

# ENERGY EFFICIENCY Implementation Manual



October 1, 2011





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## October 2011 Changes Summary

This summary includes new changes only.  
It does not include interim updates/revisions or changes from a previously announced notice.

Changes that will take effect in six months (or later) are shaded.

Title	Description	Page #
<b>General</b>		
Irrigation Rate Mitigation Product	References to the Irrigation Rate Mitigation Product have been removed as this funding source is no longer available.	Not applicable.
Fundamental Requirements related to Federal Due Diligence	The subparts of this section have been condensed and/or consumed in other parts of the Manual. None of the requirements have been removed.	Not applicable.
Energy Efficiency (EE) Central	EE Central replaces the Planning, Tracking and Reporting (PTR) System (except for final CRC reporting). PTR system references have been changed to EE Central. In addition, with EE Central's document repository and upload capabilities, a number of forms are now located in EE Central and must be uploaded through that portal. Such requirements are noted in the specific measure section.	Not applicable.
Sector Chapter Organization	A new chapter has been created for the Utility Distribution Sector (which contains Energy Smart Utility Efficiency, formerly found in the Industrial Sector chapter), and the sector chapters have been reorganized in alphabetical order, with the Multi-Sector chapter at the end.	Not applicable.
Documentation Requirements Summary	Sector chapters now include a documentation requirements summary immediately following the reimbursement summary.	Not applicable.
Large Project Fund	The Large Project Fund distribution process has been clarified.	5
General Requirements	This section has been reorganized to align with the timeline of performance. References to "reports" (previously associated with the Conservation Rate Credit) have been changed to "invoices," and "invoices" is defined to include those measures claimed but not requesting reimbursement.	9
Documentation Requirements	The documentation requirements section (and the corresponding measure-specific "Additional Documentation Requirements" sections) has been clarified for ease of read and redundancy elimination (e.g., documentation requirements listed in both the general and measure specific sections). Effective April 1, 2012, BPA will require that customers submit certain required documentation with their invoices rather than simply retain the information in their files.	9
Oversight	The section clarifies BPA's actions in relation to oversight findings (e.g., BPA's authority to contact end users) and the customers' duties in program evaluations.	11
Reporting Prohibitions	The following section has been added: If BPA determines that a customer reported measures with false information, BPA may prohibit the customer from reporting measures to BPA. If the measure that contains false information was implemented with the assistance of a contractor, BPA may prohibit all customers from reporting measures that were implemented with the assistance of that contractor.	12
Custom Programs and Projects	Effective April 1, 2012, BPA will limit qualifying custom program/project costs and will require additional information in custom program/project documentation.	13
Custom Programs and Projects Reimbursement	This section clarifies the reimbursement levels for each measure type and includes a new reimbursement level specific to non-residential lighting.	13
Evaluated Custom Program	This section clarifies that evaluations must be conducted by a third party.	14
<b>Agricultural Sector</b>		
Agricultural Turbine Pump Applications	Effective April 1, 2012, savings and reimbursement rates may change.	26

Title	Description	Page #
Transformer De-energization	Effective April 1, 2012, new TRX projects will be deemed/calculated and have a one-year measure life. BPA shall reimburse the lesser of \$0.025 per kWh or 70 percent of the incremental project cost of performing the project.	27
<b>Commercial Sector</b>		
Commercial Custom Projects – Existing Buildings	A new measure has been created for custom projects on existing buildings.	31
Commercial Ductless Heat Pumps	Effective April 1, 2012, this measure may be removed or changed.	32
Energy Smart Grocer	This program has been revised to reflect the new budget structure. This program will not be available until BPA finalizes its contract with PECl. BPA will inform customers when the contract is in place and when the program is available.	35
Deemed Refrigeration Retrofit Measures	Effective April 1, 2012, there will be no reimbursement for night covers.	36
Pre-rinse Spray Wash Valves	Effective April 1, 2012, the flow rate specification will be reduced to 0.65 gallons per minute or lower, and savings will be reduced to 488 kWh.	39
Network Computer Power Management	Effective April 1, 2012, this measure may be changed. Such changes may result in a decrease to savings.	40
Smart Power Strips	This measure was previously provisionally deemed and scheduled to expire on September 30, 2011. Expiration has now been extended to April 1, 2012. Recent research shows promising savings, and the measure will be updated on April 1, 2012 pending review by the RTF. Negative changes to savings levels and reimbursement are possible.	41
Energy Smart Design – Office and Tradeoffs	Effective April 1, 2012, packages A and B will no longer be available for buildings with heat pump systems, and packages A and C will no longer be available for buildings in the City of Seattle. Effective, October 1, 2013, this measure will be removed due to expected energy code changes.	42
New Construction, Major Renovation and Multifamily Higher than Three Stories	The custom project process for these applications has been clarified.	43
<b>Federal Sector</b>		
There are no changes.		
<b>Industrial Sector</b>		
Energy Project Manager	The cost of the Energy Project Manager has been clarified, and effective April 1, 2012, excess savings may not be carried over to subsequent funding years.	49
Track and Tune	This section clarifies (1) customers' ability to revise end-user agreements to adjust the performance period and (2) the time periods for payments.	51
High Performance Energy Management	This section clarifies (1) customers' ability to revise end-user agreements to adjust the performance period and (2) that management support is required.	54
Northwest Trade Ally Network	This section clarifies how the program works with custom project options.	55
<b>Residential Sector</b>		
Chapter Organization	The residential measures have been condensed to eliminate redundancy of requirements (i.e., all CFL and showerhead measures have condensed into tables and all HVAC Ducted Systems with PTCS measures have been condensed, listing additional documentation requirements only once. The substance of these measures has not changed, but requirements may have been clarified or relocated. Customers may need to refer to the general <a href="#">Documentation Requirements</a> , additional documentation requirements found with each measure and the <a href="#">Measure Distribution Processes</a> section in the Multi-Sector chapter.	Not applicable.

<b>Title</b>	<b>Description</b>	<b>Page #</b>
EISA Impacts to Standard CFLs	Effective April 1, 2012, savings for standard CFLs will decrease from 24 kWh to 17 kWh as a result of a change in baseline from the impacts of the Energy Independence and Security Act of 2007. BPA reimbursement will not decrease at this time.	60
Electric Storage Water Heaters	Effective April 1, 2012 electric storage water heaters will be categorized by gallon as follows: 25-34.99, 35-44.99, 45-54.99, 55-74.99, 75-99.99, 100-119.99. Savings for 105 and 119 gallon water heaters will decrease by 43%. Reimbursement will be \$25.00 for all measures, regardless of size.	61
Pipe Insulation	This measure has been added.	62
PTCS Ground Source Heat Pump	Effective April 1, 2012, the upgrade of an air-source heat pump to a ground source heat pump base case is ineligible for reimbursement, but the conversion of an electric forced air furnace to a ground source heat pump is eligible.	64
New ENERGY STAR Site-Built Homes (Oregon)	Effective April 1, 2012, Oregon ENERGY STAR Homes (half or full basement) and crawlspace measures will be retired and replaced with updated ENERGY STAR home measures.	66
Montana House	A new Montana House measure has been added. (Measures may not be ready for EE Central viewing on October 1, 2011. Please contact your EER for more information.)	68
<b>Utility Distribution Sector</b>		
Custom Project Options	The section has been revised to clarify the application of the custom project options.	75
Reimbursement Rate	Effective April 1 2012, the reimbursement rate for utility distribution custom projects with a 20+ year measure life will change to \$0.25/kWh.	75
<b>Multi-Sector</b>		
Third Party Contributions – Energy Trust of Oregon	This process has been removed from the Manual because there are currently no available funding opportunities.	Not applicable.
Measure Distribution Processes	A new section has been added for Measure Distribution Processes (i.e., measures distributed via direct install, retail markdown, end-user reimbursement, direct mail/mail by request and other methods). Measures using one or more of these processes will reference this section for requirements.	78
Commercial and Industrial Lighting aka Non-Residential Lighting	The name has been changed to Non-Residential Lighting; qualifying custom projects have been clarified; and the custom project reimbursement rate is now \$0.18/kWh capped at 70% of the project incremental cost.	80
Commercial and Industrial Lighting aka Non-Residential Lighting	Effective April 1, 2012, (1) deemed projects must use Lighting Calculator Spreadsheet versions 2.2 or 2.3 and (2) changes (possibly negative) will be implemented regarding lighting custom project eligibility criteria, minimum project size, measurement and verification requirements and reimbursement.	80
Stand-alone CFL Measures	The direct install and end-user reimbursement CFL measures have been consolidated into one measure.	82
Limited Availability Emerging Technology Pilots	This section clarifies that enrollment is through the COTR Request and Acknowledgement Procedure.	83

## Implementation Manual Timeline

Action	Personnel on Point	Static Due Date	April 2012 Due Date <sup>1</sup>
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 27, 2012
Complete first round of revisions and return to BPA Energy Efficiency Implementation Manual Coordinator	BPA Energy Efficiency Staff (Sector Leads, <sup>2</sup> Contracts Manager, Programs Manager)	7 weeks before Manual publication date	February 10, 2012
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 21, 2012
Complete second round of revisions and return to BPA Energy Efficiency Implementation Manual Coordinator	BPA Energy Efficiency staff, Utility Sounding Board Members	3 1/2 weeks before Manual publication date	March 6, 2012
Incorporate second round of revisions	BPA Energy Efficiency Implementation Manual Coordinator	2 weeks before Manual publication date	March 16, 2012
Convert Manual to PDF and create bookmarks and hyperlinks	BPA Energy Efficiency Implementation Manual Coordinator	7 days before Manual publication date	March 23, 2012
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, 2012
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 16, 2012
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 17, 2012

<sup>1</sup> This column will be updated every six months to reflect the dates of the upcoming publication. If the static due date falls on a weekend or holiday, the actual due date will be the following business day.

<sup>2</sup> 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

<b>ACH</b>	Air changes per hour, typically used in weatherization
<b>AHRI</b>	Air-Conditioning Heating and Refrigeration Institute
<b>aMW</b>	Average megawatt of electricity or the average measure of the total energy delivered in one year - 8,760,000 kilowatt-hours per year
<b>B/C</b>	Benefit/cost ratio
<b>Bilateral Funding</b>	A form of BPA energy efficiency funding; "Implementation Budget" as used in the Energy Conservation Agreement; Energy Efficiency Incentive
<b>Bilateral Transfer</b>	The transfer of implementation budget between customers
<b>BPA</b>	Bonneville Power Administration
<b>Busbar energy savings</b>	Generally 9.056 percent above the site energy savings
<b>CEE</b>	Consortium for Energy Efficiency
<b>CFL</b>	Compact fluorescent lamp/light bulb
<b>Completed Unit</b>	As used in the Energy Conservation Agreement describes properly installed measures, 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 and Energy Efficiency Central
<b>Completion Report</b>	A document submitted at the completion of a custom project (under Custom Project Process, Option 1) that includes information on project costs, verified energy savings and information on changes to the approved M&V plan
<b>Conditioned space (residential)</b>	Any residential building cavity or space that is directly heated by a register or duct that provides conditioned air, typically a space inside the thermal shell of the residence
<b>Conservation</b>	Any reduction in electric energy consumption resulting from an increase in the efficiency of electric energy use, production or distribution
<b>COTR</b>	Contracting Officer's Technical Representative
<b>Council</b>	Northwest Power and Conservation Council
<b>Customer</b>	A utility or other regional entity that purchases power from BPA
<b>Custom Project</b>	Energy savings work performed under the Manual's custom project section
<b>Custom Project Proposal</b>	A proposal for energy savings work made under the Manual's custom project section (under Custom Project Process, Option 1)
<b>DA</b>	Direct Acquisition
<b>Deemed Measure</b>	A measure with estimated energy savings per unit based on a history of measured results and an ability to replicate energy savings
<b>DHP</b>	Ductless Heat Pump
<b>ECA</b>	Energy Conservation Agreement
<b>EE Central</b>	Energy Efficiency Central (replacement to Planning, Tracking, and Reporting system)
<b>EI</b>	Energy Efficiency Incentive; the basis of the implementation budget that funds energy efficiency activities
<b>EER</b>	Energy Efficiency Representative
<b>EM&amp;V</b>	Evaluation, measurement and verification
<b>End user</b>	Ultimate consumer of product
<b>Energy Savings</b>	Conservation in first year kilowatt-hours attributable to completed units; site energy savings, which include busbar energy savings
<b>ENERGY STAR®</b>	The registered name for a joint national energy efficiency program of the U.S. Environmental Protection Agency and the U.S. Department of Energy
<b>Evaluation</b>	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)
<b>Fiscal Year (FY)</b>	For BPA, from October 1 through September 30
<b>Fuel Switching</b>	As determined by BPA, the switching of one type of energy consumption to another (e.g., switching from electric heating to natural gas heating)
<b>GPM</b>	Gallons per minute, as in the flow-rate of showerheads
<b>HP</b>	Horsepower

<b>HVAC</b>	Heating, ventilation and air conditioning
<b>HZ</b>	Heating zone
<b>Implementation Budget</b>	The amount of money BPA makes available to a customer (through its Energy Conservation Agreement) to expend on implementation costs during the implementation period
<b>Implementation Period</b>	The period of time covered by a customer's Energy Conservation Agreement
<b>Incremental cost</b>	Energy efficiency costs for work beyond that required by standard practice or code (may be the full cost of measures, especially in retrofit situations); "implementation cost" as used in the Energy Conservation Agreement
<b>Invoice</b>	A report of measures claimed and/or savings achieved under the Manual (may or may not include a request for reimbursement)
<b>kW</b>	Kilowatt – one thousand watts (units of electric power)
<b>kWh</b>	Kilowatt-hour – one kilowatt over the period of one hour (unit of energy)
<b>Large Project Fund</b>	The money reserved for certain BPA-approved custom projects with reimbursement amounts that exceed 50% of the customer's original implementation budget (i.e., budget at start of rate period)
<b>LED</b>	Light-emitting diode
<b>Low-income</b>	As defined in the <a href="#">Federal Weatherization Assistance Program</a> , 200 percent of the poverty income levels (Approved statewide definitions substitute for federal low-income weatherization programs in the corresponding states.)
<b>M&amp;V</b>	Measurement and Verification
<b>Major Renovation</b>	A renovation to an existing structure that requires a building permit and in which multiple systems are impacted while the structure is repurposed, expanded or repositioned
<b>Measure</b>	Materials, equipment or activities that achieve energy efficiency
<b>Measurement</b>	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 measurement and verification for projects for which the reimbursement is established by the energy savings achieved.)
<b>MEF</b>	Modified Energy Factor
<b>Multifamily (Residential)</b>	Five or more dwelling units within the same structure, no more than three stories
<b>MW</b>	Megawatt – one million watts (units of electric power)
<b>MWh</b>	Megawatt-hour – one megawatt over the period of one hour
<b>NEEA</b>	Northwest Energy Efficiency Alliance
<b>NEEM</b>	Northwest Energy Efficient Manufactured Home
<b>NEMA</b>	National Electrical Manufacturers Association
<b>NFRC</b>	National Fenestration Rating Council
<b>Oversight</b>	A contract management activity, designed to assure the government that it is getting what it pays for with some level of certainty
<b>Performance Payment</b>	Application of funds to cover internal customer administrative costs incurred in support of energy savings activities described in this Manual
<b>PTCS™</b>	Performance Tested Comfort Systems (certification for duct sealing and heat pump commissioning)
<b>Regional Technical Forum (RTF)</b>	An advisory committee established in 1999 to develop standards to verify and evaluate energy conservation (Committee members are experienced in conservation program planning, implementation and evaluation and are appointed by the Northwest Power and Conservation Council.)
<b>Reimbursement</b>	A term representing monetary incentive levels for the installation of energy efficiency measures
<b>SEER</b>	Seasonal Energy Efficiency Ratio
<b>Single-family</b>	Fewer than five dwelling units within the same structure or a site-built home

<b>SIS</b>	Scientific Irrigation Scheduling
<b>Site energy savings</b>	The ascribed, deemed, calculated, estimated, evaluated or verified conservation in first year kilowatt-hours attributable to completed units
<b>Tier One Cost Allocator (TOCA)</b>	Per the Tiered Rate Methodology, a billing determinant for applicable customer charges, annually based on the lesser of the customer's rate period high water mark (RHWM) or the customer's forecast net requirement, calculated as a percentage of the total of RHWMs for all customers
<b>TRC</b>	Total Resource Cost
<b>TSP</b>	Technical Service Provider
<b>TRX</b>	Transformer de-energization
<b>Unassigned Account</b>	The grouping of unclaimed and returned Energy Efficiency Incentive funds
<b>Unconditioned space (residential)</b>	Any residential building cavity or space that is intentionally vented to the outside or is not heated directly by a register or duct
<b>Utility</b>	A public customer that purchases power from BPA
<b>Verification</b>	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)
<b>VO</b>	Voltage Optimization (formerly Conservation Voltage Regulation)
<b>Whole Building Cost</b>	As-built contracted cost including labor, design and measurement and verification, excluding land costs
<b>Working day</b>	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 [BPA Energy Efficiency Post-2011 Implementation Program](#). For additional guidance on Post-2011, see the [BPA Web site](#). The Manual, together with the customer's Energy Conservation Agreement (ECA) and specifications in Energy Efficiency Central (EE Central), incorporated herein, provides the implementation requirements for projects reported to BPA.

## 1.1 How Measures Become Eligible for BPA Reimbursement

Measures are eligible for reimbursement if (1) they are recommended by the Regional Technical Forum (RTF) and accepted by BPA or (2) they are BPA Qualified.

### 1.1.1 RTF Recommendations

The RTF is independent from BPA and makes recommendations regarding the following:

- Cost-effective conservation and estimated energy savings and costs of deemed measures
- Standard practices
- Protocols for estimating the energy savings and system value of measures/programs not on the RTF recommended list
- Protocols for measurement and evaluation of energy savings or production

Customers may write the RTF chair to propose new/changed measures. Customers should verify RTF proposal requirements, but depending upon the proposal type, certain items should be included.

- 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 (e.g., a proposed change in protocol should explain why the change improves the protocol's analytical quality).
- If a changed assumption is proposed, the proposal should present evidence that the change more closely aligns the change with reality.

RTF staff will place completed proposals on either the (1) RTF discussion agenda or (2) the RTF consent agenda for rejection. If any RTF member disagrees with consent agenda assignment, the proposal will be put on the discussion agenda.

The proposing party may present directly to the RTF and/or contact individual RTF members prior to the meeting. Members must disclose such contacts when the proposal is under consideration. The RTF shall consider the proposal, staff's recommendation and any public comment and accept or reject the proposal by majority vote, usually within 90 days of proposal receipt.

#### Organization of the Manual

[Section 1](#) contains general information about the Manual.

[Section 2](#) contains information specific to funding.

[Section 3](#) contains general requirements for customers using BPA funding.

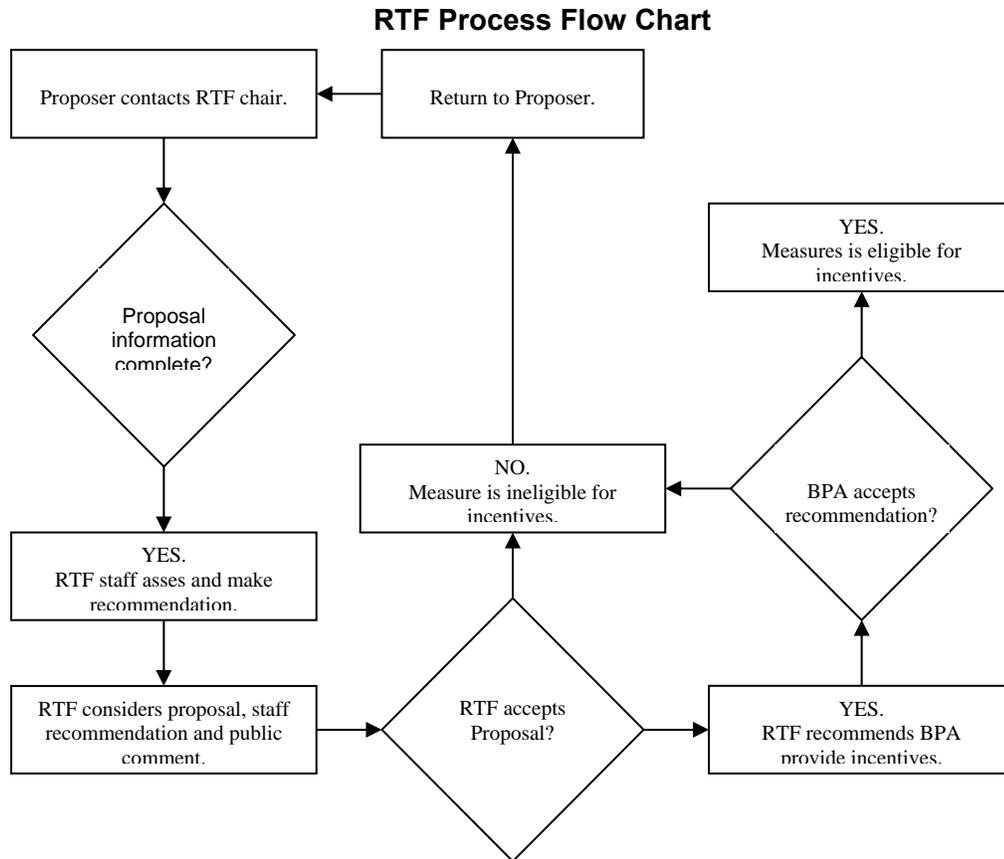
[Section 4](#) contains information on the custom project process.

[Sections 5 through 11](#) contain information about specific sectors (Agricultural, Commercial, Federal, Industrial, Residential, Utility Distribution and Multi-Sector).

[Section 12](#) contains updates and revisions made outside official

The RTF will recommend accepted proposals to BPA. These recommendations are advisory only, and BPA will generally decide within 30 days whether to accept, reject, modify or request more information regarding the RTF recommendation.

The figure below depicts the RTF process.



### 1.1.2 BPA Qualified Measures

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

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

For BPA Qualified measures, BPA requires a full RTF review of the measure. After RTF's review, BPA assesses preliminary cost-effectiveness, develops an M&V plan and generally evaluates the measure for BPA Qualified status. After evaluation, if BPA decides to proceed with the measure, BPA develops the measure design and presents evaluation results to the RTF for review. The RTF is expected to complete its review within two RTF meetings.

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

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

## **1.2 Reimbursement Strategies and Levels**

BPA strives to acquire conservation at the lowest possible cost and bases reimbursement levels on (1) busbar energy savings, which are generally 9.056 percent above the site energy savings, and (2) estimated or verified energy savings that persist over the life of the measure (as derived from program evaluations and research projects).

There are two types of reimbursement:

1. Deemed Reimbursement: BPA sets the deemed reimbursement level by multiplying the RTF deemed estimate of busbar energy savings by a set dollar amount or by setting a specific reimbursement amount. EE Central may require additional calculations to arrive at energy savings, and when this occurs, the measure is “calculated” but still deemed.
2. Custom Project and Program Reimbursement: The custom project and program reimbursement level is determined by measure life, sector and type of construction per the [custom project and program reimbursement table](#).

## **1.3 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, measure eligibility, specifications and requirements. Customers will be given at least six months notice for changes that decrease a measure reimbursement or savings, increase requirements or delete an existing measure. Changes that increase a measure reimbursement, decrease requirements or add a new measure may be implemented at any time without prior notice.

## **1.4 Official Interpretations**

Only the BPA Contract Administration Manager or Director of Energy Services may issue interpretations, determinations and findings related to the Manual unless delegated to other BPA staff (e.g., Contracting Officer’s Representative (COTRs)). Such interpretations, determinations and findings will be provided to the customer in writing. Only written statements (including e-mail) by BPA officials acting within the scope of their authority are official BPA statements.

## 2. Funding

### 2.1 BPA Funding<sup>3</sup>

Pursuant to section 3(a) of the Energy Conservation Agreement (ECA), BPA Energy Efficiency will reimburse customers for the costs of energy savings from in-region projects.<sup>4</sup>

This section discusses (1) [bilateral funding – Energy Efficiency Incentive \(EEI\)](#), (2) [pooling organizations](#) and (3) [performance payments](#).

#### 2.1.1 Bilateral Funding – Energy Efficiency Incentive

Bilateral funds may be used for all BPA-funded measures in EE Central, unless otherwise specified in the Manual. Bilateral funding is administered through the customer's ECA (Exhibit A) and is referred to as the implementation budget.

Customers may request an ECA<sup>5</sup> by writing to their Energy Efficiency Representative (EER). BPA shall review the request and, if accepted, develop a draft ECA, generally providing an opportunity for customer review. Once the ECA is final, two originals (signed by BPA) will be sent to the customer with a request that both be signed and one returned to BPA.

Customer rate period implementation budgets (contained in ECA Exhibit A) are based on customer Tier One Cost Allocators (TOCA). Changes to an implementation budget may be pursued under Section 3(b) of the ECA according to the parameters detailed below for budget redistribution, reduction and increase (from the Unassigned Account and Large Project Fund). Pursuant to Section 4(c) of the ECA, if the sum of the invoices for deemed or custom projects exceeds the implementation budget in Exhibit A, BPA shall not pay the excess amount.

The following section discusses implementation budget (1) allocation, (2) redistribution, (3) increase from the Unassigned Account and (4) increase from the Large Project Fund.

##### 1. EEI Allocation

After the rate case Final Proposal is published, BPA will calculate the EEI allocation for each customer and deliver this information in a letter or similar document. BPA will revise the customer's ECA implementation budget to reflect the allocated funds, effective the first day of each rate period (i.e., October 1), unless the customer indicates a different funding amount (not to exceed the EEI allocation) through the [COTR Request and Acknowledgement Procedure](#). If the customer does not request a different funding amount, it commits to use or transfer its full EEI allocation for the acquisition of energy efficiency, per the requirements of the Manual. Returned EEI funds will be added to the Unassigned Account, an account which will capture unclaimed EEI funds.

<sup>3</sup> Conservation Rate Credit (CRC) funding is unavailable, but CRC reporting will continue into the next fiscal year. Customers must submit their CRC reports (for the preceding April 1 through September 30) by October 31, 2011 and their final rate period true-up reports by November 30, 2011. If the final true-up report shows accumulated CRC exceeds CRC-qualifying expenditures, the customer may take an additional month to make qualifying expenditures and create a revised final true-up report. If qualifying expenditures still do not equal or exceed the cumulative CRC, customers must reimburse BPA by March 31, 2012.

<sup>4</sup> BPA will not reimburse for projects that have been or will be funded in part/full by another BPA funding source.

<sup>5</sup> Occasionally, BPA may negotiate a non-standard agreement with a customer when there is a benefit to BPA (e.g., a reduction in the reimbursement or staff time spent administering the agreement). Non-standard ECAs result in a variation from requirements of the Manual.

2. ECA Implementation Budget Redistribution (Bilateral Transfers and Pooling Organizations)

Customers may redistribute EEI funds among each other by forming a [pooling organization](#) or emailing a completed Bilateral Transfer Request Form (available in EE Central) to their COTRs.

If customers request a bilateral transfer of EEI funds, BPA will revise the customers' ECA implementation budgets to reflect the transfer only if there is no appearance/evidence that a customer received or gave something of value in exchange for the transfer. Value does not include the transfer of funds in current or future rate periods. If BPA discovers that value was exchanged after revising implementation budgets, it will reverse the changes, and customers must return any transferred funds paid by BPA.

3. ECA Implementation Budget Reduction

Customers may reduce their implementation budget at anytime by using the [COTR Request and Acknowledgment Procedure](#). BPA will revise the customer's ECA implementation budget to reflect the reduction, and the unallocated funds will be added to the Unassigned Account.

4. ECA Implementation Budget Increase from the Unassigned Account

BPA may increase customer implementation budgets (1) at months 6, 12 and 18 of the rate period and (2) on a monthly basis, beginning the 19<sup>th</sup> month of the rate period by distributing available EEI funds from the Unassigned Account. Customers will have 10 working days to request an implementation budget increase after BPA provides an accounting of available funds. If a customer's request is approved, funds will be allocated via a revision to the customer's ECA implementation budget.

To request an implementation budget increase from funds in the Unassigned Account, customers must submit the Request for Funding form (available in EE Central) and request an amount not to exceed the total amount available in the Unassigned Account. If total requests exceed available funds, funds will be allocated pro rata, based on the allowable amount of the customers' requests.

Customers who reduce their implementation budgets within the first 12 months of a rate period receive second priority access (behind BPA, which has first priority for Large Project Fund allocations, if applicable) to the unassigned funds up to the amount reduced. Priority is based on the date the funds were released and carries through that rate period and the one immediately following. Once the customer has recovered all the reduced funds, priority access is removed.

5. ECA Implementation Budget Increase from the Large Project Fund

The Large Project Fund is capped at \$10 million per rate period, and BPA will allocate funds on a first-come, first-served basis according to the date of the submitted custom project proposal requesting Large Project Funds.<sup>6</sup> A customer may request an implementation budget increase from the Large Project Fund (1) before project initiation, in its custom project proposal or (2) after project initiation<sup>7</sup>

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<sup>6</sup> To ensure initial equitable access to the Large Project Fund, BPA will open a window for fund requests, and will consider all requests received during that window to have the same submission date and time. Funds will be allocated to qualifying projects submitted during the window on a pro-rata basis, if necessary.

<sup>7</sup> Only projects initiated post-2011 may qualify for the Large Project Fund.

using the [COTR Request and Acknowledgement Procedure](#).<sup>8</sup> In order to qualify for the Large Project Fund, the following requirements must be met:

- The custom project's reimbursement meets or exceeds 50% of the customer's rate period implementation budget.<sup>9</sup>
- The customer agrees to pay the end user the equivalent of either 1/3 of its original implementation budget or 1/3 of the project's reimbursement amount.
- The customer agrees to reductions in its next two rate period EEI allocations<sup>10</sup> to account for the Large Project Fund allocation. BPA will automatically reduce the customer's next rate period EEI allocation by 50% of the Large Project Fund allocation. A customer may request a greater reduction using the [COTR Request and Acknowledgement Procedure](#). BPA will automatically reduce the customer's second rate period EEI allocation by the remaining allocation balance. If EEI allocation reductions are impossible because the project cost is greater than 300% of the customer's rate period EEI allocation, the customer must self-fund the difference in the rate period that the project is completed or share EEI funds with one or more customers.
- The custom project proposal indicates (1) the rate period in which the Large Project Fund allocation will be disbursed to the customer (by estimating the project completion date) and (2) project milestones and a proposed schedule of completion.

If the customer is a member of a pooling organization, all calculations are based on the customer's individual, uncombined budgets.

If the customer meets the requirements and funding is available, BPA will lock large project funding equal to the projected reimbursement, less the customer's 1/3 equivalent contribution. The Large Project Fund amount approved by BPA during its approval of a custom project proposal is the maximum amount a customer can receive for a given project regardless of any difference between the amount of savings projected in the project proposal and the amount of actual savings in the project's completion report.

If a project is not completed within the projected rate period stipulated in the custom project proposal, the funding lock will be revoked, and the customer must reapply for large project funding using the [COTR Request and Acknowledgement Procedure](#). The request must include the revised projected completion date, payment amount and documentation of the Large Project Fund requirements.

BPA will add approved funds to the customer's ECA after approval of the custom project completion report. The customer must retain proof that all requirements have been met and all payments have been made to the end user.

### **2.1.2 Rules for Pooling Organizations**

A pooling organization is two or more customers combining BPA funds to implement cost-effective conservation. A customer may put all or a portion of its BPA funding toward a pool

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<sup>8</sup> Customers using Custom Project Process, Option 2 must use Custom Project Process, Option 1 for projects using Large Project Funds.

<sup>9</sup> For customers in a pooling organization, this requirement is calculated using the customer's individual, uncombined rate period implementation budget.

<sup>10</sup> If the EEI is unavailable, the customer agrees to reimburse BPA through any available BPA funding source or its own funds.

and withdraw under terms and conditions agreed to by the pool. Pool membership can expand or contract as determined by the pool, but pooling organizations must provide at least 30 days' written notice to BPA of membership formation, changes or dissolution.

A pooling organization must appoint a legally authorized representative (i.e., customer or separate entity) to assume non-transferable liability for the organization. BPA will fund a pooling organization only after it has reviewed and approved documentation of pool status (e.g., pooling organization agreement, by-laws, articles of incorporation) submitted by requesting customers. If the authorized representative is not a BPA customer with an existing ECA, BPA will offer an ECA for signature. Savings must be attributed to the individual customer where the savings are located.

### 2.1.3 Performance Payments

Performance payments come out of the customer's ECA implementation budget and are based on savings achieved. The payment rate and cap depend on the customer's classification as "small," "rural" or "residential" (SRR) or none of these (non-SRR) (as defined in the chart below).<sup>11</sup>

SRR Status	Definition	Payment Rate <sup>12</sup> \$/kWh	Payment Cap Percentage of Implementation Budget <sup>13</sup>
Small	The customer's forecast net requirement is less than 10 aMW. <sup>14</sup>	\$0.08	30%
Rural	The customer has fewer than 10 customers per line mile according to the Low Density Discount calculation.	\$0.08	30%
Residential	The customer's load is greater than 66% residential, according to U.S. Energy Information Administration data. <sup>15</sup>	\$0.08	30%
Non-SRR	The customer is not small, rural or residential.	\$0.04	20%

Customers may claim a payment amount calculated in accordance with the requirements in the chart above. The chosen payment amount must be included in each invoice. If the performance payment is not claimed in an invoice or claimed only in part (e.g., an amount less than the maximum payment amount), there is no opportunity to later collect money for the unclaimed payment.

Pooling organizations may claim performance payments up to the aggregate of each pool participant's allowance, at a payment rate calculated as a weighted average based on pool participants' Tier One Cost Allocators. When funds are redistributed among customers, BPA may restrict the performance payment claimable on the transferred funds.<sup>16</sup>

<sup>11</sup> BPA will notify customers of their classification in the EEI eligibility letter.

<sup>12</sup> When the measure life is from one to three years (e.g., SIS, Energy Management and behavior-based and custom programs), the performance payment rate is capped at the reimbursement rate. For illustrative purposes, a kWh reported from a behavior-based program (assumed to have a one-year measure life) results in a reimbursement of \$0.025/kWh to the customer and an equivalent performance payment of \$0.025/kWh for both SRR and non-SRR customers instead of the regular rate of \$0.08/kWh and \$0.04/kWh, respectively.

<sup>13</sup> Any Large Project Funds added to the implementation budget are *not* included in the total implementation budget for purposes of calculating the payment cap.

<sup>14</sup> This forecast is based on the Rate Period High Water Mark Process. For the FY 2012-2013 rate period, the forecast is based on the customer's Tier One Cost Allocator.

<sup>15</sup> BPA reserves the right to request additional documentation (e.g., an annual report) to verify a customer's load.

<sup>16</sup> This restriction reduces the risk that BPA will overpay because performance payments are paid on a \$/kWh basis, independent of reimbursement amount (i.e., a customer could max out its performance payment, receiving little reimbursement and then transfer its remaining implementation budget to another customer that similarly maxes out the performance payment).

BPA highly recommends that customers use performance payments to support customer implementation costs in support of the Manual’s activities. Implementation costs may include (1) staff, (2) marketing and (3) other operating costs.

1. Staff costs cover direct labor (customer program staff and subcontractor costs) and indirect overhead for the implementation and management of conservation activities.
2. Marketing costs cover market research, advertising and promotional material production and distribution.
3. Other operating costs cover technical equipment (e.g., metering equipment, software programs and computer hardware), training, travel and program development.

## 2.2 Self-funding

A customer must report to BPA (for inclusion in regional target achievement), the following self-funded energy conservation activities:

- Deemed measures with BPA funding available
- Cost-effective, deemed measures, without BPA funding available
- Custom projects approved by BPA

## 2.3 Funding Sources in EE Central

Funding Source	Funding Activity
EEI	ECA funded activities
Self-funding	Self-funded, reportable activities
Non-reportable	Self-funded, non-reportable activities

# 3. General Requirements

## 3.1 Documentation Requirements

Customers must document claims to BPA in accordance with this section and the “Additional Documentation Requirements” section for each measure. Customers must retain documentation for BPA-reported measures for no less than three years after the term of the ECA or through September 30, 2017, whichever is later. Records must be available to BPA when requested. Effective April 1, 2012, BPA will require that customers submit certain required documentation with their invoices rather than simply retain the information in their files.

The following information must be documented for all measures, unless otherwise noted below:

1. End-user Identifying Information
  - a. End-user address
  - b. Unique identification number (e.g., address, power meter number) for end users (for most measures)
2. Measure Requirement Information
  - a. Equipment/contractor invoice<sup>17</sup> showing (a) measure requirements have been met (e.g., manufacturer, model number, type, size and quantity of equipment or product installed/used), (b) the order/purchase date (relevant for eligibility period and validating that equipment is new (Note: rebuilt nozzles are considered new.)) and (c) cost.
  - b. Fuel source, if an element of the measure’s requirements or reimbursement determination
  - c. If an ENERGY STAR rating is a requirement, (i) a copy of the [ENERGY STAR product list](#) showing the product or (ii) the actual ENERGY STAR logo from the product box or insert (In the event that ENERGY STAR specifications change, BPA will accept pre-existing models that were ENERGY STAR qualified at the time they were manufactured and shipped.)
  - d. If a customer agent or contractor was used for some or all of the measure development, implementation or verification, a subcontract that documents Manual requirements and contains information required by the ECA

## 3.2 Date Requirements

- a. The order and purchase date of all measures and the certification date of ENERGY STAR and manufactured homes must be after the effective date of the contract under which the claim is made.
- b. For custom projects, the order and purchase date must be after BPA (Option 1)/customer (Option 2) approval of the custom project proposal, unless otherwise provided.

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<sup>17</sup> If the invoice does not provide the required information, the customer must provide such information separately, in addition to the invoice.

- c. The pre-measurement date must occur before measure installation and the post-measurement date after measure installation.
- d. Inspection and verification dates must be after equipment installation and before the invoice date.

### 3.3 Reporting Requirements

This section will discuss (1) the reporting program, EE Central and (2) invoices.

#### 3.3.1 Energy Efficiency Central

EE Central is a secured consolidated Web application, owned and operated by BPA, which provides customers and other entities the ability to track and report the implementation of energy efficiency measures. The Manual takes precedence if there are discrepancies between it and EE Central.

Use of EE Central must be in accordance with the U.S. laws, federal regulations, Department of Energy Orders, BPA policies and directives and BPA's [external Web site disclaimer](#).

Customers may use EE Central to (1) view and select from deemed measure lists, (2) input data related to implementation of deemed measures, (3) create and submit custom projects and custom programs, (4) submit invoices that include energy efficiency activities implemented in the customer's service territory and [performance payment](#) claimed and (5) perform other task as directed by BPA.

The customer must use EE Central account registration to designate authorized users (e.g., employees, agents and assigns) and one user as account administrator, a user who can act on the customer's behalf. The customer must keep authorized users and administrator contact information current. Changes to account registration are effective upon selection of "save" or "update" in the update section of the account registration.

EE Central users are responsible for the acquisition and maintenance of the hardware, software and communication equipment necessary to access EE Central, and BPA may revoke access to EE Central if necessary.

BPA shall treat any information provided by the customer, including all information or data submitted or exchanged, as valid, accurate and originating from and authorized by the customer. BPA shall have no liability for the omission, inaccuracy and inadequacy of information or data submitted by the customer through EE Central.

The customer and/or its EE Central users must notify BPA as soon as possible of any errors or discrepancies in the information or data submitted or exchanged through EE Central or of any actual or suspected loss, compromise or unauthorized use, including that of EE Central account access information.

Correspondence and notice relating to the operation of EE Central or the customer's EE Central account must be delivered in written form to Rasa Keanini, contact information below.

Bonneville Power Administration  
P.O. Box 3621  
Portland, OR 97208  
Attn: Rasa Keanini, EE Central Administrator – KLH -1  
Phone: :1-866-769-9826  
Fax: (503) 230-5147  
E-mail: [EECentralAdmin@bpa.gov](mailto:EECentralAdmin@bpa.gov)

### 3.3.2 Invoices

Customers may invoice<sup>18</sup> BPA via EE Central<sup>19</sup> no more than once per calendar month.

Customers may claim measures following the end of the eligibility period if documentation proves measures were purchased and in service (installed and operating) during the eligibility period. Measures not properly installed or operating (e.g., measures unavailable, terminated or suspended) may be rejected by BPA.

BPA may request, and some measures require, supporting documentation (e.g., wattage reduction spreadsheets, manufacturer specifications or cut sheets). Customers must upload supporting documentation with the measure submittal or associated invoice (or send this documentation directly to their COTRs if the upload function is not available in EE Central). If required supporting documentation is not received, BPA may reject the corresponding measure(s) in EE Central.

Should there be a disagreement regarding an invoice, BPA will work with the customer to correct errors and make agreed revisions.

For each submitted invoice, customers must establish and maintain files and supporting documentation. The files must clearly identify the corresponding invoice and meet the documentation requirements of the Manual.

### 3.4 Oversight Review Process

As a part of the oversight review process, BPA shall (1) perform end-user site and record reviews and (2) make program evaluations.

#### 1. Site and Record Reviews

BPA may conduct oversight inspections of all measures, contact end users to verify reported measures, monitor or review the customer's procedures and records and conduct site visits to verify claimed energy savings and oversee implementation. The number, timing and extent of inspections is decided by BPA and coordinated with the customer. BPA shall normally provide written notice not less than 30 days prior to an inspection, and inspections will occur at BPA expense. BPA may contact appropriate federal, state or local jurisdictions regarding health, safety or environmental matters related to any activity under this Manual.

If during oversight (or at any other time) BPA finds noncompliance with the requirements of the Manual or the customer's ECA, it may make adjustments to the customer's invoices and/or reimbursements to achieve compliance.

#### 2. Program Evaluations

- a. BPA may evaluate conservation impacts and project implementation processes to assess the amount, cost-effectiveness and reliability of conservation. BPA will determine the timing, frequency and type of evaluations in consultation with the customer.
- b. BPA may require customers to provide billing data and contact information for participants. If so, billing data must be linked to the reported measure (e.g., through a unique ID) to allow BPA to assess savings by measure.

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<sup>18</sup> "Invoice" also includes measures filed without a reimbursement request.

<sup>19</sup> Though EE Central must be used for all measures reported on or after October 1, 2011, the PTR system will be available for final CRC reports and other report downloads through November 30, 2011.

- c. BPA or BPA/regional participants will pay for evaluations initiated by BPA. In some cases, another party will manage the evaluation on behalf of BPA. BPA recognizes that customers participating in the evaluation provide some resource/cost, but the cost is not eligible for BPA reimbursement.

### **3.5 Environmental, Safety and Other Requirements**

1. The customer must comply fully with all applicable environmental laws and regulations and provide, upon request, pollution abatement plans required by the Clean Air Act, Clean Water Act and 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.
2. If BPA determines the customer is non-compliant with a requirement of this Manual or that there is a significant environmental, health or safety threat, BPA shall provide written notice to the customer suspending implementation of all or specific activities and identifying the specific nature of the noncompliance.
3. BPA shall comment on how to bring the activity into compliance. The customer shall have a number of days, as agreed to in writing by BPA, to correct (at its own cost) the noncompliance identified and notify BPA when the corrective actions have been completed. BPA shall not accept claims that include suspended activity.
4. BPA shall review the corrective actions upon completion 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. BPA shall remove or change any project, measure or completed unit when necessitated by other requirements.
6. BPA shall not reimburse the customer for any suspended measure during the suspension period, and if the customer does not complete the corrective actions required, BPA may terminate all funding.
7. If BPA determines that a customer reported measures with false information, BPA may prohibit the customer from reporting measures to BPA. If the measure that contains false information was implemented with the assistance of a contractor, BPA may prohibit all customers from reporting measures that were implemented with the assistance of that contractor.

### **3.6 Liability Requirements**

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 the 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.
3. The reference to specific products or manufacturers does not represent a BPA endorsement or warranty, and BPA is not liable for any damages that may result from the installation or use of such products.

# 4. Custom Programs and Projects

## 4.1 General Requirements for Custom Programs and Projects

Custom programs and projects may not result in fuel switching and may not include deemed measures (savings or reimbursement), unless otherwise provided in the Manual.

Effective April 1, 2012, BPA will limit qualifying custom program/project costs and will require additional information in custom program/project documentation.

### 4.1.1 Reimbursement Levels

Reimbursement is calculated according to the reimbursement rate and cap tables below.<sup>20</sup>

Project Type	Measure Life (Years)	Sector	Reimbursement Rate (\$/kWh)
Non-Residential Lighting	All	<ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Commercial</li> <li>• Industrial</li> </ul>	\$0.18
Retrofit Construction	1	All	\$0.025
	2-3	All <sup>i</sup>	\$0.05
	4-19	<ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Utility Distribution</li> </ul>	\$0.25
		<ul style="list-style-type: none"> <li>• Commercial</li> <li>• Residential</li> </ul>	\$0.20
		Industrial <sup>ii</sup>	\$0.15 - \$0.25
20+	All	\$0.35	
New Construction and Major Renovation	1	All	\$0.025
	2-3	All	\$0.05
	4-19	<ul style="list-style-type: none"> <li>• Agricultural</li> <li>• Residential</li> </ul>	\$0.27
		Commercial	\$0.27
		Industrial <sup>ii</sup>	\$0.15 - \$0.25
		Utility Distribution	\$0.25
	20+	All <sup>iii</sup>	\$0.35

i Until April 1, 2012, there is one exception to this reimbursement rate: agricultural transformer de-energization.

ii If the estimated reimbursement (calculated at the lesser of \$0.15/kWh or 70% of project incremental cost) is equal to or greater than \$250,000, the customer may negotiate a lower reimbursement rate or cap with its end user. The customer must upload documentation (in writing) of its agreement with the end user to EE Central (for Option 1 customers, the upload must be in the custom project proposal).

iii Effective April 1 2012, the reimbursement rate for utility distribution custom projects with a 20+ year measure life will change to \$0.25/kWh.

Sector	Reimbursement Cap
Agricultural	70% of project incremental cost
Commercial	Retrofit Construction and Major Renovation: 70% of project incremental cost New Construction: 2% of whole building cost
Industrial	70% of project incremental cost or the estimated reimbursement, should the actual reimbursement be higher than the estimate
Residential	70% of project incremental cost
Utility Distribution	70% of project incremental cost

<sup>20</sup> Custom projects approved prior to October 1, 2011 are paid at the rate in place at the time the project was approved.

### 4.1.2 Progress Payments

Both custom programs (pre-approved M&V custom programs only) and projects ([Custom Projects Process, Option 1](#) only) may be eligible for progress payments. The customer must request progress payments in the custom project proposal, and the request must include a project schedule with estimated progress payments that coincide with incurred project costs and measureable project milestones.

Progress payments will be made after project milestones are achieved and verified in accordance with the BPA approved custom project proposal. The customer must document project milestone achievement (e.g., ordered, delivered or installed equipment) prior to receiving a progress payment.

The full progress payment amount paid by BPA must be passed through to the end user, and the customer must retain proof of payment. Customers will be required to repay BPA if the project is not completed within six months of the expected completion date (the expected completion date may be revised with BPA approval).

In order to qualify for progress payments, the project must have the following attributes:

1. The time period from the BPA custom project proposal approval date to the completion report submittal date meets or exceeds 12 months.
2. The amount of each progress payment is \$100,000.00 or greater.
3. The estimated incentive for the project is \$250,000.00 or greater.
4. The sum of the progress payments does not exceed the lower of (a) 70% of actual expenditures of the project incurred up to the date of the progress payment invoice to BPA or (b) 50% of the estimated total project incentive.

## 4.2 Custom Programs

Customers may submit evaluated custom programs or pre-approved M&V custom programs. The requirements of both programs will be discussed together, and where differences between the programs exist, they will be clearly noted.

This section will discuss (1) qualifying criteria, (2) the approval process, (3) reporting requirements and (4) program discontinuation.

### 4.2.1 Custom Program Qualifying Criteria

1. The custom program must cover multiple end-user sites with one or more measures; single projects must use the [custom project](#) process.
2. The program must be TRC cost-effective ( $TRC > 1.0$ ) on a prospective (planning) basis.
3. *Evaluated custom programs:*
  - a. The completed program evaluation must document the program as cost-effective ( $TRC > 1.0$ ) to be eligible for reimbursement. The evaluation must be conducted by a third party unless BPA approves an exception (e.g., third party evaluation may not be warranted when the customer has internal staff experienced in performing the evaluation or the vendor estimates are proven reliable in the BPA's service territory). Exceptions may be requested using the [COTR Request and Acknowledgement Procedure](#).
  - b. Reimbursement is available for savings produced after the evaluated custom program is approved by BPA.

#### 4. *Pre-approved M&V custom programs:*

- a. Individual custom projects reported to BPA must have a minimum B/C Ratio of 0.5, and the customer must manage its reports to ensure the program is TRC cost-effective ( $TRC > 1.0$ ) on an annual basis.
- b. Reimbursement is available for those projects with start dates after the date of custom program approval.

#### **4.2.2 Custom Program Approval Process**

The customer must secure BPA's approval of its program using the [COTR Request and Acknowledgment Procedure](#). The customer's request must include a (a) a custom program template, (b) results from the custom project credit calculator (CPCC) and (c) for evaluated programs, an evaluation, measurement and verification (EM&V) plan or for pre-approved programs, an M&V plan. These documents must also be retained by the customer and uploaded to EE Central. BPA will perform oversight based on the information in the customer's request.

1. The custom program template is available in EE Central and must include an estimate of expected administrative support costs (i.e., costs that qualify for the performance payment - staff, marketing, evaluation and other operating costs).
2. Information for each unique measure and for the program overall must be entered into EE Central. If the custom program proposal section does not have the correct load shape and/or measure life for the program proposed, the customer must contact its COTR for additional support.
3. The *EM&V/M&V plan* must be customer funded and the requirements differ depending on the type of program.
  - a. *Evaluated custom program:* The EM&V plan must include an impact evaluation that describes the following:
    - Key program requirements, program design and logic model, if applicable
    - General research questions to be addressed in the evaluation
    - Program participants and selection criteria
    - Baseline determination and estimation
    - Cost-effectiveness analyses, both prospective and retrospective
    - Data to be collected during the evaluation, including participant information and program costs
    - Data cleaning methods
    - Analytical approaches for estimating gross savings (e.g., regression model specifics, M&V approaches (If the evaluation plan incorporates site-specific M&V, the M&V plan must follow the guidelines of sector specific M&V practices.))
    - Method for determining persistence of program
    - Method for implementation of the evaluation (e.g., third party contractor)

- Schedule with key milestones for the evaluation
  - For behavior-based programs, additional information required by [RTF-approved evaluation protocols](#)
- b. *Pre-approved M&V custom program*: The customer must submit an M&V Plan for each measure or combination of measures in the program. The M&V plan should follow the Manual's [M&V](#) guidelines.

The COTR may ask the customer clarifying questions during the approval process, and within 30 working days of receipt of all documents, BPA will e-mail the customer with its decision or a time-frame for a decision.

BPA must approve any modifications (e.g., new measure, measure exclusion, EM&V approach modification) within EE Central, either through the custom program process or via the comment function associated with a specific custom program.

#### 4.2.3 Custom Program Reporting Requirements

The reporting requirements differ depending on the type of custom program.

Evaluated custom programs: The customer must upload its completed evaluation to EE Central and retain a copy in its records. The evaluation must document projects costs (i.e., measure, overhead and evaluation costs). If the COTR approves the evaluation, the customer may then access an upload template to report program results in EE Central. EE Central data must exactly match that in the COTR approved evaluation. Program results must include estimates for the reimbursement, consistent with the date of program acceptance. The custom program review and approval process require project costs, which include all measure costs, program overhead costs and evaluation costs.

Pre-approved M&V custom program: After the program is approved, the COTR will provide an EE Central upload template to the customer. The customer must conduct site inspections and M&V (in accordance with its M&V plan) before and after each project and must document the type and quantity of measures installed and any problems. The customer must use the CPCC for each project (including measure-specific results) and report results in EE Central no later than the reporting period immediately following project completion (e.g., when the project is installed and energy savings measured according to its M&V plan). The CPCC will estimate the reimbursement level, consistent with the start date of each individual project. The customer must retain a copy of the CPCC results for each completed measure (i.e., for each facility) and submit it to the COTR when claiming reimbursement.

#### 4.2.4 Custom Program Discontinuation

The customer may cease its custom program participation at any time using the [COTR Request and Acknowledgment Procedure](#). The COTR will delete the custom program from EE Central, and BPA shall have no obligation for costs incurred for unreported savings.

### 4.3 Custom Projects

This section will provide information on (1) general requirements, (2) process options and enrollment procedures, (3) [Custom Project Process, Option 1](#) (Option 1) and (4) [Custom Project Process, Option 2](#) (Option 2).

#### 4.3.1 Custom Project General Requirements

1. All measures or projects that do not have a BPA deemed reimbursement level, deemed busbar energy savings, or for which cost-effectiveness has not been determined, must be submitted as custom projects.

2. The measures must be designed to result in improvements in the energy efficiency of electricity distribution or use and must have a savings life of at least one year. The proposed baseline annual energy usage for each measure must be documented and provide a basis for establishing annual energy savings.
3. Custom projects are limited to one sector each and must have a minimum B/C ratio of 0.5. option 1 – proposal, option 2 – invoice.
  - a. Under [Option 1](#), BPA shall manage the B/C ratio at a program level<sup>21</sup> and reserves the right to reject individual custom projects with B/C ratios of less than 1.0 to ensure the aggregate B/C ratio for all custom project proposals/reports remains 1.0 or greater.
  - b. Under [Option 2](#), the customer must manage the B/C ratio at the invoice level and ensure that the B/C ratio is at least 1.0.
4. The measures have not been ordered, purchased or installed prior to approval of the custom project by BPA (Option 1) or the customer (Option 2).<sup>22</sup>
5. The expected project simple payback (project cost/annual energy cost savings) must be six months or greater.
6. Custom project documentation must include information on (1) the project manager and (2) non-energy benefits and operation and maintenance costs claimed.
7. The BPA M&V Protocol Selection Tool for custom projects must include (i) Engineering Calculations with a Verification Plan or (ii) a Comprehensive M&V Plan.

a. Engineering Calculations with a Verification Plan

Detailed guidance on preparing Engineering Calculations with a Verification Plan is included in the BPA Engineering Calculations with Verification Protocol. As directed in the BPA M&V Protocol Selection Tool, Engineering Calculations with a Verification Plan may be used for the following custom projects:

- Projects with an expected annual energy savings less than 200,000 kWh per year
- Projects qualifying under the BPA Engineering Calculations with Verification Protocol

b. Comprehensive M&V Plan

Detailed guidance on preparing a Comprehensive M&V Plan is in the BPA M&V Protocols and Guidelines and RTF Standard Savings Estimation Protocols.

#### 4.3.2 Custom Project Process Option Overview and Enrollment

Customers may follow [Option 1](#) or [Option 2](#), but must finish projects under the option with which they were started.

- Option 1: The customer must submit a custom project proposal to BPA for review and acceptance. If BPA determines the project is cost-effective and otherwise acceptable, it will accept the project and at completion, pay the amount due, not to exceed the available balance in the customer's implementation budget.

<sup>21</sup> Program level means all custom projects accepted by BPA over the rate period.

<sup>22</sup> See the Utility Distribution sector for exceptions to this requirement.

- **Option 2:** The customer need not submit individual custom project proposals (unless otherwise stated in the Manual); rather, the customer may determine the eligibility of projects itself. Completed projects must be submitted to BPA for review and acceptance. If BPA determines the projects are acceptable, BPA will pay the amount due, not to exceed the available balance in the customer's implementation budget.

Customers, by default, are enrolled in Option 1 but may elect Option 2 using the [COTR Request and Acknowledgement Procedure](#). The request must include the proposed measure delivery approach (e.g., How does the utility engage the end user in these projects, and are there any criteria in addition to documentation? What is the end-user financial commitment process? How do customers determine acceptability of end-user proposed projects? What is the process for projects to be submitted and accepted? By what methods are funds obligated?). BPA may request additional information before notifying the customer of its approval/non-approval of Option 2 status. If a customer wishes to change its measure delivery approach, it must first secure BPA's approval of the changes.

Option 2 customers may switch to Option 1 (1) for any reason at the start of a new rate period<sup>23</sup> or (2) if customer circumstances change, making Option 2 unworkable.<sup>24</sup>

### 4.3.3 Custom Project Process, Option 1

To receive reimbursement for a custom project, a customer must submit and receive BPA's approval of (1) a custom project proposal and (2) a custom project completion report. BPA shall strive to provide the customer a written response within 10 working days of receiving custom project documentation.

#### 1. Custom Project Proposal

- a. Prior to submitting a custom project proposal to BPA, the customer must screen projects according to the eligibility requirements listed above and noted in the custom project proposal function of EE Central.
- b. The proposal M&V Plan must show how energy savings will be verified, and projects must be cost-effective as calculated in EE Central.
- c. The order and purchase date of materials or equipment must be after BPA approval of the custom project, unless otherwise provided. 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 of approval will apply, and the custom project cannot be canceled and resubmitted under a different reimbursement rate.
- d. A customer may request technical advice from BPA regardless of the size of the project or the requirement for review and comment, unless the project is part of the Energy Smart Industrial program.
- e. BPA shall review the custom project proposal and may comment on the project's ability to deliver the estimated energy savings at the estimated project costs. While BPA reviews a submitted custom project proposal, it is locked. If the custom project proposal is incomplete (e.g., fails to provide an adequate M&V Plan or project description), BPA may reject the proposal or return it for modification. BPA will notify customers when it accepts a custom

<sup>23</sup> Customers wishing to return to Option 1 with the start of a new rate period must submit their request in the month no later than September 1 immediately preceding the new rate period.

<sup>24</sup> Customers may request opt out of Option 2 using the [COTR Request and Acknowledgement Procedure](#), and the request must include an explanation of the changed circumstance.

project proposal. The custom project proposal will receive a system-generated identification number from EE Central. This number will also serve as the identification number for the completion report, which is required to claim reimbursement.

## 2. Custom Project Completion Report

- a. The customer must submit a completion report in EE Central after project installation. The completion report will calculate the reimbursement, and in it, the customer must include actual project costs, verified energy savings and information on changes to the approved M&V plan. At the time of the completion report submittal, the customer must upload to EE Central documentation supporting the costs and savings claimed and invoices showing the purchase date.
- b. If the custom project completion report is incomplete, BPA may reject the report or return it for modification. BPA will notify customers when it accepts a custom project completion report. Reimbursement is based on the accepted completion report data.

### 4.3.4 Custom Project Process, Option 2

The following criteria apply to the Option 2 custom projects.

1. The customer is responsible for approving and managing custom projects.
2. If a custom project is approved by the customer, the reimbursement rate in place at the time of approval (assumed to be equivalent to project start date) will apply.
3. The customer must follow special rules for [Non-Residential Lighting](#) custom projects.
4. BPA provides limited technical advice since it assumes that Option 2 customers have access to some engineering support. Technical assistance is available in relation to Manual clarifications and M&V consultations only; project-specific technical assistance is not available unless provided by third party implementation contractors as part of a program (e.g., PECl through Energy Smart Grocer, Cascade Energy through Energy Smart Industrial or the Northwest Trade Ally Network).
5. Option 2 customers may request [progress payments](#) if they meet the [progress payment requirements](#), follow Option 1 for the custom project tied to the progress payment, secure BPA's approval of the custom project proposal and secure BPA's approval of a Large Project Fund request.

To receive reimbursement for a custom project, a customer must perform the following:

1. Submit savings reports in bulk through the auto-upload sheet in EE Central.<sup>25</sup> The auto-upload sheet will calculate the Total Resource Cost (TRC) based on savings, cost, load shape and non-energy benefits. The report must demonstrate cost-effective savings based on the TRC.
2. Maintain the following documentation for each custom project:
  - a. Responsible implementing M&V plan party, M&V plan, pre and post measurement data, assumptions and any modeled or calculated data used to determine energy savings
  - b. Facility name, address and contact information

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<sup>25</sup> Customers may have the option to work with BPA to create a unique upload template based on the customer's avoided costs.

- c. Detailed project description, baseline conditions and operating conditions necessary to determine energy savings
- d. Estimated and actual savings and costs
- e. Project approval, start and completion dates

# 5. Agricultural Sector



Please check the [changes summary](#) to see if significant changes were made to any of the measures in this sector.

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The Agricultural Sector includes electrical energy used (1) by a farm or business of which the primary purpose is applying water for food production or vegetation growth (e.g., pumping and irrigation) and (2) by a ranch or aquaculture (aquafarming) business where the primary business is breeding or raising of domestic live stock, poultry, game animals, fish, oysters, etc.

The storage and processing of farm products is not agricultural, and rather it is industrial with the exception of dairies and the storage of milk at the milking facility (note that homogenizing, dehydrating and bottling of milk and its derivatives are industrial). A facility may have a mix of both agricultural and industrial measures at the same location (e.g., winery operation with processing facility where the vineyard irrigation is considered agricultural and the grape processing facility is considered industrial).

### Reimbursement Summary\*

Program Component or Measure	Reimbursement
Freeze Resistant Stock Water Tanks/Fountains	\$140.00 - \$225.00/tank or fountain
Irrigation-Related Measures	
○ <i>Irrigation System Upgrades</i>	\$0.75 - \$175.00/sprinkler equipment
○ <i>Irrigation System Motors Replacement</i>	\$75.00-\$7,500.00/unit
○ <i>Scientific Irrigation Scheduling</i>	\$5.20/acre
○ <i>Irrigation Pump Testing and System Analysis</i>	\$50.00 - \$300.00/test or analysis
Variable Frequency Drives	
○ <i>Small Milking Machines in Dairies and Other Approved Applications</i>	\$2,200.00/verified installation
○ <i>Agricultural Turbine Pump Applications</i>	\$80.00/horsepower
Transformer De-energization	\$0.15/kWh or 70% of project cost
New Agricultural Construction	See the <a href="#">custom programs and projects reimbursement table</a> .
Other Agricultural Measures	See the <a href="#">custom programs and projects reimbursement table</a> .

\* The reimbursement levels described in this table provide a summary only. Complete details of the reimbursement levels and associated requirements may be found in the corresponding text of the Manual. Please see the Table of Contents for the text location.

### Documentation Requirements Summary

Each measure includes documentation requirements additive to the general [documentation requirements](#). Refer to both the specific measure requirements and the general documentation requirements for a complete list of required documentation.

## Freeze Resistant Stock Water Tanks/Fountains

### Requirements and Specifications

Freeze resistant stock water tanks/fountains are available as a measure in heating zones (HZ) 1, 2 and 3. Electric resistance stock water tank heater(s) must be removed or permanently disabled, and the new freeze resistant stock water tanks/fountains must meet the RTF specifications in EE Central.

### Additional Documentation Requirements

No additional requirements.

### Reimbursement

HZ 1: \$140.00 per freeze resistant stock water tank/fountain

HZ 2: \$165.00 per freeze resistant stock water tank/fountain

HZ 3: \$225.00 per freeze resistant stock water tank/fountain

## 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 current specifications in EE Central.

### Additional Documentation Requirements

No additional requirements.

### Reimbursement

Sprinkler Equipment	Rebate	Est. kWh/yr Savings (busbar)
New flow controlling type nozzle for impact sprinklers	\$4.00/nozzle <sup>i</sup>	27
Rebuilt or new impact sprinklers	\$3.75/sprinkler <sup>i</sup>	27
New nozzle for impact sprinkler replacing existing worn nozzle of same flow rate or less <sup>ii</sup>	\$1.50/nozzle <sup>i</sup>	37
New rotating type sprinklers that replace impact sprinklers (Entire pivot <sup>iii</sup> must be upgraded, and flow may not increase.)	\$4.00/sprinkler <sup>i</sup>	24
New gasket for wheel-lines, hand lines or portable main line	\$2.75/gasket	22
New low-pressure regulators (Entire pivot <sup>iii</sup> must be upgraded.)	\$5.00/regulator <sup>i</sup>	37
New rotating type sprinklers that replace low-pressure sprinklers (Entire pivot <sup>iii</sup> must be upgraded. Flow may not be increased.) <sup>iv</sup>	\$4.00/sprinkler <sup>i</sup>	24
New multiple configuration nozzles for low-pressure pivot <sup>iii</sup> sprinklers	\$3.00/sprinkler <sup>i</sup>	48
New multi-trajectory sprays that replace impact sprinklers (Entire pivot <sup>iii</sup> must be upgraded. Flow may not increase.)	\$4.00/sprinkler <sup>i</sup>	36
New multi-trajectory sprays that replace low pressure sprinklers (Entire pivot <sup>iii</sup> must be upgraded, and flow may not increase.)	\$1.00/sprinkler <sup>i</sup>	12
New drain gaskets for wheel-lines, hand lines, or pivots <sup>iii</sup> (Entire line must be upgraded.)	\$1.00/drain	22
New hubs for wheel-lines (Entire wheel-line must be upgraded.)	\$14.50/hub	63
New goose-neck elbow for new drop tubes	\$1.65/goose-	7

Sprinkler Equipment	Rebate	Est. kWh/yr Savings (busbar)
	neck	
New drop tube for low-pressure pivot <sup>iii</sup> sprinklers (minimum three feet length)	\$3.00/drop tube	7
New center pivot base boot gasket	\$175.00/pivot	1367
Cut and pipe press repair of leaking hand lines, wheel-lines, and portable mainline	\$10.00/pipe section	44
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	2

<sup>i</sup> Rebate is limited to two units per sprinkled acre for solid set sprinklers.

<sup>ii</sup> The division of the equipment to sprinkler and nozzle allows the nozzle to be replaced separately from the sprinkler.

<sup>iii</sup> Lateral moves are also included.

<sup>iv</sup> The separation of the equipment allows 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.

## Irrigation System Motors Replacement

### Requirements and Specifications

The motor must be new (and replace an older rewind motor), open drip proof or totally enclosed, fan cooled, operate at 1,200 or 1,800 rotations per minute, use three-phase alternating current induction, be 5-500 horsepower (hp), be National Electrical Manufacturers Association (NEMA) design A, B, or C and meet or exceed the NEMA premium efficiency standard shown in the tables below in the reimbursement section. Other motors qualify only as [custom projects](#).

### Additional Documentation Requirements

Customer must retain a specification sheet or model number of installed equipment.

### Reimbursement

Horsepower	NEMA Premium Efficiency Motors		Est. kWh/yr Savings (busbar)		Rebate Per Unit
	600v-5,000v	under 600v	600v-5,000v	under 600v	
5	n/a	89.5%	n/a	352	\$75.00
7.5	n/a	91.0%	n/a	569	\$112.50
10	n/a	91.7%	n/a	726	\$150.00
15	n/a	92.4%	n/a	829	\$225.00
20	n/a	93.0%	n/a	1,084	\$300.00
25	n/a	93.6%	n/a	1,518	\$375.00
30	n/a	93.6%	n/a	2,290	\$450.00
40	n/a	94.1%	n/a	3,053	\$525.00
50	n/a	94.5%	n/a	4,134	\$750.00
60	n/a	95.0%	n/a	5,247	\$900.00
75	n/a	95.0%	n/a	6,559	\$1,125.00
100	n/a	95.4%	n/a	8,586	\$1,500.00
125	n/a	95.4%	n/a	10,137	\$1,875.00
150	n/a	95.8%	n/a	11,926	\$2,250.00
200	n/a	95.8%	n/a	15,265	\$3,000.00
250	95.0%	95.8%	19,081	19,081	\$3,750.00
300	95.0%	95.8%	22,897	22,897	\$4,500.00
350	95.0%	95.8%	26,713	26,713	\$5,250.00

Horsepower	NEMA Premium Efficiency Motors		Est. kWh/yr Savings (busbar)		Rebate Per Unit
	600v-5,000v	under 600v	600v-5,000v	under 600v	
400	95.0%	95.8%	27,349	27,349	\$6,000.00
450	95.0%	96.2%	33,630	33,630	\$6,750.00
500	95.0%	96.2%	37,367	37,367	\$7,500.00

## Scientific Irrigation Scheduling

### **Requirements and Specifications**

Scientific Irrigation Scheduling (SIS) applies to agricultural irrigation systems (1) with a pumping capacity beyond that required to meet normal crop needs, as defined by the United States Department of Agriculture (USDA), and (2) that irrigate crops that benefit from improved irrigation practices.

Customers must collect and use weekly hydro application data including all water applied, evapo-transpiration needs and soil moisture tables. Energy savings are based on the actual on-farm energy savings determined by the BPA-approved SIS M&V calculator spreadsheet in EE Central. Off-farm savings, such as potential savings on other irrigation systems, other utility systems or other irrigation districts cannot be reported, but adjustments of site savings to busbar savings can be claimed.

### **Additional Documentation Requirements**

The customer must submit the BPA-supplied SIS M&V calculator spreadsheet and data on measure costs, crop type, acreage and energy savings at the end of each irrigation season.

### **Reimbursement**

BPA shall reimburse customers \$5.20 per acre per year.

## Irrigation Pump Testing and System Analysis

### **Requirements and Specifications**

- The irrigation pump must be electrically powered, 20 hp or greater and must not have been tested through BPA-sponsored pump testing services within the past five years.
- The irrigation pump must have been in operation for the two previous years.
- The irrigation pump test<sup>26</sup> must be performed by an individual possessing pump testing knowledge and experience.<sup>27</sup>
- Customers and qualified vendors must use the BPA Screening Tool in EE Central to limit the amount of dry holes (i.e., pump tests that do not result in a BPA-approved custom project).
- The customer may choose from the following tests:
  - Simple System Evaluation: Measure pump discharge pressure and evaluate condition of the sprinkler nozzles.
  - Simple System Irrigation Pump Test (e.g. open discharge): Perform irrigation pump test and evaluate critical sprinklers.

<sup>26</sup> The test is the process to measure various aspects of the pump's operation including pumping lift, discharge pressure, power input, and water flow. The results of the pump test estimate the overall efficiency of the pumping plant under the test conditions.

<sup>27</sup> Pump tests performed by BPA engineers do not qualify for reimbursement.

- Irrigation Pump Test and System Analysis:<sup>28</sup> Perform irrigation pump test and evaluate mainlines and critical sprinklers.

- Customers must deliver printed recommendation reports to the end user.

**Additional Documentation Requirements**

Customer must retain a copy of irrigation pump test and recommendation report.

**Reimbursement**

Test Type	Reimbursement
Simple System Evaluation	\$50.00
Simple System Irrigation Pump Test (e.g. open discharge)	\$100.00
Irrigation Pump Test and System Analysis, 400 acres or less	\$200.00
Irrigation Pump Test and System Analysis, over 400 acres	\$300.00
Irrigation Pump Test and System Analysis, Complex Pumping System over 400 acres with multiple operating pumps)	\$200.00 per main pump plus \$50.00 per booster pump

**Variable Frequency Drives**

Each VFD must qualify individually and be submitted individually (i.e., VFDs may not be combined or divided).

**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 must be submitted as a [custom project](#).

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

BPA shall reimburse \$2,200.00 per verified installation.

**Agricultural Turbine Pump Applications (BPA Qualified)**

**Requirements and Specifications**

This measure applies to pumping operations that deliver, distribute or transport irrigation water with VFDs 500 hp or less. VFDs greater than 500 hp must be submitted as [custom projects](#). Eligible installations are limited to turbine pumps with substantial variation in flow rates (20% variation or more) or discharge pressure requirements (10% variation or more). All new VFD installations must meet IEEE 519 standards. This measure provides an annual energy savings of 400 kWh per hp.

Effective April 1, 2012, the reimbursement levels and energy savings may be changed.

**Additional Documentation Requirements**

The customer must (1) maintain the following information in its files and (2) submit it in EE Central at the time of measure submittal (with the exception of the post-install billing history):

- Application type (turbine pumps for well or booster application)

<sup>28</sup> Irrigation System Analysis: combined with a pump test, the irrigation delivery system is reviewed for potential efficiency improvements including lower flows, reduced pipeline friction and repair of leaks.

- Operating 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 Total Dynamic Head (TDH) rating and gallon-per-minute (GPM) flow rating
- TDH 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 software or model used to estimate kWh savings
- Estimated project cost and BPA reimbursement

### **Reimbursement**

BPA shall reimburse \$80.00 per installed horsepower.

## **Transformer De-energization**

### **Requirements and Specifications**

Transformer De-energization (TRX) is 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**

A completion report, using standard completion report tools, is required for the first year. Subsequent reports must be based on the first-year completion report and must use the TRX Supplemental Calculation Template available in EE Central.

Customers must maintain and upload into EE Central (at the time of completion report submittal) all documentation showing the number of transformers de-energized, length of outage period and energy savings associated with each unit

### **Reimbursement**

BPA shall reimburse the lesser of \$0.15 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-year custom project proposal measure life, as opposed to a physical measure life).

In each year, BPA will reimburse for one-third of the total (calculated at the lesser of \$0.05 per year per kWh or 70 percent of incremental cost of performing the project). First year energy savings are actual energy savings. Savings in subsequent years adjust the first year savings figure using an average of the current and previous years or the lowest energy savings, if specified in the custom project proposal.

Effective April 1, 2012, TRX will have a one-year measure life, and BPA shall reimburse the lesser of \$0.025 per kWh or 70 percent of the incremental project cost of performing the project.

## **New Agricultural Construction**

### **Requirements and Specifications**

New agricultural construction projects must be submitted as [custom projects](#). Standardized M&V protocols must be provided for certain measures prior to project implementation.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

## **Other Agricultural Measures**

### **Requirements and Specifications**

These measures must be submitted as custom projects.

- Low pressure conversion with associated pump work
- Change to 40 foot spacing on hand and wheel lines to enable conversion
- Turf irrigation applications in landscaping, golf courses, government and municipalities and other areas (including standard sprinkler measures, motor/pumping/VFD controls and weather station driven irrigation scheduling)
- Nursery and greenhouse project improvements in irrigation, air handling, temperature and humidity controls for facilities using less than 1 aMW (If usage is above 1 aMW, projects at the facility are industrial.)

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

## **Multi-Sector Opportunities**

Additional agricultural opportunities are available in the Multi-Sector chapter:

- [Processes](#)
- [Measures and Initiatives](#)
  1. [Green Motors](#)
  2. [Lighting](#)
  3. [Limited Availability Emerging Technology Demonstration Pilots](#)
  4. [Variable Frequency Drives in Small Compressed Air Systems](#)

# 6. Commercial Sector



Please check the [changes summary](#) to see if significant changes were made to any of the measures in this sector.

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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.

### Reimbursement Summary\*

Program Component or Measure	Reimbursement
Commercial Custom Projects – Existing Buildings	See the <a href="#">custom programs and projects reimbursement table</a> .
Commercial Lighting	See <a href="#">Multi-Sector chapter</a> (except for LED Traffic Signals).
○ LED Traffic Signals	\$50.00-\$115.00
Commercial HVAC	
○ <i>Unitary Air-Conditioning</i>	See EE Central.
○ <i>Commercial Ductless Heat Pump</i>	\$750.00-\$1,000.00/unit
○ <i>Web-Enabled Programmable Thermostats in Modular Classrooms</i>	\$100.00-\$275.00/unit
Commercial Shell Measures	
○ <i>Insulation in Existing Small Office or Retail</i>	\$0.13 per kWh
○ <i>Small Commercial Retrofit Windows</i>	\$3.00-\$6.00/square foot
Commercial Refrigeration	
○ <i>BPA Energy Smart Grocer Program</i>	See EE Central.
○ <i>Deemed Refrigeration Retrofit Measures</i>	See EE Central.
Commercial Kitchen and Food Service Equipment	
○ <i>Commercial Food Service Reach-in Refrigerators and Freezers</i>	\$50.00-\$350.00/refrigerator or freezer
○ <i>Commercial Ice Makers</i>	\$100.00-\$300.00/ice maker (See EE Central for exceptions.)
○ <i>Commercial Kitchen Steamers</i>	\$100.00-\$200.00/steamer
○ <i>Commercial Kitchen Hot Food Holding Cabinets</i>	\$200.00-\$400.00/cabinet
○ <i>Combination Ovens</i>	\$1,750.00/oven
○ <i>Convection Ovens</i>	\$200.00/oven
○ <i>Electric Fryers</i>	\$125.00/installation
○ <i>Dishwashers</i>	\$100.00 - \$750.00/dishwasher
○ <i>Pre-rinse Spray Wash Valves</i>	\$100.00/installation
○ <i>Refrigerator/Freezer Recycling</i>	\$100.00/unit
Additional Deemed Offerings	
○ <i>Network Computer Power Management</i>	\$10.00/workstation
○ <i>ENERGY STAR Commercial Clothes Washer</i>	\$25.00-\$200.00/washer
○ <i>Electric Storage Water Heaters</i>	\$25.00/unit
○ <i>Smart Power Strips</i>	\$20.00/strip
○ <i>Commercial Showerheads</i>	\$30.60/showerhead
Commercial New Construction	
○ <i>Energy Smart Design ® - Office and Trade-offs</i>	\$0.25-\$0.50/square foot
○ <i>New Commercial Construction/Major Renovation</i>	See the <a href="#">custom programs and projects reimbursement table</a> .

\* The reimbursement levels described in this table provide a summary only. Complete details of the reimbursement levels and associated requirements may be found in the corresponding text of the Manual. Please see the Table of Contents for the text location.

### Documentation Requirements Summary

Each measure includes documentation requirements additive to the general [documentation requirements](#). Refer to both the specific measure requirements and the general documentation requirements for a complete list of required documentation.

## 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. Specific measure requirements and reimbursement are listed below.

## Commercial Custom Projects – Existing Buildings

Many Commercial Sector efficiency opportunities are complex, involve site-specific installations and savings or interaction between energy consuming systems in a building. These opportunities include, but are not limited to, HVAC, shell measures, building design and, in rare circumstances, some lighting projects.

### Requirements and Specifications

These measures must be submitted as [custom projects](#) (as long as deemed measures are unavailable).

### Additional Documentation Requirements

No additional requirements.

### Reimbursement

See the [custom programs and projects reimbursement table](#). The incremental cost for retrofit of existing equipment is the fully installed measure cost. The incremental cost for replacement of burned out/failing/failed equipment is the cost above code or its equivalent (e.g., 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 opportunity. Refer to the [Lighting](#) program for details on the Non-Residential Lighting program and stand-alone lighting measures for non-residential CFLs and exit signs.

## LED Traffic Signals

### Requirements and Specifications

LED traffic signals must be installed and replace functioning incandescent signals.

### Additional Documentation Requirements

No additional requirements.

### Reimbursement Strategies and Levels

BPA shall reimburse between \$50.00 and \$115.00 per traffic signal, depending on size, color and application. Please refer to EE Central for specific reimbursement levels.

## Commercial HVAC

Non-deemed HVAC opportunities are available only as [custom projects](#).

## Unitary Air-Conditioning Equipment in Commercial Buildings (BPA Qualified)

### **Requirements and Specifications**

Unitary air-conditioning equipment refers to air-cooled, single cooling-zone, packaged unit, air-conditioning equipment for commercial building applications. This equipment can be used in conjunction with gas or electric heating systems. Heat pumps are excluded.

Customers may pursue this measure as a [custom project](#) when warranted, for example, by exceptional cooling loads (i.e., a load above and beyond the cooling load in the building's ambient space).

Additional information is also available on the [CEE](#) and [AHRI](#) Web sites.

### **Additional Documentation Requirements**

The following information is collected in EE Central:

1. Building use - primary (formerly referenced as building type)
2. Hours per week of operation
3. Unit cooling capacity (size in tons)
4. Manufacturer published Energy Efficiency Rating (EER)
5. Total installed project cost

### **Reimbursement**

Measure reimbursements by efficiency level and unit size are detailed in EE Central. Though reimbursements are the same across all cooling zones, EE Central has different reference numbers for each cooling zone.

## Commercial Ductless Heat Pump (BPA Qualified)

If regional installations are insufficient to support RTF simplified M&V approval, this measure will expire on October 1, 2013. BPA will request customer billing data from qualified installations for program evaluation.

This measure may be removed or changed on April 1, 2012.

### **Requirements and Specifications**

One installed outdoor Commercial Ductless Heat Pump (DHP) is eligible for reimbursement per qualifying space. Qualifying spaces are converted houses with zonal electric heat and strip malls conditioned by either zonal electric heat or a ducted system with electric resistance heat. Converted houses are stand-alone, wood-frame buildings used for commercial purposes, and strip malls are single-story, small commercial businesses, with at least one shared wall. Qualifying spaces must have the following characteristics:

- Are constructed no later than 2007
- Have no more than 5,000 square feet of conditioned floor area
- Set the existing heating system thermostat at least five degrees (or set to the lowest setting for non-thermostatic control) below the DHP heating thermostat setpoint
- Set the existing cooling system thermostat at least five degrees above the DHP cooling thermostat setpoint
- Operate business at least 40 hours per week

- Are individually metered by an electric utility or have the ability to separate electric usage from other adjoining businesses

The space within a qualifying building served by the new DHP must (1) not contain commercial kitchens, commercial refrigeration or process loads, where the total connected load is over five watts per square foot and (2) represent the building's highest heating loads (i.e., not storage areas).

Installed DHPs must have the following characteristics:

- Have a maximum nominal heating capacity of 36,000 Btu per hour
- Employ an inverter driven outdoor compressor unit and a variable speed fan or indoor blower
- Are fully ductless
- Are installed per the manufacturer's specifications and code by a qualified contractor who attended a Northwest Ductless Orientation and received installation training from the installed DHP manufacturer

DHP applications that do not meet these requirements may be pursued as [custom projects](#).

#### **Additional Documentation Requirements**

Customers must retain the Completed DHP Business Owner Information Form available in EE Central (or BPA approved customer form) (This form must be emailed to [Rick Hodges](#) at BPA.)

#### **Reimbursement**

Reimbursement is \$1,000.00 per DHP installed in a converted house and \$750.00 per DHP installed in a strip mall building.

#### **Web-Enabled Programmable Thermostats in Modular Classrooms (BPA Qualified)**

If regional installations are insufficient to support RTF simplified M&V approval, this measure will expire on October 1, 2013.

#### **Requirements and Specifications**

Web-enabled programmable thermostats (WEPT) must be installed in accordance with the manufacturer's instructions and do the following:

- Control the electric heating unit (electric resistance or heat pump) of a modular classroom building
- Be programmed for the following:
  - One-hour maximum occupied-period override
  - Set-back and set-up temperature set-points a minimum of five degrees Fahrenheit during unoccupied periods (e.g., holidays and breaks)
- Allow remote, web-based monitoring and programming
- Have battery back-up to retain settings during power loss

Customers should program WEPTs on a single meter with staggered start-times to prevent high demand charges.

Though not required, a separate meter for the modular classroom building is desirable because M&V of the electricity savings can be more precisely accomplished when modular classroom buildings are on an electric meter, separate from the rest of the school building.

**Additional Documentation Requirements**

The customer must retain the following information:

- Number of WEPTs installed per meter
- Electric meter number
- Number of modular classroom buildings on electric meter
- Whether modular classroom buildings are on an electric meter separate from the rest of the school building

The customer should request billing data release at the time of end-user participation and must be prepared to provide BPA with the billing data.

**Reimbursement**

WEPT Type	Reimbursement
New WEPT	\$275.00
Upgrade to existing programmable thermostat	\$100.00

**Commercial Shell Measures**

BPA reimburses for insulation and windows in small commercial buildings.

**Insulation in Existing Small Office or Retail Buildings**

**Requirements and Specifications**

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

BPA reimburses 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 EE Central reference numbers.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

BPA reimburses based on deemed savings value of individual measures in EE Central and by \$0.13 per deemed kWh of busbar energy savings (for different applications).

**Small Commercial Retrofit Windows (BPA Qualified)**

**Requirements and Specifications**

This measure is only available for electrically-heated, wood-frame residential-type construction buildings in commercial use with a total floor area under 5,000 square feet.

Pre-existing windows must be single pane or single pane with storms, and replacement windows must have a National Fenestration Rating Council rated U-value of 0.30 or lower.

**Additional Documentation Requirements**

- Utility account number
- Documentation of total square footage of windows replaced
- Documentation of U-value (NFRC stickers or other verification of U-value)
- Completed Window Business Owner Information Form available in EE Central (or BPA approved customer form) (This form must be emailed to [Rick Hodges](#) at BPA.)
- Billing data (will be requested by BPA)

**Reimbursement**

BPA shall reimburse according to the table below. All figures are per square foot of window replaced.

Heating Zone	Resistance Heat/Heat Pump
1	\$3.00
2	\$6.00
3	\$6.00

**Commercial Refrigeration**

**BPA Energy Smart Grocer Program (SEE REVISED SECTION ON PAGE 86.)**

**Requirements and Specifications**

The BPA Energy Smart Grocer Program (ESG Program), implemented by Portland Energy Conservation, Inc. (PECI), installs refrigeration measures in commercial facilities (see [EnergySmart](#)). This program will not be available unless and until BPA finalizes its contract with PECI. BPA will inform customers when the program is available. At such time, BPA will finalize the participation requirements, which are currently in draft form, below.

BPA funds the program delivery contract with PECI, while Customers fund program incentives to end users. Customers receive credit for all savings achieved in their service territory.

The ESG Program allows customers to select either the Turnkey or Customer Processing Option, as described in the table below.

Program Components	Turnkey Option	Customer Processing Option
Scope	Core refrigeration retrofit measures (including store lighting) and custom projects	Core refrigeration retrofit measures (excluding store lighting)
Funding Source	ECA Implementation Budget	ECA Implementation Budget and/or customer funds
Customer Responsibilities	n/a	<ul style="list-style-type: none"> <li>• Processing end-user incentives and managing incentive budget</li> <li>• Monitoring and verifying measure installations</li> <li>• Reporting installations</li> </ul>
BPA/PECI Responsibilities	<ul style="list-style-type: none"> <li>• Processing end-user incentives and managing incentive budget</li> <li>• Monitoring and verifying measure installations</li> <li>• Reporting installations</li> </ul>	n/a

To enroll in the ESG Program, customers must deliver a completed ESG Program Sign-up Form (available in the EE Central download center) to their COTR, indicating the processing option, funding source and amount. If a customer selects the Turnkey Option, BPA will reduce the customer's ECA implementation budget by the allocated amount and will hold the funds for the ESG Program. Customers electing a minimum of \$25,000.00 are automatically enrolled in the program. Elections of lesser amounts require PECE approval.<sup>29</sup> For assistance determining funding potential, please contact [Jessica Kramer](#) at PECE or [Gary Smith](#) at BPA.

Customers already enrolled in the ESG Program that wish to continue their participation must immediately complete and submit the ESG Sign-up Form.

A customer may make ESG Program changes (under the parameters of the chart below) by submitting a revised ESG Program Sign-up Form through the [COTR Request and Acknowledgement Procedure](#).

Change Type	Processing Option	Frequency Allowed	Request Due Date	Effective Date
Processing Option	All	Quarterly	No later than the 2 <sup>nd</sup> month of each quarter	First day of the following quarter
Funding Source	Customer Processing	Quarterly	No later than the 2 <sup>nd</sup> month of each quarter	First day of the following quarter
Funding Amount	All	Once per rate period	No later than the 16 <sup>th</sup> month of the rate period	First day of the 18 <sup>th</sup> month of the rate period
Program Scope	Turnkey	Quarterly	No later than the 2 <sup>nd</sup> month of each quarter	First day of the following quarter

Customers will receive a monthly accounting of the funds spent in their service territories. If BPA-managed customer funds (i.e., funds of customers enrolled in the Turnkey Option) have not been spent on the first day of the final quarter of the rate period, BPA may (1) add all or a part of unspent funds to the customers' ECA implementation budget, (2) add all or a part of the unspent funds to the Unassigned Account or (3) use all or part of the unspent funds for work under the ESG Program. BPA will determine the use of unspent funds based on (1) program potential in the customer's service territory relative to funding available and (2) the customer's wishes.

#### **Additional Documentation Requirements**

Customers enrolled in the Customer Processing Option must retain copies of rebate checks or other documentation evidencing proof of rebate payment to end users.

#### **Reimbursement**

Customers that funded end-user incentives with the ECA implementation budget may invoice BPA monthly for reimbursement (unless funds are managed by BPA under the Turnkey Option). Reimbursement rates are in EE Central.

Customers funding incentives out of their ECA implementation budgets (Turnkey or Customer Processing option) are eligible for a [performance payment](#).

### **Deemed Refrigeration Retrofit Measures**

#### **Requirements and Specifications**

Deemed refrigeration retrofit measures include auto-closers (walk-in and reach-in), vending machine controllers, anti-sweat heat controls, evaporator fans, high-efficiency doors for

<sup>29</sup>PECE will make determinations based on the cost-effectiveness and feasibility of performing work.

refrigerators and freezers, gaskets, motors, strip curtains and night covers. Customers should work with PECL to ensure these measures are incremental to the ESG Program.

Deemed calculated measures remain available exclusively through the ESG Program.

Please refer to EE Central for requirements and specifications.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Please refer to EE Central for reimbursement levels. Effective April 1, 2012, reimbursements for night covers are no longer available.

**Commercial Kitchen and Food Service Equipment**

BPA reimburses for a suite of high-efficiency commercial kitchen and food service electric equipment, including refrigerators, freezers, ice makers, steamers, hot food holding cabinets, combination ovens, convection ovens, fryers, dishwashers and pre-rinse spray wash valves. All equipment must be new. Reimbursements are also available for recycling of residential-style refrigerators and freezers from commercial buildings.

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

**Requirements and Specifications**

ENERGY STAR 2.0<sup>30</sup> is the specification for this measure. Information on qualifying units may be found at the [Consortium for Energy Efficiency \(CEE\)](#) and [ENERGY STAR](#).

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Size (cubic feet) <sup>31</sup>	Refrigerator	Freezer
0-29.9	\$50.00	\$100.00
30-50+	\$150.00	\$350.00
Chest	\$75.00	\$150.00

**Commercial Ice Makers**

**Requirements and Specifications**

Ice machines must be Air Cooled and CEE Tier 2 (ENERGY STAR) or CEE Tier 3 qualified. Information on qualifying units is listed at [CEE](#).

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Reimbursement is between \$100.00 and \$300.00 based on the amount of ice production per day. Additionally, higher reimbursements are offered for premium efficiency CEE Tier 3 qualifying machines. See EE Central for the complete list of reimbursement amounts.

<sup>30</sup> Note that ENERGY STAR 2.0 is substantially the same as the previous CEE Tier 2 specification.

<sup>31</sup> Size is the interior volume of the equipment as listed by ENERGY STAR.

## Commercial Kitchen Steamers

### **Requirements and Specifications**

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

No. of Pans per Electric Steamer	Idle Energy Rate	Cooking Efficiency
3 pan	220 W or less	65% or greater
5 pan	230 W or less	65% or greater
6 pan	250 W or less	65% or greater

The [CEE Tier 1A and 1B](#) lists include information on Idle Energy Rate and Cooking Efficiency necessary to determine whether a particular model qualifies, but there is no updated list of RTF Tier 2 qualifying units.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

Size	Reimbursement
3 pan	\$100.00
5 pan	\$200.00
6 pan	\$200.00

## Commercial Kitchen Hot Food Holding Cabinets

### **Requirements and Specifications**

Model must meet CEE's [Qualified Hot Food Holding Cabinets](#) Tier 2 requirements or have an idle energy rate of 20 watts per cubic foot or less.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

Size (cubic feet)	Reimbursement
7-12	\$200.00
13-17	\$300.00
18-22	\$400.00

## Combination Ovens

### **Requirements and Specifications**

Electric combination ovens must have a cooking efficiency of 70% or greater and an idle energy rate of 3.5 kW or less. Qualified units are listed in EE Central.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

BPA will reimburse \$1,750.00 per qualified unit.

## Convection Ovens

### **Requirements and Specifications**

Model must be an [ENERGY STAR](#) commercial electric convection oven.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Half and full size convection ovens are reimbursed at \$200.00 each.

**Electric Fryers (BPA Qualified)**

**Requirements and Specifications**

The electric fryer must meet RTF eligibility requirements. The table below includes all RTF approved units using less than 10,000 kWh per year. Eligibility is based on cooking energy efficiency and the idle energy rate of the unit. See EE Central for product details.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

BPA shall reimburse \$125.00 per qualified installation.

**Dishwashers**

**Requirements and Specifications**

Dishwasher must meet the RTF efficiency standard. See EE Central for information on qualifying dishwashers.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Type	Reimbursement
Low temp, electric hot water	\$750.00
High temp, electric hot water	\$750.00
Low temp, gas hot water	\$100.00
High temp, gas hot water	\$350.00

**Pre-rinse Spray Wash Valves**

**Requirements and Specifications**

Qualified installations require electrically heated dishwashing water in a facility that (1) serves 10 or more meal shifts per week (e.g., a facility that serves lunches and dinners, five days a week) or (2) has a documented rinse system that uses the equivalent amount of energy as 10 or more meal shifts (e.g., commercial bakeries; central school district cafeterias that prepare thousands of hot meals; or catering facilities that may only be used three times a week but provide meals for hundreds of people at a time). The measure requires direct installation (per the [Measure Distribution Processes](#) section) of a new nozzle with a flow rate of 1.6 gallons per minute or lower.

Effective April 1, 2012, the flow rate specification will be reduced to 0.65 gallons per minute or lower, and savings will be reduced to 488 kWh.

**Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

BPA shall reimburse \$100.00 per installation.

## **Refrigerator and Freezer Early Retirement and Recycling**

### **Requirements and Specifications**

The existing appliance for recycling must be a residential-style appliance, verified as functional, serving a commercial building with a minimum capacity of 10 cubic feet. The unit must be decommissioned and its components recycled.

### **Additional Documentation Requirements**

Customer must retain disposal/recycling documents.

### **Reimbursement**

BPA shall reimburse \$100.00 per unit.

## **Additional Deemed Offerings**

BPA reimburses customers for computer power management solutions, certain efficient commercial appliances and shell measures and is developing additional deemed measures.

## **Network Computer Power Management**

### **Requirements and Specifications**

Network Computer Power Management software must do the following:

1. Give the IT administrator easily-accessible, central control over the power management settings of networked workstations, with the capability to override user settings.
2. Have the capability to (a) cause a workstation's power-energy savings mode to be remotely enabled or disabled for centrally distributed software updates (e.g., wake on LAN capability) and (b) monitor disk and central processing unit activity and delay setting the computer to a low-power mode until the activity has finished.
3. Provide reports on energy savings.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

BPA reimburses \$10.00 per workstation (i.e., the computer monitor and box).

Note: This measure was previously provisionally deemed and scheduled to expire on April 1, 2012. Recent research found higher average savings than estimated (but lower savings in some applications) and the measure was fully deemed.

Effective April 1, 2012, this measure may be changed. Such changes may result in a decrease to savings.

## **ENERGY STAR Commercial Clothes Washers**

### **Requirements and Specifications**

The clothes washer must be on the ENERGY STAR commercial list (includes commercial laundries and multifamily common area coin-operated machines).

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Combination	Reimbursement
Electric water heater and electric dryer	\$200.00
Electric water heater and gas dryer	\$100.00
Gas water heater and electric dryer	\$100.00
Gas water heater and gas dryer	\$25.00

**Electric Storage Water Heaters**

**Requirements and Specifications**

Electric storage water heaters must meet the required efficiency levels in EE Central.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

Reimbursement is \$25.00 per unit.

**Smart Power Strips**

**Requirements and Specifications**

All Smart Power Strips must be used in accordance with the manufacturer's instructions and must be able to curtail plug loads.

1. Timer Based Smart Power Strips must use a digital timer and not mechanical controls and be programmable
2. Current Sensor Smart Power Strips must automatically switch off peripheral plug load from the control plug outlet and prohibit false switching by incorporating resistor-capacitor circuit filters or equivalent
3. Occupancy Sensor Smart Power Strips must include a passive infrared occupancy sensor which operates to automatically switch off peripheral plug load from the control plug outlet.

**Additional Documentation Requirements**

Customer must document the general type of plug load affected by Smart Power Strip installations.

**Reimbursement**

BPA shall reimburse \$20.00 per Smart Power Strip.

This measure was previously provisionally deemed and scheduled to expire on September 30, 2011. The expiration date is now April 1, 2012.

**Commercial Showerheads (Provisionally Deemed)**

**Requirements and Specifications**

The showerhead must have a rated flow rate at 2.0 gallons per minute, use electrically heated hot water and be installed in qualified commercial facilities: hospitality buildings

(hotels/motels), health care facilities (including hospitals) and small commercial facilities (including office showers).

Showerheads must be distributed via direct install per the [Measure Distribution Processes](#) section.

#### **Additional Documentation Requirements**

Please refer to EE Central for data collection details.

#### **Reimbursement**

BPA shall reimburse \$30.60 per qualified installation. Note that there are nine measures in EE Central, grouped by flow rate (<2.0, <1.75, or <1.5 GPM) and installation context (hospitality, health care, or small commercial).

### **Commercial New Construction**

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

#### **Energy Smart Design ® – Office and Trade-offs**

##### **Requirements and Specifications**

Qualifying buildings must meet the following characteristics:

- The building type must be one of the following: a new office building, an office addition to an existing building, or 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, have 100,000 square feet or less of conditioned area and 30 percent or less window to wall area ratio.

Energy Smart Design ® – Office information is on the [BPA Energy Efficiency Web site](#), and technical specifications are in EE Central. All items in the reimbursement table, below, must be included in the new office building. Code takes precedence if it exceeds any of the items.

Trade-offs are allowed as long as the new measure saves as much or more electricity than the Energy Smart Design ® – Office package and exceeds code for the package incentive.

#### **Additional Documentation Requirements**

Customers must ensure a professional familiar with the project (e.g., a qualified customer representative, a registered architect, licensed engineer or commissioning agent) submits items in the technical specification and trade-off forms (if trade-offs occurred). This information must also be retained in the customers' files.

#### **Reimbursement**

BPA shall reimburse according to the chart below.

Description	Requirements	\$/square foot By Package A, B or C		
		A: \$0.50	B: \$0.25	C: \$0.25
Cooling system minimum efficiency level	CEE Tier 2 Specifications	√	√	
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 recommended by IESNA	√		√
Lighting Controls	Occupancy sensors-install when lighting loads are over 100 watts and sensors are not required by code; exempts emergency fixtures	√		√

Effective April 1, 2012, packages A and B will no longer be available for buildings with heat pump systems, and packages A and C will no longer be available for buildings in the City of Seattle. Effective, October 1, 2013, this measure will be removed due to expected non-residential energy code changes.

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

#### **Requirements and Specifications**

Commercial new construction and major renovation projects must be submitted as [custom projects](#). The following table summarizes recommended M&V strategies.

Project Type	Predicted Savings	M&V Strategy
New Construction	≥ 200,000 kWh/yr	IPMVP Option D: Calibrated Model Simulation
	≤ 200,000 kWh/yr	BPA Protocols: Energy Calculations with Verification (ECwV)
Major Renovation	≥ 200,000 kWh/yr	IPMVP Option D: Calibrated Model Simulation or The following BPA Protocols: <ul style="list-style-type: none"> <li>• Energy Modeling</li> <li>• Verification by Energy Use Indexing</li> </ul>

Project Type	Predicted Savings	M&V Strategy
	$\leq 200,000$ kWh/yr	BPA Protocols: <ul style="list-style-type: none"> <li>• End Use Equipment</li> <li>• Verification by Energy Use Indexing</li> <li>• ECwV</li> </ul>
New Equipment	$> 200,000$ kWh/yr	BPA Protocols: <ul style="list-style-type: none"> <li>• Equipment in New Construction</li> <li>• End Use Equipment</li> <li>• Verification by Energy Use Indexing</li> </ul>
	$\leq 200,000$ kWh/yr	BPA Protocols: <ul style="list-style-type: none"> <li>• Equipment in New Construction</li> <li>• End Use Equipment</li> <li>• Verification by Energy Use Indexing</li> <li>• ECwV</li> </ul>

The baseline annual energy usage for the project provides the basis for establishing annual energy savings. The baseline for commercial new construction and major renovation is based on the following:

- The baseline is the local energy code, if local energy code applies.
- If there is no local energy code, the baseline is the applicable state energy code.
- If there are no applicable codes or standards for the specific end-use application, common practice is the baseline.
- The final baseline is determined by the BPA engineer.

#### **Additional Documentation Requirements**

Customers must document whole building or incremental cost (depending on which forms the basis for payment) and retain invoices showing that the building's owner paid for these costs in full.

#### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

### **Multi-Sector Opportunities**

Additional commercial opportunities are available in the Multi-Sector chapter:

- [Processes](#)
- [Measures and Initiatives](#)
  1. [Green Motors](#)
  2. [Lighting](#)
  3. [Limited Availability Emerging Technology Demonstration Pilots](#)
  4. [Variable Frequency Drives in Small Compressed Air Systems](#)

## 7. Federal Sector

Unlike other sectors, the Federal Sector does not have a unique set of measures. Rather, this sector incorporates the offerings of all other sectors. As such, a federal project is any energy efficiency project (available elsewhere in this Manual) installed in a qualifying federal facility.

A qualifying federal facility is one that meets the following requirements:

1. The site is (a) owned or leased by the federal government or (b) uses electric energy paid for by the federal government.
2. The site is (a) utility served or (b) direct served.
  - a. Utility Served: The site uses electricity purchased from a BPA customer.
  - b. Direct Served: The site uses electricity purchased directly from BPA.

Federal projects must follow the requirements of the sector under which they are offered. Customers must report new projects in EE Central under “federal,” and customers, rather than BPA, must provide incentive payments to end users.

For federal custom projects, see the [custom programs and projects reimbursement table](#), and for deemed measures, see the specific sector section.

# 8. Industrial Sector



Please check the [changes summary](#) to see if significant changes were made to any of the measures in this sector.

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The Industrial Sector includes electrical energy used by fixed pieces of equipment, buildings or complexes to produce, manufacture or store goods in connection with, or as part of, any process (including transportation) or system (including those related to food production). These processes and systems also include, but are not limited to, the following: electric distribution system hardware; Voltage Optimization; water/waste-water production and treatment; and data centers/server farms (except Commercial Sector data centers/server farms, i.e., those integrated into a commercial building that serve the information technology needs of the business enterprise). In general, Industrial Sector activities must not devote the majority of energy use within a facility to non-process related HVAC or potable hot water.

### Reimbursement Summary\*

Custom Projects	See the <a href="#">custom programs and projects reimbursement table</a> .
Energy Management Pilot	
o <i>Energy Project Manager</i>	See the reimbursement section of this offering.
o <i>Track and Tune Projects</i>	See the reimbursement section of this offering.
o <i>High Performance Energy Management</i>	See the reimbursement section of this offering.
Trade Ally Delivered Small Industrial Measures	See the <a href="#">custom programs and projects reimbursement table</a> .
Northwest Trade Ally Network (Non-Residential Lighting)	See the <a href="#">custom programs and projects reimbursement table</a> for custom project rates and EE Central for deemed levels.
BPA Funded Technical Service Providers (TSP)	Not applicable
Variable Frequency Drives in Spud and Onion Storage Facilities	\$200.00/hp

\* The reimbursement levels described in this table provide a summary only. Complete details of the reimbursement levels and associated requirements may be found in the corresponding text of the Manual. Please see the Table of Contents for the text location.

### Documentation Requirements Summary

Each measure includes documentation requirements additive to the general [documentation requirements](#). Refer to both the specific measure requirements and the general documentation requirements for a complete list of required documentation.

## Industrial Sector Overview

The BPA Energy Efficiency industrial program includes Energy Smart Industrial (ESI) and Multi-Sector opportunities.

Customers must enroll in ESI to receive BPA funding for custom project incentives and technical services. Without ESI enrollment, industrial custom project incentives and technical services must be customer self-funded, and BPA funding is available only for Multi-Sector measures and initiatives.

## Energy Smart Industrial

The bulk of industrial program offerings are located in ESI, which is managed by a third party contractor (ESI program partner). ESI participants are assigned an ESI Partner and offered the following program components:

- Industrial Custom Projects
- 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 (Non-Residential Lighting)
- Technical Service Providers (TSP)
- VFDs in Spud and Onion Storage Facilities

### **Requirements and Specifications**

**Enrollment:** A customer may request enrollment in ESI using the [COTR Request and Acknowledgment Procedure](#). BPA acceptance of the request is discretionary.

**ESI program partner:** The customer must meet with the ESI program partner (in person or over the phone) to outline its intended level of program engagement and end-user communication expectations for the ESI program partner. The customer may engage the ESI program partner on any other pertinent topic including the customer's industrial load, savings goals and desired program component rollout. The ESI program partner will e-mail an acknowledgement to the customer documenting the decisions made during the meeting.

**ESI Partner:** An ESI Partner (provided by the ESI program partner) is assigned to the customer and is the single point of contact for customers and helps them understand and implement 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 its end users
- Manages and reviews technical work products, including technical analysis of custom project submittals
- Helps the customer identify custom projects and secure BPA approval

**Custom Projects:** Customers must pass the full incentive to the end user.

The end user must design and construct energy efficiency projects and is encouraged to solicit bids for such work.

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	
	Option 1	Option 2
Development of M&V Plan	ESI Partner, TSP or Customer	ESI Partner, TSP or Customer
Entry of Custom Project into EE Central	ESI Partner or Customer	n/a
Submittal of Custom Project Proposal to BPA	Customer	n/a
Review of Custom Project Proposal	BPA ESI Engineer, ESI program partner Quality Control Engineer and COTR	n/a
Provision of Technical Advice to Customer	ESI Partner	ESI Partner
Development of Custom Project Entry/Completion Report	ESI Partner, TSP or Customer	ESI Partner, TSP or Customer
Entry of Custom Project/Completion Report into EE Central	ESI Partner or Customer	ESI Partner or Customer
Submittal of Custom Project/Completion Report to BPA	Customer	Customer
Review of Completion Report	BPA ESI Engineer, ESI program partner Quality Control Engineer and COTR	n/a

#### **Additional Documentation Requirements**

Customers must maintain proof of 100% incentive pass-through to end users (e.g., a copy of check to end user or other documentation of money delivery).

#### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

#### **Energy Management Pilot (Optional ESI Component)**

Energy Management is a pilot component composed of (1) the Energy Project Manager, (2) Track and Tune Projects and (3) High Performance Energy Management.

##### ***1. Energy Project Manager (Optional Energy Management Pilot Feature)***

#### **Requirements and Specifications**

BPA will co-fund Energy Project Managers (EPMs), end-user employees or contractors who manage energy efficiency custom projects at the end users' facilities. If applicable, EPMS may manage Track and Tune (T&T) Projects, deemed lighting and High Performance Energy Management (HPEM), at the end users' facilities. A customer may request EPM approval using the [COTR Request and Acknowledgment Procedure](#). BPA provides funding in installments, and the customer must pass through the entirety of each installment payment to the end user. The customer must upload, to EE Central, its executed EPM agreement between itself and the end user<sup>32</sup> that, at a minimum, identifies an energy savings goal of at least 1,000,000 kWh of verifiable annual busbar energy savings per year; the customer's responsibility to pass through all funding to the end user; and the end user's obligation to employ a qualified EPM.

<sup>32</sup> In certain instances, when the Manual procedures are unworkable, the customer and BPA may agree to a direct agreement between the end user and BPA.

The customer (via its end user) must achieve projected energy savings of at least 1,000,000 kWh verifiable annual busbar energy savings and should do so within one year of the EPM funding Commencement Date (but is allowed up to 18 months from the Commencement Date). The Commencement Date is the date the final of the following actions occur: (1) customer uploads its executed EPM agreement to EE Central, (2) an EPM is hired or designated by the end user and (3) BPA approves the EPM.

The customer must ensure the end user meets the following requirements:

- a. The end user must hire or designate an EPM to identify, evaluate and implement industrial electrical energy efficiency projects (e.g., T&T, deemed lighting and HPEM). The EPM must be familiar with, and have experience in, industrial electric energy efficiency and the end user's type of business.
- b. The EPM must manage electrical energy efficiency projects that deliver 1,000,000 kWh or greater in verifiable annual industrial busbar energy savings. These savings must be verified, i.e., the savings must be reportable in EE Central and approved by BPA.
- c. The end user may replace the EPM; however, the customer must inform BPA in writing, within 30 days of replacement, and the replacement EPM must meet the requirements of this Manual.
- d. No later than 90 days after the Commencement Date, the EPM must submit an EPM Comprehensive Plan to the customer and BPA (through EE Central). The EPM Comprehensive Plan must be approved by BPA and include, at a minimum, the following:
  - i. Projected verifiable annual busbar energy savings (at least 1,000,000 kWh) (Eligible project status shall precede completion of post-project M&V at time of Commencement Date.)
  - ii. Name of the EPM
  - iii. Total annual cost of the EPM, which includes base salary, benefits and associated direct costs (e.g., travel and training<sup>33</sup>), if known.<sup>34</sup>
  - iv. Itemized summary of planned electrical energy efficiency projects (including participation in either HPEM or T&T) that will comprise the verifiable annual busbar energy savings, including estimates of the energy savings, cost savings and implementation costs
  - v. Schedule for project development, implementation and completion
  - vi. Project implementation schedule showing energy savings or energy savings progress expected at (a) six months after the Commencement Date and (b) over the life of the plan
  - vii. If applicable, participation plans for T&T and/or HPEM.<sup>35</sup>

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<sup>33</sup> EPM training costs must be pre-approved by BPA (confirmed in writing by the COTR) based on the customer's budget, EPM costs and the relevancy of the training. EPM costs include only qualifying costs incurred between the EPM Commencement Date and the date the last project in the EPM Comprehensive Plan is approved by the COTR. BPA will not reimburse customers for EPM time in a custom project if that project was included in the EPM Comprehensive Plan.

<sup>34</sup> Prior to the final payment, the customer must adjust the EPM cost to reflect the total actual costs. The total EPM co-funding amount may not exceed the total annual EPM cost as specified in the EPM Comprehensive Plan. Documentation of actual EPM costs must accompany the final EPM status report, which precedes final payment.

<sup>35</sup> T&T and HPEM first year savings and subsequent years' incremental savings may be applied toward the EPM savings goal.

The EPM must submit status reports to the customer and BPA (through EE Central) describing (1) energy savings achieved and projected and (2) projects completed, in-process or planned. Status reports are due no later than (1) six months from the Commencement Date and (2) one year from the Commencement Date.

No later than six months after the Commencement Date, the end user must achieve, to BPA's satisfaction, the six-month verified annual busbar energy savings or energy savings progress (i.e., BPA-approved custom project proposals (Option 1), customer-approved custom projects (Option 2) or in-progress T&T and/or HPEM projects) described in the project implementation schedule of the EPM Comprehensive Plan. If energy savings achievements differ significantly from savings predictions, BPA may revise the savings goal and use the revised goal for reimbursement calculations.

### **Additional Documentation Requirements**

Customer must retain copies of the executed customer EPM agreement with its end user, the EPM Comprehensive Plan and the status reports.

### **Reimbursement**

To receive reimbursement, the customer must invoice BPA upon the end user reaching the milestones in the chart below. Customers are not obligated to return money already received.

<b>Payment No.</b>	<b>Funding Amount</b>	<b>Milestone</b>
1	\$25,000.00 <sup>i</sup>	Commencement Date
2	1/3 of the funding <sup>ii</sup> less previous payments	BPA approves the EPM Comprehensive Plan
3	2/3 of the funding <sup>ii</sup> less previous payments	End user achieves, to BPA's satisfaction, the six-month energy savings or energy savings progress described in the project implementation schedule of the EPM Comprehensive Plan
4	The lesser of (a) \$0.025 per kWh of <b>actual</b> verified busbar energy savings, (b) the total annual cost of the EPM as described in the EPM Comprehensive Plan or (c) \$250,000.00, less previous payments	End user meets, exceeds, or fails to meet (as certified by BPA) the EPM Comprehensive Plan projected Verified Energy Savings

<sup>i</sup> Funding beyond this payment will not be provided unless the verified energy savings goal or actual savings achieved is greater than 1,000,000 kWh.

<sup>ii</sup> Funding is based on the lesser of (a) \$0.025 per kWh of the verified energy savings goal, (b) the total annual cost of the EPM as described in the EPM Comprehensive Plan or (c) \$250,000.00.

Savings in excess of the payment ceiling (i.e., savings with dollar amounts exceeding (a) the total annual cost of the EPM as described in the EPM Comprehensive Plan or (b) \$250,000.00) may be carried over to subsequent funding years, subject to BPA's approval. Effective April 1, 2012, excess savings may not be carried over to subsequent funding years.

## **2. Track and Tune Projects (Optional Energy Management Pilot Feature)**

### **Requirements and Specifications**

T&T Projects are a combination of site or sub-system tune-ups that focus on operations and maintenance opportunities for increased energy efficiency. A performance tracking system

(PTS)<sup>36</sup> is included in a T&T Project to determine annual energy savings and associated sustained savings incentive payments from BPA. A customer may request T&T funding by using the [COTR Request and Acknowledgment Procedure](#).

The customer must report savings in EE Central and sign a T&T agreement with the end user that includes a three-year or five-year sustained savings period.<sup>37</sup> The executed agreement must be uploaded to EE Central. The customer must ensure that its end user assigns an Energy Champion to (a) serve as the primary contact for T&T Providers<sup>38</sup> and (b) implement and track suitable T&T Projects.

- a. The Energy Champion shall work with the T&T Provider and the ESI Partner to perform a scoping study that results in a tune-up and monitoring plan. The plan must include a preliminary estimate of energy savings potential, recommendations tracking energy savings, recommendations for baseline determination and a detailed proposal for subsequent technical services to perform the tune-up.
- b. The end-user Energy Champion shall implement and track suitable T&T Projects defined in the T&T Provider's tune-up and monitoring plan, or elsewhere. The end-user Energy Champion is responsible for managing the end user's completion of the following steps:
  - i. PTS Installation - Install a PTS capable of tracking and delivering electronic energy savings data (e.g., electric energy consumption, production quantities and operating hours) to end user, customer, the T&T Provider and BPA and its representatives (including ESI program personnel). Data should be available frequently enough to allow changes in T&T implementation if necessary to increase energy efficiency.
  - ii. Baseline Determination - Wait for an energy baseline to be established with data from the PTS prior to beginning actual tune-up activities.
  - iii. Tune-Up - Participate in a tune-up with the T&T Provider and begin to implement changes to increase energy efficiency.
  - iv. Action Plan Report - Submit an Action Plan Report (as prepared by the T&T Provider) to BPA (through EE Central) and customer that summarizes the activities and results of the tune-up and includes a plan to implement specific energy efficiency project action items<sup>39</sup> that are beyond the scope of changes that could be made in the course of the tune-up.
  - v. Action Item Implementation - Implement action items. The end user and Energy Champion make the final determination regarding which action items are implementable.
  - vi. T&T Completion Report - Submit a T&T Completion Report to customer and BPA (through EE Central) upon implementation of all implementable action

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<sup>36</sup> The PTS uses measurement equipment and software to track and communicate system or facility-level energy use during the baseline and post tune-up periods. The PTS tracks key independent variables to develop a meaningful normalized energy use profile. The PTS is installed and owned by the end user and eligible for BPA funding.

<sup>37</sup> Customers who signed T&T agreements prior to April 1, 2011 may revise their agreements once to reduce the performance period to three years. Customers who sign T&T agreements on or after April 1, 2011 may not revise their agreements to change the performance period.

<sup>38</sup> T&T providers may include a TSP, outside expert or in-house end user personnel. Separate TSP funding is available for the listed TSP activities per BPA's established TSP program.

<sup>39</sup> Action items are generally defined as the list of low-cost energy savings activities that were identified and recommended in the T&T Action Plan Report that in aggregate produce cost-effective energy savings.

items. The T&T Completion Report may be completed by the ESI program partner, T&T Provider or a combination of the two and must include the following:

- A. Verified energy savings data derived from the PTS and (where necessary) production data.
  - B. Documented costs (including invoices or other records when necessary) for labor, material and services that were incurred to implement the energy efficiency action items that were identified in the Action Plan Report.
  - C. Documentation that demonstrates which action items were completed in accordance with the recommendations of the Action Plan Report.<sup>40</sup>
- vii. Sustained Savings Reports - Submit annual Sustained Savings Reports to customer and BPA (through EE Central) that demonstrate energy savings derived from the PTS energy data and (where necessary) production data. Sustained savings reports may be completed by the ESI program partner, the T&T Provider or a combination of the two.

**Additional Documentation Requirements**

The customer must retain copies of the following:

- Executed T&T agreement between customer and end user
- Tune-up and monitoring plan
- Action Plan, T&T Completion and Sustained Savings Reports

**Reimbursement**

The customer must invoice BPA upon the end user reaching the milestones hart below.

Payment No.	Funding Amount	Milestone
1	Lesser of documented PTS costs or \$0.0025 per kWh of estimated annual energy usage of system baseline; allowable exceptions of up to \$10,000.00 for system baseline of 4,000,000 kWh or less, capped at \$50,000.00 for system baseline of 20,000,000 kWh or greater	End user purchases and installs BPA-approved PTS.
2	\$0.075 per kWh of actual verified energy savings identified in the T&T Completion Report, not to exceed 70% of implementation costs identified in the T&T Completion Report	BPA reviews and approves end-user submitted T&T Completion Report. <sup>i</sup>
3 through 5/7 <sup>ii</sup>	\$0.025 per kWh of actual verified energy savings, plus documented PTS costs of up to \$0.0025 per kWh of baseline <sup>iii</sup>	BPA reviews and approves end-user Sustained Savings Report for prior year.

<sup>i</sup> The first year concludes the date the end user completes action items, no later than nine months following tune-up. After the performance period (typically 90 days), the T&T Completion Report is submitted to the customer and BPA.

<sup>ii</sup> Three-year performance periods have five payments, and five-year performance periods have seven payments.

<sup>iii</sup> The upper limit on allowable ongoing PTS costs are capped at the lesser of \$50,000.00 or \$0.0025 per kWh of baseline energy usage of the energy using systems(s) that are being addressed by the T&T project. These caps apply to the cumulative expenditures for the sustained savings period. These are end-user incurred costs that are related to ongoing data transmission costs and maintenance and repair costs associated with operating and maintaining the PTS system. Verified sustained savings may be fully eligible for a calculated incentive, or subject to a cap (e.g., based on 10 percent of system baseline) as specified within the T&T agreement.

<sup>40</sup> The end user does not have to implement every implementable action item.

### 3. High Performance Energy Management (Optional Energy Management Pilot Feature)

#### **Requirements and Specifications**

HPEM is designed to generate more (a) T&T Projects, (b) custom projects and (c) savings via Monitoring, Targeting and Reporting (MT&R) analysis. Annual sustained savings incentives are available from BPA for verified savings from the MT&R Completion Report.

A customer may enroll in HPEM using the [COTR Request and Acknowledgment Procedure](#). The customer must report savings in EE Central and sign an HPEM agreement with the end user for a three-year or five-year performance period.<sup>41</sup> The executed agreement must be uploaded to EE Central.

As a condition of receiving HPEM funding, the customer must ensure the end user meets the following requirements:

- a. The end user must assign (1) two staff members to attend one year of monthly BPA HPEM training sessions and (2) an executive sponsor to support the HPEM effort at a management level. End-user attendees must participate in and complete the training sessions and provide two to four presentations describing end user's energy performance. The customer and end user must keep information exchanged in training sessions confidential.
- b. Concurrent with HPEM training, and over the course of the HPEM program, the end user must implement a continuous improvement process program for energy management at end user's facility, including, but not limited to, the following:
  - i. Conducting an assessment of current energy management practices (e.g., does end user track, manage or reduce energy usage?)
  - ii. Establishing an energy management policy with goals and assigned accountabilities
  - iii. Assigning an Energy Champion, a key contact person for the energy management continuous improvement process
  - iv. Establishing an energy team to implement custom projects, Key Performance Indicators (energy use per unit of production) and an energy plan for the facility
  - v. Implementing energy efficiency activities and projects
  - vi. Establishing and maintaining an energy use data tracking system with an established baseline, energy use and energy savings

The customer and end user must make available to BPA all information necessary to facilitate HPEM and determine energy savings (e.g., electrical data, natural gas data, production quantity). The customer must upload the end user's annual MT&R Completion Report to EE Central. The report must track energy usage and unit production over the course of the previous year. Yearly funding amounts are based on the BPA verified savings in the MT&R Completion Report.

The customer must report energy savings in EE Central on an annual basis for the duration of the performance period. Energy savings will be verified by BPA based on MT&R analysis

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<sup>41</sup> Customers who signed HPEM agreements prior to April 1, 2011 may revise their agreements once to reduce the performance period to three years. Customers who sign HPEM agreements on or after April 1, 2011 may not revise their agreements to change the performance period.

techniques and will not include any projects that received funding from other BPA programs (e.g., custom projects, deemed projects or T&T Projects).

**Additional Documentation Requirements**

The customer must retain copies of the MT&R Completion Reports and provide documentation that the requirements have been met.

**Reimbursement**

Annual incentive payments are paid according to the chart below.

Funding Period <sup>i</sup>	Funding Amount	Milestone
Year 1	\$0.025 per kWh of BPA verified MT&R energy savings for previous year <sup>ii</sup>	End user completes HPEM training, implements a continuous improvement process program for energy management and BPA receives annual MT&R Completion Report
Year 2	\$0.025 per kWh of BPA verified MT&R energy savings for previous year <sup>ii</sup>	End user implements a continuous improvement process program for energy management, and BPA receives annual MT&R Completion Report
Year 3 or Years 3-5 <sup>iii</sup>	\$0.025 per kWh of BPA verified MT&R energy savings for previous year <sup>ii</sup>	End user implements a continuous improvement process program for energy management, and BPA receives annual MT&R Completion Report

<sup>i</sup> The first year begins on the date of the first BPA HPEM training. Payments are made at the conclusion of each year based upon the BPA verified savings in the MT&R Completion Report.

<sup>ii</sup> Verified MT&R energy savings may be fully eligible for a calculated incentive or subject to a cap (e.g., based on 10 percent of site baseline) as specified within the HPEM agreement.

<sup>iii</sup> Three-year performance periods are funded through year three, and five-year performance periods are funded through year five.

**Trade Ally Delivered Small Industrial Measures (Optional ESI Component)**

**Requirements and Specifications**

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.

**Additional Documentation Requirements**

No additional requirements.

**Reimbursement**

See the [custom programs and projects reimbursement table](#).

**Northwest Trade Ally Network (Optional ESI Component)**

**Requirements and Specifications**

The Northwest Trade Ally Network supports non-residential lighting trade allies and customers through Lighting Specialists who work one-on-one with trade allies, customers and end users at the project level. Lighting Specialists provide onsite lighting walk-throughs;

onsite meetings and/or technical development with an end user, trade ally and/or customer representative; and review of end-user trade ally proposals and recommendations for enhancing lighting efficiency technology.

Lighting projects may be submitted as custom projects if (1) they do not meet the requirements of the [Non-Residential Lighting](#) section (e.g., new technologies, new applications, specialized fixtures or control schemes) or have interactive effects with other non-lighting measures that are not part of the Lighting Calculator Spreadsheet or (2) per the [Non-Residential Lighting](#) section, are estimated to provide more than 200,000 kWh in annual savings.

Option 1 custom project proposals must include the following:

1. A reason for custom project qualification in the custom project overview section
2. A completed Lighting Calculator Spreadsheet

If the measures contain new fixtures where existing fixtures do not exist but are required to meet operating requirements, the measure must be listed as a separate measure in the custom project proposal/custom project and contain incremental cost and savings information. The baseline description must contain the justification for the additional fixtures (e.g., required for safety, change in equipment layout, change in use of area).

The following M&V guidelines apply:

1. Power measurements for new induction or fluorescent fixtures are not required; customers may use manufacturers' published wattage specifications to determine energy savings.
2. Customers may use lighting power estimates in the Lighting Calculator Spreadsheet for existing fluorescent, quartz and incandescent lights.
3. Customers must measure the actual input power of the fixture for all other types of lighting, new or existing.
4. Customers must verify the controls and schedule of automated lighting with a fixed control schedule controls (e.g., time-based controllers or photo-cells) but are not required to log the system operation.

BPA reserves the right to reject a lighting custom project and require submittal under the [Non-Residential Lighting](#) section.

#### **Additional Documentation Requirements**

The documentation requirements of the [Non-Residential Lighting](#) section apply.

#### **Reimbursement**

For custom lighting projects, see the [custom programs and projects reimbursement table](#).

For deemed lighting projects, the [Non-Residential Lighting](#) reimbursement levels apply.

### **BPA Funded Technical Service Providers (Optional ESI Component)**

#### **Requirements and Specifications**

BPA funding, through the ESI program partner, is available for eligible 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. BPA funding of technical services is based on the cost-effectiveness of the proposal and the likelihood of implementation by end user.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

No reimbursement is paid to the customer as BPA funds the TSP consultants directly.

## **Variable Frequency Drives (VFD) 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. Each VFD must be submitted individually as a custom project (i.e., VFDs may not be combined or divided).

### **Additional Documentation Requirements**

The customer must retain a copy of the completed spud and onion storage shed energy savings calculation.

### **Reimbursement**

BPA shall reimburse \$200.00 per hp.

## **Multi-Sector Opportunities**

Additional industrial opportunities are available in the Multi-Sector chapter:

- [Processes](#)
- [Measures and Initiatives](#)
  1. [Green Motors](#)
  2. [Lighting](#)
  3. [Limited Availability Emerging Technology Demonstration Pilots](#)
  4. [Variable Frequency Drives in 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.)

# 9. Residential Sector



Please check the [changes summary](#) to see if significant changes were made to any of the measures in this sector.

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The Residential Sector includes electrical energy used in a residential setting (e.g., 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 greater than three stories is considered commercial.)

### Reimbursement Summary\*

Program Component or Measure	Reimbursement
Lighting	
○ Specialty CFLs	\$2.25-\$5.50
○ Standard Twister CFLs	\$1.00-\$4.00
○ CFL Fixtures	\$10.00
Showerheads	\$12.00 - \$20.00/unit
Appliances (New)	
○ ENERGY STAR Clothes Washers	\$20.00-\$70.00/washer
○ ENERGY STAR Freezers	\$15.00/freezer
○ ENERGY STAR Refrigerators	\$15.00/refrigerator
Refrigerator and Freezer Decommissioning	\$100.00/unit
Electric Water Heating	
○ Electric Storage Water Heaters	\$25.24-\$105.77
○ Gravity-Film Heat Exchangers	\$159.77-\$228.24
○ Pipe Insulation	\$4.31-\$12.92
HVAC Measures	
○ Ductless Heat Pumps	\$1,500.00/unit
○ Ducted Systems with PTCS	
▪ PTCS Air-Source Heat Pump Upgrade	\$500.00-\$1,000.00/unit
▪ PTCS Air-Source Heat Pump Conversions	\$1,400.00-\$1,900.00/unit
▪ PTCS Heat Pump Commissioning and Controls	\$300.00/unit
▪ PTCS Geothermal (Ground-Source) Heat Pump Systems (new)	\$2,400.00-\$3,000.00/unit
▪ PTCS Duct Sealing	\$400.00-\$500.00/unit
Line Voltage Electronic Thermostats	\$115.00-\$160.00/unit
New Construction	
○ New ENERGY STAR Manufactured Homes	\$850.00-\$1,450.00/unit
○ New ENERGY STAR/Built Green Site-Built Homes	\$200.00-\$1,800.00/unit
○ Montana House (v 2.0)	\$200.00-\$1,500/unit
○ New Multifamily Construction	\$80.00-\$140.00/unit
Weatherization (Standard Income)	
○ Insulation	See EE Central.
○ Prime Window Replacement	\$6.00/square foot
○ Air Sealing	See EE Central.
Low-income Weatherization and Duct Sealing	Dollar for dollar reimbursement with limits (not to exceed \$20.00/ square foot for Prime Window Replacement)
Residential Custom Projects	See the <a href="#">Custom Programs and Projects Reimbursement Table</a>

\* The reimbursement levels described in this table provide a summary only. Complete details of the reimbursement levels and associated requirements may be found in the corresponding text of the Manual. Please see the Table of Contents for the text location.

### Documentation Requirements Summary

Each measure includes documentation requirements additive to the general [documentation requirements](#). Refer to both the specific measure requirements and the general documentation requirements for a complete list of required documentation.

## Lighting

### ENERGY STAR CFLs and CFL Fixtures

#### Requirements and Specifications

CFLs and CFL fixtures must be ENERGY STAR qualified, installed in a residential setting and claimed only once (e.g., CFLs in ENERGY STAR fixtures cannot be claimed as documented direct install CFLs if the ENERGY STAR fixture was already claimed under that measure).

Standard twister and specialty CFLs are both eligible. Specialty CFLs are defined as the following screw-base bulbs: candelabra, G-lamp (globe), R-lamp and PAR-lamp (reflector), torpedo, dimmable and three-way. *Note: T-2s and A-lamps are standard twisters, not specialty CFLs.*

CFLs must also be more than five watts and, if replacements, replace incandescent or halogen bulbs. Customers may distribute CFLs and CFL fixtures via retail markdown, direct mail by request, non-requested direct mail (limited to four CFLs per household per fiscal year), direct install or another distribution method<sup>42</sup> per the [Measure Distribution Processes](#) section.

Effective April 1, 2012, savings for standard CFLs will decrease from 24 kWh to 17 kWh as a result of a change in baseline from the impacts of the Energy Independence and Security Act of 2007. BPA reimbursement will not decrease at this time.

#### Additional Documentation Requirements

See the [Measure Distribution Processes](#) section.

#### Reimbursement

Type	Retail Markdown	Direct Mail/Other Distribution	Direct Install
<b>Standard Twister CFL</b> ( <i>CFLs not defined as specialty</i> )	\$1.00	\$2.50	\$4.00
<b>Specialty CFL</b> ( <i>screw-base candelabra, G-lamp (globe), R-lamp and PAR-lamp (reflector), torpedo, dimmable and three-way</i> )	\$2.25	\$4.00	\$5.50
<b>CFL Fixture</b>	\$10.00	n/a	n/a

## Showerheads

#### Requirements and Specifications

This measure is available for all types of residential buildings (multifamily, single-family and manufactured homes). Showerheads must have a gallon per minute (GPM) flow rate of 2.0 or less and may be distributed via retail markdown, mail by request or direct install per the [Measure Distribution Processes](#) section. Showerheads mailed/distributed by request or directly installed must be used in homes with electric water heat and are limited to two showerheads per residence.

#### Additional Documentation Requirements

See the [Measure Distribution Processes](#) section.

<sup>42</sup> Other distribution method applies to CFLs distributed at an event, over-the-counter at the customer's office, via a coupon or through on-line fulfillment. Customers must contact their COTRs to confirm documentation requirements.

## Reimbursement

Retail Markdown	Mail by Request	Direct Install
\$12.00	\$12.00	\$20.00

## **Appliances (new)**

### Requirements and Specifications

Appliances must be ENERGY STAR rated with deemed energy savings. Clothes Washers must have a Modified Energy Factor (MEF) of 2.0 or greater and a Water Factor of 6.0 or lower.

### Additional Documentation Requirements

Clothes washer claims must include documentation of water heater fuel and clothes dryer fuel.

### Reimbursement

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

Appliance	Reimbursement
Clothes Washer MEF 2.0-2.19	\$30.00
Clothes Washer MEF 2.20-2.45	\$50.00
Clothes Washer MEF 2.46+	\$70.00
Clothes washers with gas water heater	\$20.00
Freezers 7.75 cubic feet or greater	\$15.00
Refrigerators 7.75 cubic feet or greater	\$15.00

## **Refrigerator and Freezer Decommissioning**

### Requirements and Specifications

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

### Additional Documentation Requirements

- Disposal/ recycling documentation
- Cubic size of refrigerator or freezer

### Reimbursement

Reimbursement is \$100.00 per decommissioned refrigerator or freezer.

## **Electric Water Heating**

BPA will reimburse customers for (1) electric storage water heaters, (2) gravity-film heat exchangers and (3) pipe insulation.

### Electric Storage Water Heaters

#### Requirements and Specifications

Electric storage water heaters must meet the minimum energy factor in EE Central as summarized in the table below.

Effective April 1, 2012 electric storage water heaters will be categorized by gallon size as follows: 25-34.99, 35-44.99, 45-54.99, 55-74.99, 75-99.99 and 100-119.99. Savings for 105 and 119 gallon water heaters will decrease by 43%. Reimbursement will be \$25.00 for all measures, regardless of size.

### **Additional Documentation Requirements**

Customers must document warranty period, if claiming a 20-year or longer warranty.

### **Reimbursement**

Reimbursements and busbar energy savings are in EE Central and the charts below.

Water heater Tank Size (gallons)	Minimum Energy Factor	Minimum Warranty	Busbar Energy Savings (kWh/yr)	Reimbursement
50	0.93	Any	101	\$25.24
	0.94	20 year*	133	\$46.62
65	0.91	Any	106	\$26.48
	0.94	20 year*	205	\$71.77
75	0.92	20 year*	177	\$61.93
80	0.91	Any	181	\$45.32
	0.92	20 year*	215	\$75.32
85	0.92	20 year*	217	\$76.11
105	0.91	20 year*	302	\$105.77
119	0.85	Any	166	\$41.59

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

## **Gravity-film Heat Exchangers**

### **Requirements and Specifications**

Gravity-film heat exchangers must be cost-effective applications in homes with electric water heat.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

Residence Type	Retrofit/New Construction	Application	kWh /yr	Reimbursement
Single-Family & Multifamily	Retrofit/New	DHW & Shower Preheat	652	\$228.24
		DHW Preheat	522	\$182.60
Multifamily	New	Shower Preheat	456	\$159.77

## **Pipe Insulation**

### **Requirements and Specifications**

Pipe insulation reduces standby losses best within the first three to fifteen feet of the water heater. Both hot and cold pipes must be wrapped with minimum of R-3 closed cell foam insulation at least 3 feet from the water heater. Exposed plumbing runs of 15 feet or greater (from water heater) may claim the 15 foot measure. Customers may claim only one measure per project.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

Reimbursements and busbar energy savings are in EE Central and the charts below.

<b>Application</b>	<b>kWh saved/yr</b>	<b>Reimbursement</b>
Short wrap (3 foot minimum)	22	\$4.31
Long wrap (15 foot minimum)	65	\$12.92

## **HVAC Measures**

This section covers the following:

- Ductless Heat Pumps (DHP)
- Ducted Systems with PTCS Certification

### **HVAC Measures - Ductless Heat Pumps (provisionally deemed)**

#### **Requirements and Specifications**

- BPA will reimburse customers for one DHP per existing single-family residence with permanently installed zonal electric<sup>43</sup> resistance heating as the primary heating system.
- The DHP must be (1) a split system heat pump employing inverter-driven outdoor compressor units, with inverter-driven or variable-speed indoor blowers and (2) installed according to [specifications](#), by a contractor who attended a Northwest Ductless Orientation and received installation training from the manufacturer of the installed DHP equipment.
- Ducted indoor units and newly constructed homes (i.e., homes less than one year old) do not qualify. Unqualified DHP applications may be pursued as a custom project (i.e., homes with electric forced-air furnaces or new construction, excluding New ENERGY STAR Homes).

#### **Additional Documentation Requirements**

Required documentation must be sent to Fluid Market Strategies (Fluid). Fluid shall determine that the installation meets eligibility requirements and that the following forms are complete:

- Homeowner Participation Form (or approved customer form)
- Contractor Form (or approved customer form)
- Customer Invoice

The customer must also retain proof that the DHP installation was submitted to and accepted by Fluid and recorded in the [DHP regional database](#).

#### **Reimbursement**

Reimbursement is \$1,500.00 per DHP.

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<sup>43</sup> Zonal hydronic heating systems may be claimed for BPA reimbursement as zonal electric heat.

## HVAC Measures - Ducted Systems with Performance Tested Comfort Systems (PTCS)

Measures include new high-efficiency heat pump upgrades; heat pump conversions; geothermal heat pump systems installed to PTCS specifications; PTCS commissioning and controls for heat pumps of any efficiency; and PTCS duct sealing (available for both new and existing systems).

### Requirements and Specifications

- Installations may be in single-family or manufactured homes with electric or non-electric auxiliary heat systems as long as the electric heat pump is the primary home heating system.
- PTCS work must be performed by a PTCS certified technician and must be certified as PTCS. PTCS specifications and forms are available at the [PTCS Web site](#).
- Heat pumps must be new and be installed according to the “PTCS Air Source Heat Pump Installation Standards” current at the time of purchase and available in EE Central. Heat pump equipment must be AHRI tested and certified. Manufacturer claims of “equivalent to AHRI certified equipment” are not accepted.

Additional requirements apply to air-source heat pump upgrades and conversions, commissioning and controls, geothermal heat pump systems and PTCS duct sealing. See the table, below.

Effective April 1, 2012, the conversion of an air-source heat pump to a ground source heat pump will no longer be an eligible measure, but the conversion of an electric forced air furnace to ground source heat pump will be eligible.

<p><b>Air-Source Heat Pump Upgrades</b></p>	<ul style="list-style-type: none"> <li>• Heat pump must be rated as having a minimum of 9.0 HSPF and 14 SEER.</li> <li>• Heat pump upgrades include adding a heat pump to a system with gas back-up, replacing an existing heat pump, or upgrading from zonal to air-source heat pump.</li> <li>• Homes with heated floor area greater than 4,500 square feet may claim up to two heat pump measures when two qualifying heat pumps are installed.</li> <li>• When more than 50% of the heating ducts run through unconditioned space, ducts must be sealed and PTCS certified unless the ducts were previously certified or a PTCS duct leakage test indicates that the pre-existing duct leakage is too low to qualify for the PTCS duct sealing reimbursement.</li> </ul>
<p><b>Electric Forced-Air Furnace to Air-Source Heat Pump Conversions</b></p>	<ul style="list-style-type: none"> <li>• Heat pump must be rated as having a minimum of 9.0 HSPF and 14 SEER.</li> <li>• The installation must convert an electric forced air furnace to a high efficiency heat pump.</li> <li>• Homes with heated floor area greater than 4,500 square feet may claim up to two heat pump measures when two qualifying heat pumps are installed.</li> <li>• When more than 50% of the heating ducts run through unconditioned space, ducts must be sealed and PTCS certified unless the ducts were previously certified or a PTCS duct leakage test indicates that the pre-existing duct leakage is too low to qualify for the PTCS duct sealing reimbursement.</li> </ul>
<p><b>Commissioning and Controls</b></p>	<ul style="list-style-type: none"> <li>• The PTCS technician must correctly size the system to the heating load, test for sufficient air flow across the coils and install an auxiliary heat lockout for when the outdoor temperature is above 35 degrees Fahrenheit.</li> <li>• This measure may be applied to any new heat pump that meets federal standards, including federal minimum HSPF and SEER ratings.</li> </ul>
<p><b>Geothermal Heat Pump Systems</b></p>	<ul style="list-style-type: none"> <li>• This measure is available for single-family homes, only.</li> <li>• The geothermal heat pump system application must be listed in EE Central as a reportable, cost-effective measure.</li> </ul>

	<ul style="list-style-type: none"> <li>• All system components must be newly installed. The replacement of an existing geothermal heat pump unit or the thermal exchange loop does not qualify.</li> <li>• Geothermal heat pump systems must be ENERGY STAR qualified and installed according to the International Ground Source Heat Pump Association (IGSHPA) specifications available at the time of installation by a PTCS and IGSHPA certified technician. Please visit the <a href="#">PTCS website</a> for latest information on available training.</li> <li>• Only one geothermal heat pump per home qualifies for BPA reimbursement. Geothermal heat pumps may be connected to hydronic heating systems in residential end-use applications if all PTCS and IGSHPA specifications are met.</li> </ul>
<b>Duct Sealing Site built &amp; Manufactured homes</b>	<ul style="list-style-type: none"> <li>• For <u>manufactured homes</u>, pre-existing duct leakage to the outside must be greater than 100 CFM<sub>50</sub> for single-wide homes or 75 CFM<sub>50</sub> leakage per section for multi-section homes (e.g., double wide 150 CFM<sub>50</sub>, triple wide 225 CFM<sub>50</sub>).</li> <li>• For <u>existing single-family homes</u>, pre-existing duct leakage to the outside must be greater than 250 CFM<sub>50</sub> or 15 percent of the floor area, whichever is less.</li> <li>• For <u>new single-family homes</u>, the home must be new construction and occupied for less than a year. Pre-existing duct leakage test is not required.</li> </ul>

#### **Additional Documentation Requirements**

All measures require proof that the required PTCS form(s) for measure being claimed has been accepted in the PTCS registry of certified systems.

PTCS heat pump measures (all) also require the following:

- PTCS heat pump form
- PTCS duct sealing form (if duct sealing is required)
- AHRI certificate
- Copy of one of the following:
  - Whole-house heating and cooling calculation (ACAA Manual J or Easy J) and balance-point worksheet
  - PTCS Heat Pump and Central Air Conditioner Sizing Calculator
- Geothermal heat pump systems require a manufacturer's heat pump start-up form.

PTCS duct sealing measures also require the PTCS duct sealing form.

#### **Reimbursement**

<b>Measure category</b>	<b>Details</b>	<b>Reimbursement</b>
Air-Source Heat Pump Upgrade	Duct sealing is required	\$1,000.00
	Duct sealing is NOT required	\$500.00
Electric Forced-Air Furnace to Air-Source Heat Pump Conversion	Duct sealing is required	\$1,900.00
	Duct sealing is NOT required	\$1,400.00
Commissioning and Controls	May be applied to any new heat pump meeting the federal minimum standard	\$300.00
Geothermal Heat Pump systems	Single-family homes only – HZ 1 (for cost-effective applications, per EE Central)	\$2,400.00
	Single-family homes only – HZ 2-3 (for cost-effective applications, per EE Central)	\$3,000.00

Measure category	Details	Reimbursement
Duct Sealing	Manufactured homes	\$400.00
	Single-family homes (existing)	\$500.00
	Single-family homes (new)	\$400.00

## Line-Voltage Thermostats

### Requirements and Specifications

Customers must replace bi-metal line voltage thermostats in existing electrically heated single-family homes with line-voltage electronic thermostats. All existing thermostats, except those in bathrooms, must be replaced with thermostats in accordance with the current "Electronic Thermostat Specifications" in EE Central.

### Additional Documentation Requirements

Customers must state in writing that all thermostats (except those located in bathrooms) have been replaced.

### Reimbursement

Reimbursements are per home as listed in the table below.

Heating Zone	Reimbursement
1	\$115.00
2	\$160.00
3	\$160.00

## New Construction

### New ENERGY STAR Manufactured Homes

#### Requirements and Specifications

Manufactured homes must be electrically-heated, new and 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 [Mark Johnson](#), BPA at 503-230-7669 for current information.

#### Additional Documentation Requirements

Customers must retain a copy of NEEM Certificate of Compliance.

#### Reimbursement

Measure	Heating Zone	Reimbursement
NEEM home or NEEM Eco-rated home	1	\$850.00
	2	\$1,150.00
	3	\$1,450.00

### New ENERGY STAR/Built Green Site-Built Homes

#### Requirements and Specifications

Site-built homes must be new and certified compliant with Northwest [ENERGY STAR Homes standards](#) by the state certifying organization. Built Green opportunities meet Northwest ENERGY STAR Homes standards.

In multiplex units where each unit is separated fully from ground-to-roof by double party wall construction, the units may be classified as single-family units (i.e., townhouses, condominiums or row houses).

Qualifying measures differ by state.

Northwest ENERGY STAR site built homes may use one of the approved [Technical Compliance Options](#) (TCO) listed in the table below.

State	Home Type	Technical Compliance Option
WA	Heat Pump or Gas	Exhaust ventilation with air blending strategy
		Integrated ventilation and forced air system
		Mechanically exhausted, sealed crawlspaces
		Hybrid "Ductless-Split" heat pump/electric resistance zonal heating
	Gas	Gas hydronic heating
OR	Gas	Hybrid gas unit heaters/electric resistance zonal heating
		Natural gas fired hydronic heating systems
	Heat Pump, Electric Zonal or Gas	Watts per square foot tool
		Lighting density package/watts per square foot
ID MT	Gas	Gas hydronic heating
	Heat Pump	Hybrid "Ductless-Split" heat pump/electric resistance zonal
	Heat Pump or Gas	Unvented crawlspaces
		Raised heel truss & advanced framing trade-off

Effective April 1, 2012, Oregon ENERGY STAR homes (half or full basement) and crawlspace measures will be retired and replaced with updated ENERGY STAR home measures.

#### **Additional Documentation Requirements**

Customers must retain a copy of the state certifying organization's certification label that includes the name of each ENERGY STAR/Built Green home certifier.

#### **Reimbursement**

BPA shall provide reimbursements as shown in the tables below.

Home Type	Specification	State *	Reimbursement
Northwest ENERGY STAR Homes	Zonal Electric Heat	ID, MT, WA	\$1,500.00
	DHP/Zonal Electric Heat TCO	WA	\$1,500.00
	a PTCS Heat Pump	ID, MT, WA	\$1,500.00
	Gas Heat (electric savings only)	ID, MT, WA	\$200.00
Built Green 4 Star Homes	Zonal Electric Heat	WA	\$1,500.00
	PTCS Heat Pump	WA	\$1,500.00
	Gas Heat (electric savings only)	WA	\$200.00
Built Green 5 Star Homes	Zonal Electric Heat	WA	\$1,800.00
	PTCS Heat Pump	WA	\$1,800.00
	Gas Heat (electric savings only)	WA	\$200.00

\*Oregon measures are listed in the tables below.

Oregon High Performance Home Builder Option for Heat Pumps	Heating Zone	Cooling Zone	Ducts Outside, Duct Sealing required*	Ducts Inside, Duct Sealing not required*	
	1	1		\$1,140.00	\$ 600.00
		2		\$1,180.00	\$ 600.00
		3		\$1,250.00	\$ 600.00
	2	1		\$1,800.00	\$ 850.00
		2		\$2,000.00	\$ 850.00
		3		\$2,100.00	\$ 850.00
	3	1		\$2,600.00	\$1,020.00
		2		\$2,700.00	\$1,020.00
		3		\$2,800.00	\$1,020.00

\* When more than 50% of the heating system ducts run through unconditioned space, the ducts must be sealed and PTCS certified unless the duct system has previously been sealed and PTCS certified.

Oregon High Performance Home Builder Option for Ductless Heat Pumps / Zonal Electric Heat	Heating Zone	Reimbursement
	1	\$1,170.00
	2	\$1,400.00
	3	\$1,600.00

## Montana House (v 2.0)

### Requirements and Specifications

Homes must be new, electrically heated and certified compliant with the Montana House specifications (found in EE Central). This measure is available only for homes built in Montana and Heating Zones 2 and 3 of Idaho, Wyoming and Nevada.

### Additional Documentation Requirements

- Builder information (name and contact information)
- House information:
  - Installation address, foundation type, square footage of home
  - HVAC system details (type of equipment, ventilation system, specific measures installing including rated CFM)
  - Report of inspections performed by the utility customer, including any substantial findings and documentation of any corrective actions taken

### Reimbursement

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	Reimbursement
Shell Upgrade only	\$1,500.00
Air-Source Heat Pump	\$300.00
Duct Sealing (prescriptive)	\$300.00
Commissioning & Controls (utility verified)	\$200.00

## New Multifamily Construction

### Requirements and Specifications

New residential<sup>44</sup> multifamily construction may be made more efficient than code or standard practice per current RTF “Multifamily New Construction Low Rise Technical Specifications” in EE Central and summarized below.<sup>45</sup>

Component		Specification
Ceilings	Attic	R-38 Std.
	Vaults	R-30
Walls	Above Grade	R-21, Inter. <sup>i</sup>
	Below Grade Inter. <sup>i</sup> w/R-5 thermal break <sup>iii</sup>	R-21
Floors	Over Crawlspace and Unheated Basements	R-30
	Slab-on-Grade Perimeter	R-15
Glazing <sup>ii</sup>	Maximum NFRC rated U-value	U-0.30
Exterior Doors		U-0.19
Duct Insulation	Rigid	R-11
	Flexible	R-8
Water Heaters	See the Multifamily New Construction Specifications in EE Central.	
Mechanical ventilation and pollutant source control in all climate zones.		

<sup>i</sup> Inter. indicates intermediate framing techniques

<sup>ii</sup> An area weighted U-value for windows which meets the component requirement of this table is acceptable.

<sup>iii</sup> A thermal break having a minimum value of R-5 is required between slab floors and all walls and footings.

Projects that do not meet the prescriptive specifications but that qualify as above code or standard practice efficiency must be submitted as [custom projects](#).

### Additional Documentation Requirements

Customers must retain a copy of the state certifying organization’s certification label that includes the name of each ENERGY STAR home certifier.

### Reimbursement

Measure	Heating Zone	Reimbursement (per unit)
Residential Multifamily New Construction	1	\$80.00
	2	\$115.00
	3	\$140.00

## Weatherization (Standard Income)

Weatherization measures must be installed in homes with a permanently-installed electric heating system and follow the current, site-built or manufactured home weatherization specifications in EE Central. Measures include insulation, prime window replacement and air sealing.

### Insulation

#### Requirements and Specifications

Insulation	Home Type	Existing is:	Installed will be:
Attic Insulation	Single-family	Less than R-11	R-19, R-38 or R-49
		R-11 to R-19	R-38 or R-49

<sup>44</sup> Residential multifamily is defined as five or more dwellings within the same structure, no more than three stories. Multifamily housing above three stories is considered commercial construction and must be submitted as a custom project proposal under the Commercial Sector.

<sup>45</sup> This is a summary only, and the RTF specifications must be followed in full.

Insulation	Home Type	Existing is:	Installed will be:
	Multifamily	R-19 to R-38	R-49
		Less than R-11	R-19 or R-38
		R-11 to R-19	R-38
	Manufactured Homes	Less than R-11	R-19
		Less than R-11 <sup>i</sup>	R-30 <sup>i</sup>
		R11 to R-19 <sup>ii</sup>	R-30 <sup>ii</sup>
Wall Insulation	Single-family	Closed cavity – none present	Closed cavity –R-11 or fill cavity
		Open cavity – none present	Open cavity – R-15
	Multifamily	Closed cavity – none present	Closed cavity–R-11 or fill cavity
		Open cavity – none present	Open cavity – R-15
	Manufactured	n/a	n/a
Floor Insulation	Single-family	Less than R-11	R-19 or R-30
		R-11 to R-19	R-30
	Multifamily	Less than R-11	R-19 to R-30
		R-11 to R-19	R-30
	Manufactured	Less than R-11	R-11

<sup>i</sup>This measure is not cost-effective in heating zone 1; therefore, no credit is available for this zone.

<sup>ii</sup>This measure is not cost-effective in heating zones 1 and 2; therefore, no credit is available for these zones.

#### **Additional Documentation Requirements**

- Audit or field notes detailing pre- and post conditions
- Documentation of square feet of insulation installed and final R-value of insulation

#### **Reimbursement**

Reimbursements and busbar energy savings for specific measures are in EE Central and based on square footage of insulation installed.

### **Prime Window Replacement**

#### **Requirements and Specifications**

Pre-existing windows must be single pane with/without storms or double pane with metal frames. The weighted average of replacement windows must have a National Fenestration Rating Council (NFRC) rated U-value of 0.30 or lower; 0.35 or lower for patio doors.

#### **Additional Documentation Requirements**

- Description of home (site-built or manufactured) and original window and frame
- Audit or field notes detailing pre- and post conditions
- Documentation of number of windows and square footage of windows replaced
- NFRC stickers or other verification of U-value

#### **Reimbursement**

Reimbursement is \$6.00 per square foot of glazing area of windows replaced.

### **Air Sealing**

#### **Requirements and Specifications**

- If combustion appliances are present (e.g., fireplace, wood or gas stove, gas range, gas water heater), a UL- or CUL-approved carbon monoxide detector must be installed.

- Mechanical ventilation may be required. See the RTF Air-Sealing specifications in EE Central.
- If PTCS duct sealing is performed at the same time as air sealing, the baseline blower door CFM<sub>50</sub> reading for the air sealing measure must be taken with all the supply and return duct registers temporarily sealed off, so that house air leakage can be measured independently from duct leakage.

#### **Additional Documentation Requirements**

The customer must retain audit or field notes detailing the following:

- Pre- and post-conditions CFM<sub>50</sub> (CFM at -50 pascals)
- Total square footage of the pressure zone being tested and sealed (typically this is the interior heated floor area of the home)
- Building volume
- Notes on mechanical ventilation requirement

#### **Reimbursement**

BPA reimbursement is based on the reduction in air infiltration per reduction in CFM<sub>50</sub>, rounded to the nearest whole number. Reimbursements and busbar energy savings are in EE Central and are calculated by multiplying the Quantity by the EE Central Credit. Quantity is the change in CFM<sub>50</sub> (between pre and post).

The calculation of reimbursement is:

Quantity = The change in CFM<sub>50</sub> (between pre and post)

Total Reimbursement = Quantity x Credit in EE Central

### **Low-income Weatherization and Duct Sealing**

#### **Requirements and Specifications**

Low-income eligibility is defined in the Federal Weatherization Assistance Program as [200 percent of the poverty income levels](#). Approved statewide eligibility definitions substitute for federally established low income levels, if provided. All low-income weatherization funds must generate reportable, cost-effective savings in the customer's service territory.<sup>46</sup>

Customers may run low-income weatherization programs themselves or through contractors, but must, at all times, retain responsibility for and control over the program.

Funds may be used for repair work (i.e. health and safety or to ensure efficacy of measure) directly associated with the installation of cost-effective weatherization measures, but repair costs must be reported separately. Customers may combine funding sources within a residence, but may not mix BPA funds with other funds to pay for installation of the same measure.

Measures must be RTF defined as Total Resource Cost (TRC) cost-effective and approved by BPA.<sup>47</sup> The table below summarizes eligible measures. All measures must be individually reported in EE Central.

<sup>46</sup> Under a separate BPA program BPA funds low income energy efficiency activities through grants to states and tribes.

<sup>47</sup> Note that BPA eligible measures might be different than eligible measures defined using the U.S. Department of Energy's Savings to Investment Ratio (SIR) method.

Home Type	Qualifying Measures
Single-family	<ul style="list-style-type: none"> <li>• Infiltration control</li> <li>• Attic insulation (up to R49)</li> <li>• Floor insulation (up to R30)</li> <li>• Wall insulation (up to R11)</li> <li>• Forced-air electric furnace - PTCS duct sealing</li> <li>• Heat pump – PTCS duct sealing</li> <li>• Prime window replacement*</li> </ul>
Multifamily	<ul style="list-style-type: none"> <li>• Attic Insulation (up to R49)</li> <li>• Floor Insulation (up to R30)</li> <li>• Wall Insulation (up to R11)</li> <li>• Prime window replacement*</li> </ul>
Manufactured Homes	<ul style="list-style-type: none"> <li>• Infiltration control</li> <li>• Attic insulation (HZ1: up to R19, HZ2: up to R30, HZ3: up to R30)</li> <li>• Floor insulation (up to R11)</li> <li>• Forced-air electric furnace - PTCS duct sealing</li> <li>• Heat pump – PTCS duct sealing</li> <li>• Prime window replacement*</li> </ul>

\* Homes must have permanently-installed electric heating system and follow the current, site-built or manufactured home weatherization specifications in EE Central. Pre-existing windows must be single pane, single pane with storms or double pane with metal frames. The weighted average of replacement windows must have an NFRC rated U-value of 0.30 or lower, and patio doors must have a NFRC rated U-value of 0.35 or lower.

### **Additional Documentation Requirements**

- All measures require an audit or field notes detailing pre- and post conditions.
- Insulation requires documentation of square feet and R-value of insulation.
- Prime window replacement requires a description of the home (site-built or manufactured) and the original window and frame; documentation of number of windows and total square footage of windows replaced; and NFRC stickers or other verification of U-value.

### **Reimbursement**

All costs directly attributable to the installation of the measure are eligible for dollar-for-dollar reimbursement, (prime windows are capped at \$20.00 per square foot of glazing area of windows replaced, not to exceed 100 percent of actual cost) including costs for low-income weatherization that protects the integrity of the measure (e.g., manufactured home EPDM roofing membrane over rigid insulation; attic and crawl space ventilation; under-floor moisture barrier; and insulation of exposed water lines).

## **Residential Custom Projects**

### **Requirements and Specifications**

Residential custom projects may be submitted using the [custom project process](#).

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

## Multi-Sector Opportunities

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

- [Processes](#)
- [Measures and Initiatives](#)
  1. [Limited Availability Emerging Technology Demonstration Pilots](#)
  2. [Variable Frequency Drives in Small Compressed Air Systems](#)

# 10. Utility Distribution Sector



BPA acquires Utility Distribution Sector energy savings through Energy Smart Utility Efficiency, which includes Voltage Optimization (VO) and Electrical Distribution System Improvements (SI). VO is a technique for improving the efficiency of the electrical grid by reducing voltage on the feeder lines running from substations to retail loads, while SI improves the energy efficiency of the electrical distribution system.

Customers must submit VO and SI as custom projects and may combine SI and VO in one custom project when SI improvements increase the amount the voltage can be reduced or improve monitoring of reduced voltage.

## **Requirements and Specifications**

The [custom project process](#) requirements apply with one exception: equipment in stock may be used if the customer documents that the equipment was installed after acceptance of the custom project proposal by BPA (Option 1) or the customer (Option 2).

The requirements of (1) VO, (2) SI and (3) custom project steps are discussed below.

### 1. Voltage Optimization (VO)

The Simplified VO Measurement & Verification Protocol, based on RTF guidelines, focuses on residential and small commercial end-use loads and requires that specific system stability thresholds are met prior to lowering service voltages.

All VO projects require a BPA-approved scoping study, and if the results of the scoping study indicate a cost effective project, a detailed study. Customers should limit scoping and detailed study requests (via the [TSP Portal](#)) to a maximum of three substations and 12 feeders. These studies require the customer to collect data from feeders and the substations. Failure to provide requested substation, feeder, and voltage control data will delay scoping and detailed studies. Costs incurred prior to the acceptance of the custom project proposal (by BPA for Option 1 or the customer for Option 2) to gather required data, including additional metering and load flow analysis programs, are allowable project costs.

### 2. Electrical Distribution System Improvements (SI)

BPA will not provide TSP support for SI without VO.

SI 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)

- Power factor improvement to reduce line losses
- Volt-Amperes-Reactive (Reactive Power) Management
- Fixed and switched capacitors
- Service distribution transformer
  - Replacing an existing or proposed transformer with a higher efficiency transformer
  - Multiple transformers versus single transformer based on system analysis
  - Voltage management

### 3. VO and SI Custom Project Process Chart

The following chart outlines the custom project tasks and responsible parties.

Custom Project Process Step	VO		Stand Alone System Improvements	
	Option 1	Option 2	Option 1	Option 2
TSP request	Customer	Customer	Customer	Customer
Utility questionnaire	Customer	Customer	n/a	n/a
Scoping Study	TSP	TSP	n/a	n/a
Detailed Study	TSP	TSP	n/a	n/a
Custom project proposal entry	TSP	n/a	Customer or TSP	n/a
Custom project proposal submittal	Customer	n/a	Customer	n/a
Custom project proposal review	COTR and ESUE engineer	n/a	COTR and BPA Field Engineer	n/a
Estimated savings verification	TSP	TSP	Customer or TSP	Customer or TSP
Custom project entry/completion report development	TSP	TSP	Customer or TSP	Customer or TSP
Custom project/completion report entry	TSP	TSP	TSP or Customer	TSP or Customer
Custom project/completion report submittal	Customer	Customer	Customer	Customer
Custom project/completion report review	COTR and ESUE Engineer	COTR and ESUE Engineer	COTR and BPA Field Engineer	COTR and BPA Field Engineer

#### **Additional Documentation Requirements**

No additional requirements.

#### **Reimbursement**

See the [custom programs and projects reimbursement table](#).

Effective April 1 2012, the reimbursement rate for utility distribution custom projects with a 20+ year measure life will change to \$0.25/kWh.

# 11. Multi-Sector

Please check the [changes summary](#) to see if significant changes were made to any of the measures in this sector.

<b>Reimbursement Summary</b> .....	<b>77</b>
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This section contains general information applicable across sectors, including both processes and measures and initiatives.

### Reimbursement Summary\*

Program Component or Measure	Reimbursement
Green Motors	\$2.00/hp
Lighting	
o Non-Residential Lighting Program	See EE Central for deemed values and the <a href="#">Custom Programs and Projects Reimbursement Table</a> for custom project values.
o Stand-alone, Non-residential Lighting Measures	
▪ ENERGY STAR CFLs	\$2.50-\$5.00/CFL
▪ LED Exit Signs or Retrofit Kits	\$50.00/unit
Limited Availability Emerging Technology Demonstration Pilots	Not applicable.
Variable Frequency Drives in Small Compressed Air System	See the <a href="#">Custom Programs and Projects Reimbursement Table</a>

\* The reimbursement levels described in this table provide a summary only. Complete details of the reimbursement levels and associated requirements may be found in the corresponding text of the Manual. Please see the Table of Contents for the text location.

### Documentation Requirements Summary

Each measure includes documentation requirements additive to the general [documentation requirements](#). Refer to both the specific measure requirements and the general documentation requirements for a complete list of required documentation.

## 11.1 Processes

### COTR Request and Acknowledgement Procedure

Under the COTR Request and Acknowledgement Procedure, customers must send a written request to their COTRs to participate or make changes to participation in certain programs and processes. If the procedure is required, it will be listed in the specific section. The specific section may also require the customer to include supporting information with it request.

If approved, the COTR shall confirm participation by written notice. A customer request is not effective until the COTR approves the request in writing.

### Direct Acquisition<sup>48</sup>

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

#### a. Overview

1. Under DA, BPA contracts directly with a third party to implement energy efficiency activities within a participating customer's service area. The third party collects and enters incentive data into EE Central and reports activity to the customer pursuant to the specific initiative. Unless otherwise stated in the respective initiative section, customers have no oversight responsibility and are ineligible for a performance payment.
2. BPA shall attribute energy savings to the customer, disclaims any and all warranties associated with the third party contractor's performance and does not guarantee energy savings as a result of the completed conservation projects.

#### b. Implementation

1. Customers must enroll in DA by using the [COTR Request and Acknowledgment Procedure](#).
2. Customers enrolled in DA under Consent or Consent Plus Agreements will operate under those agreements until they expire. At expiration of these agreements, customers will continue enrollment in the specific DA initiative under the parameters of the Manual (unless they rescind consent).
3. The customer may rescind consent by providing 30 days written notice using the [COTR Request and Acknowledgment Procedure](#). If the customer rescinds consent after BPA has hired a contractor, if necessary, it must allow BPA up to one year from receipt of notice of rescission to complete any projects for which the contractor was hired.

### Measure Distribution Processes

Measures requiring distribution may allow one or more of the following distribution methods: direct install, retail markdown, end-user reimbursement, direct mail/mail by request and other. Allowable distribution methods are listed in the specific measure section (with a link to this section), and the requirements herein apply.

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<sup>48</sup> DA is available for the Green Motors program, only.

Distribution Type	Requirements and Specifications	Additional Documentation Requirements
Direct Install	Customers must (1) physically install measures, (2) witness installation or (3) visually inspect a representative sample after installation by another party. <sup>49</sup>	For each end-user address, customer must document the following: <ul style="list-style-type: none"> <li>• Name of party responsible for installation/inspection</li> <li>• Installation date</li> <li>• Manufacturer</li> <li>• Model number</li> <li>• Measure type</li> <li>• Quantity installed</li> <li>• Any other identifying elements</li> </ul>
Retail Markdown	<ul style="list-style-type: none"> <li>• Customers may use in-store markdown or end-user coupons.</li> <li>• For in-store markdown, customers must create a store sales report for each participating store with the date, manufacturer, model number, measure type and any other identifying elements of each sale generated by the promotion. Reports must document the allocation methodology when a store serves multiple utility customers.</li> <li>• Coupons must contain the (utility) customer name and end-user address and require the customer to (1) document that the product meets BPA's requirements or (2) create store sales reports</li> </ul>	Store sales reports or, for coupons, other documentation that product meets BPA's requirements <sup>50</sup>
End-user Reimbursement	Customers must reimburse end users for the purchase, installation and operation of measures that meet BPA's requirements.	No additional requirements.
Direct Mail/ Mail by Request	<ul style="list-style-type: none"> <li>• The requirements and reimbursement levels in place on the date the product enters the mail stream apply (i.e., for drop shipments, the "round stamp" date on United States Postal Service (USPS) form 8125 and for straight mailings, the "statement certification date" of USPS form 3607R).<sup>51</sup></li> <li>• Mail by request also requires proof of end-user request.</li> </ul>	<ul style="list-style-type: none"> <li>• USPS form 8125 (or 3607R if drop shipment was not used)<sup>52</sup></li> <li>• Number of shipments and itemization of items per shipment by quantity, make, type and any other identifying elements</li> </ul> <p>The customer must submit documentation with its invoice.</p>
Other	See your COTR for requirements and specifications.	See your COTR for additional documentation requirements.

<sup>49</sup> Installation, witness or verification may be conducted by a customer program employee or an agent/contractor of the customer.

<sup>50</sup> The store sales report may substitute for invoices.

<sup>51</sup> If using a non-United States Postal Service delivery service, contact your COTR for requirements and specifications.

<sup>52</sup> If another carrier is used for distribution, contact your COTR for documentation requirements.

## 11.2 Measures and Initiatives

### Green Motors Rewind Initiative

#### Requirements and Specifications

The Green Motors Rewind Initiative uses Direct Acquisition. Qualified motors include NEMA standard horsepower (hp) rated motors between 15 and 5,000 hp (either NEMA premium or other) that are rewound via certified Green Motor Practices Group member service centers.

#### Additional Documentation Requirements

The customer must retain the third party provided reports.

#### Reimbursement

An incentive of \$2.00 per hp will be paid to the participating service center that rewound the motor. The service center will acknowledge the incentive is provided by the end user's serving customer and will pass through \$1.00 per hp to the end user as a credit on the end user's invoice.

### Lighting

Non-residential lighting opportunities are available under the Non-Residential Lighting Program and stand-alone measures.

#### Non-Residential Lighting Program

#### Requirements and Specifications

The Non-Residential Lighting Program applies to existing building (retrofit/upgrade) and new construction agricultural, commercial and industrial projects. Program busbar energy savings, reimbursement levels and equipment specifications are in EE Central Lighting Calculator Spreadsheets, and the spreadsheets capture the completed information during the invoicing process. 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 EE Central. Lighting installations at federal facilities should be noted on the Lighting Calculator Spreadsheet. Lighting measures are generally deemed, but custom projects may be acceptable in limited circumstances.

#### Deemed Lighting

Deemed lighting measures are listed in the Lighting Calculator Spreadsheets. All projects must be cost-effective and result in a minimum energy usage reduction of 25%. The default reduction of operation hours from occupancy sensors and lighting controls is 25%, and greater reductions must be justified.

If a measure is not listed in the Lighting Calculator Spreadsheet, there is no suitable alternative on the measure list and the measure has not been ordered, purchased or installed, the customer may use the [COTR Request and Acknowledgement Procedure](#) to request a one-time, project specific non-standard measure approval. If the customer's request is approved, BPA will establish a one-time measure and reimbursement. If the customer's request is not approved, the customer may seek a deemed value from the RTF.

Deemed lighting projects may use Lighting Calculator Spreadsheet version 2.0, 2.1, 2.2, or 2.3 (combined existing buildings and new construction). Effective April 1, 2012, projects must use Lighting Calculator Spreadsheet versions 2.2 or 2.3; versions 2.0 and 2.1 will not

be accepted. Note that version 2.3 implements a reimbursement/kWh cap at \$0.50 for the entire project.

**Custom Lighting**

Effective April 1, 2012, changes (possibly negative) will be implemented regarding lighting custom project eligibility criteria, minimum project size, measurement and verification requirements and reimbursement.

BPA will determine the acceptability of a custom project path. Lighting custom projects may be acceptable when one of the following is true:

1. The measures are part of a multi-measure project that includes other measures that have interactive effects with each other where non-lighting savings are responsible for at least 30% of the energy saved (use the multiple measures category) and savings from different measures cannot be disaggregated.
2. The measures are included as part of a whole building energy model for a custom new construction project.
3. The projects involve complex control strategies (e.g., projects that save a lot of energy using few controls).
4. The project is pursued as part of NEEA’s Commercial Lighting Solutions pilot.
5. The projects are industrial and estimated to provide more than 200,000 kWh in annual energy savings. See the Industrial Sector chapter for details.
6. The projects are pursued by an Option 2 customer. For custom projects pursued by Option 2 customers, BPA may (1) review and approve savings calculation methodologies and/or tools and (2) request measure-level data on individual projects and the parameters used to calculate project savings and cost-effectiveness. This data includes, but is not limited to, the following:
  - a. Baseline lighting condition (fixture type, wattage and quantity)
  - b. Installed efficient lighting condition (fixture type, wattage and quantity)
  - c. Hours of operation and any reduction in hours in operation from controls
  - d. Building use - primary (formerly referenced as building type)
  - e. Building HVAC type
  - f. Project cost and reimbursements

**Additional Documentation Requirements**

Custom projects must follow the custom project documentation requirements and deemed projects must act in accordance with the table below.

<b>Documentation Type</b>	<b>Existing Buildings</b>	<b>New Construction or Major Remodel<sup>53</sup></b>
Documents submitted to BPA no more than three days after invoice submission <sup>54</sup>	<ul style="list-style-type: none"> <li>• Lighting Calculator Spreadsheet showing actual equipment installed (The electronic version must be uploaded to EE Central.)</li> </ul>	<ul style="list-style-type: none"> <li>• Lighting Calculator Spreadsheet showing actual equipment installed (The electronic version must be</li> </ul>

<sup>53</sup> Major Remodel is defined as any project that requires code compliance and inspection.

<sup>54</sup> Failure to submit cut sheets for high performance equipment within three days of submission of invoice may result in reimbursements at standard equipment rates.

Documentation Type	Existing Buildings	New Construction or Major Remodel <sup>53</sup>
	<ul style="list-style-type: none"> <li>Cut sheets for high performance lamps and ballasts <u>not</u> on the CEE equipment list (For those on the CEE list, the model numbers and referenced CEE list date must be entered in the notes column in the Lighting Calculator Spreadsheet.)</li> </ul>	<ul style="list-style-type: none"> <li>uploaded to EE Central.)</li> <li>Cut sheets for high performance equipment</li> </ul>
Documents retained in files (pre-inspection)	<ul style="list-style-type: none"> <li>Lighting Calculator Spreadsheet</li> <li>Cut sheets for high performance lamps and ballasts, if required</li> <li>Project estimates and/or other related project documents</li> <li>PCB ballast and lamp disposal (must meet environmental requirements)</li> </ul>	<ul style="list-style-type: none"> <li>Lighting Calculator Spreadsheet</li> <li>Cut sheets for high performance equipment</li> <li>Project estimates and/or related project documents</li> </ul>
Documents retained in files (post-inspection)	<ul style="list-style-type: none"> <li>Lighting Calculator Spreadsheet showing validated counts and proper listing and labeling of equipment installed</li> <li>Corrected/completed Lighting Calculator Spreadsheet with date of completion</li> <li>Field notes from inspection; pictures and/or drawings with lighting counts by specific areas<sup>55</sup> (recommended)</li> </ul>	<ul style="list-style-type: none"> <li>Lighting Calculator Spreadsheet showing validated counts and proper listing and labeling of equipment installed</li> <li>Field notes from inspection; pictures and/or drawings with lighting counts by specific areas<sup>56</sup> (recommended)</li> </ul>

### **Reimbursement**

- Reimbursements for Non-Residential Lighting measures change over time to reflect market conditions and changes in standards. Federal minimum efficiency standard changes scheduled to take effect July 14, 2012 will change baseline assumptions and reduce incentives for certain linear fluorescent lamps; these changes may go into effect as early as July 14, 2012.
- Deemed Lighting: Reimbursement is capped at 70% of the project incremental cost and is based on the Non-Residential Lighting measure list reimbursement schedule in the Lighting Calculator Spreadsheets in EE Central. Changes to program requirements and reimbursements are included in Lighting Calculator Spreadsheet version 2.3. Because these changes may in some cases be negative, submission of projects using the latest version of the spreadsheet will not be required for at least six months after release.
- Custom Lighting: Projects are reimbursed at \$0.18/kWh capped at 70% of the project incremental cost.

### **Stand-alone, Non-residential Lighting Measures (BPA Qualified)**

Stand-alone, non-residential lighting measures do not require the lighting calculator spreadsheet. This section includes ENERGY STAR CFLs and LED exit signs and retrofit kits.

<sup>55</sup> Detailed lighting counts will provide greater accuracy in oversight.

<sup>56</sup> Detailed lighting counts will provide greater accuracy in oversight.

## ENERGY STAR CFLs (BPA Qualified)

### **Requirements and Specifications**

CFLs must replace existing incandescent lamps and have a minimum of five watts. CFLs may be distributed via a direct install or end-user reimbursement per the [Measure Distribution Processes](#) section.

### **Additional Documentation Requirements**

- Building use - primary (formerly referenced as building type)
- Installed CFLs hours of operation

For end-user reimbursement, customers must document that installed CFLs replaced incandescent bulbs. End-user attestation suffices for requests of 100 and fewer CFLs. Customers must visually inspect requests of more than 100 bulbs to certify requirements are met.

See also the [Measure Distribution Processes](#) section.

### **Reimbursement**

BPA shall reimburse according to the table, below.

Installation Location	Direct Install	End-user Reimbursement
Hotel/motel room or other limited occupancy area	\$4.00	\$2.50
Retail/foodservice	\$5.00	\$2.50
Office	\$5.00	\$2.50
Industrial	\$5.00	\$2.50

## LED Exit Signs or Retrofit Kits (BPA-qualified)

### **Requirements and Specifications**

Signs or kits must replace existing incandescent signs, use LED technology, have a maximum of five watts, and be distributed via direct install per the [Measure Distribution Processes](#) section.

### **Additional Documentation Requirements**

No additional requirements.

### **Reimbursement**

BPA shall reimburse \$50.00 per new LED exit sign or retrofit kit.

## Limited Availability Emerging Technology Demonstration Pilots

### **Requirements and Specifications**

Emerging Technology Demonstration Pilots evaluate benefits of and barriers to new technologies. Emerging Technology Demonstration Pilots may be proposed by customers or initiated by BPA. In either case, pilots will be reviewed and approved by BPA on a case-by-case basis. BPA pilots will do the following:

- Support research, technology demonstration or barrier identification.
- Provide current information on new technologies with best practices to customers to support eventual region-wide offerings.

- Achieve pilot-scale savings or provide data to support savings potential.
- Determine best practices for implementation and program delivery.

Emerging Technology Demonstration Pilots will be available to a limited number of customers. BPA may contract with third parties to deploy the emerging technology, evaluate performance and verify energy savings.

Enrollment is through the COTR Request and Acknowledgement Procedure and is based on criteria specific to each technology. Customers may be asked to provide access to customer billing history, customer coordination, onsite metering equipment and other M&V elements.

Savings will not be retro-actively adjusted based on pilot evaluation.

#### **Additional Documentation Requirements**

Additional documentation requirements may be specified for each pilot.

#### **Reimbursement**

Reimbursements, if any, are determined on a pilot-by-pilot basis.

### **Variable Frequency Drives in Small Compressed Air Systems**

#### **Requirements and Specifications**

VFDs applied to a single air compressor 75 hp or less must use the RTF approved small compressed air calculator spreadsheet for M&V. Each VFD must be submitted as an individual project (i.e., VFDs may not be combined or divided).

#### **Additional Documentation Requirements**

Customers must upload the completed RTF-approved Small Compressed Air Calculator spreadsheet to EE Central.

#### **Reimbursement**

Though this is not a custom project, reimbursement is paid according to the [custom programs and projects reimbursement table](#).

## 12. Updates/Revisions

The table below contains a directory of any changes made to this Manual outside official publications in April and October. In addition to a change description and effective date, the table includes the location of that change, whether contained solely in this table or also in the body of this chapter or in a sector specific chapter.

Change Description	Effective Date (Posted Date)	Location
<b>General</b>		
Per section 3.5(7), BPA will no longer accept claims implemented in conjunction with AutoCell Electronics, Inc. (AutoCell) unless the customer can prove that it started its work with AutoCell prior to the effective date of this change - December 1, 2011. Customers who have work-in-progress with AutoCell prior to December 1, 2011 must submit a copy of their executed contract with AutoCell to amhoward@bpa.gov. The contract must show an execution date prior to December 1, 2011 and must be received by BPA no later than December 8, 2011. If an executed contract is not received or is not received by December 8, 2011, BPA will not accept claims implemented in conjunction with AutoCell.	12-1-11 (11-29-11)	Table
The process for claiming measures or projects for BPA reimbursement has been temporarily revised.	12-7-11 (12-7-11)	p. 87
The temporary process for claiming measures or projects for BPA reimbursement has been revised to eliminate the inclusion of certain supporting documentation and to clarify the requirements for Option 2 customers.	12-13-11 (12-13-11)	p. 88
The temporary process for claiming measures or projects for BPA reimbursement has been clarified to align with documents posted on the EE Web site.	12-19-11 (12-19-11)	p. 87
<b>Agricultural Sector</b>		
<b>Commercial Sector</b>		
The ESG Program section has been revised.	11-14-11 (11-14-11)	p. 86
In the ESG Program, the process for distributing unspent BPA Turnkey Option funds has been revised to allow the customer control of the process.	12-13-11 (12-13-11)	p. 87
<b>Federal Sector</b>		
<b>Industrial Sector</b>		
The EPM section has been revised to allow customers to allocate ECA funds for a direct contract between BPA and an end user.	12-13-11 (12-13-11)	p. 90
<b>Residential Sector</b>		
<b>Utility Distribution Sector</b>		
<b>Multi-Sector</b>		

## BPA Energy Smart Grocer Program

### Requirements and Specifications

The BPA Energy Smart Grocer Program (ESG Program), implemented by Portland Energy Conservation, Inc. (PECI), installs energy efficiency measures in commercial refrigeration equipped facilities (see [EnergySmart](#)). PECI processes and delivers rebate checks to end users, performs post-installation checks as required, manages required back-up documentation and reports installations in EE Central.

BPA funds the program delivery contract with PECI. Customers receive credit for savings achieved in their service territory.

Participating customers must (1) sign a Utility Participation Agreement with PECI and (2) use the COTR Request and Acknowledgement Procedure to deliver a completed ESG Program Sign-up Form<sup>57</sup> (available in EE Central) to their COTR. The sign-up form requires selection of the program option, funding amount<sup>58</sup> and program scope, described below.

Program Component	Description	
Program Option	BPA Turnkey	BPA will reduce the customer's ECA implementation budget by the allocated amount and will pay PECI for program incentives using these funds. BPA will review PECI submissions in EE Central for acceptability.
	Self-funded Turnkey	The customer will pay PECI for program incentives using its own funds and will review PECI submissions in EE Central for acceptability.
	Combined BPA Turnkey and Self-funded Turnkey	Customers will initially be enrolled in the BPA Turnkey Option, and when the BPA Turnkey Option funding is depleted, they will be automatically transitioned into the Self-funded Turnkey Option.
Funding Amount <sup>59</sup>	\$50,000.00 and above	PECI will (1) perform a minimum of two visits per fiscal year (to contractors and/or end users) in customer's service territory, (2) perform requested audits within 60 days of request, (3) provide deemed and calculated measures and (4) provide inspections for projects with total costs over \$10,000.00.
	\$49,999.99 and under	PECI may perform one visit (to a contractor/end user) in customer's service territory and will provide (1) a minimum of one outreach training for customer staff (at customer's request), (2) deemed measures only and (3) audits, calculated measures and post installation inspections on a case-by-case basis at PECI's discretion. Customers must commit a minimum of \$25,000 or be approved for participation by PECI. Approved customers will receive a Utility Participation Agreement from PECI. Non-approved customers will be notified by BPA, and BPA engineers will help customers deliver deemed refrigeration measures outside the ESG Program.

<sup>57</sup> Customers already enrolled in the ESG Program that wish to continue their participation must immediately complete and submit the ESG Sign-up Form. EERs will outreach to utilities' to assist enrollment into the ESG program, and coordinate with PECI to inform them a Utility Participation Agreement is needed.

<sup>58</sup> For assistance determining funding potential, contact Jessica Kramer (jkramer@peci.org) or Gary Smith (glsmith@bpa.gov) at BPA.

<sup>59</sup> Funding amounts are for the rate period.

Program Scope	<p>In addition to core refrigeration measures, including lighting in refrigerated spaces, the customer may select one or more of the following program scope add-ons:</p> <ul style="list-style-type: none"> <li>• Interior and exterior lighting in other areas if a refrigeration project is completed or pursued</li> <li>• New construction (only buildings equipped with refrigeration)</li> <li>• Existing building commissioning (only buildings equipped with refrigeration)</li> <li>• HVAC (only buildings equipped with refrigeration)</li> </ul>
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After the initial sign-up and funding commitment, a customer may later make ESG Program changes (under the parameters of the table below) by submitting a revised ESG Program Sign-up Form through the [COTR Request and Acknowledgement Procedure](#).

Change Type	Frequency Allowed	Effective Date
Program Option	Once per fiscal year	Within 30 days after request
Funding Increase	Twice per fiscal year	Within 30 days after request
Funding Decrease	Once per fiscal year	Within 60 days after request
Program Scope	Once per fiscal year	Within 60 days after request

If customers decrease their funding amount or withdraw from a program component, they must notify PECEI at least 60 days in advance to verify that in-process projects have secured rebates.

Customers will receive a monthly accounting of the funds spent in their service territories.

If BPA Turnkey Option funds allocated to the program have not been spent on the first day of the final quarter of the rate period, the customer may use the [COTR Request and Acknowledgement Procedure](#) to request that BPA (1) add all or a part of unspent funds to the customers' ECA implementation budget, (2) add all or a part of the unspent funds to the Unassigned Account or (3) use all or part of the unspent funds for work under the ESG Program. Requests must be received no later than the 15<sup>th</sup> day of the first month of the final quarter. If the customer does not make a request, BPA will determine the use of unspent funds.

#### **Additional Documentation Requirements**

No additional requirements.

#### **Reimbursement**

Reimbursement rates are in EE Central. Customers using BPA funds are eligible for a [performance payment](#).

#### **Interim Invoice Process for the Temporary EE Central Closure**

EE Central is temporarily unavailable for reporting. BPA will provide between 14 and 30 days of notice prior to the availability of EE Central.

During the temporary closure of EE Central, customers who seek BPA reimbursement must use the Interim Invoice Process to submit Interim Invoices to their COTRs through the [COTR Request and Acknowledgement Procedure](#).<sup>60</sup> The Interim Invoice and associated documents are available on the [EE Web site](#). The Interim Invoice does not require detailed data on individual projects or deemed measures. Customers must, however, retain detailed information associated with interim claims and must submit this information no later than 60 days after EE Central becomes operational. Once data is reported into EE Central, BPA will

<sup>60</sup> Customers may submit two invoices during each of the following months: December 2011 and January 2012.

work with customers to true-up any differences in savings and reimbursement reported during the interim period.

The Interim Invoice requires customers to total the energy savings and reimbursement amounts for completed measures/projects. The Interim Invoice is composed of three fields, each of which is described below: (1) deemed (and calculated) measures, (2) lighting calculator projects and (3) custom projects.

### **1. Deemed (and Calculated) Measures**

- a. To report deemed measures, enter the sum of reimbursements (\$) and busbar savings (kWh) on the Interim Invoice in the “Deemed Measures” field. Savings and reimbursements associated with non-lighting calculator projects (e.g., air compressors) may be included with deemed measures.
- b. The Interim Reference Deemed Measure List may assist you in your calculation of deemed measure savings and reimbursements. This list is a simplified catalog of measures and, in some cases, a condensation of measures. Therefore, you may notice that some reference numbers used in the past are not included in this list.
  - On this list, locate your measure’s savings and reimbursement. Use the filter or search by “Former PTR Reference Number.” The “Full Measure Name” field contains all information necessary to determine the appropriate measure (e.g., building type, vintage, horsepower). New measures as of October 1, 2011 do not have reference numbers. Most measures are contained on the “Deemed Measures” tab, but insulation and windows have their own tab.
  - Using the energy savings and reimbursement amounts for each measure, multiply by the number of units installed. Sum across all measures and enter total numbers in the Interim Invoice. Do not report reference numbers, individual measure energy savings, or individual reimbursement amounts.
  - During the interim process, errors and/or improvements to the Interim Reference Deemed Measure List may be identified. If so, BPA will update the information in this document to reflect these changes and to ensure consistency with the Manual. If an update is made, BPA will inform customers that the revised document is available on the Energy Efficiency Web site. Any updates will clearly reflect and explain changes in the document.

### **2. Lighting Calculator Projects**

Complete and save BPA Lighting Calculators associated with each project. In the “Lighting Calculator Projects” field of the Interim Invoice, enter the total number of projects and the sum of reimbursements (\$) and busbar savings (kWh). Do not submit the associated lighting calculator.

### **3. Custom Projects**

- a. Option 1 customers: In proposing and completing custom projects, use the Interim Option 1 Custom Project Proposal Form; Interim Option 1 Custom Project Calculator; and Interim Option 1 Completion Report. Once the completion report is accepted, use the “Custom Projects” field of the Interim Invoice to report the

total number of custom projects accepted and the sum of the associated reimbursements (\$) and busbar savings (kWh).

- a. Option 2 customers: Complete and save the Option 2 Interim Custom Project Calculator, and use the “Custom Projects” field of the Interim Invoice to report the sum of the reimbursements (\$) and busbar savings (kWh) for all completed custom projects.

Unless otherwise agreed to, BPA will pay no more than 50% of a customer’s ECA implementation budget through the Interim Invoice Process.

## ESI - Energy Project Manager

A customer may use the [COTR Request and Acknowledgement Procedure](#) to request that BPA contract directly with its end users to provide EPM funding when (1) the customer is prevented by charter or policy from contracting with its end users or (2) the EPM will be assigned to multiple facilities served by multiple customers. The customer's request must include documentation of qualification for the direct contract; the end-user information (name, address and contact information); and the amount to be allocated to that end user under a direct EPM contract. The allocated amount must be capped at the lesser of \$0.025 per kWh of the energy savings goal; the total annual cost of the EPM as described in the EPM Comprehensive Plan; or \$250,000.00.

If a customer's request is approved, BPA will (1) reduce the customer's ECA implementation budget by the allocated amount, (2) hold the funds to pay the EPM reimbursement to the end user and (3) execute a contract with the end user to pay for an EPM. The allocation may not be changed without approval from BPA, the customer and the end user. At the end of the EPM contract period, if the customer's allocation exceeds the amount BPA reimbursed the end user, the remaining budget will be returned to the customer's ECA implementation budget.