers that replace low-pressure sprinklers. (Entire pivot ² must be upgraded. Flow may not be increased.)	\$4.00/regulator ¹ \$4.00/sprinkler ¹	20 kWh/yr 20 kWh/yr
6. New multiple configuration nozzles for low-pressure pivot ² sprinklers	\$2.00/sprinkler ¹	20 kWh/yr
7. New multi-trajectory sprays that replace impact sprinklers (Entire pivot ² must be upgraded. Flow may not be increased.)	\$3.00/sprinkler ¹	25 kWh/yr
8. New multi-trajectory sprays that replace low pressure sprinklers (Entire pivot ² must be upgraded. Flow may not be increased.)	\$1.00/sprinkler ¹	10 kWh/yr
9. New drains for wheel lines, hand lines, or pivots ² (Entire line must be upgraded.)	\$1.00/drain	30 kWh/yr
10. New hubs for wheel-lines (Entire wheel line must be upgraded.)	\$6.00/hub	40 kWh/yr
11. New "goose neck" elbow for new drop tubes	\$1.00/goose neck	20 kWh/yr
12. New drop tube for low-pressure pivot ² sprinklers (min. 3 feet length)	\$3.00/drop tube	20 kWh/yr
13. New center pivot base boot gasket	\$125.00/pivot	850 kWh/yr
14. Cut and pipe press repair of leaking hand lines, wheel lines, and portable mainline	\$8.00/pipe section	60 kWh/yr
15. Rebuilt or new wheel-line leveler (self leveler which automatically keeps the sprinkler heads on an Irrigation wheel line in a steady upright position)	\$0.75/leveler	60 kWh/yr

Note: Number 2 has been broken into two parts: the sprinkler and the nozzle. This allows for the nozzle to be replaced separately from the sprinkler. Number 5 has been broken into two parts - 5(a) and 5(b)- to allow upgrade of the regulators if new rotating sprinklers are already in place or the installation of new rotating sprinklers if low-flow regulators are already in place.

¹ Rebate limited to no more than two units per sprinkled acre.

² Lateral moves also included.

Irrigation System Motors

Requirements and Specifications

The motor must be open drip proof (ODP) or totally enclosed, fan cooled (TEFC), operate at 1,800 rpm, and have replaced an older rewound motor. Other types of motors qualify only as custom project proposals.

Motors must be new, three-phase alternating current induction, five to 500 horsepower (hp), NEMA design A, B, or C and must meet or exceed the NEMA Premium efficiency standard shown in the tables below in Reimbursement Levels and Strategies.

Additional Documentation Requirements

Documentation must include equipment invoices, a specification sheet or model number of installed equipment and a unique identification number or other field location identifying the site of the installed motor.

Reimbursement Levels and Strategies

The incremental cost (and energy savings) is calculated based on NEMA standard efficiency motors of the same size and application. The reimbursements are found in the table below.

Reimbursements for Low Voltage Irrigation System Motors (Under 600v)

Measure Description Horsepower (hp)	Motor Efficiency	NEMA Premium Efficiency	Rebate Per Unit	Estimated Energy Savings Per Unit (kWh/yr.)
5 hp	83.0%	89.5%	\$55	352
7.5 hp	84.0%	91.0%	\$85	569
10 hp	85.0%	91.7%	\$110	726
15 hp	87.3%	92.4%	\$125	829
20 hp	88.0%	93.0%	\$165	1,084
25 hp	88.0%	93.6%	\$300	1,518
30 hp	88.8%	93.6%	\$340	2,290
40 hp	89.3%	94.1%	\$450	3,053
50 hp	89.3%	94.5%	\$595	4,134
60 hp	89.5%	95.0%	\$700	5,247
75 hp	89.5%	95.0%	\$985	6,559
100 hp	90.0%	95.4%	\$1,290	8,586
125 hp	90.3%	95.4%	\$1,520	10,137
150 hp	90.8%	95.8%	\$1,790	11,926
200 hp	91.0%	95.8%	\$2,290	15,265
250 hp	91.0%	95.8%	\$2,860	19,081
300 hp	91.0%	95.8%	\$3,440	22,897
350 hp	91.0%	95.8%	\$4,010	26,713
400 hp	91.0%	95.8%	\$4,100	27,349
450 hp	91.0%	96.2%	\$5,050	33,630
500 hp	91.0%	96.2%	\$5,600	37,367

Reimbursements for Medium Voltage Irrigation System Motors (600v to 5,000v)

Measure Description Horsepower (hp)	NEMA Premium Efficiency	Rebate Per Unit	Estimated Energy Savings Per Unit (kWh/yr.)
250 hp	95.0%	\$2,385	15,901
300 hp	95.0%	\$2,862	19,081
350 hp	95.0%	\$3,339	22,261
400 hp	95.0%	\$3,339	22,261
450 hp	95.0%	\$3,757	25,044
500 hp	95.0%	\$4,174	27,826

Scientific Irrigation Scheduling

Requirements and Specifications

Scientific Irrigation Scheduling (SIS) applies to agricultural systems for which there is a pumping capacity beyond that needed to meet normal crop needs. SIS must be submitted as a custom project.

Customers must collect weekly hydro application data including all water applied, evapotranspiration needs and soil moisture tables.

Additional Documentation Requirements

A completion report, using the standard completion report tools, is required for the first year and is based on a field-by-field analysis using the standardized M&V algorithm. Subsequent annual reporting must use a supplemental calculation template for measure claims to be based on the first year completion report. The BPA supplied SIS M&V calculator spreadsheet must be submitted at the end of each fiscal year.

Reimbursement Levels and Strategies

BPA shall reimburse the lesser of 15 cents per kWh or 70 percent of the SIS project cost of \$25.50⁹ per acre, for a three-year measure life, on a field-by-field basis (based on the average annual energy savings over the three years of the contractual measure life, as opposed to a physical measure life).

SIS custom projects can be reimbursed for one-third of the reimbursement total (the lesser of \$0.05/year/kWh or 70 percent of \$8.50/acre/year). First year energy savings shall be based on actual energy savings. Subsequent reports calculate an adjustment to the first year figure using an average of the current and previous years.

True-up is required at the end of the third year.

⁹ The RTF determined that SIS is cost-effective with a TRC cost of \$13.50/acre first-year cost with a \$7.50/acre initial cost and \$6/acre service cost, and \$6.00 an acre for each of the next two years; and expected energy savings range from 80 kWh/acre - 125 kWh/acre, depending on the crop type, soil, climate and pumping lift. BPA has deemed the project costs at \$25.50 per acre.

- If BPA has under-paid reimbursements, the customer may claim a true-up adjustment.
- If BPA has over-paid reimbursements, the customer can implement SIS energy savings in a fourth year to increase the three year average of energy savings, submit a negative CRC report or repay bilateral funds to BPA.

Scientific Irrigation Scheduling Light

Requirements and Specifications

Scientific Irrigation Scheduling Light (SIS Light) applies to agricultural systems with (1) a pumping capacity exceeding that needed to meet normal crop needs and (2) less than 1,000 qualifying acres. (Qualifying acres are those that benefit from SIS controls and are not currently under an SIS or irrigation management plan).

A deemed energy savings of 220 kWh/acre (75 kWh claimed in each year for three years) is attributed to this measure, and reporting of acres is annual.

Customers must collect and use weekly hydro application data including all water applied, evapotranspiration needs and soil moisture tables.

Additional Documentation Requirements

The BPA-supplied SIS M&V calculator spreadsheet must be submitted to BPA at the end of each reporting period.

Reimbursement Levels and Strategies

BPA shall reimburse \$6.00 per acre per year for verified implementation of SIS Light.

Variable Frequency Drives

Variable Frequency Drives on Small Milking Machines in Dairies and Other Approved Applications

Requirements and Specifications

Variable Frequency Drives (VFD) must be 10 hp or less to qualify as a deemed measure. (VFDs larger than 10 hp may be submitted through the custom project process).

Additional Documentation Requirements

The customer must retain an invoice showing hp and an installation address.

Reimbursement Levels and Strategies

BPA shall reimburse \$2,200 per verified installation.

Variable Frequency Drives in Spud and Onion Storage Facilities

Requirements and Specifications

Ventilation fan VFD installations in spud and onion storage facilities have a deemed energy savings of 1,000 kWh per hp. If the fan VFD project is combined with other measures such as moisture management systems, louver replacements or refrigeration computer control upgrades, the entire project must be submitted as a custom project.

Additional Documentation Requirements

The customer must retain an invoice showing individual fan hp, an installation address and installation date and a copy of the completed spud and onion storage shed energy savings calculation.

Reimbursement Strategies and Levels

BPA shall reimburse \$200 per hp per VFD.

Variable Frequency Drives in Agricultural Hardware Applications (BPA Qualified)

Requirements and Specifications

Hardware applications refer to any pumping operation used for the delivery, distribution or transport of water for irrigation purposes. Eligible installations include turbine pumps with substantial variation in flow rates (e.g., 20% or more) or discharge pressure requirements (e.g., 10% or more). VFDs in agricultural hardware applications are BPA Qualified with annual energy savings at 400 kWh per hp per VFD. Installations shall meet IEEE 519 standards.

Additional Documentation Requirements

The customer must provide its COTR with data and site information necessary to perform measure evaluation. (BPA is qualifying this measure in order to conduct additional research for future RTF approval). This information must be in an electronic spreadsheet and delivered to the COTR at the time of measure submittal, with the exception of the post-install billing history. Necessary data and information is as follows:

- Identification, location address, and electric utility
- Date of install
- Application type (e.g., well, booster)

- Pump Type (Centrifugal or Turbine)
- Operational hours per year
- Pre-install billing history for two full seasons prior to install
- Post-install billing history for one full season after install
- Utility meter number
- Pump TDH rating and flow rating (gpm)
- Field elevation differences (as a percentage of total dynamic head)
- Flow requirements changes (as a percentage of total flow rating)
- Acres under irrigation system
- Estimated site savings kWh
- Name and version of VFD spreadsheet software or model used to estimate kWh savings (have copy on file)
- Estimated project cost and BPA credit/incentive

Reimbursement Strategies and Levels

BPA shall reimburse \$80 per installed hp, payable upon installation of hardware and receipt of the data required in the Documentation Requirements, with the exception of the post-installation billing history.

Transformer De-energization

Requirements and Specifications

Transformer De-energization (TRX) is defined as disconnecting a transformer from downstream load sources during extended periods of agricultural inactivity and reconnecting prior to the irrigation season startup. TRX applies to systems that serve only an agricultural load and do not currently incorporate this practice.

TRX projects must be submitted as custom projects.

Additional Documentation Requirements

The customer must maintain documentation showing the number of transformers de-energized, length of outage period and energy savings associated with each unit. A completion report, using standard completion report tools, is required for the first year. Subsequent reporting must use a supplemental calculation template for measure claims to be based on the first year completion report.

Reimbursement Levels and Strategies

BPA shall reimburse the lesser of 15 cents per kWh or 70 percent of the incremental cost of performing the project for a three-year measure life (based on the average annual energy savings over the three years of the contractual measure life, as opposed to a physical measure life).

In each year, TRX can be reimbursed for one-third of the total (calculated at the lesser of \$0.05/year per kWh or 70 percent of incremental cost of performing the project). First year reported energy savings are based on actual energy savings. Subsequent reports calculate an adjustment to the first year figure using an average of the current and previous years or the lowest energy savings, if specified in an existing TRX contract.

New Agricultural Construction

Requirements and Specifications

New agricultural construction projects must be submitted as custom projects. Standardized M&V protocols shall be provided for certain measures prior to project implementation.

Additional Documentation Requirements

No additional requirements.

Reimbursement Levels and Strategies

BPA shall reimburse the lesser of \$0.27 per kWh or 70 percent of incremental cost (which includes payments for design assistance/technical assistance) for improved efficiency above code.

Other Agricultural Measures

Requirements and Specifications

These measures must be submitted as custom projects. Some examples include:

- Low pressure conversion with pump work
- Change to 40 foot spacing on hand lines and wheel lines to enable conversion
- Low energy precision application (LEPA) conversion for pivots and lateral moves

- Adjustable speed drives in certain applications (multiple-valve sprinkler systems and field elevation differences of 25 feet or greater)
- Winery efficiency improvements such as compressed air, refrigeration, fluid and air handling applications
- Turf irrigation applications in landscaping, golf courses, government and municipalities and other areas (including standard offer sprinkler measures, motor/pumping/VFD controls and weather station driven irrigation scheduling systems)
- Nursery and greenhouse improvements in lighting, irrigation, air handling, temperature and humidity controls
- Dairy and stockyard energy improvements not covered under the Deemed measure applications

The cost of the technical studies needed to accomplish the project is covered in the BPA reimbursement and in the total project cost for purposes of cost-capping.

Additional Documentation Requirements

No additional requirements.

Reimbursement Levels and Strategies

For other agricultural measures, BPA shall reimburse 20 cents per kWh or 70 percent of the incremental cost, whichever is less.

Multi-Sector Opportunities

Additional Agricultural opportunities are available in the Multi-Sector chapter.

Please see the Multi-Sector chapter for information on the following:

- Processes
 1. Custom Projects
 2. Direct Acquisition
 3. Third Party Contributions
- Measures and Initiatives
 1. Lighting
 2. Green Motors
 3. Small Compressed Air System

5. Commercial Sector

Please check the key changes summary on page i of this document to see if significant changes were made to any of the measures in this sector.

This section contains general information about the Commercial Sector and measure-specific information, including a description of the measures and any related changes, technical specifications (some specifications may be located in the PTR system), reimbursement levels and associated tables and any additional documentation requirements.

General Commercial Sector Information	31
Combined and Interactive Commercial Projects	31
Commercial Lighting.....	32
Commercial Refrigeration/Energy Smart Grocer.....	32
Commercial Kitchen and Food Service Equipment	33
Commercial Food Service Reach-in Refrigerators and Freezers (Solid and Glass Door).....	33
Commercial Ice Makers.....	33
Commercial Kitchen Steamers	34
Commercial Kitchen Hot Food Holding Cabinets	35
Pre-rinse Spray Wash Valves	35
Hospitality Initiative	35
Commercial New Construction	36
Energy Smart Design ® - Office.....	37
Energy Smart Design ® - Office Trade-offs.....	38
New Commercial Construction Major Renovation and Residential Multifamily Higher than Three Stories	39
Additional Deemed Offerings	40
ENERGY STAR Commercial Clothes Washer.....	40
Insulation in Existing Small Office or Retail (<5,000 sq. ft. building).....	40
Network Computer Power Management.....	41
Limited Availability Pilot Efforts	41
Turnkey Lighting Pilot.....	42
Rooftop Unit Service Pilot.....	42
Demand Controlled Ventilation Pilot.....	43
Multi-Sector Opportunities.....	43

The Commercial Sector includes electrical energy used in service-providing facilities and equipment of businesses; federal, state, and local governments; and other private and public organizations.

The Commercial Sector is generally defined as non-manufacturing business establishments, including hotels, motels, restaurants, wholesale businesses, retail stores, and health, social and educational institutions.

General Commercial Sector Information

Lighting, refrigeration, and HVAC dominate the energy savings opportunities in commercial buildings. Kitchen equipment, power controls for networked computers and new construction also represent energy savings opportunities.

The overall structure for the commercial sector reimbursement is:

- BPA shall pay specified reimbursements for selected measures (deemed measures) (e.g., Commercial and Industrial Lighting (C&I Lighting)) for stand-alone lighting, computer controls).
- BPA shall pay a reimbursement of 20 cents per kWh up to 70 percent of the project incremental cost for HVAC, commercial refrigeration and interacting lighting.
- BPA shall pay a reimbursement of 27 cents per kWh up to 2 percent of the whole building, as-built contracted cost (excluding land costs) for non-deemed, commercial new construction.

Specific measure requirements and reimbursement strategies are listed below.

Combined and Interactive Commercial Projects

Many commercial sector efficiency opportunities are complex, involving site-specific installations and expected savings or interaction between energy consuming systems in a building. These opportunities include, but are not limited to, HVAC, shell measures, building design and new construction and some lighting projects.

Requirements and Specifications

These measures must be submitted as custom projects and follow the custom project process outlined in the Manual.

Additional Documentation Requirements

For non-deemed, commercial new construction projects, the cost documentation must include a copy of the whole building, as-built contracted cost.

Reimbursement Strategies and Levels

Combined and/or interactive commercial projects that include lighting, commercial scale refrigeration and HVAC measures, among other cost-effective measures that are calculated, shall be reimbursed at \$0.20 per kWh, not to exceed 70 percent of the incremental installed measure cost. The incremental cost for retrofit of existing equipment is the fully installed measure cost. For replacement of burned out/failing/failed equipment, the incremental cost (and energy savings) is the cost above code or its equivalent. For example, for HVAC replacement, the incremental cost is the cost of equipment above the federal or state applicable standard for new or replacement equipment.

Commercial Lighting

Efficient lighting is the largest and most accessible commercial sector efficiency opportunity. Please refer to the Lighting program in the Multi-Sector Opportunities chapter of this Manual for program details.

Commercial Refrigeration

The large efficiency opportunities presented by commercial refrigeration measures are available through the Energy Smart Grocer program. In addition, deemed reimbursements for efficient refrigerators, freezers, and ice makers are available for customer program implementation. These measures are described below in the commercial kitchen and food service equipment section.

Energy Smart Grocer Program

The Energy Smart Grocer Program (formerly known as EnergySmart) is implemented by Portland Energy Conservation, Inc. (PECI) in collaboration with participating customers. All participating customers have individual service agreements with PECI.

Prior to September 30, 2009, customers participating in the program had the option of a customer-implemented funding approach (which entailed responsibility for cutting incentive checks to end users, verifying accuracy of project data, accepting PTR carts and reporting to BPA) and participation under Direct Acquisition (DA). In order to lessen the administrative burden on program participants and capture delivery efficiencies for the benefit of customers, BPA has shifted the program to a DA only delivery approach. Customer participation in FY 2010-2011 will be available only through DA, and the program requirement information below refers only to DA. Under DA, customers will benefit from centralized incentive payment and PTR system processing, without verification or oversight responsibility.

Customers wishing to self-fund the program must separately contract for program delivery with PECI and shall not be part of the BPA-sponsored program.

The current incentives for each measure may be found in the PTR system, under Commercial Third Party Programs. Note that some incentives have increased.

Requirements and Specifications

To participate, customers must sign up for DA according to the DA procedures outlined in the Manual. In addition, customers must sign a new or revised service agreement with PECI, identifying DA as the funding source. Customers will receive monthly reports of program activity.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Customers will receive 75 percent credit toward the conservation adjustment of their high water mark calculation.

Measures installed using DA funding do not qualify for a performance payment.

Commercial Kitchen and Food Service Equipment

BPA offers reimbursement on a suite of high-efficiency commercial kitchen and food service electric equipment, including refrigerators, freezers, ice makers, steamers, hot food holding cabinets, and pre-rinse spray wash valves. In efforts to support customers in administering a comprehensive commercial kitchen equipment efficiency program, BPA is continuing to develop reimbursements for additional measures and will include them as they are ready.

Oregon customers have an additional opportunity to offer many of these measures through the Hospitality Initiative offered through the Energy Trust of Oregon (described below).

Commercial Food Service Reach-in Refrigerators and Freezers (solid and glass door)

Requirements and Specifications

Information on qualifying units is listed at the following link to the Consortium for Energy Efficiency (CEE): www.cee1.org/com/com-kit/com-kit-main.php3#qp.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Deemed reimbursements are based on CEE, Tier 2 Commercial Food Service Refrigerators and Freezers as shown in the tables below.

Refrigerator Reimbursement

Size (cubic feet)	Reimbursement
0-30	\$100
30-60	\$150
60-90	\$200

Freezer Reimbursement

Size (cubic feet)	Reimbursement
0-30	\$200
30-60	\$400
60-90	\$700

Note: Size is interior volume of the new equipment as listed by CEE. No reimbursement for Tier 1, which is baseline practice.

Commercial Ice Makers

Requirements and Specifications

Ice machines must be Air Cooled, and CEE Tier 2 (ENERGY STAR) or CEE Tier 3 qualified. Water Cooled machines do not qualify for reimbursements. Reimbursement levels are associated with the amount of ice production per day.

Additionally, higher reimbursements are offered for premium efficiency CEE Tier 3 qualifying machines. Reimbursement levels range between \$100 and \$300.

Information on qualifying units is listed at the following link to the Consortium for Energy Efficiency (CEE): www.cee1.org/com/com-kit/com-kit-main.php3#qp.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Due to the number of ice makers included in the program, please refer to the PTR system for the complete list of measure reimbursement amounts.

<https://www.ptr.nwcouncil.org/apps/login.asp?returnurl=home.asp&iNav=1>

Commercial Kitchen Steamers

Requirements and Specifications

Qualifying units must be new and must meet the recently created RTF Tier 2 standards described below.

For 3-Pan Electric Steamers: a) an Idle Energy Rate of 220 W or less and b) a Cooking Efficiency of 65% or greater.

For 5-Pan Electric Steamers: a) an Idle Energy Rate of 230 W or less and b) a Cooking Efficiency of 65% or greater.

For 6-Pan Electric Steamers: a) an Idle Energy Rate of 250 W or less and b) a Cooking Efficiency of 65% or greater.

There is no updated list of RTF Tier 2 qualifying units, but the CEE Tier 1A and 1B lists include information on Idle Energy Rate and Cooking Efficiency necessary to determine whether a particular model qualifies:

www.cee1.org/com/com-kit/com-kit-main.php3#qp.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Steamer Reimbursement

Size	Reimbursement
3 pan	\$100
5 pan	\$200
6 pan	\$200

Commercial Kitchen Hot Food Holding Cabinets

Requirements and Specifications

Model must be new and listed as meeting Tier 2 on Consortium for Energy Efficiency's (CEE) "Qualified Hot Food Holding Cabinets" (http://www.cee1.org/com/com-kit/files/hotfoodholdingcabinets_prod_list.xls) or have an idle energy rate of 20 Watts/ft³ or less.

Information on qualifying units is listed at the following link to the Consortium for Energy Efficiency (CEE): www.cee1.org/com/com-kit/com-kit-main.php3#qp.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Hot Food Hold Cabinet Reimbursement

Size	Reimbursement
7-12	\$200
13-17	\$300
18-22	\$400

Pre-rinse Spray Wash Valves

Requirements and Specifications

Qualified installations require electrically heated dishwashing water in a facility that serves 10 or more meal shifts per week (for example, a facility that serves lunches and dinners, five days a week). If the facility does not meet the shift requirement, the customer may document the reason for an exception to the 10-meal shift rule. The documentation must indicate that the rinse system uses the equivalent amount of energy as 10 or more meal shifts. Exceptions may include commercial bakeries; central school district cafeterias that prepare thousands of hot meals; or catering facilities that may only be used for three parties a week but provide meals for hundreds of people at a time.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

BPA shall reimburse \$150 per qualified installation.

Hospitality Initiative

Requirements and Specifications

BPA has coordinated with Energy Trust of Oregon (ETO) to extend the Hospitality Initiative (i.e., the current ETO lodging and foodservice program) to overlapping and neighboring Oregon public utility service areas. Under the

Hospitality Initiative, ETO shall provide all project processing, marketing and incentive check processing.

The Hospitality Initiative mirrors the existing ETO lodging and food service equipment package of measures including, but not limited to, the following: hot food holding cabinets, steamers, vent hoods, ice machines, refrigerators/freezers, laundry washers, dishwashers, packaged terminal heat pumps, HVAC in-room cooling sensors and LED motion-sensing bathroom nightlights.

More information on the Hospitality Initiative may be found at:

www.energytrust.org/business/incentives/Hospitality/existing-building/LodgingandFoodserviceEquipment

Customers may participate in this program only by making a contribution to ETO under the established parameters of the ETO Contributions section and pursuant to a separate agreement with ETO. Participating customers shall advance funding to Energy Trust based on an estimated level of program activity in customer's service area. These funds shall be held by ETO and used to pay incentives and program delivery and marketing costs. No funds shall be expended unless there is project activity. Funds remaining at the end of the implementation period will be returned to the customer. ETO will provide monthly status reports to all participating customers, detailing the measures installed, energy saved and incentives paid.

Additional Documentation Requirements

Customers shall retain the initiative specific agreement with ETO and ETO provided monthly status report. Customers are not responsible for verifying measures installed.

Reimbursement Strategies and Levels

Actual energy savings associated with each contribution shall be determined in accordance with the actual measures installed by ETO and reflected in the ETO reports to the customer.

Customers may self-fund, but if BPA reimbursement is desired, BPA bilateral funding is preferred.

Customers will receive 75 percent credit toward the conservation adjustment of their high water mark calculation, or 100 percent if self-funded. After the initial implementation period (as defined in the service agreement between ETO and the customer) customers will be advised by BPA on how to make the PTR system entry based upon the deemed energy savings reported by ETO and actual incentives paid.

Commercial New Construction

BPA offers multiple paths to access efficiency opportunities in commercial new construction, including both standardized design packages and custom projects.

Requirements and Specifications

Eligible buildings are one of the following:

- A new office building
- An office addition to an existing building
- A major office renovation, requiring changes in multiple end-uses or a permit

The building must use one or more of the following HVAC system types for at least 70 percent of the conditioned space:

- Roof-top variable-air-volume (VAV) with electric reheat
- Roof-top VAV with a non-electric reheat
- Packaged heat pump
- Single zone equipment with gas furnace

The building must:

- Be three stories or less
- Be 100,000 square feet or less of conditioned area
- Have 30 percent or less window to wall area ratio
- Be built after October 1, 2007

The Energy Smart Design ® – Office Prescriptive Package is posted on the BPA Energy Efficiency Web site at: www.bpa.gov/Energy/N/projects/ESD-Utility. Technical specifications are available in the PTR system.

All of the items in table, below, must be included in the new office building to qualify for an incentive. Code takes precedence if it exceeds any of these components.

Additional Documentation Requirements

Required documentation includes those items indicated in the technical specifications, submitted by a professional familiar with the project. A professional can be a qualified customer representative, a registered architect, licensed engineer or commissioning agent. The customer shall verify documentation has been submitted and keep the documentation on file.

Reimbursement Strategies and Levels

BPA shall reimburse the customer \$0.50 per square foot of conditioned area for Package A, \$0.25 per square foot of conditioned area for Package B and \$0.25 per square foot of conditioned area for Package C for eligible new, small office buildings that meet the requirements of the Energy Smart Design ® – Office Prescriptive Packages.

Description	Requirements	Package A	Package B	Package C
Incentives (\$ per sq. ft)		\$0.50	\$0.25	\$0.25
Cooling system minimum efficiency level	CEE Tier 2 Specifications can be found at www.cee1.org/com/hecac/hecac-main.php3	✓	✓	
Effective window U-value	Fixed 0.35 Maximum Curtain wall 0.40 Maximum	✓	✓	
Window solar heat gain coefficient	0.30 Maximum	✓	✓	
Enhanced economizer, including dedicated thermostat stage, differential changeover with dry-bulb sensors, and low ambient outside air compressor lock-out	Required	✓	✓	
Integrated Design of HVAC System, including fan power and plug load reduction	Required	✓	✓	
Lighting Budget (whole building)	0.75 Watts/SF Maximum, while providing illuminance levels as recommended by IESNA	✓		✓
Lighting Controls	Occupancy sensors-install where lighting loads are over 100 watts and sensors are not required by code; emergency fixtures are exempt	✓		✓

Energy Smart Design ® – Office Trade-Offs

Requirements and Specifications

Eligible buildings are one of the following:

- A new office building
- An office addition to an existing building
- A major office renovation, requiring a permit or changes in multiple end-uses

The building must use one or more of the following HVAC system types for at least 70 percent of the conditioned space:

- Roof-top variable-air-volume (VAV) with electric reheat
- Roof-top VAV with a non-electric reheat

- Packaged heat pump
- Single zone equipment with gas furnace

The building must

- Be three stories or less
- Be 100,000 square feet or less of conditioned area
- Have 30 percent or less window to wall area ratio
- Be built after October 1, 2007

The Energy Smart Design ® – Office Trade-Off form is posted on the BPA Energy Efficiency Web site at www.bpa.gov/ESD. Technical specifications are available in the PTR system.

All measures must be addressed, and energy savings must be greater than or equal to the Energy Smart Design ® – Office package to qualify for the package incentive in the reimbursement for Energy Smart Design ® - Office table, above. Code takes precedence if it exceeds any of these components.

Additional Documentation Requirements

Required documentation includes those items indicated in the technical specifications, submitted by a professional familiar with the project. A professional can be a qualified customer representative, a registered architect, licensed engineer or commissioning agent. The customer shall verify documentation has been submitted and keep the documentation on file.

Reimbursement Strategies and Levels

The reimbursement levels listed in the Energy Smart Design ® - Office section, above, apply.

New Commercial Construction, Major Renovation and Residential Multifamily Higher than Three Stories

Requirements and Specifications

These measures must be submitted as custom projects.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Major renovations (multiple end-uses changed with a construction or building permit required) are reimbursed on a performance-based approach that reimburses the lesser of \$0.27 per kWh or 70 percent of incremental cost (which includes payments for design assistance/technical assistance) for improved efficiency above code. New commercial construction will be reimbursed on a performance-based approach that reimburses the lesser of \$0.27 per kWh or 2 percent of whole building as-built contracted cost (excluding land costs). The key to project eligibility for the higher “new construction” reimbursement is the

existence of an implementation design plan that usually involves modeling and a building construction permit.

Cost-effective geothermal heat pumps for all multifamily and commercial new construction applications (including residential multifamily less than three stories) will be reimbursed according to the commercial sector reimbursement schedule as a custom project.

Additional Deemed Offerings

BPA offers reimbursement for certain efficient commercial appliances, shell measures and computer power management solutions and is actively working to develop additional deemed commercial measures for customers.

ENERGY STAR Commercial Clothes Washers

Requirements and Specifications

If the clothes washer is on the ENERGY STAR commercial list, it can be claimed as a commercial measure, which includes commercial laundries and multifamily common area coin-operated machines.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

BPA offers reimbursement for ENERGY STAR commercial clothes washers as shown in the table, below.

Reimbursement for ENERGY STAR Commercial Clothes Washers

ENERGY STAR	▪ All electric (water heater and dryer) ▪ All other combinations	▪ \$180 ▪ \$ 75
-------------	---	--------------------

Note: ENERGY STAR standards for commercial clothes washers changed on July 1, 2009. BPA is currently analyzing the impact of these changes on energy savings. We anticipate a potential reduction in deemed savings values as well as rebate amounts in the April 1, 2010 Manual.

Insulation in Existing Small Office or Retail (<5,000 square feet) Buildings

Requirements and Specifications

Deemed energy savings for attic, wall and floor insulation measures are available for existing small buildings (less than 5,000 square feet) used for office or retail activities.

BPA shall allow claims and provide reimbursement for insulation of whole buildings provided each individual office or retail space is less than 5,000 square feet and all of the individual spaces are under one roof. Customers may claim the individual spaces using the deemed energy savings and reimbursement reference numbers in the PTR system.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

BPA shall reimburse on a per square foot basis at \$0.13/deemed kWh energy savings.

Network Computer Power Management

Requirements and Specifications

Specifications for The Network Energy Management are as follows:

1. Workstation is defined as the computer monitor and the computer box.
2. The software must give the IT administrator easily-accessible, central control over the power management settings of networked workstations, with the capability to override user settings.
3. The software must have the capability to cause a workstation's power-energy savings mode to be remotely enabled or disabled as necessary for centrally distributed software updates (for example: Wake on LAN capability).
4. The software must have the capability to monitor disk and central processing unit activity and delay setting the computer to a low-power mode until the activity has finished.
5. The software must provide reports on energy savings achieved through implementation of the software's features.

Cost and energy savings are per computer controlled.

Qualified software includes but is not limited to "Verdiem." Please contact your COTR to inquire about whether other products conform to the specification.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

BPA shall reimburse \$10 per workstation.

Limited Availability Pilot Efforts

BPA periodically offers pilot efforts on a limited availability basis to prove program design or measure savings prior to region-wide launch. This section describes ongoing pilot efforts. There is no current opportunity to enroll in these efforts.

Turnkey Lighting Pilot

Requirements and Specifications

The Turnkey Lighting Pilot Initiative is a DA initiative conducted with a limited number of utilities throughout the region. BPA shall contract with a program partner for third party implementation of the Commercial and Industrial (C&I) Lighting Standard Offer. The pilot will test this implementation approach in the service territories of a very limited number of customers that (a) have had little or no C&I lighting activity, (b) have little or no administrative program capacity, (c) have adequate opportunity, trade ally base, business association marketing partners and other enabling factors, (d) meet criteria for geographic diversity and certain learning objectives of the pilot and (e) are willing to consent to third party activity.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Incentive amounts under this limited availability pilot effort are identical to those available through the C&I Lighting Standard Offer. The pilot will use the current versions of the existing building and new construction lighting calculator spreadsheet. The program partner shall pay all incentives directly.

Slice/Block customers shall not be subject to the Load Decrement requirement for the 2009 Turnkey Lighting Pilot.

Rooftop Unit Service Pilot

Requirements and Specifications

The Rooftop Unit (RTU) Service Pilot Initiative is a DA initiative conducted with a limited number of customers throughout the region. BPA shall contract with a third party for services and to verify energy efficiency improvements to RTUs. Qualified RTUs have over three tons of cooling capacity (ARI rating). Service on each RTU will only be provided once under this initiative.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Pre-approved incentive amounts will be paid by BPA to the third party contractor. Participating customers will receive 75% High Water Mark credit for load reductions in their territory.

Slice/Block customers will not be subject to the Load Decrement requirement for the RTU Service Pilot.

Demand Controlled Ventilation Pilot

Requirements and Specifications

The Demand Controlled Ventilation (DCV) Pilot Initiative is a DA initiative conducted with a limited number of customers throughout the region. BPA shall contract with a third party to install and verify energy efficiency improvements to RTUs.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

Pre-approved incentive amounts will be paid by BPA to the third party contractor. Participating customers will receive 75% High Water Mark credit for load reductions in their territory.

Slice/Block customers will not be subject to the Load Decrement requirement for this pilot.

Multi-Sector Opportunities

Additional Commercial opportunities are available in the Multi-Sector chapter.

Please see the Multi-Sector chapter for information on the following:

- Processes
 1. Custom Projects
 2. Direct Acquisition
 3. Third Party Contributions
- Measures and Initiatives
 1. Lighting
 2. Green Motors
 3. Small Compressed Air System

6. Industrial Sector

Please check the key changes summary on page i of this document to see if significant changes were made to any of the measures in this sector.

This section contains general information about the Industrial Sector and measure-specific information, including a description of the measures and any related changes, technical specifications (some specifications may be located in the PTR system), reimbursement levels and associated tables and any additional documentation requirements.

Industrial Sector Overview	45
Energy Smart Industrial	45
Requirements and Specifications	47
Additional Documentation Requirements.....	48
Reimbursement Strategies and Levels	48
Energy Smart Utility Efficiency	49
Multi-Sector Opportunities.....	52

The Industrial Sector includes fixed pieces of equipment, buildings or complexes used to produce goods in connection with, or as part of, any process or system. Also included are electric distribution systems, Voltage Optimization, water/waste-water systems, data centers and any storage, processing (transportation) or other activity involving farm products off-farm.

In general, the majority of energy use is not devoted to HVAC or meeting the potable hot water energy load requirements of a facility.

Industrial Sector Overview

The BPA Energy Efficiency industrial program has been redesigned and now includes Energy Smart Industrial (ESI), Energy Smart Utility Efficiency and Multi-Sector opportunities.

Energy Smart Industrial

The bulk of industrial program offerings are located in ESI, which is managed by a third party contractor (Program Partner) and provides enhancements and expansion to the existing industrial program. ESI makes the following program components available to the customer:

- ESI Partner
- Energy Management Pilot: Energy Project Managers; Track and Tune Projects; and High Performance Energy Management
- Trade Ally Delivered Small Industrial Measures
- Northwest Trade Ally Network (C&I Lighting)
- BPA Funded Technical Service Providers (TSP)

The customer chooses which of the program components to offer end users and dictates the ESI Partner's level of engagement. Ultimately, the customer shapes the ESI program to meet customer and end user needs.

If the customer does not enroll in the ESI program, BPA reimbursement is limited to the following:

- Energy Smart Utility Efficiency
- Multi-Sector Measures and Initiatives

Without ESI program enrollment, all custom project incentives and technical services are customer self-funded.

Each ESI program component is described briefly below:

ESI Partner: An ESI Partner (provided by the Program Partner) is the single point of contact for customers and assists them with understanding and implementing ESI. The customer ultimately determines the level of ESI Partner engagement, but, generally, the ESI Partner performs the following:

- Serves as an industrial technical resource to customers
- Works closely with the customer to develop an action plan for the customer's end users
- Manages and reviews technical work products, including technical analysis of custom project proposals and completion reports
- Helps the customer identify custom projects and create custom project proposals

- Enters custom project proposals and completion reports into the PTR system and submits to customer for review and acceptance. (The customer continues to perform the final official submittal to BPA.)

Energy Management Pilot: Energy Management is a pilot component composed of (1) the Energy Project Manager, (2) Track and Tune Projects and (3) High Performance Energy Management. An ESI Partner is closely involved with Energy Management.

1. Energy Project Manager: BPA will co-fund Energy Project Managers, end user employees or contractors, who manage energy efficiency custom projects at the end users' facilities. Any Energy Project Manager costs not covered by BPA will be the responsibility of the end user. Funding is provided to the customer in installments, and the customer must pass through the entirety of each installment payment to the end user. The customer must submit and BPA must approve an Energy Project Manager agreement between the customer and the end user. This agreement must, at a minimum, identify an energy savings goal of at least 1 million kWh/year; the customer's responsibility to pass through all funding to the end user; and the end user's obligation to employ a qualified Energy Project Manager.
2. Track and Tune Projects: Track and Tune projects are a combination of site or sub-system tune-ups that focus on operations and maintenance opportunities for increased energy efficiency. A BPA approved Track and Tune agreement must be signed between the customer and the end user. The tracking systems will determine annual energy savings and associated sustained savings incentive payments from BPA. BPA will co-fund high-priority operations and maintenance measures as part of this offering.
3. High Performance Energy Management: This feature provides energy management coaching and development for end users. High Performance Energy Management is designed to (a) generate more Track and Tune projects, (b) drive more custom projects into the PTR system and (c) generate savings via Monitoring, Targeting and Reporting analysis. Annual sustained savings incentives will be available from BPA for verified savings from the Monitoring, Targeting and Reporting analysis.

Trade Ally Delivered Small Industrial Measures: The Small Industrial Measures component provides cost-effective, simple measures with broad market applicability to leverage trade ally networks (e.g., compressed air, refrigeration and motors) to handle specific efficiency measures where the energy savings of individual projects are small. Simplified analysis tools will be created to assist with project development. Projects of this size justify a simple, streamlined analytical approach, including M&V, due to the small scale of energy savings and incentive. An ESI Partner is closely involved with Small Industrial Measures.

Northwest Trade Ally Network (C&I Lighting): The Northwest Trade Ally Network is a BPA initiative that supports lighting trade allies and customers in the commercial and industrial sectors. The ESI program includes Lighting Key Account

Managers who enhance the program by working one-on-one with trade allies, customers and end users at the project level. Along with working with trade allies and the lighting supply chain, the Lighting Key Account Managers provide on-site lighting walk-through; on-site meetings and/or technical development with an end user, trade ally and/or customer representative; and review of end user trade ally proposals with recommendations for enhancing lighting efficiency technology.

BPA Funded Technical Service Providers: BPA funding is available for the technical services necessary to develop and complete custom projects. Technical Service Provider (TSP) consultants can be utilized for scoping, project assessments, completion reports (M&V) and miscellaneous consulting. All TSP proposal review and contracting is managed directly by the BPA TSP program manager.

Requirements and Specifications

If a customer wants to opt into ESI, it must enroll by sending an e-mail to its assigned COTR. The COTR shall confirm participation by written notice, and the customer will be contacted by the Program Partner for an initial planning meeting.

Customers enrolling on or before October 31, 2009 will be given first priority in program rollout. Customers may continue to enroll up to March 31, 2010, however, there may be significant delays in program rollout after the priority deadline (of October 31, 2009).

The customer shall meet with Program Partner (in person or over the phone) to discuss customer needs. During this meeting, the customer must indicate its intended level of program engagement and lay out end-user communications expectations and guidelines for the Program Partner to follow. Other topics of discussion may include magnitude of industrial load, number of industrial end users, savings goals and desired program component rollout. Following the planning meeting, the Program Partner will acknowledge the level of program engagement and communications guidelines by sending an e-mail to the customer.

For custom project proposals accepted by BPA on or after April 1, 2010, the customer shall pass through the full incentive amount to the end user.

Under ESI, the customer may receive assistance during the custom project process. The following chart demonstrates the party responsible for each custom project step.

Custom Project Process Step	Responsible Party
Development of M&V Plan	ESI Partner, TSP or Customer
Entry of Custom Project into PTR system	ESI Partner or Customer
Submittal of Custom Project Proposal to BPA	Customer
Review of Custom Project Proposal	BPA ESI engineer and COTR
Provision of Technical Advice to Customer	ESI Partner
Development of Custom Project Completion Report	ESI Partner, TSP or Customer
Entry of Completion Report into PTR system	ESI Partner or Customer
Submittal of Completion Report to BPA	Customer
Review of Custom Project Completion Report	BPA ESI engineer and COTR

Additional Documentation Requirements

For custom project proposals accepted by BPA on or after April 1, 2010, customers must maintain proof of 100% incentive pass-through to end users (e.g., proof of payment through a copy of check to end user or other method of money delivery).

If BPA approves customer's request for progress payments, customer must retain proof of equipment installation (or other documentation required by BPA's progress payment approval) in order to be paid by BPA.

Reimbursement Strategies and Levels

The reimbursement levels and strategies are summarized below:

Custom Projects –

Custom project incentives for retrofit projects will be the lesser of \$0.25/kWh or 70% of project incremental cost for measures with a minimum 10-year life.

Custom project incentives for new construction projects will be the lesser of \$0.27/kWh or 70% of project incremental cost for measures with a minimum 10-year life. Note: Starting April 1, 2010, the reimbursement rate will decrease to \$0.25/kWh.

Progress Payments:

A progress payment may be available for eligible custom projects, on a limited basis. The customer must request progress payments in its custom project proposal. Progress payments will be triggered after project milestones have been accomplished and verified in accordance with the BPA approved project proposal.

All of the following criteria is required to be eligible for a progress payment:

1. Estimated site savings for the project are greater than 2,000,000 kWh/yr or the estimated incentive is greater than \$700,000.
2. The project timeline is expected to do either of the following:
 - a. Exceed 24 months from the BPA custom project proposal approval date to the completion report submittal date or

- b. Require greater than 11 months post measurement and verification period.

Progress payments will not exceed the lesser of the following:

1. 70% of actual expenditures of the project incurred up to the date of the progress payment invoice to BPA or
2. 50% of the estimated project incentive.

BPA reserves the right to deny the request for progress payments.

Measures –

Energy Project Manager: Energy Project Manager annual salary co-funding is the lesser of 100% of the annual Energy Project Manager costs (no greater than \$250,000) or \$0.025/kWh based on the energy savings goal as outlined in the BPA approved Energy Project Manager agreement.

Track and Tune Projects: Limited reimbursement is available for purchasing and installing a tracking system for monitoring, tracking, and recording the energy savings. BPA will reimburse Energy efficiency projects the lesser of \$0.075/kWh or 70% of the cost of implementing the project. Annual incentive payments are based upon verified savings for the previous 12 months at \$0.025/kWh for the five year engagement period.

High Performance Energy Management: Annual incentive payments are based upon a five-year period. Incentive payments are paid annually based upon verified savings for the previous 12 months at \$0.025/kWh.

Northwest Trade Ally Network (C&I Lighting): Per the Lighting section in the Multi-Sector chapter, industrial sector lighting projects estimated to provide more than 100,000 kWh in annual savings may be submitted as custom projects rather than deemed measures.

Energy Smart Utility Efficiency

Energy Smart Utility Efficiency includes Voltage Optimization (VO) (formerly known as Conservation Voltage Regulation) and System Improvements (formerly known as Distribution System Efficiency Improvements). The Energy Smart Utility Efficiency offerings may be submitted as separate custom projects or together, as one custom project. These custom projects may be eligible for progress payments under limited circumstances.

Requirements and Specifications

The general custom project process requirements apply with one exception: equipment in stock may be used if accepted as part of a custom project proposal so long as the customer can document equipment was installed after BPA's acceptance of the custom project proposal.

The specific requirements of (1) VO, (2) System Improvements and (3) the combination of VO and System Improvements will be discussed below.

1. VO

VO is a technique for improving the efficiency of the electrical grid by reducing voltage on the feeder lines that run from substations to homes and businesses. BPA will set certain system stability thresholds prior to accepting a VO project. To ensure the avoidance of potentially detrimental effects from lowering system voltage, customers must demonstrate all required thresholds have been met prior to deploying VO.

All VO projects require technical services. Customers may participate by submitting a request via the TSP Portal (www.bpa.gov/tsp) and by following the custom project process documented in the chart below.

Custom Project Process Step	Responsible Party
Request Technical Service via TSP	Customer
Provision of Technical Advice to Customer	TSP
Development of M&V Plan	TSP
Entry of Custom Project into PTR system	TSP
Submittal of Custom Project Proposal to BPA	Customer
Review of Custom Project Proposal	COTR
Collect and Analyze data to determine savings	TSP
Development of Custom Project Completion Report	TSP
Entry of Custom Project Completion Report into PTR system	TSP
Submittal of Custom Project Completion Report to BPA	Customer
Review of Custom Project Completion Report	COTR

2. System Improvements

System Improvements may include the following measures:

- Power transformer replacement
- Service conductor replacement
- Higher distribution primary voltage (including insulator additions and replacement)
- Transformer load management (replacement of improperly sized transformers for loss improvements)
- Balancing loads and phases
- Adding parallel feeders
- Operation improvement (recognition and phase balancing)
- De-energizing seasonally unloaded transformers
- Service distribution transformer
 - Replacing an existing or proposed transformer with a higher efficiency transformer
 - Multiple transformers vs. single transformer based on system analysis
 - Power factor improvement to reduce line losses
 - Volt-Amperes-Reactive (Reactive Power) Management

- Voltage management
- Fixed and switched capacitors

Customers may participate in System Improvements by (1) requesting technical services via the TSP Portal (www.bpa.gov/tsp) or submitting a custom project proposal and (2) following the custom project process documented in the chart below.

Custom Project Process Step	Responsible Party
Request Technical Service via TSP	Customer
Provision of Technical Advice to Customer	TSP if requested by Customer
Development of M&V Plan	Customer or TSP
Entry of Custom Project into PTR system	Customer or TSP
Submittal of Custom Project Proposal to BPA	Customer
Review of Custom Project Proposal	COTR
Collect and Analyze data to determine savings	Customer or TSP
Development of Custom Project Completion Report	Customer or TSP
Entry of Custom Project Completion Report into PTR system	Customer or TSP
Submittal of Custom Project Completion Report to BPA	Customer
Review of Custom Project Completion Report	COTR

3. Combined VO and System Improvements

The customer must follow all requirements of VO and System Improvements (listed above) and the custom project process outlined in the chart below.

Custom Project Process Step	Responsible Party
Request Technical Service via TSP	Customer
Provision of Technical Advice to Customer	TSP
Development of M&V Plan	TSP
Entry of Custom Project into PTR system	TSP
Submittal of Custom Project Proposal to BPA	Customer
Review and Acceptance of Custom Project Proposal	COTR
Collect and Analyze data to determine savings	TSP
Development of Custom Project Completion Report	TSP
Entry of Custom Project Completion Report into PTR system	TSP
Submittal of Custom Project Completion Report to BPA	Customer
Review and Acceptance of Custom Project Completion Report	COTR

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

The retrofit custom project incentive levels apply: \$0.25/kWh or 70% of project incremental cost for a measure with a minimum 10-year life.

Certain projects may be eligible for progress payments, the requirements of which are discussed below.

Progress Payments:

The following minimum criteria are required to be eligible for a progress payment:

1. Estimated savings for the project are greater than 500,000 kWh/yr per substation or the estimated incentive is greater than \$100,000 per substation.
2. The project length is expected to do either of the following:
 - a. Exceed 12 months from the BPA custom project proposal approval date to the completion report submittal date or
 - b. Require greater than 3 months post measurement and verification period.

Progress payments will not exceed the lower of the following:

1. 50% of the estimated project incentive or
2. 70% of actual expenditures of the project incurred up to the date of the progress payment invoice to BPA.

The customer must request progress payments in its custom project proposal. BPA reserves the right to deny the request for progress payments.

The progress payment will be triggered after the customer has expended 30% of the estimated project costs. The customer must submit documentation verifying that 30% of the project costs have been incurred or expensed.

Multi-Sector Opportunities

Additional Industrial opportunities are available in the Multi-Sector chapter.

Please see the Multi-Sector chapter for information on the following:

- Processes
 1. Custom Projects
 2. Direct Acquisition
 3. Third Party Contributions
- Measures and Initiatives
 1. Lighting
 2. Green Motors
 3. Small Compressed Air Systems (If customer does not enroll in ESI, it may use the Small Compressed Air calculator tool without technical assistance from BPA or ESI Program Partner.)

7. Residential Sector

Please check the key changes summary on page i of this document to see if significant changes were made to any of the measures in this sector.

This section contains general information about the Residential Sector and measure-specific information, including a description of the measures and any related changes, technical specifications (some specifications may be located in the PTR system), reimbursement levels, and any documentation requirements.

Appliances (new)	54
ENERGY STAR Clothes washers	54
ENERGY STAR Dishwashers	54
ENERGY STAR Freezers	54
ENERGY STAR Refrigerators.....	54
Appliance Decommissioning.....	55
Refrigerator and Freezer Early Retirement and Recycling	55
Electric Water Heating	55
Electric Storage Water Heaters.....	55
Gravity Film Heat Exchangers (GFX)	56
HVAC Measures	56
Ductless Heat Pump	57
PTCS Air Source Heat Pump Upgrades	58
PTCS Air Source Heat Pump Conversions	60
PTCS Heat Pump Commissioning & Controls	62
PTCS Geothermal Heat Pump Systems (new)	63
PTCS Duct Sealing (unbundled).....	64
PTCS Duct Sealing in Manufactured Homes	64
PTCS Duct Sealing in Existing Single Family Homes.....	65
PTCS Duct Sealing in Single Family New Construction.....	65
Lighting	66
ENERGY STAR CFLs	68
ENERGY STAR Lighting Fixtures.....	70
Line-Voltage Thermostats.....	71
New Construction.....	72
New ENERGY STAR Manufactured Homes.....	72
New ENERGY STAR Site-Built Homes.....	73
New Homes Built to the Montana House Specifications.....	76
New Multifamily Construction	79
Showerheads (2.0 gpm)	80
Showerheads (2.5 gpm) and Aerators for Multifamily	80
Weatherization (Standard Income) (insulation, windows, air sealing).....	81
Low-income Weatherization	84
Multi-Sector Opportunities.....	93

The Residential Sector includes electrical energy used in a residential setting. This includes single family residences, multifamily residential structures (up to three stories high), and manufactured homes. Excluded are temporary residences such as hotels, motels, nursing homes, dorms, or any other generally temporary quarters. (Multifamily housing above three stories is considered commercial.)

Appliances (new)

Requirements and Specifications

BPA shall provide reimbursements for the purchase of ENERGY STAR qualified appliances with deemed energy savings. The customer may elect to check the ENERGY STAR Web site at www.ENERGYSTAR.gov to confirm the appliance meets ENERGY STAR requirements.

Additional Documentation Requirements

- Copy of purchase receipt/invoice
- Manufacturer name
- Model number
- Documentation detailing the specifications (e.g., energy factor) for the appliance claimed. A copy of the page from the ENERGY STAR Web site listing the appliance model is sufficient for documentation, provided it details the specifications for the model claimed.
- In the event that ENERGY STAR specifications change, BPA shall continue to accept the pre-existing models as ENERGY STAR qualified.
- To reduce the need to look up every appliance on the ENERGY STAR Web site, customers may also meet this requirement by having end users submit the ENERGY STAR logo from the appliance box or product information insert that includes the ENERGY STAR logo. Submissions without this documentation still need to be confirmed using the ENERGY STAR product list available at www.ENERGYSTAR.gov.

Reimbursement Strategies and Levels

The reimbursement differs for each type of appliance, listed below.

ENERGY STAR Clothes Washers: BPA shall reimburse two amounts for ENERGY STAR qualified residential clothes washers, depending on the water heater fuel type.

- \$70 per ENERGY STAR clothes washer (with electric water heater)
- \$25 per ENERGY STAR clothes washer (with gas water heater)

ENERGY STAR Dishwashers: \$25 per ENERGY STAR qualified dishwasher

ENERGY STAR Freezers: \$25 per ENERGY STAR qualified full size freezer (7.75 cu. ft. or greater)

ENERGY STAR Refrigerators: \$25 per ENERGY STAR qualified full size refrigerator (7.75 cu. ft. or greater)

Appliance Decommissioning

Refrigerator and Freezer Early Retirement and Recycling

Requirements and Specifications

The existing appliance for recycling must be verified as functional, serving a home within the participating customer service territory and a minimum of 10 cubic feet capacity. The unit must be decommissioned and its components recycled.

Additional Documentation Requirements

- Address from where the refrigerator/freezer was picked up
- Disposal/recycling documents
- Cubic size of refrigerator or freezer

Reimbursement Strategies and Levels

BPA shall reimburse \$125 per decommissioned residential refrigerator or freezer unit.

Electric Water heating

Requirements and Specifications

BPA shall provide reimbursements for cost-effective, energy-efficient electric storage water heaters meeting the minimum energy factor (EF) provided in the PTR system and summarized in the table below. BPA shall also provide reimbursements for cost-effective installations of gravity film heat exchangers (GFX) in electric water heater applications.

Additional Documentation Requirements

- Copy of purchase receipt/invoice
 - Manufacturer or brand name
 - Model number
 - Rated storage volume, in gallons (for storage water heaters)
- Warranty period, if claiming higher 20-year or longer warranty

Reimbursement Strategies and Levels

Electric Storage Water Heaters:

- \$0.25 per kWh for cost-effective, energy-efficient electric water heater measures.
- \$0.35 per kWh for cost-effective water heater measures with a 20-year or longer warranty (currently only Marathon offers a 20 year warranty).

Summary of reimbursements for electric storage water heaters

Tank Size	Minimum Energy Factor	Minimum Warranty	Energy Savings (kWh/yr)	BPA Credit
50 gallon	EF- 0.93 or higher	Any	101	\$25.24
50 gallon	EF- 0.94 or higher	20 yr*	133	\$46.62
65 gallon	EF- 0.91 or higher	Any	106	\$26.48
65 gallon	EF- 0.94 or higher	20 yr*	205	\$71.77
75 gallon	EF- 0.92 or higher	20 yr*	177	\$61.93
80 gallon	EF- 0.91 or higher	Any	181	\$45.32
80 gallon	EF- 0.92 or higher	20 yr*	215	\$75.32
85 gallon	EF- 0.92 or higher	20 yr*	217	\$76.11
105 gallon	EF- 0.91 or higher	20 yr*	302	\$105.77
119 gallon	EF- 0.85 or higher	Any	166	\$41.59

* Currently only the Marathon Water Heaters meet the 20 year minimum warranty requirement.

Reimbursements and busbar energy savings can also be found in the PTR system.

Gravity film (GFX) Heat Exchangers: \$0.35 per kWh (according to the busbar energy savings in the PTR system). Reimbursements and busbar energy savings are listed in the PTR system and summarized in the table below.

Summary of Reimbursements for GFX

Residence Type	Retrofit or New Construction	Application	Water Heater Type	Energy Saving (kWh/yr)	BPA Credit
Single Family & Multifamily	Retrofit	DHW & Shower Preheat	Electric	652	\$228.24
Single Family & Multifamily	Retrofit	DHW Preheat	Electric	522	\$182.60
Single Family	New Construction	DHW & Shower Preheat	Electric	652	\$228.24
Single Family	New Construction	DHW Preheat	Electric	522	\$182.60
Multifamily	New Construction	DHW & Shower Preheat	Electric	652	\$228.24
Multifamily	New Construction	DHW Preheat	Electric	522	\$182.60
Multifamily	New Construction	Shower Preheat	Electric	456	\$159.77

HVAC Measures

BPA shall provide reimbursements for HVAC measures in electrically-heated homes including ductless heat pumps, high efficiency heat pump upgrades, heat pump conversions, geothermal heat pump systems; and proper installation, sizing, refrigerant charging and duct sealing protocols as specified by Performance Tested Comfort Systems (PTCS). PTCS measures must be certified

as PTCS, and work must be performed by a PTCS certified technician. Either electric or non-electric auxiliary heat systems may be installed with a heat pump; however, an electric heat pump must be the primary system used to meet the heating needs of the house.

The PTCS specifications are available in the PTR system, under Downloads.

PTCS forms are available at www.ptcsnw.com.

This section covers the following:

- Ductless Heat Pump (DHP)
- PTCS Air Source Heat Pump Upgrade, with minimum HSPF 8.5/SEER 14 ratings (bundled measure)
- PTCS Heat Pump conversions (BPA Qualified)
- PTCS Heat Pump Commissioning & Controls as a stand alone (unbundled) measure
- PTCS Geothermal (Ground Source) Heat Pump Systems
- PTCS Duct Sealing as a stand alone (unbundled) measure

Ductless Heat Pump (provisionally deemed measures)

BPA Energy Efficiency will continue to support DHPs in residential applications for fiscal year 2010. In addition to providing reimbursement for DHPs in single family homes with zonal electric heat, BPA will expand its support to include manufactured homes and multifamily homes with zonal electric heat.

Note: BPA will discontinue reimbursement for DHPs in single family homes with electric forced-air furnaces effective April 1, 2010. BPA is continuing to work with NEEA to identify potential savings from DHPs in single family residences, manufactured homes and multifamily applications with electric forced-air furnaces.

Requirements and Specifications

- The home must have permanently installed electric resistance heating as the primary heating system.
- DHP must be a split system heat pump employing inverter-driven outdoor compressor units, with inverter driven or variable speed indoor blowers.
- DHP must be installed by a qualified contractor, a contractor who has received installation training from the manufacturer of the equipment it installs and can document said training.
- DHPs in the PTR system, with BPA dollar reimbursement values, may be claimed as deemed measures.
- DHPs without BPA dollar reimbursement values may be self-funded as a deemed measure or submitted for BPA reimbursement using the custom project proposal process. Customers choosing to submit custom project

proposals for DHPs shall refer to the custom project section in the Multi-Sector chapter for information specific to the custom project process.

Additional Documentation Requirements

Required documentation must be sent to the DHP Pilot contractor, Fluid Market Strategies (Fluid) at www.nwductless.com. Fluid shall determine that the installation meets eligibility requirements and that the following forms are complete:

- DHP homeowner (customer) installation form
- DHP contractor form
- Vendor invoice
- Proof that the DHP installation has been submitted to Fluid and recorded in the DHP regional database at www.nwductless.com.

Reimbursement Strategies and Levels

Eligible DHP Measures

Housing description	Heating type	BPA reimbursement
Single Family (existing)	Zonal Electric Heat	\$1,500
Single Family (existing)	Electric Force Air Furnace w/ or w/o Central Air Conditioning *	\$1,500
Manufactured Homes (existing)	Zonal Electric Heat	\$1,500
Manufactured Homes (existing)	Electric Force Air Furnace w/ or w/o Central Air Conditioning *	\$0**
Existing Multifamily	Zonal Electric Heat	\$1,000
Existing Multifamily	Electric Force Air Furnace w/ or w/o Central Air Conditioning	\$0 **

Notes:

*BPA will suspend reimbursement for DHPs in single family homes with electric forced-air furnaces effective April 1, 2010 until more data is available to determine savings.

**BPA’s reimbursement for custom projects shall be \$0.30/measured first year kWh savings or 70 percent of the actual incremental cost, whichever is lower.

PTCS Air Source Heat Pump Upgrade with Minimum HSPF 8.5/SEER 14 Ratings (bundled)

Requirements and Specifications

- Heat pump must be installed by a PTCS certified contractor.
- Heat pump must be installed according to the version current at the time of heat pump purchase of the “PTCS Air Source Heat Pump Installation Standards,” which is available in the PTR system.
- Reminder: As a part of the PTCS installation standards, PTCS Commissioned Heat Pump certification is required on all Air Source Heat Pump Upgrades, and PTCS Duct System certification may be required, depending on the location of the ductwork.
- Allowable tradeoffs of the HSPF and SEER ratings are as follows:
 - A minimum SEER rating of 13.5 shall be acceptable when HSPF is at least 8.6

- A minimum SEER rating of 13.0 shall be acceptable when HSPF is at least 8.7
- Homes with heated floor area greater than 4,500 square feet, which is twice the size of the prototypes used by the RTF to estimate energy savings, are allowed to claim up to two heat pump measures when two heat pumps are installed.
- BPA requires the newly installed heat pump(s) to be the primary heating source for the entire house.
- Where a house has a substantial¹⁰ amount of ductwork in unconditioned space, the heat pump with ducts outside¹¹ measure must be claimed. Where a house does not have a substantial amount of ductwork in unconditioned space, the heat pump with ducts inside measure must be claimed. PTCS Duct System certification is required when the heat pump with ducts outside measure is claimed.

Additional Documentation Requirements

- PTCS heat pump form – “the certificate”
- Proof that the PTCS form, for unit being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the unit must be labeled “Accepted” in the PTCS Registry.
- ARI certificate
- Copy of the whole house heating and cooling calculation (Manual J or Easy J) and balance point worksheet or PTCS Heat Pump and Central Air Conditioner Sizing Calculator, which can be found under Downloads in the PTR system
- Vendor invoices
- PTCS duct sealing form (if duct sealing is required)

Reimbursement Strategies and Levels

The PTCS air source heat pump upgrade measure is intended to provide an incentive to homeowners to install a high efficiency heat pump, when replacing an existing heat pump, adding a heat pump to a system with gas backup, or converting a home with zonal electric heat. Reimbursement is based on the energy savings and incremental cost of installing a heat pump with a minimum HSPF 8.5/SEER 14 rating, installed to PTCS specifications.

Customers converting an electric forced air furnace to air source heat pumps must claim the PTCS Heat Pump Conversion measure.

The reimbursement level for the PTCS air source heat pump upgrade measure varies depending on the heating and cooling zone and whether the ducts are

¹⁰ BPA interprets “substantial” to mean ~ 75 percent or more of the ducts are outside the conditioned space.

¹¹ “Ducts Outside” and “Ducts Inside” are shorthand for homes with ducts outside the conditioned space where duct testing and sealing can result in higher energy savings gains, and homes without substantial ducting outside the conditioned space, respectively.

outside the conditioned space or not. See the reimbursement schedule in the table below.

Reimbursements for Air Source Heat Pump Upgrade (bundled)

Heating/ Cooling Zone (HZ/CZ)	Ducts Outside where Duct Sealing is required (i.e., outside the heated envelope, such as an unheated crawlspace or attic)	Ducts Inside where Duct Sealing is not required (i.e., home with a basement)
HZ1 CZ1	\$915	\$470
HZ1 CZ2	\$935	\$480
HZ1 CZ3	\$975	\$500
HZ2 CZ1	\$1,380	\$650
HZ2 CZ2	\$1,390	\$665
HZ2 CZ3	\$1,425	\$685
HZ3 CZ1	\$1,730	\$780
HZ3 CZ2	\$1,750	\$790
HZ3 CZ3	\$1,790	\$815

Note: Manufactured homes are almost always built on vented crawlspaces, rather than sealed basements, which means the duct sealing (ducts outside) measure will apply.

PTCS Air Source Heat Pump Conversions (BPA Qualified)

Requirements and Specifications

The PTCS air source heat pumps conversion measure is intended to provide an incentive to homeowners with an electric forced air furnace to install a high efficiency heat pump.

- Heat pump must be installed by a PTCS certified contractor.
- Heat pump must be installed according to the version current at the time of heat pump purchase of the "PTCS Air Source Heat Pump Installation Standards," which is available in the PTR system.
- Reminder: As a part of the PTCS installation standards, PTCS Commission and Controls shall be performed on all Air Source Heat Pump Conversions and certified as such. PTCS Duct System certification may be required, depending on the location of the ductwork.
- Allowable tradeoffs of the HSPF and SEER ratings are as follows:
- A minimum SEER rating of 13.5 shall be acceptable when HSPF is at least 8.6.
- A minimum SEER rating of 13.0 shall be acceptable when HSPF is at least 8.7.

- Homes with heated floor area greater than 4,500 square feet, which is twice the size of the prototypes used by the RTF to estimate energy savings, are allowed to claim up to two heat pump measures when two heat pumps are installed.
- BPA requires the newly installed heat pump(s) to be the primary heating source for the entire house.
- Where a house has a substantial¹² amount of ductwork in unconditioned space, a PTCS Duct Sealing certification is required, and the PTCS Duct Sealing reimbursement may be claimed. Where a house does not have a substantial amount of ductwork in unconditioned space, the PTCS Duct Sealing reimbursement may not be claimed. PTCS Duct System certification is required when the heat pump with ducts outside measure is claimed.

Additional Documentation Requirements

- PTCS heat pump form – “the certificate”
- Proof that the PTCS form, for unit being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the unit must be labeled “Accepted” in the PTCS Registry.
- ARI certificate
- Copy of the whole house heating and cooling calculation (Manual J or Easy J) and balance point worksheet or PTCS Heat Pump and Central Air Conditioner Sizing Calculator, which can be found under Downloads in the PTR system
- Vendor invoices
- PTCS duct sealing form (if duct sealing is required)

Reimbursement Strategies and Levels

The reimbursement level varies depending on the efficiency of the heat pump installed and whether the ducts are outside the conditioned space or not. See the reimbursement schedule in the table below.

Heating/ Cooling Zone	Ducts Outside where Duct Sealing is required (i.e., outside the heated envelope, such as an unheated crawlspace or attic)	Ducts Inside where Duct Sealing is not required (i.e., home with a basement)
Single Family HZ1	\$1,900	\$1,400
Single Family HZ2	\$1,900	\$1,400
Single Family HZ3	\$1,900	\$1,400
Manufactured home HZ1	\$1,900	Not applicable
Manufactured home HZ2	\$1,900	Not applicable
Manufactured home HZ3	\$1,900	Not applicable

¹² BPA interprets “substantial” to mean 75 percent or more of the ducts are outside the conditioned space.

PTCS Heat Pump Commissioning & Controls (unbundled)

Requirements and Specifications

- This stand alone (unbundled) measure requires that the heat pump be installed and/or serviced according to the current version of the "PTCS Air Source Heat Pump Installation Standards" available in the PTR system. Two exceptions to the BPA requirements/PTCS Standards are allowed:
 - This measure can be applied to any new heat pump.
 - This measure does not require a minimum HSPF or SEER rating.
- This measure is available for all existing or new construction housing types (single family and manufactured homes).
- Work must be completed by a PTCS certified contractor.
- This reimbursement is available per each heat pump system that is installed or serviced regardless of the size of the home and the number of new heat pumps installed.

Additional Documentation Requirements

- PTCS heat pump form – "the certificate"
- Proof that the PTCS form, for unit being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the unit must be labeled "Accepted" in the PTCS Registry.
- ARI certificate
- Copy of the whole house heating and cooling calculation (Manual J or Easy J) and balance point worksheet or PTCS Heat Pump and Central Air Conditioner Sizing Calculator, which can be found under Downloads in the PTR system
- Vendor invoices
- PTCS duct sealing form (if duct sealing is required)

Reimbursement Strategies and Levels

- BPA shall reimburse \$300 per documentation of PTCS Commissioning and Controls on a newly installed heat pump.
- PTCS Duct Sealing, where a substantial percentage of the duct system is outside the heated envelope, is not required but highly recommended.

Note: when PTCS Commissioning and Controls is performed in combination with PTCS Duct Sealing, an additional \$50 reimbursement will be allowed to encourage contractors and home owners to do PTCS Duct Sealing when duct sealing is desirable. See the table below. (See duct sealing measures below for requirements and specifications.)

Reimbursements for PTCS unbundled measures

Measure	Manufactured Homes	Single Family Existing Homes	Single Family New Construction
PTCS System Commissioning & Controls	\$300	\$300	\$300
PTCS Duct Sealing	\$400	\$500	\$400
PTCS Commissioning & Controls with Duct Sealing	\$750	\$850	\$750

PTCS Geothermal (Ground Source) Heat Pump Systems (new)

Requirements and Specifications

- The geothermal heat pump system application must be listed in the PTR system as a reportable, cost-effective measure.
- All geothermal heat pump system components must be newly installed. The replacement of an existing geothermal heat pump unit does not qualify for BPA reimbursement.
- Geothermal heat pump must be installed by a PTCS and IGSHPA certified contractor.
- Geothermal heat pump systems must adhere to the latest version of the "PTCS Ground Source Heat Pump Specifications," available in the PTR system, under Downloads.
- BPA shall only provide one reimbursement per home for geothermal heat pumps.
- BPA shall allow claims for geothermal heat pumps connected to hydronic heating systems in residential end-use applications provided all applicable specifications are met.

Additional Documentation Requirements

- PTCS heat pump form – "the certificate"
- Proof that the PTCS form, for unit being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the unit must be labeled "Accepted" in the PTCS Registry.
- Documentation showing the efficiency rating - COP for geothermal heat pumps
- Copy of the whole house heating and cooling calculation (Manual J or Easy J) and balance point worksheet or PTCS Heat Pump and Central Air Conditioner Sizing Calculator, which can be found under Downloads in the PTR system
- Vendor invoices
- PTCS duct sealing form (if duct sealing is required)

Reimbursement Strategies and Levels

BPA set reimbursements based on the incremental energy savings from a standard air-source heat pump (upgrade to a geothermal system), regardless of the end user's reasons for the installation of the geothermal heat pump system.

Single family installations in HZ 1: BPA shall reimburse \$2,400 per unit for cost-effective applications listed in the PTR system.

Single family installations in HZ 2 and 3: BPA shall reimburse \$3,000 per unit for cost-effective applications listed in the PTR system.

Manufactured Homes: There are no deemed cost-effective geothermal heat pump measures in manufactured homes. BPA shall provide no deemed reimbursement.

Multifamily: Cost-effective geothermal heat pumps for all multifamily applications, including residential and commercial multifamily (greater than three stories) will be reimbursed according to the commercial sector reimbursement schedule as a custom project.

PTCS Duct Sealing (unbundled)

Customers may claim credit for PTCS Duct Sealing on any new or existing heat pump in single family new construction, in an existing single family home, or in any new or existing manufactured home. Customers may also claim credit for PTCS Duct Sealing for forced-air electric furnaces.

To qualify, the pretest must show that duct sealing is required and ducts must be outside the heated envelope (i.e., in an un-insulated crawlspace).

PTCS Duct Sealing in Manufactured Homes

Requirements and Specifications

- Duct system must be tested and certified as a PTCS Duct System, by a PTCS certified technician.
- All electrically-heated manufactured homes qualify for this measure if PTCS duct testing indicates that duct sealing is required to meet the PTCS specifications. The pre-test must show an existing, tested leakage rate of 100 CFM50 for single-wide homes or 150 CFM50 leakage for two- or more-section homes.
- This measure applies to existing and new manufactured homes with electric forced air furnaces, as long as the home meets the requirement stated above. In the PTR system, this measure is identified as "Existing Manufactured Homes."

Additional Documentation Requirements

- PTCS duct sealing form – "the certificate"

- Proof that the PTCS form, for job being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the job must be labeled “Accepted” in the PTCS Registry.
- Vendor invoices

Reimbursement Strategies and Levels

BPA shall reimburse \$400 for PTCS Duct Sealing in electrically-heated manufactured homes for all climate zones.

An additional \$50 reimbursement is available if this measure is claimed in combination with PTCS Commissioning and Controls (within same reporting period).

PTCS Duct Sealing in Existing Single Family Homes

Requirements and Specifications

- Duct system must be tested and certified as a PTCS Duct System, by a PTCS certified technician.
- All electrically-heated existing single family homes qualify for this measure if PTCS duct testing indicates that duct sealing is required to meet the PTCS specifications. Pre-existing duct leakage to the outside must be greater than 250 CFM50 or 15 percent of the floor area, whichever is less.

Additional Documentation Requirements

- PTCS duct sealing form – “the certificate”
- Proof that the PTCS form, for job being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the job must be labeled “Accepted” in the PTCS Registry.
- Vendor invoices

Reimbursement Strategies and Levels

BPA shall reimburse \$500 for PTCS Duct Sealing in electrically-heated existing single family homes for all climate zones.

An additional \$50 reimbursement is available if this measure is claimed in combination with PTCS Commissioning and Controls (within same reporting period).

PTCS Duct Sealing Single Family New Construction

Requirements and Specifications

Duct system must be tested and certified as a PTCS Duct System by a PTCS certified technician.

Additional Documentation Requirements

- PTCS duct sealing form – “the certificate”

- Proof that the PTCS form, for job being claimed, has been submitted to and entered into the PTCS Registry of certified units as found at www.ptcsnw.com. In addition, the job must be labeled "Accepted" in the PTCS Registry.
- Vendor invoices

Reimbursement Strategies and Levels

BPA shall reimburse \$400 for PTCS Duct Sealing in electrically-heated single family new construction for all climate zones.

An additional \$50 reimbursement is available if this measure is claimed in combination with PTCS Commissioning and Controls (within same reporting period).

Lighting

ENERGY STAR compact fluorescent lamps/light bulbs (CFLs) and ENERGY STAR lighting fixtures provide cost-effective energy efficiency opportunities for BPA customers.

CFL measures included in this section must be installed in a residential setting. CFLs may be claimed under one measure only (e.g., CFLs in ENERGY STAR fixtures cannot be claimed as Documented Direct-installed CFLs if the ENERGY STAR fixture was already claimed under that measure.)

Specialty CFLs represent a significant energy savings opportunity, and end users are showing an increased demand to purchase them. In response, BPA has added measures with a higher reimbursement to support specialty CFLs.

Specialty CFLs are defined as screw-in CFLs including the following: A-lamps, candelabras, G-lamps (globe), reflectors, torpedoes, dimmables, three-way bulbs and twisters greater than 25 Watts. On April 1, 2010 the definition will be revised to indicate that specialty CFLs are defined to include the following screw-base bulbs: candelabras, G-lamps (globe), R-lamps and PAR-lamps (reflectors), torpedoes, dimmable and three way.

Note: Change-a-light (CAL) bulbs and CFLs acquired through a retail markdown are not eligible for the higher specialty CFL reimbursement. Retail markdown CFLs must be recorded in the PTR system under the reference numbers labeled CFL retail markdown (twister or specialty).

For hard-to-reach or special opportunity segments, BPA may pay a higher reimbursement rate, but customers must submit a written request to BPA and have that request approved prior to the start of the activity. The written request must include (1) a project description, (2) budget and (3) expected results that (a) reach a customer segment otherwise considered a lost opportunity and (b) leverage additional expenses and in-kind resources. Once approved, the hard-to-reach or special opportunity activity needs no further approval by BPA, provided there is no change in the methodology deployed. Changes to the hard-to-reach or special opportunity segments must be approved by BPA prior to the start date of that activity.

This section covers the following:

- ENERGY STAR CFLs – Retail markdown (standard twister)
- ENERGY STAR CFLs - Retail markdown (specialty)
- ENERGY STAR CFLs – Direct-mail (standard twister)
- ENERGY STAR CFLs - Direct-mail (specialty)
- ENERGY STAR CFLs – (standard twister)
- ENERGY STAR CFLs - (specialty)
- ENERGY STAR CFLs – Documented Direct-installed CFLs- (twister)
- ENERGY STAR CFLs – Documented Direct-installed CFLs- (specialty)
- ENERGY STAR Light fixtures

A summary of CFL measures, reimbursement and corresponding PTR system reference numbers is included in the table below.

Note that on April 1, 2010, BPA will (1) reduce savings attribution (and may reduce the reimbursement and/or impose a per household limit) for Direct-mail CFLs and (2) reduce the savings attribution and reimbursement for CFLs acquired via customer or BPA sponsored retail markdowns to reflect changes anticipated in the Council's Sixth Power Plan.

Summary of CFL Measures

CFL Measure	Application	Details	Credit	PTR Ref. No.
CFL- Retail markdown (twister)	Retail markdown (includes CAL* bulbs)	Must be more than 5 watts.	\$2.50	See PTR system.
CFL- Retail markdown (specialty)**	Retail markdown (includes CAL* bulbs)	Must meet specialty bulb definition	\$2.50	See PTR system.
CFL- Direct-mail (twister)	Direct-mail twisters	Must be more than 5 watts.	\$2.50	See PTR system.
CFL - Direct-mail (specialty)**	Direct-mail specialty	Must meet specialty bulb definition	\$4.00	See PTR system.
CFL- (twister)	Standard twister, other distribution methods	Must be more than 5 watts.	\$2.50	RLI00112
CFL - (specialty)**	Specialty bulbs, other distribution methods	Must meet specialty bulb definition	\$4.00	RLI00125
Documented Direct Installed CFL - (twister)	Any CFL - twister/spiral with documented installation	Installation witnessed by customer or customer's agent. Documentation requirements per Implementation Manual.	\$4.00	RLI00124
Documented Direct Installed CFL - (specialty)	Any CFL-specialty bulb with documented installation	Installation witnessed by customer or customer's agent. Documentation requirements per Implementation Manual.	\$5.50	RLI00123
Special or Hard-to-reach Opportunities - (twister)	Twister CFL distributed by customer via special events/activities	Requires advance approval by BPA	\$4.00	RLI00120
Special or Hard-to-reach opportunities - (specialty)	Specialty CFL distributed by customer via special events/activities.	Requires advance approval by BPA	\$5.50	RLI00126

*CAL refers to bulbs acquired through the BPA Change-A-Light Specialty CFL promotion.

**Specialty CFLs, as defined in the Manual.

ENERGY STAR CFLs – Standard Twister

Requirements and Specifications

Each installed CFL must be ENERGY STAR-rated and wattage must be more than five watts.

Additional Documentation Requirements

- Vendor invoice with the number, type and wattage of bulbs purchased
- The number of bulbs distributed (e.g., given out at an event, coupon program, retail markdown program, direct mail)
- Alternate method of distribution (e.g., high bill complaints, over-the-counter)

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$2.50 per CFL.

ENERGY STAR CFLs – Specialty bulbs

Requirements and Specifications

Each installed CFL must be ENERGY STAR-rated. Specialty CFLs are defined as screw-in CFLs including: A-lamps, candelabras, G-lamps (globe), reflectors, torpedoes, dimmables, three-way bulbs and twisters greater than 25 watts.

Additional Documentation Requirements

- Vendor invoice with the number, type and wattage of bulbs purchased
- The number of bulbs distributed (e.g., given out at an event, direct mail)
- Alternate method of distribution (e.g., high bill complaints, over-the-counter)

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$4.00 per CFL.

ENERGY STAR CFLs – Documented Direct-installed CFLs - Twisters

Requirements and Specifications

Each installed CFL must be ENERGY STAR-rated and wattage must be more than five watts.

Direct-installed is defined as bulbs that are visually confirmed as installed in sockets in residences within the customer's service territory. This requires that bulbs are either physically installed or witnessed at the time of installation by a customer program employee or an agent/contractor acting under a signed agreement for the customer; or documented with a visual inspection by the customer or its agent after installation.

Note: ENERGY STAR New Homes (electric) may qualify for this measure for lighting measures installed above the ENERGY STAR Homes requirement. ENERGY STAR New Homes (gas) may utilize this measure if they meet the documentation requirements included below.

Additional Documentation Requirements

- Vendor invoice with the number, type and wattage of bulbs purchased
- Manufacturer and documentation that CFL is ENERGY STAR qualified
- Documentation of direct-installation including the following: residential address; type, wattage and number of bulbs installed; and name/agent responsible for installing bulbs or inspection

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$4.00 per CFL for qualified ENERGY STAR Direct-Installed CFLs-Twister.

ENERGY STAR CFLs – Documented Direct-Installed CFLs - Specialty

Requirements and Specifications

Each installed CFL must be ENERGY STAR-rated and meet the definition of Specialty CFL.

Specialty CFLs are defined as screw-in CFLs including: A-lamps, candelabras, G-lamps (globe), reflectors, torpedoes, dimmables, three-way bulbs and twisters greater than 25 watts.

Direct-installed is defined as bulbs that are visually confirmed as installed in sockets in residences within the customer's service territory. This requires that bulbs are either (1) physically installed or witnessed at the time of installation by a customer program employee or an agent/contractor acting under a signed agreement for the customer or (2) documented with a visual inspection by the customer or its agent after installation.

Note: ENERGY STAR New Homes (electric) may qualify for this measure for lighting measures installed above the ENERGY STAR Homes requirement. ENERGY STAR New Homes (gas) may utilize this measure if they meet the documentation requirements included below.

Additional Documentation Requirements

- Vendor invoice with the number, type and wattage of bulbs purchased
- Manufacturer and documentation that CFL is ENERGY STAR qualified
- Documentation of direct-installation including the following: residential address; type, wattage, and number of bulbs installed; and name/agent responsible for installing bulbs or inspection

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$5.50 per CFL for qualified ENERGY STAR Direct-Installed CFLs-Specialty.

ENERGY STAR Lighting Fixtures

Requirements and Specifications

Lighting fixture must be ENERGY STAR qualified.

Additional Documentation Requirements

- Copy of purchase receipt/invoice
- Manufacturer
- Model number or other documentation that the fixture is an ENERGY STAR qualified lighting fixture.

Individual lighting fixture incentive applications (end user with incentive form or coupon): To reduce the need to look up every fixture on the ENERGY STAR Web site, a customer may also meet this requirement by having end users

submit the ENERGY STAR logo from the lighting fixture box, or product information insert that includes the ENERGY STAR logo. Submissions without this documentation still need to be confirmed using the ENERGY STAR product list available at www.ENERGYSTAR.gov.

Customers may elect to provide a coupon to their end users to assist in the documentation process. Sales of qualified fixtures using the customer-supplied coupon may be documented by having the participating store provide a store sales report detailing the manufacturer, model number and date of each sale generated by the coupon. These reports will be considered the purchase receipt/invoice and must be maintained on file at the customer's place of business.

In-store markdown of qualified ENERGY STAR lighting fixtures: Fixtures to be included in an in-store markdown or promotion must be confirmed, in advance, as ENERGY STAR qualified. Sales of qualified fixtures via a markdown promotion must be documented by having the participating store(s) provide a store sales report detailing the manufacturer, model number and date of each sale generated by the promotion. These store sales reports will be considered the purchase receipt/invoice and must be maintained on file at the customer's place of business.

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$10 per fixture for ENERGY STAR qualified lighting fixtures.

Line-Voltage Thermostats

Requirements and Specifications

This measure applies to replacement of bi-metal line voltage thermostats in existing single family homes with line-voltage electronic thermostats. All existing thermostats, except those in bathrooms, must be replaced with thermostats in accordance with the most recent version of the "Electronic Thermostat Specifications," which are available in the PTR system.

Additional Documentation Requirements

- Statement noting that all thermostats (except those located in bathrooms) have been replaced
- Invoice for thermostats
- Model number(s) of thermostat(s)

Reimbursement Strategies and Levels

BPA shall provide reimbursements per home as listed in the table below.

Reimbursements for Line Voltage Electronic Thermostats per Home

HZ 1	\$115
HZ 2	\$160
HZ 3	\$160

New Construction

New ENERGY STAR Manufactured Homes

Requirements and Specifications

BPA shall reimburse customers for energy-efficient upgrades to new electrically-heated manufactured homes on the condition that residences have been designed, constructed and certified by the Northwest Energy Efficient Manufactured (NEEM) Homes program as ENERGY STAR, including Eco-Rated Homes.

NEEM has an online tracking and certification system. Contact the NEEM Regional Program Lead at (503) 373-7875 for access to this online tracking system.

For questions about your state's NEEM program contact NEEM program staff:

Washington: Andy Gordon (360) 956-2046

Idaho: Tim O'Leary (208) 287-4902

Montana: Paul Tschida (406) 841-5232

Oregon: Tom Hewes (503) 373-7875 or 800-221-8035 (toll-free within Oregon)

Other deemed measures eligible to be added to ENERGY STAR manufactured homes include the following:

- PTCS Air-Source Heat Pumps Conversion measure (bundled)
- PTCS Air-Source Heat Pump Upgrade measure (bundled)
- PTCS Commissioning and Controls on a code minimum air source heat pump
- PTCS Duct Sealing, if pretest demonstrates ducts need sealing
- ENERGY STAR lighting fixtures or CFLs
- ENERGY STAR clothes washers, ENERGY STAR freezers and ENERGY STAR refrigerators

Additional Documentation Requirements

- Installation address
- Copy of Certificate of Compliance

Reimbursement Strategies and Levels

BPA shall provide a reimbursement as shown in the table below.

Reimbursements for ENERGY STAR Manufactured Homes

HZ 1	\$ 850
HZ 2	\$1,150
HZ 3	\$1,450

New ENERGY STAR Site-Built Homes

Requirements and Specifications

BPA shall accept claims for new electrically-heated homes certified to be in compliance with the ENERGY STAR Homes Northwest standards by the state certifying organization. Information regarding the ENERGY STAR Homes Northwest Program is available at www.northwestenergystar.com.

Gas-heated ENERGY STAR homes do not qualify for BPA reimbursements under New Construction, however, reimbursements for electric appliances and lighting may be claimed in gas heated homes.

BPA shall accept claims for homes built to ENERGY STAR Homes Northwest standards:

- Builder Option Package (BOP) #1 if a heat pump is installed or for
- Builder Option Package (BOP) #2 (zonal electric heat)

BPA shall accept claims for homes built to ENERGY STAR Homes Northwest standards using one of several approved technical compliance options. The qualifying and non-qualifying Technical Compliance Options (TCOs) are listed in the table below. More information is available at the ENERGY STAR Homes Northwest Web site found at www.northwestenergystar.com/partner-resources/index.html

ENERGY STAR Homes Northwest Technical Compliance Options

Technical Compliance Option	Option Type & BPA Credit Qualification	Does Not Qualify for BPA Credit	General Description
TCO #1: Perimeter Insulated Crawlspace	Component Trade-Off Qualifies for BPA credit if heat pump is installed in home east of the Cascades.		Perimeter insulated crawlspaces are specified with a package of measures as an option (in selected climate zones) to the BOP insulated floor.
TCO #2	No longer available	No longer available	
TCO #3: Advanced Lighting Package	Component Trade-Off Qualifies for BPA credit in home with heat pump or zonal electric heat.		EPA's Advanced Lighting Package using efficient fixtures in targeted locations is an option to the BOP requirement (50 percent of sockets).
TCO #4: Natural Gas Fired Hydronic Heating		Component Trade-Off does not qualify for BPA credit.	Alternative heating system source and distribution measures using natural gas fired boilers or integrated water heating systems
TCO #5: Electric Fired Hydronic Heating	Component Trade-Off Qualifies for BPA credit as zonal electric heat		Alternative heating system source and distribution measures using electric fired boilers or integrated water heating systems

Technical Compliance Option	Option Type & BPA Credit Qualification	Does Not Qualify for BPA Credit	General Description
TCO #6: U-Value Equivalency NWBOP 1	Component Trade-Off Qualifies for BPA credit if electric energy savings are maintained or improved via component substitutions.		Spreadsheet driven Ua/Uo calculator with component library and prototype weightings - allows SCOs (only) to review proposed measure trade-offs and approve "equivalent" component substitutions within BOP 1
TCO #7: U-Value Equivalency NWBOP 2	Component Trade-Off Qualifies for BPA credit if electric energy savings are maintained or improved via component substitutions.		Spreadsheet driven Ua/Uo calculator with component library and prototype weightings -allows SCOs (only) to review proposed measure trade-offs and approve "equivalent" component substitutions within BOP 2
TCO #8: Improved Ua for DHW EF		Component Trade-Off does not qualify for BPA credit.	Substitutes improved Ua features (R-49 adv. attics <u>and</u> R-21 adv. wall) for reduced gas water heater efficiency
TCO #9: 0.74 AFUE gas fireplace with electric zonal back up		Component Trade-Off does not qualify for BPA credit.	Allows a gas unit heater (ductless) such as a fireplace in combination with electric resistance zonal (ductless) as the heating source within a BOP 1 home
TCO #10: Ductless heat pump with electric zonal back up	Component Trade-Off Qualifies for BPA credit as heat pump with ducts inside.		Allows a DHP in combination with electric resistance zonal heating source within a BOP 1 home
TCO #11: 90 AFUE propane furnace substitute for 80 AFUE		Component Trade-Off does not qualify for BPA credit.	Substitute a 90 AFUE propane furnace for a 90 AFUE gas furnace. This substitution will allow the home to qualify if all other components of the home meet the BOP 1 requirements. Propane water heater may also be substituted for gas at the required efficiency levels.
TCO #12: HSPF 8.3 heat pump coupled to a 90 AFUE gas furnace		Component Trade-Off does not qualify for BPA credit, electric energy savings not maintained.	Allow a HSPF 8.3 heat pump when coupled to a 90 AFUE gas furnace backup that provides all heating at temperatures below 40 degrees F as a trade-off option in BOP 1.
TCO #13: Cathedral Attic	Additional BOP Qualifies for BPA credit if heat pump is installed.		This TCO only applies to ENERGY STAR homes in Montana or Idaho. Attic ceiling shall be insulated with R-33 foam applied in place. All other BOP 1 requirements still apply.
TCO # 14:	Additional BOP		Fifty percent CFL sockets are not

Technical Compliance Option	Option Type & BPA Credit Qualification	Does Not Qualify for BPA Credit	General Description
Lighting Power Density/Watts per square feet	Qualifies for BPA credit a heat pump or zonal electric heat.		required to qualify lighting if homes lighting requirements are met w/ 1.1 watts per square feet or less. Lighting spreadsheet required.
TCO # 15: Conditioned Crawlspace	Additional BOP Qualifies for BPA credit if heat pump is installed.		This TCO only applies to ENERGY STAR homes built east of the Cascades. Crawlspace is sealed and insulated using perimeter insulation in place of floor insulation. Wall and ceiling insulation improvements are required.
TCO # 16	NWBOP #2, Compliance Option		Increase envelope insulation values and install a simple, point source, energy recovery ventilator in place of a central ventilation system.
TCO # 17	Additional BOP, applies to NWBOP#2 for homes with zonal electric heat.		Increase envelope insulation values, improve window performance and install a bathroom exhaust fan with timer in place of place of a central ventilation system with heat recovery.

Deemed measures eligible to be added to an ENERGY STAR site-built home include the following:

- ENERGY STAR lighting measures above what the ENERGY STAR homes measure requires
- ENERGY STAR clothes washers, ENERGY STAR refrigerators, ENERGY STAR freezers
- Gravity film heat exchangers (GFX)

Additional Documentation Requirements

- Installation address
- Copy of the certification label provided by the state certifying organization which includes the name of the certifier for each ENERGY STAR home

Reimbursement Strategies and Levels

New electrically-heated ENERGY STAR site-built homes are cost-effective in all climate zones with air source heat pumps or zonal electric systems. BPA shall provide reimbursements as shown in the tables below.

ENERGY STAR Site-Built Homes Reimbursements for Homes built to BOP #1, with a Heat Pump or an Approved TCO

Heating/ Cooling Zone	Ducts Outside where Duct Sealing is required (i.e., outside the heat envelope, such as an unheated crawlspace or attic)	Ducts Inside where Duct Sealing is not required (i.e., homes with a basement)
HZ1/CZ1	\$1,140	\$ 600
HZ1/CZ2	\$1,180	\$ 600
HZ1/CZ3	\$1,250	\$ 600
HZ2/CZ1	\$1,800	\$ 850
HZ2/CZ2	\$2,000	\$ 850
HZ2/CZ3	\$2,100	\$ 850
HZ3/CZ1	\$2,600	\$1,020
HZ3/CZ2	\$2,700	\$1,020
HZ3/CZ3	\$2,800	\$1,020

ENERGY STAR Site-Built Homes Reimbursements for Homes built to BOP #2, with Zonal Electric Heat

HZ1	\$1,170
HZ2	\$1,400
HZ3	\$1,600

New Homes Built to the Montana House Specifications

Requirements and Specifications

BPA shall accept claims for new electrically-heated homes certified to be in compliance with the Montana House Specifications by the customer. The Montana House Specifications can be found in the PTR system. Currently this measure is eligible only for homes built in Montana.

Deemed measures eligible to be added to a Montana House site-built home include the following:

- ENERGY STAR lighting measures above what the Montana House specifications requires
- ENERGY STAR clothes washers, ENERGY STAR refrigerators, ENERGY STAR freezers
- Gravity film heat exchangers (GFX)

Additional Documentation Requirements

- Builder information (name and contact information).

- House information (including):
 - Installation address
 - Foundation type
 - Square footage of home
 - Heating system equipment type (zonal, FAF, HP)
 - Type of ventilation system installed including rated CFM, etc.
 - Reports of inspections performed by the customer, including any substantial findings and documentation of any corrective actions taken

Air Source Heat Pumps shall meet all PTCS documentation requirements.

Reimbursement Strategies and Levels

BPA shall provide reimbursement for the Montana House as indicated below. Heat Pump, Duct Sealing and Commissioning & Control reimbursements can be combined with the Shell Upgrade reimbursement.

Measure	Proposed Credit
Shell Upgrades Only	\$1,500
Air Source Heat Pump	\$300
Duct Sealing (prescriptive)	\$300
Commissioning & Controls (customer verified)	\$200

Summary of Montana House New Construction - Prescriptive Component Requirements

Insulation			
Ceiling		R-49 Adv.	Flat or vaulted.
Wall (above grade)		R-21 Int. + R-5 foam	
Floors over Unconditioned Space		R-38	Insulation in floor joist cavity.
Slab Floors	Unheated	R-10 Full Slab + R-5 Thermal Break	Applies to all concrete slab floors above or below grade. Minimum R-5 thermal break required between slab edge and all walls and footings.
	Heated Radiant	R-15 Perimeter, R-10 Remaining Slab + R-5 Thermal Break	Applies to all concrete slab floors above or below grade. Perimeter insulation shall be installed for a distance of 4 feet vertical, horizontal, or combined distance. Minimum R-5 thermal break required between slab edge and all walls and footings.
Basement Wall		R-21	Below grade walls can extend up to 24 inches above grade.
Sealed Crawlspace Wall		R-21	The crawlspace wall shall be sealed and mechanical ventilation shall be provided. Sealed crawlspaces shall be considered conditioned space.
Windows & Doors			
Glazing	Windows	$\leq U-0.32$	NFRC rated: Up to 1% of heated floor area exempt.
	Skylights	$\leq U-0.50$	Skylight area shall not exceed 5% of heated floor area.
	Max. Glazing Area	21% of Heated Floor Area	Combined window and skylight area.
Exterior Doors		$\leq U-0.16$	One door up to 28 ft ² exempt.
Ducts in Unconditioned Space			
Insulation	Rigid	R-11	
	Flexible	R-8	
Sealing		Mastic	Cloth duct tapes not allowed.
Max. Leakage		Not tested	
Ventilation & Air Sealing			
Ventilation System		Whole-House	Mechanical ventilation system required.
Envelope Tightness		6.0 ACH @ 50Pa	Customer to test 10% of homes
Heating & Cooling Equipment			
Heat Pump		8.5 HSPF/SEER 13	Installed according to Montana House New Construction specifications for sizing and controls.
Air Conditioner		SEER 13	
Zonal Electric			Electronic thermostat required.
Forced Air Electric			ENERGY STAR programmable thermostat required.
Water Heating			
Electric Water Heaters	≤ 39 gallons		Energy Factor ≥ 0.96
	40 to 49 gallons		Energy Factor ≥ 0.94
	50 to 64 gallons		Energy Factor ≥ 0.93
	≥ 65 gallons		Energy Factor ≥ 0.91
Appliances & Lighting			
Appliances		ENERGY STAR qualified	Applies to built-in appliances only.
Lighting		ENERGY STAR qualified	A minimum of 50% of sockets to be either ENERGY STAR bulbs, fixtures, or both.

New Multifamily Construction

Requirements and Specifications

New multifamily construction of five or more units and three stories or less can be made more efficient than code or standard practice per the latest version of the RTF "Multifamily New Construction Low Rise Technical Specifications" (available in the PTR system). Deemed measures eligible to be added to multifamily homes include: ENERGY STAR lighting measures, ENERGY STAR clothes washers, ENERGY STAR refrigerators, ENERGY STAR freezers, ENERGY STAR dishwashers and cost-effective gravity film heat exchangers (GFX).

Projects not meeting the prescriptive specifications that qualify as being above code or standard practice efficiency must be reviewed and approved by BPA as custom projects. The amount and type of measurement and verification (M&V) required will be determined by the BPA reviewing engineer but is not expected to be complex.

Multifamily housing above three stories is considered commercial construction and must be submitted for new construction incentives and BPA pre-approval under the commercial sector. The table below summarizes the required prescriptive path for compliance with the multifamily New Construction Low Rise Specifications.

Multifamily New Construction Specifications – Summary 1

Component		Zone 1 (<6,000 HDD)	Zone 2 (6,000-7,500 HDD)	Zone 3 (>7,500 HDD)
Ceilings ²	Attic	R-38 Std.	R-38 Std.	R-38 Std.
	Vaults	R-30	R-30	R-30
Walls ²	Above Grade	R-21, Inter.	R-21, Inter.	R-21, Inter.
	Below Grade Inter. w/R-5 thermal break ⁴	R-21	R-21	R-21
Floors	Over Crawlspace and Unheated Basements	R-30	R-30	R-30
	Slab-on-Grade Perimeter	R-15	R-15	R-15
Glazing ³	Maximum NFRC rated U-value	U-0.30	U-0.30	U-0.30
Exterior Doors		U-0.19	U-0.19	U-0.19
Duct Insulation	Rigid	R-11	R-11	R-11
	Flexible	R-8	R-8	R-8
Water Heaters		See Specification		
Mechanical ventilation and pollutant source control in all climate zones.				

¹ This table presents a summary of the requirements - the RTF's multifamily New Construction Specifications shall be followed.

² Inter. indicates intermediate framing techniques

³ An area weighted U-factor for windows which meets the component requirement of this table is acceptable.

⁴ A thermal break having a minimum value of R-5 is required between slab floors and all walls and footings.

Additional Documentation Requirements

- Installation address

- Copy of the certification label provided by the state certifying organization which includes the name of the certifier

Reimbursement Strategies and Levels

Projects meeting the latest version of the RTF “Multifamily New Construction Low Rise Technical Specifications” (available in the PTR system) will be reimbursed on a per unit basis as outlined in the table below.

Reimbursements for Multifamily New Construction

HZ 1	\$80 per unit
HZ 2	\$115 per unit
HZ 3	\$140 per unit

Showerheads (2.0 GPM)

Requirements and Specifications

This measure is available for all types of residential buildings (multifamily, single family and manufactured homes). The hot water in the house must be heated by an electric water heater. Showerheads must adhere to the requirements stated in the PTR system.

Additional Documentation Requirements

The customer must provide proof of end user request for the showerhead, or documentation of directly-installed showerhead.

Reimbursement Strategies and Levels

BPA shall provide reimbursements of \$12 per showerhead, with a limit of two showerheads per residence.

Showerheads (2.5 GPM) and Aerators for Multifamily

Requirements and Specifications

This measure is only available for multifamily residential buildings. The hot water in the house must be heated by an electric water heater. The pre-existing showerhead(s) must have a tested flow rate of at least 3.0 gallons per minute (gpm). The replacement showerhead(s) must have a tested flow rate of 2.5 gpm or less. Showerheads must be installed by customer staff or a customer contractor.

Additional Documentation Requirements

No additional requirements.

Reimbursement Strategies and Levels

BPA shall provide reimbursements of \$12 per multifamily living unit with electrically-heated water if all showerheads and at least the kitchen faucet have low-flow showerheads and aerators installed. On April 1, 2010, BPA will discontinue reimbursement.

Weatherization (standard income)

Weatherization measures include insulation, windows and air sealing.

BPA shall accept claims for weatherization of existing single family, multifamily and manufactured homes only on the condition that these residences have been retrofitted in compliance with the most recent site-built weatherization specifications or mobile home weatherization specifications, available in the PTR system, under Downloads.

Insulation

Requirements and Specifications

Insulation measures must follow the latest version of the "Weatherization Specifications" found in the PTR system. Insulation for specific types of residences is discussed below.

Insulation – Single Family

Most insulation measures are cost-effective in all heating and cooling zone combinations. Single family measures and pre-condition requirements are listed below. Single family is defined as four units or less.

Attic Insulation (Single Family)

Existing is	---	Installed will be
less than R-11	---	R-19, R-38 or R-49
R-11 to R-19	---	R-38 or R-49
R-19 to R-38 (*HZ3)	---	R-49

Wall Insulation (Single Family)

Existing is	---	Installed will be
none present	---	Closed cavity- R-11 or fill cavity
none present	---	Open cavity – R-15

Floor Insulation (Single Family)

Existing is	---	Installed will be
less than R-11	---	R-19 or R-30
R-11 to R-19	---	R-30

Insulation – Multifamily

Multifamily (low rise) is defined as more than four units, less than four stories. Multifamily buildings more than three stories high are commercial construction.

Attic Insulation (Multifamily)

Existing is	---	Installed will be
less than R-11	---	R-19 or R-38
R-11 to R-19	---	R-38

Wall Insulation (Multifamily)

Existing is	---	Installed will be
none present	---	Closed cavity- R-11 or fill cavity
none present	---	Open cavity – R-15

Floor Insulation (Multifamily)

Existing is	---	Installed will be
less than R-11	---	R-19 or R-30
R-11 to R-19	---	R-30

Insulation – Manufactured Homes

Attic Insulation (Manufactured Homes)

Existing is	---	Installed will be
less than R-11	---	R-19
less than R-11*	---	*R-30
R11 to R-19**	---	**R-30
<small>*This measure is not cost-effective in Heating Zone 1: therefore, no credit available for this zone.</small>		
<small>**This measure is not cost-effective in Heating Zones 1 & 2; therefore, no credit is available for these zones.</small>		

Floor Insulation (Manufactured Homes)

Existing is	---	Installed will be
less than R-11	---	R-11

Additional Documentation Requirements

- Installation address
- Audit or field notes detailing pre- and post conditions
- Invoices for measures installed
- Documentation of square feet of insulation and R-value of insulation

Reimbursement Strategies and Levels

Reimbursements and busbar energy savings for specific measures can be found in the PTR system.

Reimbursement is based on square footage of insulation installed.

Prime Window Replacement

Requirements and Specifications

Window measures must follow the latest version of the weatherization specifications found in the PTR system under Downloads.

Pre-existing windows must be single pane, single pane with storms, or double pane with metal frames.

The weighted average of replacement windows installed shall have a National Fenestration Rating Council (NFRC) rated u-value of 0.30 or lower. All patio doors shall have a NFRC rated u-value of 0.35 or lower.

Additional Documentation Requirements

- Installation address
- Audit or field notes detailing pre- and post conditions
- Invoices for windows installed
- Documentation of total square footage of windows replaced, documentation of U-factor (NFRC stickers or other verification of U-factor)

Reimbursement Strategies and Levels

BPA shall provide a reimbursement of \$6 per square foot of glazing area of qualified windows replaced.

The BPA credit for this measure is based on the incremental improvement in performance from the pre-existing window to an ENERGY STAR window with a U-factor of 0.30 or less.

Air Sealing

Requirements and Specifications

- Air-sealing measures must follow the latest version of the "Air Sealing" specifications found in the PTR system.
- If combustion appliances are present (fireplace, wood or gas stove, gas range, gas water heater, etc.) a UL or CUL approved carbon monoxide detector must be installed.
- Mechanical Ventilation may be required. See section two of the Air Sealing specifications found in the PTR system.
- If PTCS Duct Sealing is performed at the same time as the air sealing measure, the PTCS Total Leakage to Outside Post test will be the baseline for the air sealing measure.

Additional Documentation Requirements

- Invoice for measures installed, with installation address
- Audit or field notes detailing
 - Pre- and post-conditions (ACH @ 50 and ACH @ natural)

- Total square footage of the pressure zone being tested and sealed (typically this is the interior floor area of the home)
- Building Volume
- Final ACH natural and notes on mechanical ventilation requirement

Reimbursement Strategies and Levels

BPA shall provide reimbursements based on the total square floor area of the pressure zone being tested and sealed times the reduction in air infiltration per 0.1 ACH natural. Reimbursements and busbar energy savings can be found in the PTR system. The calculation of reimbursement is:

$$\text{Square feet} \times (\text{ACH natural} / .1) \times \text{credit}$$

This calculation is performed in the Add to Cart page in the PTR system.

Note: Converting CFM50 to ACH natural.

Building Volume (BV) = Area treated in square feet X Ceiling height

ACH50 = (CFM50 X 60)/BV

ACH natural = ACH50/20

Total Credit = ((Pre ACH natural minus Post ACH natural) divided by 0.1) times credit in PTR system.

Low-income Weatherization

Low-income weatherization measures include air sealing, insulation, PTCS Duct Sealing and windows.

Because customers that provide funding for low-income programs to Low-income Weatherization Service Providers (LIWSP) must ensure the measures are cost-effective and qualifying, BPA has attached a simple list of the measures that are qualifying.

Customers can provide funds to state/LIWSP/tribal organizations and receive credit on a dollar-for-dollar basis, with the exception of low-income prime window replacements in which the reimbursement is up to \$20 per square foot not to exceed 100 percent of the actual cost.

Under a separate BPA program, BPA shall directly fund low-income weatherization through the existing state/LIWSP/tribal infrastructure at a level of up to \$5 million per year for the FY 2007 to 2009 Rate Period.

Requirements and Specifications

CRC funds can only be used to install eligible measures, in electrically-heated homes in the customer's service territory. Eligible measures are those that the RTF has defined as Total Resource Cost (TRC) cost-effective that are also

approved by BPA. The CRC has a defined list of eligible measures that might be different than the list of eligible measures defined by the U.S. Department of Energy's Savings to Investment Ratio (SIR) method.

Customers can run their own low-income weatherization program and will be credited on the same dollar-for-dollar basis as funding provided to LIWSPs. Customers choosing to run their own low-income weatherization program must be in substantial compliance with programs currently funded by BPA grants for the U.S. Department of Energy Low-income Weatherization Program.

The following conditions apply to all low-income weatherization programs:

- Customers must have a written agreement with the LIWSP outlining terms and conditions and reporting requirements.
- CRC funds may be used to do repair work directly associated with installation of cost-effective weatherization measures.
- CRC funds and BPA funds provided to state/LIWSP/tribal organizations cannot be co-mingled for the same measure.
- Low-income activity qualifies for the performance payment, regardless of whether a customer provides funds to a LIWSP or runs its own program.
- Eligible measures must be reported in the PTR system. The customer is required to enter the square footage data on a measure basis. Data on a house-by-house basis is not required in the PTR system; however, house-by-house data must be maintained in customer records.
- Oversight:
 - Customers need to provide an appropriate level of oversight to ensure that CRC funds provided to LIWSPs are used only to install eligible measures.
 - Customers and LIWSPs must expect the same level of oversight and diligence from BPA on low-income weatherization claims as they would expect for other reported activity in the CRC.

Additional Documentation Requirements

- Low-income activity qualifies for the performance payment, regardless of whether a customer provides funds to a LIWSP or runs its own program.
- Documentation detailing cost of installed measures
- Documentation of the weatherization measures installed (e.g., square feet of insulation, r-value, U-value, National Fenestration Rating Council sticker)

Reimbursement Strategies and Levels

BPA offers a dollar-per-dollar reimbursement for cost-effective retrofit air sealing, insulation and duct sealing measures that are on the RTF list. Deemed energy savings and reimbursement levels for the measures are listed in the "Low-income Weatherization List" table below and are provided in the PTR system.

BPA also offers a dollar-per-dollar reimbursement for qualifying cost-effective low-income prime window replacement not to exceed 100 percent of actual cost or \$20 per square foot of glazing replaced, whichever is less. Eligible window conditions and deemed energy savings and reimbursement levels for qualifying windows are outlined in the tables below and provided in the PTR system.

All costs directly attributable to the installation of the measure are eligible for dollar-for-dollar reimbursement. This includes costs associated with low-income weatherization projects necessary to protect the integrity of the measure including, but not limited to, the following:

- Manufactured Home EPDM roofing membrane over rigid insulation
- Attic and crawl space ventilation
- Under-floor moisture barrier
- Insulation of exposed water lines

Low-income Weatherization List

BPA designates measures eligible under the Low-income Weatherization provisions of the Conservation Rate Credit \$ for \$ credit. Customers are also directed to inform the state/CAP agencies/tribal organizations that receive CRC funds, that CRC funds can only be spent on measures that are listed as qualifying measures.	
Shaded Measures Do Not Qualify for Low-income Weatherization Measure Credit.	
Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
Single Family Wx (All Heating Zones)	
Single Family Weatherization - Infiltration Control (Cost and energy savings per square feet of floor area for each 0.1 ach reduction)	Qualifies
Single Family Weatherization - R0 to R19 Attic Insulation (Cost and energy savings are per square feet of attic area insulated)	Qualifies
Single Family Weatherization - R19 to R38 Attic Insulation (Cost and energy savings are per square feet of attic area insulated)	Qualifies
Single Family Weatherization - R38 to R49 Attic Insulation (HZ3 only)	Qualifies
Single Family Weatherization - R0 to R19 Floor Insulation (Cost and energy savings are per square feet of floor area insulated)	Qualifies
Single Family Weatherization - R19 to R30 Floor Insulation (Cost and energy savings are per square feet of floor area insulated)	Qualifies
Single Family Weatherization - R0 to R11 Wall Insulation (Cost and energy savings are per square feet of wall area insulated)	Qualifies
Multifamily Wx (All Heating Zones)	
Multifamily Weatherization - R0 - R19 Attic insulation (Cost & energy savings are per square foot of attic area insulated)	Qualifies
Multifamily Weatherization - R19 - R38 Attic insulation (Cost & energy savings are per square foot of attic area insulated)	Qualifies
Multifamily Weatherization - R0 - R19 Floor insulation (Cost & energy savings are per square foot of floor area insulated)	Qualifies
Multifamily Weatherization - R19 - R30 Floor insulation (Cost & energy savings are per square foot of floor area insulated)	Qualifies

Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
Multifamily Weatherization - R0 - R11 Wall Insulation (Cost & energy savings are per square foot of area insulated)	Qualifies
Multifamily Weatherization - Infiltration Control	Does Not Qualify
Manufactured Home Wx	
HZ1	
Manufactured Home Weatherization - Infiltration Control (Cost and energy savings are per square foot of floor area per 0.1 air change per hour infiltration rate reduction) - Heating Zone 1	Qualifies
Manufactured Home Weatherization - Attic Insulation R0 to R19 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 1	Qualifies
Manufactured Home Weatherization - Attic Insulation R19 to R30 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 1	Does Not Qualify
Manufactured Home Weatherization - Floor Insulation R0 to R11 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 1	Qualifies
Manufactured Home Weatherization - Floor Insulation R11 to R22 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 1	Does Not Qualify
HZ2	
Manufactured Home Weatherization - Infiltration Control (Cost and energy savings are per square foot of floor area per 0.1 air change per hour infiltration rate reduction) - Heating Zone 2	Qualifies
Manufactured Home Weatherization - Attic Insulation R0 to R19 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 2	Qualifies
Manufactured Home Weatherization - Attic Insulation R19 to R30 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 2	Does Not Qualify
Manufactured Home Weatherization - Floor Insulation R0 to R11 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 2	Qualifies
Manufactured Home Weatherization - Floor Insulation R11 to R22 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 2	Does Not Qualify
HZ3	

Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
Manufactured Home Weatherization - Infiltration Control (Cost and energy savings are per square foot of floor area per 0.1 air change per hour infiltration rate reduction) - Heating Zone 3	Qualifies
Manufactured Home Weatherization - Attic Insulation R0 to R19 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 3	Qualifies
Manufactured Home Weatherization - Attic Insulation R19 to R30 (Cost and energy savings are per square foot of attic insulated) - Heating Zone 3	Qualifies
Manufactured Home Weatherization - Floor Insulation R0 to R11 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 3	Qualifies
Manufactured Home Weatherization - Floor Insulation R11 to R22 (Cost and energy savings are per square foot of floor insulated) - Heating Zone 3	Qualifies
PTCS Duct Sealing	
Gas Heated Homes - Cooling Only (All Cooling Zones)	
Manufactured Home w/o Electric Heat, w/ CAC - PTCS Duct Sealing	Does Not Qualify
Manufactured Home Natural Choice, w/ CAC - PTCS Duct Sealing	Does Not Qualify
Single Family w/o Electric Heat w/ CAC - PTCS Duct Sealing	Does Not Qualify
Electrically Heated Homes (Single Family and Manufactured Homes)	
H1	
Manufactured Home Non-SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 1	Qualifies
Manufactured Home SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 1	Qualifies
Single Family Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 1	Qualifies
H1C1	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 1	Qualifies

Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
H1C2	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 2	Qualifies
H1C3	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 1 - Cool Zone 3	Qualifies
H2	
Manufactured Home Non-SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 2	Qualifies
Manufactured Home SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 2	Qualifies
Single Family Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 2	Qualifies
H2C1	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies

Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 1	Qualifies
H2C2	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 2	Qualifies
H2C3	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 2 - Cool Zone 3	Qualifies
H3	
Manufactured Home Non-SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 3	Qualifies
Manufactured Home SGC Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 3	Qualifies
Single Family Forced Air Furnace w/o CAC - PTCS Duct Sealing Heat Zone 3	Qualifies
H3C1	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies

Technology, Measure or Practice	"Qualifies" or "Does Not Qualify"
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 1	Qualifies
H3C2	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 2	Qualifies
H3C3	
Manufactured Home Non-SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies
Manufactured Home Non-SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies
Manufactured Home SGC Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies
Manufactured Home SGC Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies
Single Family Forced Air Furnace w/ CAC - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies
Single Family Heat Pump - PTCS Duct Sealing Heat Zone 3 - Cool Zone 3	Qualifies

Low-income Window Replacement

Requirements and Specifications

Window measures must follow the latest version of the weatherization specifications found in the PTR system under Downloads.

Pre-existing windows must be single pane, single pane with storms, or double pane with metal frames.

The weighted average of replacement windows installed shall have a National Fenestration Rating Council (NFRC) rated u-value of 0.30 or lower. All patio doors shall have a NFRC rated u-value of 0.35 or lower.

Additional Documentation Requirements

- Invoice, including installation address number of windows and total square footage replaced
- National Fenestration Rating Council sticker or equivalent
- Description of home (stick built or manufactured)
- Description of original window and frame type

Reimbursement Strategies and Levels

BPA offers a dollar-per-dollar reimbursement not to exceed \$20 per square foot of glazing area of qualified windows replaced. Reimbursements are available for single family, multifamily, and manufactured home applications.

Multi-Sector Opportunities

Additional Residential opportunities are available in the Multi-Sector chapter.

Please see the Multi-Sector chapter for information on the following:

- Processes
 1. Custom Projects
 2. Direct Acquisition
 3. Third Party Contributions
- Measures and Initiatives
 1. Small Compressed Air System

8. Multi-Sector

Please check the key changes summary on page i of this document to see if significant changes were made to any of the measures in this sector.

This section contains general information applicable across sectors, including both processes and measures and initiatives.

Processes	95
Custom Projects.....	95
Direct Acquisition	100
Third Party Contributions	102
Measures and Initiatives	104
Lighting	104
Green Motors	106
Small Compressed Air System	106

The Multi-Sector section includes processes, measures and initiatives that apply across two or more sectors.

The Multi-Sector section is separated into (1) processes and (2) measures and initiatives.

8.1 Processes

Custom Projects

Subject to acceptability of other requirements, BPA shall approve custom projects initiated prior to October 1, 2009, which are expected to have installation dates after September 30, 2009. In the event the CRC is not available, BPA shall provide reimbursement for those custom projects accepted by BPA prior to October 1, 2009, through the bilateral contract mechanism. The following criteria apply to the custom project process.

1. Unless otherwise stated herein, all measures or projects which do not have a BPA deemed reimbursement level, deemed energy savings, or for which cost-effectiveness has not been determined, must be submitted as custom project proposals and meet all of the custom project requirements.
2. BPA shall strive to provide the customer a written response within 10 working days of receiving a custom project proposal or a custom project completion report.
3. All measures presented for reimbursement must be installed in the Pacific Northwest, as defined by the Northwest Power Act, in service areas of participating customers.
4. Individual custom project proposals with TRC B/C ratio of less than 1.0 are eligible. BPA shall manage the B/C ratio at a program level¹³ and reserves the right to reject individual custom project proposals with B/C ratios of less than 1.0 to ensure the aggregate B/C ratio for all custom project proposals remains 1.0 or greater.
5. To ensure the aggregate Benefit/Cost (B/C) Ratio for all custom project proposals remains 1.0 or greater, BPA requires individual custom project proposals to have a B/C Ratio of at least 0.5.
6. If a custom project proposal has been approved by BPA and equipment has been ordered, purchased or installed, the reimbursement rate in place at the time the M&V Plan was approved will apply, and the custom project cannot be canceled and resubmitted under a higher reimbursement rate.

In order to receive reimbursement for a custom project, a customer must perform the following over the life of the project:

1. Submit custom project proposal (including M&V Plan).
2. Secure BPA review and comment.
3. Create completion report.

¹³ Program level means all custom projects accepted by BPA over the rate period.

4. Secure BPA acceptance of custom project proposal (including M&V Plan) and completion report.

Each of these steps will be discussed below.

1. Submit custom project proposal (including M&V Plan).

- a. The customer is required to screen all custom projects using the following eligibility requirements (as noted in the custom project proposal template in the PTR system) prior to submitting the custom project proposal to BPA:
 - Deemed energy savings or deemed reimbursements are not eligible for inclusion in custom project proposals.
 - The proposed measures have not been ordered, purchased or installed (unless otherwise provided in the Manual).
 - The project does not result in fuel switching.
 - The measures are designed to result in improvements in the energy efficiency of electricity distribution or use.
 - The expected life of the energy savings for each measure is one year or greater.
 - The proposed baseline for each measure is documented and provides a basis for establishing energy savings.
 - The expected project simple payback (Project Cost/Annual Energy Cost Savings) is six months or greater.
- b. Once a custom project proposal is submitted to BPA the proposal is "locked" while BPA completes its review.
- c. A customer may request technical advice from BPA regardless of the size of the project or the requirement for review and comment, unless participating in the Energy Smart Industrial program. See the Industrial Sector for more information.
- d. The custom project proposal must include an M&V Plan showing how energy savings shall be verified. See the "M&V Guidelines," below, for additional information.

M&V Guidelines

There are two types of M&V Plans, the Standard M&V Plan and the Light M&V Plan, each discussed below.

Standard M&V Plan

- a. The Standard M&V Plan is intended for projects of an expected annual energy savings of 200,000 kWh per year or greater. Typically, this means direct measurement of pre and post-measure installation energy consumption and other significant variables. Engineering calculations based on simplifying assumptions are usually insufficient for standard projects. Direct metering is not explicitly required for standard projects,

but it does set the standard of rigor. At a minimum, the M&V Plan must include the following sections and address the points listed below.

1. Approach

Outline the verification approach and why it was chosen. Detailed guidance for preparing an M&V Plan is included in several standard references:

- The International Performance measurement and verification Protocol, at www.evo-world.org.
- The RTF Appendix P energy savings verification
- Site Specific Verification Guidelines, May 1992, BPA, at www.bpa.gov/Energy/N/projects/cr_discount/pdf/site_specific_verification.pdf

2. Protocols

- ASHRAE Guideline 14-2002, measurement of Energy and Demand Savings
- Direct measurement of pre and post-energy consumption and other significant variables preferred

3. Assumptions

Explain the assumptions made and state the sources of all assumed values. Show the overall significance of these assumptions to the total expected energy savings and describe the uncertainty inherent in the assumptions.

Identify the significant variables that affect energy use and categorize each as "assumed" or "to be measured." Assumed values are only acceptable if they have a well documented basis in fact, and an analysis shows that plausible errors from the assumption shall not significantly affect the overall reported energy savings. When using assumed values, use conservative assumptions.

4. Metering Plan

For metered verifications, include a description of what shall be measured, the measurement duration, the data sampling intervals and the instrumentation to be used. Also, include details on who shall perform verification and when it shall be performed. If applicable, include a one-line diagram showing proposed metering locations both before and after the installation. Explain how short term measurements will be extrapolated to an annual basis.

If measurement is not possible or practical, provide an explanation.

5. Calculations

Show or describe the calculations to be used. Include and describe calculations to account for significant changes in production, weather, loads, hours-of-operation, set points, manual operation, occupancy,

or other factors that affect the annual energy savings over the expected life of the measure.

6. Quality Assurance

Describe activities planned to ensure good data and accurate calculations. Describe inspections, tests, commissioning, etc., to ensure that the proposed systems function as planned.

Light M&V Plan

The Light M&V Plan may be allowed for projects where the expected annual energy savings are less than 200,000 kWh per year. The value of the energy savings for these projects may not be great enough to support direct measurement of energy savings. If the reviewing BPA engineer does not believe the Light M&V Plan is appropriate for a project, the Standard M&V Plan may be required. The BPA reviewing engineer may allow the Light M&V Plan for larger projects (greater than 200,000 kWh per year) when the engineer finds it appropriate. At a minimum, the M&V Plan must include the following sections and address the points listed below.

1. Approach

The primary method for determining the verified annual energy savings for each measure is engineering calculations. The measure(s) installed under this approach must have defensible annual energy savings values that are calculated based on commonly accepted engineering practices and reasonable assumptions.

2. Calculations and Assumptions

Show or describe the calculations to be used. The engineering calculations must use known variables specific to the project combined with defensible assumptions. Assumptions must be based on independent third party information such as case studies, prototype testing, metering and evaluation reports and/or scientific research. Document the source(s) of all assumptions.

Since many of the inputs to the engineering calculation are assumed, a best-case and worst-case calculation must be made to help determine a reasonable and conservative value for energy savings. For each significant assumption, it is important to determine a realistic error boundary in order to calculate the best and worst case scenarios. In the best case calculation, all significant assumed variables must be those that are realistic and, when occurring together, provide the highest energy savings. In the worst case calculation, the significant variables that provide the least amount of energy savings expected must be examined. In the worst case calculation, it is not uncommon to have no energy savings, or even negative energy savings. The final estimated energy savings value must be defensible and reasonable.

Since the engineering calculations will vary with the measure application, there is not one specific analysis tool to recommend. The US DOE is one source of potentially useful software calculation tools such as PSAT, FSAT, and MotorMaster. Using a Microsoft Office Excel spreadsheet for engineering calculations is an easy way to document the calculations and assumptions.

3. Quality Assurance

Describe inspections, tests, commissioning, spot or short-term measurements at the component or system level, etc., to ensure the proposed systems function as planned. Energy savings values must be adjusted prior to submitting a project completion report if the Quality Assurance tasks reveal the as-built, as-installed and/or as-operated conditions are significantly different than originally estimated.

2. Secure BPA Review and Comment.

- a. Custom project proposals for which the expected first year energy savings are over 200,000 kWh require BPA review and comment in addition to BPA acceptance of the M&V Plan.
- b. BPA shall review the custom project proposal submitted by the customer to determine if the submitted project contains any weaknesses or concerns that would impact the project's ability to deliver the estimated energy savings at the estimated project costs or the ability of the project to be measured and verified. BPA may also identify possible risks related to the implementation of the project and its impact on the technical process. BPA may warn the customer about potential risks and may suggest improvements, but the ultimate decision to accept comments and proceed with the project shall be up to the customer and its end users, subject to BPA acceptance of the M&V Plan.

3. Create Completion Report.

- a. A completion report must be submitted after the project is installed and energy savings measured according to the M&V Plan approved in the custom project proposal, before a customer can include the custom project in a report or invoice. The completion report template, which is similar to the original report, is available in the PTR system. The customer fills out the form and submits it to BPA electronically. Actual project costs and verified energy savings must be entered into the completion report. Any changes to the approved M&V Plan need to be noted in the completion report. The template will calculate the reimbursement.
- b. Reimbursement for custom projects is based on the accepted completion report data.
- c. Claims accepted by BPA are attributable to the rate period in which they are accepted by BPA.

4. Secure BPA Acceptance of Custom Project Proposal (including M&V Plan) and Completion Report.

- a. BPA must accept the M&V Plan of a custom project proposal and the completion report for a custom project before a reimbursement can be made. Unless otherwise agreed to in writing by BPA, the custom project proposal must be submitted and accepted before the project is begun. "Begun" means the measure *has been* ordered, purchased or installed.
- b. If the custom project proposal is not complete or needs additional work, the custom project proposal may be rejected or returned for modification and the customer notified.
 - BPA may reject a custom project proposal for failure to provide an adequate M&V Plan.
 - BPA may return a custom project proposal for changes to improve the adequacy of either the project description or the M&V Plan. If a custom project proposal is returned for modification, it may be resubmitted, in which case the 10 working day response time shall restart.
 - BPA shall make the final decision as to whether any custom project proposal meets the eligibility requirements and criteria stated in this Manual and whether or not to accept the M&V Plan for that custom project proposal. Customers will be notified in writing when BPA accepts a custom project proposal. The custom project proposal will receive a reference number from the PTR system. This reference number is the tracking number for the custom project proposal and will be tied to the completion report. Only projects with a reference number are eligible to submit a completion report, which is required before a customer can claim reimbursement.

Direct Acquisition

The following provides (a) an overview of the Direct Acquisition (DA) mechanism, (b) a description of the implementation process and (c) a description of the CRC Repayment Option.

a. Overview

1. DA is an acquisition mechanism wherein BPA contracts directly with a third party to implement energy efficiency activities within a participating customer's service area.
2. DA may be used with a variety of initiatives (listed separately in their respective sectors).¹⁴ Under DA, incentive data shall be collected and entered into the PTR system by the third party, and activity reporting

¹⁴ Commercial DA opportunities: EnergySmart (Grocer) Program; Turnkey Lighting Pilot, Rooftop Unit Pilot and Demand Controlled Ventilation Pilot. Multi-Sector DA opportunity: Green Motors.

shall be provided to the customer pursuant to the specific initiative. Unless otherwise stated in the respective sector section, customers do not have any oversight responsibility and are not eligible for a performance payment.

3. BPA shall attribute energy savings (in kWh) to the participating customer and all energy savings shall receive a 75 percent credit toward the customer's conservation HWM adjustment.
4. Unless the customer is participating in the CRC Repayment Option, it does not need to make any entries into the PTR system. BPA will track energy savings.
5. BPA disclaims any and all warranties associated with the third party contractor's performance and does not in any way guarantee energy savings as a result of the completed conservation projects.

b. Implementation

1. If customers elect to participate in a BPA offered third party initiative for services in their service area, the customers shall send a written request to their COTR. If approved, the COTR shall confirm participation by written notice. Customers must indicate with their request if they wish to participate in the CRC Repayment Option and must provide contact information (name, address phone, e-mail address) for the person responsible for CRC repayment.
2. Customers enrolled in DA under Consent or Consent Plus Agreements will continue to operate under those agreements until they expire. Customers wishing to participate in additional DA initiatives, or add the CRC Repayment Option to an existing Consent agreement, may participate using the request and acknowledgment procedure outlined in this section.
3. The customer may rescind its consent by providing 30 days written notice to its COTR. If the customer rescinds consent after BPA has hired a contractor, it must allow BPA up to one year from receipt of notice of rescission to complete any projects for which the contractor was hired.

c. CRC Repayment Option

General requirements for participation in the CRC Repayment Option are as follows.

- Participation in the CRC Repayment Option is initiative specific and voluntary.
- Repayment of BPA DA costs is at the customer's election (to allow customers flexibility to optimize use of available CRC).
- Customers may choose the repayment amount up to the total of the BPA DA costs.

The process steps below will be followed for customers who provide BPA with a request to participate in the CRC Repayment Option.

1. At least once per year, BPA shall provide a notice summarizing the total DA costs and the total energy savings.
2. If a customer wishes to repay BPA costs, the customer must send a written confirmation to the BPA contact originating the notice, indicating the dollar amount it wishes to repay.
3. Upon BPA receipt of the confirmation, BPA shall send an invoice for the amount indicated by the customer and shall also provide the amount of energy savings associated with the amount to be repaid.
4. The customer shall pay BPA upon receipt of the invoice.
5. Once BPA is paid, customers may claim the amount paid and the energy savings provided by BPA as a claim toward their CRC. CRC reference numbers are available by initiative.

Requirements for Self-Funding

1. Customers who elect to self-fund an initiative which is operated by BPA as an approved DA initiative are required to notify BPA prior to initiating work and BPA will tell customers how to report their savings. Customers must also contract with the third party delivery organization directly. BPA shall not be a party to such agreements and shall have no liability to the delivery organization for costs incurred by self-funding customers.
2. Customers must meet the initiative specific requirements found in the Manual to receive credit for self-funded energy savings attributable to the HWM.
3. For self-funded programs, BPA shall attribute energy savings (in kWh) to the participating customer and all energy savings shall receive a 100 percent credit toward the conservation adjustment for the participating customer's HWM.

Third Party Contributions

Customers may make contributions to qualified third parties for the purpose of acquiring conservation. Qualified third parties currently are NEEA and ETO. The contribution requirements of each are discussed below.

1. Northwest Energy Efficiency Alliance

Contributions to NEEA qualify for full CRC dollar-for-dollar credit, provided NEEA installs cost-effective measures and meets all applicable requirements for measures claimed under the CRC. Contact NEEA for approval prior to making a contribution of \$200,000 or more and prior to reporting the contribution in the PTR system. Contributions do not qualify for a performance payment.

2. Energy Trust of Oregon

Contributions may be made to ETO for specific initiatives (listed below and described in their respective sectors) and may use any funding source available under this Manual. Reporting requirements shall be determined on an initiative specific basis. Customers must contact ETO if interested in a specific initiative. Note that ETO may ascribe certain participation deadlines and criteria for its initiatives, and BPA may discontinue the eligibility of ETO to receive contributions upon 30 days notice.

The following describes the ETO criteria for accepting customer contributions, customer obligations, energy savings and available initiatives.

ETO criteria for accepting customer contributions

- a. ETO shall provide each interested customer with a budget estimate for any initiative the customer requests, and ETO must receive contributions sufficient to cover all costs associated with the ETO management, implementation and delivery of its initiative in a customer's service area.
- b. ETO may agree to accept and spend contributions from a customer only when a customer satisfies the ETO qualifying criteria and there is no conflict with the ETO mission and its agreements with the Oregon Public Utilities Commission and the gas utilities.
- c. Customer must sign an initiative specific service agreement with ETO.

Customer obligations:

- a. Comply with all oversight, evaluation and M&V requirements of this Manual.
- b. Report payment made to ETO in the PTR system under an initiative specific reference number.

Energy Savings

Unless otherwise provided in the specific initiative section, an energy savings estimate (kWh/dollar) shall be provided in the specific initiative section and BPA shall examine actual energy savings achieved at the close of each FY and adjust the energy savings estimate for that FY and for the upcoming year, as needed.

Available initiatives:

- a. Hospitality Initiative (Commercial Sector)
- b. *BPA may add initiatives through the changes process using the PTR system and BPA Web site.*

8.2 Measures and Initiatives

Lighting

Requirements and Specifications

The Commercial and Industrial Lighting (C&I Lighting) Program is applicable to both existing building (retrofit/upgrade) and new construction projects in the Commercial, Industrial, and Agricultural Sectors. Program energy savings, reimbursement levels, and equipment specifications are embodied in Lighting Calculator Spreadsheets (one for existing buildings and another for new construction) available on the PTR system. Although the program requirements and process for claiming reimbursements are largely the same across sectors, users should verify that they are using the correct sector reference numbers in the PTR system for projects. Completed Lighting Calculator Spreadsheets are uploaded to the PTR system in the invoicing process. Lighting measures are considered deemed, except when they are part of a multi-measure project that includes other measures that have interactive effects with each other, in which case they may be submitted as a custom project under the multiple measures category. One exception is for industrial sector lighting projects estimated to provide more than 100,000 kWh in annual energy savings; in this case, the customer has an option of using the custom project approach, recognizing that there is significantly more effort involved to make a custom project proposal, complete with an M&V Plan and completion report.

Note: BPA is in the process of simplifying the lighting spreadsheet calculator as well as several program requirements. These simplifications will result in program changes in the April 1, 2010 Manual.

Additional Documentation Requirements

The following must be submitted to BPA no more than three days after submission of each invoice or report:

For Existing Buildings:

- Existing Buildings Lighting Calculator Spreadsheet showing actual equipment installed (the electronic version must be submitted via e-mail)
- Cut sheets for high performance equipment. For projects claiming the increased incentive levels using version 1.7e of the Lighting Calculator Spreadsheet, cut sheets are only required for high performance lamps and ballasts not on the CEE equipment list. For high performance equipment on the CEE lists, the lamp and ballast model numbers and date of the CEE list referenced shall be entered in the appropriate row of the notes column in the Lighting Calculator Spreadsheet.

*For New Construction or a Major Remodel*¹⁵:

- New Construction Lighting Calculator Spreadsheet showing actual equipment installed (the electronic version shall be submitted via e-mail)
- Cut sheets for high performance equipment

The following must be retained in the files for each sub-project:

For Existing Buildings:

- Lighting Calculator Spreadsheet
- Cut sheets for high performance equipment if necessary (see above)¹⁶
- Equipment purchase orders/invoices
- Contractor invoices
- Project estimates and/or other related project documents
- PCB ballast and lamp disposal (must meet environmental requirements)

For New Construction or a Major Remodel:

- Lighting Calculator Spreadsheet
- Cut sheets for high performance equipment
- Equipment purchase orders/invoices
- Contractor invoices
- Project estimates and/or other related project documents

The following must be in the files after completing the inspection:

For Existing Buildings:

- Lighting Calculator Spreadsheet showing validated counts and proper listing and labeling of equipment installed
- Corrected/completed Lighting Calculator Spreadsheet with date of completion
- Field notes from inspection (recommended)

For New Construction or a Major Remodel:

- Lighting Calculator Spreadsheet showing validated counts and proper listing and labeling of equipment installed
- Field notes from inspection (recommended)

Reimbursement Strategies and Levels

- The C&I Lighting measure list reimbursement schedule and requirements must be used for lighting-only projects in any size commercial, industrial, agricultural or institutional facility other than the exceptions noted in the "Program Overview" section above. The list is available as part of the Existing

¹⁵ Major Remodel is defined as any project that requires code compliance and inspection.

¹⁶ Failure to submit cut sheets for high performance equipment within three days of submission of the report or invoice may result in reimbursements at standard equipment rates.

Buildings Lighting Spreadsheet Calculator in the PTR system under Downloads - "Commercial/Industrial Lighting." C&I Lighting reimbursements for existing buildings must use the Calculator Spreadsheet.

- If a measure is not on the C&I Lighting measure list, and there is no suitable alternative on the measure list, the customer may make a written request to its COTR for a one-time approval, prior to installation, to use a deemed measure and credit. The COTR will approve or deny the request in writing.
- If the measure does not qualify for a deemed reimbursement after a review, then the customer can submit a custom proposal, or seek to have a deemed value established through the RTF. If submitted as a custom project, all custom project requirements apply.

Reimbursements for some measures in the C&I Lighting list may change over time to reflect market conditions.

Green Motors Initiative

Requirements and Specifications

The Green Motors Initiative uses Direct Acquisition (DA), however, effective April 1, 2010 the CRC Repayment Option will no longer be available. Qualified motors include NEMA Standard Horsepower rated motors between 15 and 5,000 horsepower (hp) (either NEMA Premium or other) that are rewound via certified Green Motor Practices Group member service centers.

Participating customers are eligible for the various participation options as listed in the DA section.

The energy savings acquired under the Green Motors Initiative are not subject to decrement.

Additional Documentation Requirements

Customer shall retain third party provided reports.

Reimbursement Levels and Strategies

An incentive of \$2 per hp shall be paid to the participating service center that rewound the motor. The service center shall acknowledge the incentive is provided by the end user's serving customer and shall pass through \$1 per hp to the end user as a credit on the end user's invoice.

Small Compressed Air System

Requirements and Specifications

Variable Frequency Drives (VFD) applied to a single air compressor of less than 75 hp may use the RTF approved small compressed air calculator spreadsheet for M&V for this custom project.

Additional Documentation Requirements

- A copy of the completed RTF-approved Small Compressed Air Calculator spreadsheet
- Dated invoice showing the hp and installation address

Reimbursement Strategies and Levels

The reimbursement rate is the lesser of \$0.25/kWh or 70% of project incremental cost for a measure with a 10 year life.

9. Renewables Option

This section contains information about the Renewables Option (RO) of the Conservation Rate Credit.

Section

Purpose and Scope	109
Objectives of the Renewables Option.....	109
Definitions.....	109
General RO Requirements.....	112
What is a Qualified Renewable Energy Facility	113
Metering Requirements	114
Power Purchases from Power Marketers.....	114
Transfer of RO Claims for Renewable Energy Output.....	115
Environmental Attributes from Renewable Energy Sources	115
Renewables Purchases from BPA	117
Third Party Blended Renewable Resource Products	118
Community Owned Renewable Projects	118
Technical Specifications for PV systems and Solar Water Heaters	118
Renewable Education Programs	119
Donations	120
Contributions to Qualified Research Development & Demonstration Activities	120
Renewable Energy Purchased from qualifying Renewable Energy Facilities	123
Effects on Net Requirements Load	127
Duration of the RO and Renewable Energy Purchases	127
Administration	127
Optional Pre-Application	127
Reporting requirements.....	128
True-up for Generation-Based Claims	129
Procedures for Processing Reports and Applications.....	130
Rules for Pooling Renewables.....	130

The Renewables Option includes energy produced from a resource that is renewable, such as the following:

- Biogas
- Biomass
- Geothermal
- Hydroelectric
- Landfill Gas
- Ocean
- Solar
- Wind

Renewables Option

Criteria for Renewable Energy Resources Eligible for the Renewables Option (RO) of the Conservation Rate Credit

9.1 Purpose and Scope

The purpose of this section is to explain the procedures for implementing the RO.

The RO for Fiscal Year (FY) 2010 will be capped at \$4 million; while the RO for FY 2011 will be capped at \$2.5 million.

Many of the new requirements included in this section exist because of the aforementioned caps on claims against the RO. To ensure these annual caps are not exceeded, claims against the RO will be pro rata reduced if they total more than the aforementioned caps in any single year. Reporting restrictions have been put into place to help ensure the FY caps are not exceeded and the limited funds are distributed fairly, that the objectives of the program are met (section 9.2), and that funds are channeled toward utilities with valid project/program needs.

9.2 Objectives of the Renewables Option

- To encourage the development of new Incremental Renewable Energy Facilities and Activities in the Pacific Northwest

9.3 Definitions

- **Community Owned Renewable Projects** means that more than one member of the local community (private citizens or other non-municipal or utility entities) has a greater than 50 percent direct financial stake in a small commercial-scale project (meeting the New Renewable Energy Facility definition) other than through land lease payments, tax revenues, or other payments in lieu of taxes. Community Owned Renewable Project size is capped at 1MW, unless pre approved by BPA.
- **Energy Costs** means the cost of project energy delivered to the point of interconnection expressed on a dollar/megawatt-hour basis. Administrative & General costs are not allowed.
 - For Power Purchase Agreements or Output Contracts this would be the contract price for the reporting year. If multiple prices are paid during the reporting year, an Energy Cost based on a weighted price for the reporting year should be utilized. The weighting should be based on the price paid for actual generation received.
 - For Renewable Projects that are owned by the customer, these costs would include capital costs, financing costs, operating and maintenance costs and land purchases or leases. These costs would be net of the Production Tax

Credit or the Renewable Energy Production Incentive, whichever is applicable.

- **Environmental Attributes** means the non-power attributes associated with the energy generated from a renewable energy facility. Environmental attributes are the fuel type, emissions, or other environmental characteristic of a renewable resource. Environmental attributes do not include any energy, capacity, reliability, or other power attributes used to provide electricity services. Environmental attributes are expressed in megawatt-hours (MWh); one Environmental Attribute is created by the generation of 1 MWh of energy from a Renewable Energy Facility. Environmental Attributes are commonly referred to as "Renewable Energy Certificates" (RECs), "Green Tags," or "Tradable Renewable Certificates" (TRCs).
- **Environmentally Preferred Power (EPP)** means one of BPA's renewable energy products for which BPA charges a Green Energy Premium. (WP-07-E-BPA-25)
- **Existing Renewable Energy Facility (Existing Facility)** means a Renewable Energy Facility that was energized prior to January 1, 2006, but after May 1, 1999.
- **Hybrid Facilities** means generation facilities which use both conventional and renewable fuels. Only that fraction of generation created by use of a Renewable Energy Fuel Source shall be considered renewable.
- **Incremental Renewable Energy Facilities and Activities** means only those activities and resources that are incremental to those required by law are eligible, with the exception of retail green pricing programs as referenced in Section 9.9.
- **Integration Costs** means costs of hour-to-hour storage and/or shaping of generation from non-dispatchable Renewable Energy Facilities. Integration costs do not include within hour ancillary services (imbalance and regulation costs) or transmission costs. Self-supplied storage and shaping is eligible, if costs are approved by BPA. BPA suggests self-supplied integration cost claims should be based on near-term opportunity costs. Certification by an independent CPA is required for approval.
- **Net Electric Energy** means the metered MWh generated and sold, and excludes electric energy used within the renewable energy facility to power equipment such as pumps, motors, controls, lighting, heating, cooling and other systems needed to operate the facility.
- **New Renewable Energy Facility (New Facility)** means a Renewable Energy Facility that was energized after January 1, 2006. BPA will distinguish between new facilities and expansions of an existing facility on a case-by-case basis.

- **Pacific Northwest** means as defined in section 3(14) of the Act, Public Law 96-501, 16 USC 839.
- **Project Costs** means costs limited to independently CPA-certified contracted energy charges at the bus bar for the year in which the claim is being made and independently CPA-certified Integration Costs for the year in which the project's generation being claimed.

Project Costs = [Energy Costs at the bus bar for the year in which the claim is being made + Integration Costs for the year in which the claim is being made]

- **Proxy for Avoided Cost** means the simple average of BPA's FY 2010-11 flat Priority Firm (PF) preference rate and the 2010-11 average forward flat-block Mid-C market price used in the WP-10 rate case (WP-10-FS-BPA-03A, page 61). The 2010-11 forward flat block Mid-C market price used in the residential exchange settlement is equal to \$40.59/MWh and the FY 2010-2011 flat PF preference rate is equal to \$28.77/MWh, resulting in a Proxy for Avoided cost of \$34.68/MWh. This amount is fixed for the entire FY 2010 – 2011 rate period.
- **PTR system** means the Regional Technical Forum's Planning, Tracking and Reporting system (<http://ptr.nwcouncil.org/>)
- **Renewable Energy Certificates (RECs)** means Environmental Attributes.
- **Renewable Energy Facility** means a single module or unit, or an aggregation of such units, which generates electric energy that is independently metered and that results from the utilization of a Renewable Energy Fuel Source.
- **Renewable Energy Fuel Source** means
 - **Biogas:** Electricity generated from the combustion of gases derived from animal manure, sewage digesters, or from decaying plant matter. Includes sewage treatment plant digesters, dairy-based anaerobic digesters, and biomass gasification.
 - **Biomass** is electricity generated from combustion of:
 - The organic, non-fossil-based portion of municipal solid waste
 - Energy crops
 - Agricultural residues
 - Untreated mill or forest residues
 - Biomass-derived energy from hybrid facilities, not including energy derived from fossil fuels

Biomass does not include the combustion of black liquor or preservative-treated wood waste.

- **Geothermal:** Electricity generated from naturally occurring underground heat
- **Hydroelectric:** Electricity generated by the flow of water at facilities located outside of protected areas as defined by the Council
- **Landfill Gas:** Combustion of gases derived from landfills
- **Ocean:** Generation of electricity from wave, thermal gradient or tidal forces. Ocean energy is not likely to achieve commercial status during this rate period, and it is eligible as Research Development & Demonstration (RD&D) during the FY 2007-2009 rate period.
- **Solar:** Electricity generated from solar heat and light. Includes solar photovoltaic systems (PV) and solar water heaters.
- **Wind:** Electricity generated from wind. (Note: because costs from all project sizes exceed the effective cap, wind projects are no longer broken out into size-based categories)
- **Small commercial-scale** means all projects that are too large to qualify for net metering but less than three-megawatt capacity (e.g., onsite home-sized projects are excluded and projects must be connected to the grid).

9.4 General RO Requirements

- a. Only Incremental Renewable Energy Facilities and Activities are eligible for the RO, with the exception of retail green pricing programs detailed in Section 9.9.
- b. The RO is only available during FY 2010 through FY 2011. There was no early start for the RO claims portion of the CRC.
- c. Renewable claims under the RO must be spent on qualifying renewable activities and or projects prior to the end of the rate period (e.g., money claimed against the renewable program under CRC shall not be used for conservation measures). If all of the money claimed on renewables is not directed towards qualifying renewable projects or activities and reported to BPA by October 31, 2011, the customer will be billed for that portion of their renewable claim which remains unreported, plus interest; which will be calculated according to the terms of the Requirements Power Contract.
- d. Claims made under the RO need to be substantiated using the PTR system (see section 3.1 and 9.22 for reporting requirements).
- e. Administrative activities do not qualify for the RO unless otherwise exempted.

- f. Individual customer RO funding requests are limited to the customer's total CRC eligibility for the fiscal year in which the claim is being made.
- g. Energy generation and project cost claims must be verified via an independent annual audit which must be submitted with the customer's annual written report.
- h. It is not a requirement that the timeframes for receiving the CRC and investing in a renewable facility match. For example, it is acceptable for a customer to justify their FY 2007 credit with a renewable facility that comes on line in FY 2008 or FY 2009.

9.5 What is a Qualified Renewable Energy Facility?

To be eligible for the RO, a renewable energy facility must satisfy the following criteria:

- a. The energy must be generated using a Renewable Energy Fuel Source and meet one of the following criteria:
 - a) **Time of first use** — The facility must begin commercial operation no earlier than May 1, 1999, and no later than December 31, 2011.
 - b) New Facilities energized after September 30, 2011, but prior to December 31, 2011, may qualify for the RO on a case by case basis, subject to BPA approval. To qualify, the customer must provide BPA with the verification information listed below. If any one of these conditions is not met, the customer must repay BPA for claims based on the facility, plus interest (see section 9.4(c)).
 - i. Verification that the customer has entered into a power purchase agreement during FY 2010 – 2011 for the output of the facility.
 - ii. Evidence supporting the claim that the facility will be energized by December 31, 2011. Examples: contractual incentives for commercial operation by December 31, 2009, or penalties for late performance.
 - iii. Verification by no later than January 15, 2012, that the New Facility achieved commercial operation by December 31, 2011.
 - c) Renewable Energy Facilities on-line prior to May 1, 1999, are eligible for RO if they have been rebuilt or expanded after January 1, 2006. The following criteria apply:

- i. Rebuilt facilities qualify if the fair market value of the facility before the upgrades is less than 20 percent of the new total fair market value. In other words, capital investments in the new facility must total at least 80 percent of the value of the assessed value of the repowered facility. Tax records should be provided to validate this claim.
 - ii. Incremental expansions to Renewable Energy Facilities qualify if the additional equipment generates incremental energy which is metered independently from the original facility. Replacement or modification of existing equipment that does not change gross power production, but results in a reduction of electric power consumption, will be considered conservation.
- b. **Location** — renewable energy facilities must be located in the Pacific Northwest, with the following three exceptions:
1. The currently permitted Wyoming Wind Project at Foote Creek Rim and Simpson Ridge in Carbon County, Wyoming
 2. Projects shown by the applicant to effectively displace operation of regional nonrenewable generation resources (subject to BPA's approval)
 3. The project or a portion of the project serves load within the Pacific Northwest (subject to BPA's approval)

9.6 Metering Requirements

Except for PV, solar water heaters and RD&D projects, the output of renewable energy facilities must be metered by a revenue-quality meter at the point of delivery in accordance with generally accepted customer standards, and output and meter calibration records must be available for inspection by BPA upon request.

9.7 Power Purchases from Power Marketers

Purchases from power marketers and pooling organizations are eligible for the RO provided:

- a. The underlying resources meet the eligibility requirements for renewable energy facilities.
- b. The customer can supply documentation verifying the renewable energy resource eligibility; the amount and term of the purchase, the Project Costs, and attestation that the environmental attributes have not been sold or claimed elsewhere. The amount of the \$/MWh RO

credit available for each type of underlying renewable energy facility is specified in tables RO-1 and RO-2 in section 9.17.

- c. Customers are required to retain and retire within their service territory the environmental attributes associated with power purchases from qualifying renewable energy facilities when claiming such facilities or purchases on their annual CRC report. Costs of administrating the green pricing program may qualify as eligible expenses. Net Revenues from the attribute sales and the pricing program must be reinvested in the green pricing program to qualify for the RO.

9.8 Transfer of RO Claims for Renewable Energy Output

Customers may enter contractual arrangements through which one customer would own or purchase the output from an eligible renewable energy facility and other customers would apply their RO to the output.

For example, Customer A could sign a power purchase agreement with a developer for 15 MW of wind power from a qualifying new renewable energy facility. Customer A could assign the right to claim the project as a new renewable energy facility to Customer B under a separate payment arrangement with Customer A. All of the project's output would be delivered to, and used in, Customer A's system, but Customer B would own and could claim the resource under the RO. The RECs from this project must be retired within one of the participating parties' service area(s) for the entire rate period and should not be subject of a second claim.

Customers may also transfer RO claims to other BPA customers by selling the attributes or RECs generated by eligible renewable energy facilities to other BPA customers.

9.9 Environmental Attributes from Renewable Energy Sources

This section applies only to Renewable Energy Certificates (Green Tags, RECs, or environmental attributes). not to Environmentally Preferred Power (EPP); section 9.10 addresses EPP.

RECs are eligible for RO, provided the following conditions are met:

- a. Megawatt-hours cannot be claimed twice under the RO. RECs associated with renewable energy claimed elsewhere under the RO are not eligible for additional RO benefits under this section. RECs from new facilities cannot be claimed under this program during this rate period if the energy from the project is the subject of a RO claim anytime during the rate period.
- b. Claims based on RECs from a single New Facility cannot total more during the 2-year rate period (for all customers) than could be derived

from a claim based on one year of generation times the appropriate \$/MWh credit cap (table RO-1, section 9.16).

For example, PUD #1 builds a 100 MW wind facility. In its first year of production, the project produces 220,000 MWh of generation at a total cost (Energy + Integration Costs) of \$55.87. Using all of the production of the facility, PUD#1 could justify a CRC credit of \$4,661,800 $((\$55.87 - \$34.68) * 220,000)$. If PUD #1 chose to instead sell the RECs to various PUD's then the total amount of CRC claims via RECs from this wind facility could not exceed \$4,661,800 over the 2-year rate period.

Further, if PUD #1 had a CRC of \$2,000,000, it could use this wind facility to a) meet that credit requirement and; b) sell the RECs associated with the facility that were not allocated to the CRC to other utilities to meet their CRC obligation.

Without this restriction, REC claims for a specific New Facility could be claimed for all three years of the rate period at a purchase price equal to the credit cap. Under this scenario, REC claims would total three times that of a straight facility claim. (The amount of credit associated with REC claims is equal to the purchase price of the REC, not to exceed the caps posted in tables RO-1 and RO-2; RECs can be claimed all three years of the rate period.)

- c. Only RECs which are retired within the purchasing customer's service area are eligible for the RO program. RECs sold outside of the customer's service area cannot be claimed by the seller but may be claimed by the purchaser. RECs resold in a premium green pricing program will be eligible for RO credit in an amount equal to the REC purchase price if the revenues from the green pricing program, net of REC purchase price, are reinvested in qualifying New Renewable Energy Facilities, other qualifying Renewable Education program(s), qualifying RD&D project(s) or the green pricing program. Costs of administrating the green pricing program may qualify as eligible expenses. Demonstration of reinvestment will be required in the October 31 annual report to BPA as required in section 9.22.
 - 1. The facility generating the RECs must be a qualifying Renewable Energy Facility as defined in section 9.5.
 - 2. The output of the generating resource from which the RECs originated is metered (section 9.6).
 - 3. The REC claim is accompanied by: (1) a generator attestation verifying the monthly output of the generation facility, that the RECs have been sold only once, and that the

RECs retain associated emission offsets; (2) Wholesaler attestation(s) verifying that the RECs have been sold only once and retain associated emission offsets; and (3) an independent annual audit verifying purchase price. Verification of REC ownership from the Western Renewable Energy Generation Information System can be used in lieu of (1) and (2) above.

4. RECs can only be claimed in the year in which they are generated.
 5. RO credit amount: Payment scale is equal to the purchase price of the RECs, not to exceed the resource specific credit caps listed in table RO-1 or table RO-2 (section 9.16). Proof of purchase price must be verified via independent audit and provided to BPA by October 31 for the proceeding fiscal year.
- d. Solar exception. RECs from PV units claimed under the RO can be sold outside of the customer's service area.

9.10 Renewables Purchases from BPA

BPA currently offers three types of renewable products: (a) Environmentally Preferred Power (EPP), (b) Alternative Renewable Energy (ARE) and (c) RECs.

- a. **EPP and ARE:** BPA will reinvest the Green Energy Premiums (as defined in WP-07-FS-BP-05) associated with EPP and ARE sales in the Pacific Northwest Renewable RD&D projects. Therefore, 100 percent of the Green Energy Premium associated with EPP and ARE (\$10.50/MWh) is eligible for the rate credit under the RO.

ARE and EPP remarketed into green pricing programs is eligible for the RO if proceeds, net of the EPP/ARE purchase price, are reinvested in New Renewable Energy Facilities, Renewable Education program(s), qualifying RD&D project(s), or the green pricing program itself. Costs of administrating the green pricing program may qualify as eligible expenses. Demonstration of reinvestment will be required in the October 31 annual report to BPA required in section 9.22.

- b. **RECs:** BPA will reinvest the green energy premiums associated with EPP in Pacific Northwest renewable RD&D projects. Therefore, the amount of the RO for BPA's RECs will be 100 percent of the premium paid for this product.

RECs remarketed into green pricing programs are eligible for the CRC if proceeds, net of the REC purchase price, are reinvested in New Renewable Energy Facilities, Renewable Education program(s), qualifying RD&D project(s), or the green pricing program. Costs of administrating the green pricing program may qualify as eligible

expenses. Demonstration of reinvestment will be required in the October 31 annual report to BPA required under section 9.22.

- c. Customers are required to retain and retire within their service territory the environmental attributes associated with EPP or RECs purchased from BPA when claiming such purchases under the RO.

9.11 Third Party Blended Renewable Resource Products

A customer can receive credit under the RO for the purchase of a third party, or their own, blended renewable resource product consisting of Existing or New Renewable Energy Facilities meeting the eligibility criteria of the RO. The appropriate "new" credit will be given to the new portion of the product for one year of estimated generation. The "existing" portion of the blended product will be given the appropriate credit for Existing Renewable Energy Facilities. Renewable energy claimed elsewhere under the RO is not eligible for additional RO benefits under this section.

Customers are required to retain and retire within their service territory the RECs associated with such transactions when claiming such purchases under the RO.

9.12 Community Owned Renewable Projects

Expenses associated with Community Owned Renewable Projects, incurred by the customer, which include but are not limited to interconnection, integration, and energy costs above the Proxy for Avoided Cost, which are not passed through to the utilities customers or to the owners of the project, are eligible for a dollar-for-dollar credit. Community Owned Renewable Projects are New Renewable Energy Facilities; therefore, claims based on energy production are limited to one year of actual generation. Consistent with other eligible activities and programs under this chapter, Administrative costs are not eligible. BPA will approve applications for a rate credit amount after the customer demonstrates to BPA's satisfaction that the proposed project meets this definition of a Community Owned Renewable Project.

9.13 Technical Specifications for PV systems and Solar Water Heaters

- a. **Customer-side solar photovoltaic systems** — Eligible PV systems must meet the following requirements:
 - 1. Photovoltaic modules and inverters must be certified by the California Energy Commission (CEC). The lists of CEC-certified modules and inverters are posted on the California Energy Commission Web site (<http://www.consumerenergycenter.org/erprebate/equipment.html>).

2. The system must be installed by a licensed contractor or the purchaser, and must be installed in conformance with the system manufacturer's specifications and with applicable electrical codes and standards.
 3. Photovoltaic modules must be listed by a nationally recognized testing laboratory as meeting the requirements of the Underwriters Laboratory Standard 1703. Inverters must be listed by a nationally recognized testing laboratory for safe operation. Further, all grid-connected, inverter-based systems must meet the Institute of Electrical and Electronic Engineers Standard 929-2000. In the absence of a recognized testing standard, manufacturers of concentrator photovoltaic systems must provide acceptable evidence of one year of reliable operation of that model of equipment.
 4. Photovoltaic systems credited under the RO must be warranted as follows:
 - i. The warranty must cover the photovoltaic panel components of the generating system against breakdown or degradation in electrical output of more than 20 percent from their originally rated electrical output in the first 20 years.
 - ii. Other components of the generating systems against breakdown or degradation for five years, including the full cost of repair or replacement of defective components or systems.
- b. **Solar Domestic Water Heaters** — Eligible solar domestic water heating systems must be SRCC-OG-300 rated and conform to applicable federal state and local regulations, codes ordinances and standards governing the installation of solar water heating systems..

9.14 Renewable Education Programs

Renewable Education Programs are customer-funded curriculum and demonstration projects. Education programs are eligible for a dollar-for-dollar rate credit, capped at the greater of 20 percent of a customer's total CRC over the rate period or \$25,000/year. In no year shall a customer's Renewable Education Program claim exceed that customer's pro rata reduced Renewable rate credit for the applicable year.

Curriculum and associated information accompanying education programs will be made available to the public. As such, the following items will be required for all education programs funded through the RO program:

- Educational curriculum and materials should be pre-approved by BPA. They can be sent to the address in Section 9.20 or e-mailed to Jamie Sims at jtsims@bpa.gov

- Electronic versions of the Educational curriculum and material will be provided to BPA. BPA will post such programs at www.bpa.gov/corporate/windpower/index.cfm.

9.15 Donations

Donations to 501c (3) non-profit organizations promoting renewable resource development in the Pacific Northwest are eligible for the RO upon BPA approval. Examples of organizations that may qualify: Bonneville Environmental Foundation, Energy Trust of Oregon, Climate Trust, Last Mile Electric Coop, and Northwest Seed. Donations are limited to 20 percent of the customer's total CRC over the rate period. One hundred percent of the donated amount is eligible for the RO. BPA may waive the 20 percent cap on a case-by-case basis if there are compelling reasons to do so.

To qualify for credit, the following conditions must be met:

- a. The 501c (3) recipient will be asked to self-certify that at least 80 percent of the donation will be used to support renewable resource activities as contemplated elsewhere in this Manual and must demonstrate that the donation was not used to support lobbying activities.
- b. The receiving organization will provide BPA and the donating customer a report documenting use of the donated funds by no later than October 31 of each year, for the preceding year. BPA reserves the right to audit the receiving organization.

9.16 Contributions to Qualified Research Development & Demonstration Activities

One hundred percent of the amount spent on qualified RD&D activities is eligible for the RO; however, renewable RD&D claims cannot comprise more than 40 percent of the participating customer's total CRC over the rate period. Costs are limited to those incurred from October 1, 2009, to September 30, 2011. Electricity production obtained as a result of a RD&D activity will not qualify for RO credits. BPA may waive the 40 percent cap on a case-by-case basis if there are compelling reasons to do so.

BPA pre-approved RD&D activities include:

- a. The regional wind data collection program administered by Oregon State University.
- b. The Regional Solar Radiation Data Center administered by the University of Oregon, and the Wave Energy Technology Center.
- c. New ocean-powered renewable energy facilities.

- d. BPA will approve small-scale (less than \$20,000 per installation) renewable energy demonstration systems on a case-by-case basis without consultation with the RTF, provided the project meets all of the following criteria:
 - 1. The performance of the project is measured on at least monthly intervals. Projects using revenue-quality meters are preferred but not required.
 - 2. The system performance and description of the project must be reported to the public via the Intranet, as well as local reporting mechanisms, before September 30, 2011.
 - 3. The project falls under at least one of the Eligible Activities listed below, in section 9.16.1 and not specifically excluded in section 9.16.1(e).

9.16.1 Eligible RD&D Activities

The following categories of activities potentially qualify for the RO as RD&D activities. Qualification will be determined using the criteria listed in section 9.16.2.

- a. Assessment of the supply, location, development potential, or quality of renewable energy sources.
- b. General preparations (i.e., not in sole support of a specific project) for the development of renewable resource areas. These efforts may include identification and resolution of technical, environmental, and institutional issues potentially affecting resource development.
- c. Research regarding environmental or other issues affecting the development and operation of renewable energy facilities. These may be undertaken at a specific project, providing the results will significantly benefit other projects.
- d. Development or demonstration of new technologies with potentially significant application to the use of renewable energy sources.
- e. Demonstration of novel applications of established technologies using renewable energy sources (e.g., new applications of commercially available technologies). Conventional applications of commercially available technologies are not considered RD&D. For example: PV installations using conventional approaches/designs are no longer considered to be in the developmental phase and will not be considered RD&D. PV installations using new designs or novel applications may be considered developmental.

While a RD&D activity may be undertaken in conjunction with the development of a specific commercial project, the cost of the activity should not include the costs of developing or operating a proven commercial application. Efforts to lower costs through increased production or mass purchase of commercial technologies are not considered to be RD&D.

- f. Provision of information useful for the evaluation, siting, design or operation of facilities using renewable energy sources.

9.16.2 Criteria used to Evaluate Proposed Renewable Resource Research, Development, and Demonstration Activities

Other RD&D activities may be proposed and approved by BPA on a case-by-case basis or, at BPA's sole discretion, submitted to the RTF for review. The proposal must include research technology, renewable fuel source, location, objectives, approach/methodology, tasks, timeline, budget, and milestone reporting schedule. The proposal should clearly state the project's specific stage in the technology continuum (hypothesis, research, development, or demonstration). The proposal should also include a section addressing the criteria set forth here, as applicable:

- a. The activity should have a high probability of expanding the use of qualifying renewable resources in the Northwest.
- b. The activity should have a high probability of achieving one or more of the following objectives: reduced resource development or operating costs; improved technology performance (reliability, conversion efficiency, etc.); reduced environmental impact; improved project development characteristics (e.g., lead time); and improved forecasts of cost, performance, development timeline, or environmental impact.
- c. Preferably, activities should address resources promising low or declining costs, abundant quantity, modest or beneficial environmental effects, and favorable development characteristics, including short lead-time and modularity.
- d. Preference for activities designed to achieve multiple objectives and widespread benefits (e.g., the activity should foster the development of qualifying resources in general, as distinguished from primarily supporting the development of a specific commercial project). For example, assessment of the spatial extent, and general turbulence and wind shear characteristics of a wind resource area could be considered a qualifying RD&D activity, whereas studies leading to the placement of individual wind turbines are a responsibility of the commercial developer.

- e. Projects that are co-funded/co-sponsored are preferred. Co-funded amounts are excluded from the RO credit.

9.17 Renewable Energy Purchased from qualifying Renewable Energy Facilities

Methods to calculate the RO credit earned by energy purchases from eligible Renewable Energy Facilities are described below. The \$/MWh cap for each resource type is shown in table RO-1 (New Facilities) and table RO-2 (Existing Facilities).

- a. **New Renewable Energy Facilities:** To be eligible for credit, the New Facility must qualify under sections 9.4, 9.5, and 9.6. The amount of the credit earned by New Facilities is based on the difference between Project Costs and the Proxy for Avoided Costs (\$34.68/MWh) and capped at \$18/MWh. Credit can be earned for up to one year (any consecutive 12 month period during the program) of generation regardless of whether the facility is energized in the beginning or at the end of the rate period.

Calculating the credit:

1. New Customer-scale wind (> 10 MW): The amount of the RO is equal to the customer's share of the output from a New Customer Scale Wind project over any consecutive 12 month period during the rate period, multiplied by the difference between actual Project Costs and the Proxy for Avoided Costs, with that difference not to exceed \$18/MWh (see NOTE below).

Claims submitted as part of the October 31 report to BPA (section 9.22 b) should be based on actual generation and should use metered data. Claims based on forecasted generation should use capacity factors provided in table RO-1 and the nameplate rating of the facility. Forecasted claims apply to projects not on line by the end of the rate period, but scheduled to be in commercial operation prior to December 31, 2011.

Third party verification (CPA audit) of Project Costs and actual generation should be provided to BPA by December 1st following the reporting period (BPA may grant case-by-case extensions for audit reports).

New Customer-Scale wind Credit = [(Energy Costs at the busbar for the year in which the claim is being made + Integration Costs for the year in which the claim is being made) - (Proxy for Avoided Cost)] x MWh generated over one year; This amount is not to exceed the cap posted in table RO-1.

2. All other New Renewable Facilities: The amount of the credit is equal to the customer's share of the output over any single fiscal year during the rate period, multiplied by \$/MWh credit provided in table RO-1.

New Renewable Facility Credit (other than Customer Scale Wind) = Customer share of generation in fiscal year x \$/MWh credit from table RO-1.

- b. **Existing Renewable Energy Facilities:** It is BPA's objective to encourage the development of new incremental renewable energy facilities and activities. Therefore, the credit for existing facilities cannot exceed that of new facilities.

Existing facilities will be eligible for credit on energy generated during the entire rate period. Because of the 2-year rate period, the credit for Existing Facilities is capped at 50 percent of the credit given to New Facilities using the same renewable energy source. The amount of the \$/MWh credit for generation from Existing Facilities will be based on the customer's share of actual generation during the rate period, the type of facility, and the difference between the Project Costs during the year the claim is being made and the Proxy for Avoided Cost, not to exceed the \$/MWh caps posted in table RO-2 (capped at 50 percent of the cap for New Facilities). Credit will only be given for metered generation during the rate period.

Credit = [Energy Costs at the busbar for the year in which the claim is being made + Integration Costs for the year in which the claim is being made] – [Proxy for Avoided Cost] x MWh. This amount is not to exceed the cap posted in table RO-2.

1. Third party verification (audit) of Project Costs for the year the claim is being made and third party verification of actual generation should be included in the October 31 annual report to BPA. BPA may grant case-by-case extensions for audit reports.
2. The existing facility must qualify under sections 9.5 and 9.6.
3. No credit will be given to existing solar energy facilities.

Table RO-1: New Renewable Facility Credit

New Facilities			
Total Credit for each Facility = (Capacity) x (Capacity Factor) x (New Facility Credit). If claiming actual generation, disregard capacity factor and use metered data. If claiming forecasted generation use the nameplate rating to determine capacity and Capacity Factors posted below.			
Credit should not exceed the resource-specific caps listed below. <i>Credit for 1 year of Generation.</i>			
Resource type (project size)	Project Cost (Proxy) (\$/MWh)	Credit (\$/MWh)¹	Capacity Factor²
Biogas ³	123.19	18.00	75%
Geothermal ³	107.95	18.00	90%
Hydro ³	121.45	18.00	50%
Landfill gas ³	89.74	18.00	85%
Wood/Forest residue (wood only, not cogen) ³	167.94	18.00	80%
Wood/Forest residue (cogen) ³	128.80	18.00	80%
Wind			
Credit = (Project Cost – Proxy for Avoided Cost) x (Capacity) x (Capacity Factor). If claiming actual generation, disregard capacity factor and use metered data. If claiming forecasted generation, use the nameplate rating to determine capacity and the Capacity Factor posted below.			
Wind - OR/WA ³	120.17	18.00	32%
Wind – ID ³	128.16	18.00	30%
Wind – MT ³	101.24	18.00	38%
Solar			
	Project Cost (Proxy) (\$/MWh)	Credit (\$/unit)	Capacity Factor
Solar water heaters, collectors > 31 sq ft of evacuated tubes with equivalent output ³ (\$ credit per installation, based on capacity)	117.00	500.00	NA
Photovoltaic (PV) Credit in \$/kW ⁴ (\$ credit per kW)	501.69	500.00	NA

¹ New Resource Credit (\$/MWh) = (Project cost as posted in table 1) - (Proxy for Avoided Cost). NTE \$18/MWh. \$18/MWh Cap reflects the maximum FY10-11 value of CO² offsets over the life of a renewable project.. (Northwest Power and Conservation Council e-mail correspondence dated 8/5/09).

² Capacity Factors taken from the same sources as the cost estimates. Actual metered generation should be used if the project is in commercial operation.

³ Project Costs are provided by the Northwest Power and Conservation Council and represent a FY 10-11 average of the levelized cost of shaped energy delivered to the bus bar over a plant's economic life.

Biogas	15 years
Geothermal	30 years
Hydro	30 years
Landfill Gas	20 years
Wood/Forest	20 years
Wind	20 years
Photovoltaic	25 years

⁴ Proxy cost not provided by NWPCC. Credit amount held constant from prior rate period.

Table RO-2: Caps on Credit for Existing Renewable

Resource type	Cap (\$/MWh)
Biogas	9.00
Geothermal	9.00
Hydro	9.00
Micro hydro (< 1 MW)	9.00
Landfill gas > 2 MW	9.00
Landfill gas less than or equal to 2 MW	9.00
Wind less than or equal to 25 kW	9.00
Wind less than or equal to 10 MW	9.00
Wind - customer scale (+10 MW)	9.00
Wood/Forest residue (wood only, no Cogen)	9.00
Wood/Forest residue (Cogen)	9.00
Solar water heaters, collectors>31 sq ft	no credit available
Photovoltaic (PV) Credit in \$/kW	no credit available

Table RO-3: Renewable Credit Proxy Values

	(\$/MWh)
Proxy for Avoided Costs =	
Avg of FY10 Flat PF & FY10-11 Flat-Block Mid C mkt price ¹	34.68
Cap =	
Proxy for present year value of a 20-year CO ² offset ²	18.00
¹ The 2010-11 average forward flat block Mid-C market price used in WP-10 rate case (WP-10-FS-BPA-03A, page 61) is equal to \$40.59/MWh and the FY 2010-2011 flat PF preference rate is equal to \$28.77/MWh, giving a Proxy for Avoided cost of \$34.68/MWh. Value will be fixed at these levels and not adjusted for inflation or variations in market prices.	
² Cap based on NW Power and Conservation Council estimates of the average 2010-11 current year dollar value of a CO ² offset. Any credit below \$18/MWh could be considered cost-effective if the CO ² credits are not sold.	

9.18 Effects on Net Requirements Load

Adjustments to the customer's Subscription contract and Net Requirements Load will be independent of credit given under the RO. No adjustment to net requirements load is necessary for REC and EPP purchases.

9.19 Duration of the RO and Renewable Energy Purchases

The RO can only be applied to activities undertaken during the rate period and energy generated during the rate period, except for special considerations given to new facilities energized between January 1, 2009, and December 31, 2011 (see section 9.5).

9.20 Administration

Applications, notifications, inquiries, and other matters related to the RO for renewable energy resources should be directed to the following address:

Bonneville Power Administration
Attn: Jamie Sims, MS PTL-5
P.O. Box 3621
Portland, Oregon 97208
Phone: (503) 230-3886
E-mail: jtsims@bpa.gov

9.21 Optional Pre-Application

At any time, a customer may submit a Pre-Application containing the information described below to obtain a preliminary and conditional determination of a renewable energy facility's or activity's eligibility for the RO:

(Note: Pre-Application is optional, but the October 31 report will need to include this information regardless of whether a Pre-Application is submitted.)

- a. Name and type of facility or activity or other official designation
- b. Location and address of the facility and type of renewable energy source
- c. Name, address and telephone number of a point of contact to respond to questions or requests for additional information
- d. A clear statement of how the renewable energy facility or activity satisfies the eligibility criteria
- e. If the customer intends to purchase power from a power marketer or enter into an arrangement with another customer, a description of the purchase or arrangement
- f. Other applicable information as required elsewhere in this chapter

9.22 Reporting requirements

- a. Customer request for Renewable funds and the pro rata reduction:** Due to the \$4 million dollar annual cap (\$2.5 million in FY 2011) on total annual renewable rate credit, BPA requires customers to request total annual renewable credit claims by July 15, 2010. If total customer requests exceed the applicable annual cap dollars in any year, all requests will be pro rata reduced for that year so that the annual dollar cap is not exceeded. [Note: Small (<7.5 aMW load) customers and federal customers will not be pro rata reduced but their requests will count against the annual dollar cap.] In the event of a pro rata reduction, BPA will notify customers of the amount their request was pro rata reduced by no later than 30 days after the customer request deadline.

Due to the increased volume of renewable claims against the RO, BPA will no longer allow adjustments to renewable requests (claims) after the pro rata reduction. The dollar amount remaining after the pro rata reduction will be considered a final number and the requesting customer has an obligation to spend this amount of money on renewables before the end of the rate period. The amount reduced via the pro rata reduction should be spent on conservation, or the customer can opt out of the program.

Renewable requests made under this section should be sent to the address shown in section 9.20 by July 15 of each year of the rate period.

- b. Annual Reports to BPA:** Customers must submit annual reports to BPA validating renewable claims made under the RO. Annual reports should use the PTR system and should be submitted by no later than October 31 of each year for the proceeding fiscal year's renewable claim. All required documentation that cannot be submitted through the PTR system (REC attestations, third party verifications, etc.) should be sent to the address shown in section 9.20

Due to increasing pressure on the \$6 million cap, BPA will no longer accept or approve additional requests for renewable credit for FY 2011 if renewable claims from FY 2010 have not been substantiated via the annual October 31 reports. This is consistent with reporting required for conservation under section 4. Because the RO option amounts for FY 2011 will be published in August 2010, which is prior to the FY 2010 reports being filed, it may be necessary for BPA to invoice customers who are not allowed a FY 2011 RO allotment because they did not fully substantiate their FY 2010 funds.

October 31 reports to BPA validating pro rata reduced July 15 renewable rate credit requests (claims) should contain the following information to be approved:

1. A statement of the annual and monthly metered Net Electric Energy generated by the renewable energy facility during the previous fiscal year and claimed for credit by the customer.
2. A statement showing how the customer's renewable rate credit claim was derived and computed.
3. Applicable information required elsewhere in section 9, including third party verification (written verification from an independent auditor or state audit agency): BPA recognizes it may be difficult to obtain third party verification by October 31 for the previous fiscal year and may grant extensions for third party verification on a case-by-case basis.
4. RD&D and Donations: An Application for Certification for a qualified RD&D activity or eligible donations must contain a description of the qualified facility or activity, verification that applicable criteria have been met, and a copy of the invoices that are the basis for the customer's claim for credit (if applicable).
5. Purchases from BPA: The customer will reference the contract, the BPA product, the amount of the purchase (kWhs), and how much of the rate credit is being applied to this purchase in the annual October 31 report.

If a customer has not yet completed the spending for its RO allocation prior to the end of a fiscal year, the customer must submit its annual report with an explanation as to why the spending has not yet been completed and share the customer's plans to use the RO funds.

9.23 True-up for Generation-Based Claims

Due to the annual cap on renewable claims, customers making RO claims on new facilities will be required to make claims based on actual generation. True-ups will only be accepted for New Facilities that cannot complete 12 consecutive months of actual generation prior to the end of the rate period, but are energized prior to December 31, 2011. (These facilities use forecasted generation rather than actual generation.)

Customers that need to use forecasted generation for all or part of a reporting year will need to file a true-up report with BPA. After a facility completes 12 consecutive months of generation, the customer will need to file a true-up comparing previously

reported forecast generation with actual generation for that forecasted period. This true-up will be used to determine if the full credit has been earned or if a refund is due BPA. The true-up report will be due 30 days after the completion of the first 12 months of generation, but in no event should it be received after January 31, 2013.

For example, if a project starts generating on July 1, 2011, in its annual report the customer will report actual generation from July 1, 2011, through September 30, 2011, and forecasted generation from October 1, 2011, through June 30, 2012. The true-up report, comparing forecasted vs. actual generation for October 2011 – June 2012, will be due on July 31, 2012.

9.24 Procedures for Processing Reports and Applications

BPA will process Pre-Applications and Annual Reports and notify the customer of its determination within 60 days of receipt of the Pre-Application and 30 days of receipt of the Application for Certification.

1. Notice to applicant — If an application meets the requirements of the RO, BPA will issue a written notice to the applicant.
2. Disqualification — If an application does not meet the requirements of the RO for renewables or if some of the kWh claimed in the application are disallowed as unqualified, BPA will issue a written notice denying the application in whole or in part, with an explanation of the basis for denial.
3. Appeal of determination — A customer may appeal a decision within 60 days. Appeals should be sent to the address shown in section 9.20.

9.25 Rules for Pooling Renewables

A project or proposal from a pooling entity is subject to the same criteria, standards, and procedures as any other entity. The pool must comply both on an individual and aggregate basis.

Renewable Pooling Requirements

- a. Pooling utilities are responsible for reporting their own individual claims and semi-annual reports. Claims are subject to applicable reporting requirements outlined in section 9.22 of this document.
- b. The pooling organization will provide an annual summary report to BPA. The report shall document the claims of all pooling participants.
- c. If the pooling entity has a mix of customers using different conservation or renewable approaches, the pool must keep customers using different approaches separate for reporting purposes.

Examples

Existing Customer Scale Wind

Big City Energy wants to use its rate credit to offset the cost of purchasing 20 MW of energy from the Big Wind Project (energized in 2001). The busbar CY 2010 power purchase price is \$44/MWh, their contracted integration charges are \$9/MWh. The project generated (and Big City Energy purchased) 60,000 MWh in 2010 and 50,000 MWh in 2011. This project would be classified as an Existing Facility and as a customer-scale wind project.

$\$/\text{MWh Credit} = [(\text{Contracted Power Cost}) + (\text{Contracted Integration Charges})] - (\text{Proxy for avoided cost}).$

NTE 33 percent of the applicable New Facility credit.

$\$/\text{MWh Credit} = [(\$44/\text{MWh}) + (\$9/\text{MWh}) - (\$34.68/\text{MWh}) = \$18.32/\text{MWh}.$

However, \$18.32/MWh > 50 percent of the credit given to New Customer Scale Wind facilities (e.g. Existing Customer-scale wind projects are capped at \$9.00/MWh). Therefore, the \$/MWh Credit for the purchase of energy from the Big Wind Project is capped at \$9.00/MWh.

$\text{Total Credit} = (\text{Energy Generated}) \times (\$/\text{MWh Credit})$

$\text{Total Credit} = (110,000 \text{ MWh}) \times (\$9.00/\text{MWh}) = \$990,000$

Big City Energy can submit a request for a claim for \$990,000 anytime during the rate period, but the amount claimed in one year cannot exceed their annual CRC credit, and the claim will need to be substantiated in the next October 31 report.

Big City Energy must have the output and costs independently certified by a CPA and include these verification reports in their October 31 annual report to BPA for the year in which they make the claim.

New small wind project

During the FY 2010-2011 rate period PUD #1 signs an agreement to purchase a wind project within their service area. The Project is contracted to be energized by December 31, 2011. Project consists of two 1.5-MW turbines. This is a New Wind project with a capacity less than or equal to 10 MW but greater than 25 kW.

$\text{Credit} = (\text{Capacity}) \times (\text{Capacity Factor}) \times (\$/\text{MWh Credit}) \times (\text{hours/year})$

$\text{Credit} = (3 \text{ MW}) \times (0.30) \times (\$18/\text{MWh}) \times (8,760) = \$141,912. (\$18/\text{MWh} = \text{Cap})$

PUD #1 can submit a claim for this project anytime during the rate period, but must include in their October 31 annual report verification that they have executed a power purchase agreement during the rate period and that contractual incentives are in-place to ensure the project is energized by December 31, 2011. By no later

than January 15, 2012 PUD #1 must also demonstrate that the project was energized by December 31, 2011. If the project fails to come on-line by December 31, 2011, the PUD must repay BPA for the credit claimed for this project plus interest. If the project was energized after October 1, 2011, PUD #1 will need to include forecasted energy in their annual report and a true-up report will need to be provided after the first 12 months of consecutive operation.

Although the PUD can claim the renewable project during any year, they must substantiate the claim in the next October 31 annual report. PUD #1 must retire the RECs generated by this project during the 2010-2011 rate period within their service area. PUD #1 cannot simultaneously claim energy generated by their wind project under the rate credit program and sell the attributes or Renewable Energy Certificates (RECs) separately.

See table RO-1, section 9.16.

New customer-scale wind project with self-supplied integration services:

East Side Electric signs a contract to purchase 60 percent of the output of the 50 MW White Eagle wind project. The busbar cost of the energy is \$48/MWh and integration costs are \$4/MWh.

The project is scheduled to be energized in September 2010. The White Eagle project would be classified as a New customer scale wind project.

Credit = ((Project Costs) – (Proxy for Avoided Cost)) x (Capacity) x (Capacity Factor) x (hours/year)

Credit = [(\$48/MWh + \$4/MWh) - (\$34.68)] x (50 MW x 0.60) x (0.30) x (8760) = \$1.365.508

Credit = \$17.32/MWh

East Side can submit a request for a claim for this project anytime during the rate period, but the amount claimed in any one year cannot be greater than the customer's total CRC for that year. If East Side's total eligibility is only \$1,000,000/year, then this customer must submit their request for a claim for this project over several years rather than in a single year.

For example, it would be permissible for East Side to report only a portion of one year's worth of output received to satisfy the CRC requirements for FY 2007. East Side could then apply the remaining portion of that year's production from White Eagle to satisfy all or a portion of the CRC requirements for FY 2011.

East Side must verify, via a third party audit, generation amounts, purchase price, and justification for their near-term opportunity costs associated with self-supplied integration. The audit report and the justification for integration costs should be supplied to BPA in their October 31 annual report for the year in which they made

the claim (e.g., report due by October 31, 2010, for FY 2010). This customer may want to keep the busbar energy and integration costs confidential, in such case they should arrange for a confidentiality agreement with BPA.

Generation exceeding the requested claim can be rolled forward and claimed in the following year. (FY 2011 generation cannot be rolled forward to FY 2012.)

East Side must retire the RECs generated by their portion of the White Eagle wind project during the FY 2010-2011 rate period within their service area. East Side cannot simultaneously claim energy under the rate credit program and resell the associated RECs to another customer or marketer.

See section 9.16(a).

RECs

Jones County PUD purchases 50,000 MWh of Calendar Year 2011 RECs from East Side's portion of the wind Project. Jones paid East Side \$5/MWh for the RECs and submits a claim to BPA for \$250,000. The calculations are correct but BPA denies Jones' claim because:

- a) BPA determined that East Side also submitted a claim on the same portion of project.
- b) Some of the RECs will be generated after the end of the rate period. Only RECs generated during the rate period are eligible. Jones will have to use the amount of rate credit they claimed for these RECs on another eligible Renewable activity before the end of the rate period. The other customer making a claim on this project may be required to repay BPA for their claims made on this project.

See section 9.9.

EPP and Renewable Option to the Conservation Rate Credit Notice/Contract Action Timeline

July 15, 2009	August 15, 2009; July 15, 2010	September 1, 2009; August 1, 2010	September 15, 2009, 2010	September 30, 2009	October 1, 2009	October 31, 2009, 2010	December 30, 2009, 2010
<p>Last day to take advantage of first call on EPP inventory (BPA will not hold 2010-2011 inventory for customers with EPP-option rights after this date).</p>	<p>Initial Renewable rate credit funding requests due to BPA for FY 2010. (Annual dollars not project-specific).</p>	<p>BPA provides customers with notice of the amount of pro rata reduction to renewable rate credit request</p>	<p>Last day to provide notice to BPA of reduction in EPP amount pursuant to pro-rata reduction.</p>	<p>Last day for customers to decrease 2009 Renewable rate credit claims pursuant to pro-rata reduction.</p>	<p>2012-2016 EPP option rights capped at contracted levels.</p>	<p>Annual CRC Report due to BPA. (Prior FY accomplishments. Document how short-falls will be covered.)</p>	<p>Last day for Projects to be energized to qualify for 2010-2011 CRC. Late payment charges invoked on unspent 2010-2011 CRC funds.</p>