ENERGY EFFICIENCY
Implementation Manual

May 11, 2015
Addendum

This document is available online at http://www.bpa.gov/EE/Policy/IManual/Pages/default.aspx

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April 2015 Changes and Corrections Summary

This summary includes corrections and 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.

Description	Rationale (e.g., business, policy or research changes)	Change or Correction?	Page Number
General			
There are no changes.			
Introduction			
The Introduction has been updated.	Updating this section to provide greater clarity.	Change	1
Beginning October 1, 2015, the Implementation Manual will be updated on an annual basis.	Re-written based on new Post 2011 policies.	Change	3
Effective October 1, 2015, the implementation of the Large Project Program is contingent upon BPA securing third-party financing or reaching an alternate arrangement.	The new program will reflect the "Revised Energy Efficiency Post-2011 Implementation Program."	Correction	6
Definitions			
Effective October 1, 2015, the definition of "Available Implementation Budget" will be added. "The balance of a Program Participant's budget that is available at a given point in time. It is equal to the Initial Implementation Budget plus any Rollover Amount plus any Implementation Budget Transfers minus any approved invoice payment amounts to date."	Adding this definition to match what is listed in the Energy Conservation Agreement (ECA).	Change	
Effective October 1, 2015, we will update the definition of "Conservation". "The planned or actual reduction in electric power consumption as a result of increases in the efficiency of energy use, production or distribution, as defined in section 3(3) of the Northwest Power Act."	Updating this definition to match what is listed in the ECA.	Correction	ix
Effective October 1, 2015, we will add the definition of "EEI-funded Energy Savings". "Conservation arising from the implementation of Energy Efficiency Measures that are reported to BPA in accordance with the terms of the Implementation Manual and have been approved by BPA for reimbursement."	Adding this definition to match what is listed in the ECA.	Change	

Effective October 1, 2015, we will update the definition of “Energy Efficiency Incentive” or “EEI.” “The aggregate funding amount established by BPA for EEI-funded Energy Savings from Program Participants’ for a Rate Period.”	Updating this definition to match what is listed in the ECA.	Correction	ix
Effective October 1, 2015, we will update the “Energy Savings” definition. “EEI-funded Energy Savings and self-funded Conservation in first year kilowatt-hours attributable to completed units; site energy savings which include busbar energy savings.”	Updating this definition to match what is listed in the ECA.	Correction	ix
Effective October 1, 2015, we will add “Energy Efficiency” to the current “Measure” definition.	Updating this definition to match what is listed in the ECA.	Correction	x
Effective October 1, 2015, we will add the definition of “Implementation Budget Transfer”. “A decrease or an increase to a Program Participant’s Total Available Implementation Budget by transferring a portion of such to or from BPA or another Program Participant. Examples of Implementation Budget Transfers are bilateral transfers and unallocated unassigned account funds in the unassigned account.”	Adding this definition to match what is listed in the ECA.	Change	
Effective October 1, 2015, we will add the word “Initial” to the current definition of “Implementation Budget.”	Updating this definition to match what is listed in the ECA.	Correction	x
Effective October 1, 2015, we will add the definition of “Rollover Amount”. “An amount equal to the Available Implementation Budget at the end of a Rate Period, but not to exceed five percent of a Program Participant’s Initial Implementation Budget in the immediately preceding that Rate Period.”	Adding this definition to match what is listed in the ECA.	Change	
The Deemed Measure definition has been replaced with Unit Energy Savings (UES).	The RTF has moved away from using the word “deemed” due to the fact that it has a different meaning in other parts of the country.	Change	
Funding			
There are no changes.			
General Requirements			
There are no changes.			

Custom Projects			
Section 4.2 has been updated to reflect current policy changes.	Re-written based on new Post 2011 policies.	Correction	15
Custom Programs			
There are no changes.			
Agricultural Sector			
In the Irrigation Systems Upgrades Specifications and Requirements section added clarifying language, "Brass impact sprinklers shall be rebuilt by an established repair shop and shall meet or exceed manufacturers' specifications."	Brings uniformity between the IM and the UES Measures List.	Correction	26
In the Variable Frequency Drives in Agricultural Turbine Pump Applications section: ▪ Modified the reference "All new VFD installations must meet IEEE 519 standards" to "BPA recommends meeting IEEE 519 standards" in the Requirements and Specifications subsection. ▪ Added clarifying language, "BPA no longer collects information for this measure from the BPA Qualified and Provisionally Deemed Input Sheet" from the Requirements and Specifications subsection.	BPA is unable to verify the standard has been met. Removes additional documentation requirements for customers.	Correction Correction	29
In the Variable Frequency Drives in Agricultural Turbine Pump Applications Documentation Requirements table, added clarifying language to "Completed Turbine Pump VFD Energy Savings Calculator (available in the Document Library) regardless of completion date."	Brings greater clarity to the programmatic requirements.	Correction	29
Commercial Sector			
Roof and Attic Insulation	This language was updated to differentiate between roof and attic insulation measures as they apply to K-8 schools. This distinction allows for increased incentives.	Correction	39
The Energy Smart Grocer (ESG) section has been updated to reflect the contractor name change. CLEAResult is now listed as the contractor instead of PECI.	This language was updated to reflect the current name of the contractor.	Change	41
An end of program section has been added to the ESG section, but timing related to close-out options is currently unknown.	This language was added to clarify the end of program.	Clarification	42
Ductless Heat Pumps	Removed requirements that were deemed unnecessary.	Clarification	36
Federal Sector			
There are no changes.			

Industrial Sector			
Effective October 1, 2015, the Energy Smart Industrial's High Performance Energy Management & Track and Tune program components and requirements will be consolidated into Strategic Energy Management Projects.	Makes it easier for customers to understand.	Change	59
Residential Sector			
Effective October 1, 2015, Globe CFLs will be included in the General Purpose CFL measure category for payment.	The RTF has classified Globe lamps as General Purpose bulbs.	Change	76
Effective October 1, 2015, payment for CFL Lighting measures in the General Purpose (Retail) category will be reduced to $0.75.	Incremental costs have decreased.	Change	76
The Requirements and Specifications for Residential Advanced Power Strips has been clarified to more clearly state that the APS must be used on home entertainment centers only (TV with any combination of peripherals).	The energy savings for this measure is based on reducing the consumption of home entertainment centers and peripherals like set-top-boxes, DVD/BluRay players, soundbars etc.	Clarification	80
New measures were added for retail Refrigerators, Freezers and Clothes Washers.	These measures are now available to customers through the Simple Steps program.	Change	81
Effective October 1, 2015, Residential Refrigerator and Freezer measures will be expired and replaced with new measures (including the new retail Refrigerator and Freezer measures). Savings and payment will change. Please see the Residential Appliance Measures Changes effective October 1, 2015 in the Document Library.	The RTF updated these measures to reflect new baselines and CEE Tiers. An entirely new measure set was required.	Change	
Effective October 1, 2015, the freezer measures for Upright Freezers will be expired.	The measure list contained one measure for Upright Freezers and one for Any Freezer. The Any Freezer will remain available.	Change	82
Effective October 1, 2015, Residential Clothes Washer measures will be expired and replaced with new measures for front-loader clothes washers only (including the new retail Clothes Washer measures). Savings and payment will change and ENERGY STAR top loader clothes washers will no longer be eligible. Please see the Residential Appliance Measures Changes effective October 1, 2015 in the Document Library.	The RTF updated these measures to reflect new baselines and CEE Tiers. An entire new measure set was required.	Change	
Effective October 1, 2015, savings for Refrigerator Decommissioning measures will decrease, but savings for Freezer Decommissioning will increase. Payment for both measures will decrease to $80.00/unit. Please see the Residential Appliance Measures Changes effective October 1, 2015 in the Document Library.	The RTF updated these measures to reflect new baselines.	Change	83

Effective October 1, 2015, Residential Electric Storage Water Heater measures will be expired.	A new federal standard for efficiency went into effect in 2015 for electric storage water heaters, raising the baseline.	Change	83
Effective April 1, 2015, BPA will no longer provide payment for AirGenerate and Electrolux Heat Pump Water Heaters which were removed from the HPWH Qualified Product list.	Ongoing mechanical issues required us to remove these products from the Qualified Products List. BPA is currently working with NEEA to incorporate product quality and reliability into the program to minimize such issues in the future.	Change	84
Effective October 1, 2015, all PTCS duct sealing measures (by cooling zone and individual heating system type) will be expired and replaced by measures summarizing cooling zones and HVAC. See duct sealing measures labeled Electric Heat in Key Characteristic 3.	The number of measures was determined to be a burden to both utilities and to BPA's ability to maintain the measure list with accuracy.	Change	86
Effective October 1, 2015, PTCS duct sealing measures for New Single Family will be expired.	The RTF no longer provides savings calculations for these measures.	Change	86
Effective October 1, 2015, PTCS duct sealing measures must be sealed according to the "PTCS Duct Sealing Specification" dated April 1, 2015 (available in the Document Library).	The specification was updated to address the removal of New Single Family homes and to align with the Prescriptive Duct Sealing specification.	Change	86
Effective October 1, 2015, Prescriptive duct sealing measures must be sealed according to the "Prescriptive Duct Sealing Specification" dated April 1, 2015 (available in the Document Library).	The specification was updated to align with the PTCS Duct Sealing specification.	Change	86
Effective October 1, 2015, Prescriptive duct sealing measures for New Single Family will be expired. No change to the specification is required.	The RTF no longer provides savings calculations for these measures.	Change	86
Effective October 1, 2015, PTCS Open Loop Ground Source Heat Pump measures must be installed according to the "PTCS Ground Water Source Open Loop Heat Pump Installation Specification" dated April 1, 2015 (available in the Document Library).	The specification was updated to align with Implementation Manual requirements and current industry practices.	Change	86
For the October 2015, BPA Implementation Manual, Heat Pumps and Duct Sealing requirements will be organized into separate sections.	Changes in technology and application have made the combined section confusing.	Change	

New measures for New Energy Star Homes (WA) have been added.	The Washington State Energy Code changed on January 1, 2014. These new measures were developed by NEEA and approved by the RTF.	New Measures	91
Effective October 1, 2015, current Residential Weatherization measures for Single Family insulation, prime windows and patio doors, and whole house air sealing will be expired and replaced with updated savings and payments. Please see the October 2015 Weatherization Measure Changes in the Document Library.	The RTF updated residential weatherization measures Single Family Homes. Please refer to the Notice of Weatherization Measure Changes list on BPA's weatherization page for details.	Change	
Effective October 1, 2015, customers will be required to document heating system type (i.e. electric zonal, electric forced air furnace, air source heat pump, ground/water source heat pump, ductless heat pump) for homes receiving weatherization measures.	These data are required to maintain savings for the weatherization measures.	Change	94
Effective October 1, 2015, Prime window replacement measures for single family and manufactured homes will be reduced to $3.00/square foot for.30 windows and .35 patio doors and $4.00/square foot for .22 window and .30 patio doors.	The RTF updated residential weatherization measures resulting in lower savings and cost effectiveness.	Change	95
References to "audit or field notes" in the Documentation Description for Weatherization measures have been removed. Documentation requirements have been edited for clarity. No requirements were removed or added.	The term "audit or field notes" created confusion. The method for collecting information is not relevant to the information gathered.	Correction	95-96
The low income weatherization section has been expanded to include HVAC measures and more information about allowable installation and repair costs.	Previous versions did not address HVAC measure requirements or provide enough detail on what costs should be included within the installation and which are considered repair.	Correction	99
A measure for Exterior Insulated Doors was added to list of available Low Income Weatherization measures.	This measure was inadvertently left off of the chart for low income qualifying measures.	Correction	101
Prescriptive air sealing was removed from the Low Income Manufactured homes sections.	The measure was included in the payment chart for low income qualifying measures in error. There is no corresponding measure.	Correction	101
Utility Distribution Sector			
There are no changes.			
Multi-Sector			
Effective October 1, 2015, Residential Electric Storage Water Heater measures will be expired.	A new federal standard for efficiency went into effect in 2015 for electric storage water heaters, raising the baseline.	Change	110

Implementation Manual Revision Timeline

Action	Personnel on Point	Static Due Date	October 2015 Due Date[1]
Prepare Manual for publishing, and send out for first round of revisions.	BPA Energy Efficiency Implementation Manual Coordinator	15 weeks before Manual publication date	June 18, 2015
Complete first round of revisions, and return to BPA Energy Efficiency Implementation Manual Coordinator.	BPA Energy Efficiency Staff (Sector Leads, Contracts Manager, Programs Manager)	11 weeks before Manual publication date	July 16, 2015
Incorporate first round of revisions, and meet with Implementation Manual Change Review Board.	BPA Energy Efficiency Implementation Manual Coordinator	9 weeks before Manual publication date	July 30, 2015
Incorporate Implementation Manual Change Review Board edits, and meet with management to review.	BPA Energy Efficiency Implementation Manual Coordinator	8 weeks before Manual publication date	August 6, 2015
Incorporate management edits, and send to BPA Energy Efficiency staff/Utility Sounding Board for second round of revisions.	BPA Energy Efficiency Implementation Manual Coordinator	7 weeks before Manual publication	August 13, 2015
Complete second round of revisions, and return to BPA Energy Efficiency Implementation Manual Coordinator.	BPA Energy Efficiency staff, Utility Sounding Board Members	5 weeks before Manual publication date	August 27, 2015
Incorporate second round of revisions, and meet with Implementation Manual Change Review Board.	BPA Energy Efficiency Implementation Manual Coordinator	4 weeks before Manual publication date	September 3, 2015
Incorporate Implementation Manual Change Review Board edits, and meet with management to review.	BPA Energy Efficiency Implementation Manual Coordinator	3 weeks before Manual publication date	September 10, 2015
Incorporate management edits.	BPA Energy Efficiency Implementation Manual Coordinator	2 week before Manual publication date	September 17, 2015
Work with marketing to finalize Manual for publication.	BPA Energy Efficiency Implementation Manual Coordinator	3-5 days before Manual publication date	September 24, 2015
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	October 15, 2015

[1] This column will be updated 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.

Definitions

AHRI	Air-Conditioning Heating and Refrigeration Institute
aMW	Average megawatt of electricity or the average measure of the total energy delivered in one year - 8,760,000 kilowatt-hours per year
B/C	Total resource cost benefit/cost ratio
Bilateral Funding	A form of BPA energy efficiency funding; "Implementation Budget" as used in the Energy Conservation Agreement; Energy Efficiency Incentive
Bilateral Transfer	The transfer of implementation budget between customers
BPA	Bonneville Power Administration
BPA Qualified	A non-RTF approved measure that BPA is collecting data and performing analysis on, with the eventual goal of securing RTF approval.
BTU	Unit of energy equal to about 1055 joules; the amount of energy needed to cool or heat one pound of water by one degree Fahrenheit
Busbar energy savings	Generally 9.056% above the site energy savings
CEE	Consortium for Energy Efficiency
CFL	Compact fluorescent lamp/light bulb
Completed Unit	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 the BPA Energy Efficiency reporting system and supporting documents
Completion Report	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
Conditioned space (residential)	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
Conservation	Any reduction in electric energy consumption resulting from an increase in the efficiency of electric energy use, production or distribution
COTR	Contracting Officer's Technical Representative
Customer	A utility or other regional entity that purchases power from BPA
Custom Program	Energy savings work performed under the Manual's custom program section
Custom Project	Energy savings work performed under the Manual's custom project section
Custom Project Proposal	A proposal for energy savings work made under the Manual's custom project section (under Custom Project Process, Option 1)
CZ	Cooling Zone
Deemed Measure	This definition has been changed and the new terminology is Unit Energy Savings (UES). Please see the definition below.
DHP	Ductless Heat Pump
ECA	Energy Conservation Agreement
EEI	Energy Efficiency Incentive; the basis of the implementation budget that funds energy efficiency activities
EER	Energy Efficiency Representative
EM&V	Evaluation, measurement and verification
End user	Ultimate consumer of product
Energy Savings	Conservation in first year kilowatt-hours attributable to completed units; site energy savings, which include busbar energy savings
ENERGY STAR®	The registered name for a joint national energy efficiency program of the U.S. Environmental Protection Agency and the U.S. Department of Energy
Evaluation	Evaluation involves real time and/or retrospective assessments of the performance and implementation of a program or measure.

Fiscal Year (FY)	For BPA, from October 1 through September 30
Fuel Switching	As determined by BPA, the switching of one type of energy consumption to another (e.g., switching from electric heating to natural gas heating)
GPM	Gallons per minute, as in the flow-rate of showerheads
HPWH	Heat pump water heater; a water heater manufactured with an integrated heat pump that heats water by transferring heat from ambient air via a refrigeration cycle; does not include add-on units that modify an existing water heater.
HVAC	Heating, ventilation and air conditioning
HZ	Heating zone
Implementation Budget	The amount of money BPA makes available to a customer (through its Energy Conservation Agreement) to expend on implementation costs during the implementation period
Implementation Period	The period of time covered by a customer's Energy Conservation Agreement
Incremental cost	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
Invoice	A report of measures claimed and/or savings achieved under the Manual (may or may not include a request for payment)
kW	Kilowatt – one thousand watts (units of electric power)
kWh	Kilowatt-hour – one kilowatt over the period of one hour (unit of energy)
Large Project Fund	The money reserved for certain BPA-approved custom projects with payment amounts that exceed 50% of the customer's original implementation budget (i.e., budget at start of rate period)
LED	Light-emitting diode
Low-income	Low income household eligibility is defined in the Federal Weatherization Assistance Program as 200% of the poverty income levels. Approved statewide definitions substitute for federally established low income levels, if provided.
M&V	Measurement and Verification
Major Renovation	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
Manufactured Home	A dwelling that is transportable in one or more sections, built on a permanent chassis, with or without a permanent foundation, with wheels removed when set up on site (not including travel trailers or park models) (Homes manufactured after 1983 must be constructed to the U.S. Department of Housing and Urban Development code.)
Measure	Materials, equipment or activities that achieve energy efficiency. A term used broadly in this document to mean one or more changes in system configuration, equipment specifications or operating practices that reduce electric power consumption as a result of increases in the efficiency of energy use, production, or distribution. "Measure" covers all savings types, i.e., Unit Energy Savings, Calculators, or Custom projects.
Measurement	Readings taken to establish energy use or improvements in energy use, such as testing duct leakage or measuring loading factors and run time in factories (It usually involves post and/or pre-post measurement. Large end users often measure to make sure that they are getting what they pay for or to better understand their system operations. The prevalence of required measurement for audits or for payment has varied in the field of energy efficiency, but the general rule is the more uncertainty, the greater the risk of performance, the greater the need for actual measurement. BPA requires some level of measurement and verification for projects for which the payment is established by the energy savings achieved.)
Modular Home	Sectional, factory-built dwelling in the single-family home category designed to be transported to the building site, affixed to a permanent foundation, with no chassis
Multifamily (Commercial)	Five or more dwelling units within the same structure and more than three stories
Multifamily (Residential)	Five or more dwelling units within the same structure and no more than three stories

MW	Megawatt – one million watts (units of electric power)
MWh	Megawatt-hour – one megawatt over the period of one hour
NEEA	Northwest Energy Efficiency Alliance
NFRC	National Fenestration Rating Council
Oversight	A contract management activity, designed to assure the government that it is getting what it pays for with some level of certainty
Payment	A term representing monetary incentive levels for the installation of energy efficiency measures
Performance Payment	Application of funds to cover internal customer administrative costs incurred in support of energy savings activities described in this Manual
Primary Residential Heating System	A heating system that serves 50% or more of the conditioned living area of a residence
PTCS™	Performance Tested Comfort Systems (certification for duct sealing and heat pump commissioning)
Rate Period	Period of time during which a specific set of rates established by BPA pursuant to a rate process is in effect (currently two-year periods, with the current rate period covering FY14-15)
Regional Technical Forum (RTF)	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.)
Residential Energy Services Network of Certified raters (RESNET)	Residential Energy Services Network of Certified raters using the Home Energy Rating System (HERS) Index. The HERS index score can be used to measure the energy efficiency performance of Residential Single Family New Construction. It is one of the means of certifying if a Single Family home meets the Northwest ENERGY STAR Homes standards.
Retail Program delivery mechanisms	Residential Retail delivery mechanisms/program models include downstream (incentives are delivered directly to the end user, usually through a rebate); midstream (program activity/incentives are go through the retailer); upstream (program activity goes through the manufacturer)
Retail Sales Allocation Tool (RSAT)	A tool for use in Residential Retail midstream/upstream programs where site information (i.e. home address) is not available. This tool provides evaluated, research-based percentage allocations for all NW utilities (public and investor-owned) for a select list of energy efficiency products in an easy-to-use Excel-based tool. This tool is used by the Simple Steps, Smart Savings program and is available from your EER.
Single-family	Fewer than five dwelling units within the same structure (including accessory dwelling units and modular homes)
Site energy savings	The ascribed, deemed, calculated, estimated, evaluated or verified conservation in first year kilowatt-hours attributable to completed units
Tier One Cost Allocator (TOCA)	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
Total Resource Cost (TRC)	Perspective of cost-effectiveness testing that includes all cost and benefits of a measure, regardless of who pays for or receives them. BPA uses the definition of the TRC test consistent with the Council.
TSP	Technical Service Provider
Unassigned Account	The grouping of unclaimed and returned Energy Efficiency Incentive funds
Unit of Energy Savings (UES)	Measures for which savings are estimated on a per-unit basis (e.g., savings per light bulb) for a typical baseline case to efficient case scenario. UES measures have relatively small variation in savings that can be reliably forecasted.
Unconditioned space (residential)	Any residential building cavity or space that is intentionally vented to the outside or is not heated directly by a register or duct

Unheated buffer space (residential)	Any residential building cavity or space that is adjacent to the thermal boundary of the house and that has no positive heat supply under thermostatic control (e.g., garages and basements)
Utility	A public customer that purchases power from BPA
Variable speed heat pump	A ducted heat pump manufactured with an inverter driven motor that is capable of adjusting its output to meet the requested heating load (with performance similar to a DHP)
Verification	A process or procedure designed to produce evidence confirming accuracy or truth of claims made to BPA, which may minimally involve obtaining and retaining documentation or may require site inspection(s) of the measure(s)
VFD	Variable Frequency Drive
Whole Building Cost	As-built contracted cost including labor, design and measurement and verification, excluding land costs
Working day	Monday, Tuesday, Wednesday, Thursday and Friday, excluding federal holidays or other days federally deemed to be non-working days
Zonal electric heating system	Non-ducted electric heating systems utilizing thermostats to control individual heating units or groups of heaters (e.g., "zones"), including radiant ceiling cable, fan-forced electric resistance (wall, toe-kick, ceiling, and exhaust fan combinations), electric baseboard, and electric boiler/hot water (e.g., "hydronic") radiant systems

1. Introduction

Bonneville Power Administration (BPA) pursues energy efficiency as a resource per the 1980 Pacific Northwest Electric Power Planning and Conservation Act and consistent with the Northwest Power and Conservation Council's regional power plan.

The Energy Conservation Agreement (ECA) is the contractual mechanism for BPA to meet its statutory obligations. The ECA, the Energy Efficiency Implementation Manual (Manual) and BPA's energy efficiency reporting system provide the implementation requirements for measures reported to BPA.

The Implementation Manual rests on the framework specified in the Long-Term Regional Dialogue Final Policy[2] and the BPA Energy Efficiency Post-2011 Implementation Program. For additional guidance on Post-2011, see the BPA Web site.

1.1 Overview

Based on BPA's Regional Dialogue policy, BPA commits to achieving the share of the Council's Power Plan regional energy efficiency target that represents the load of BPA's public power customers. BPA reports savings to its target from three major categories: programmatic, momentum and market transformation. The Manual covers only programmatic savings that are reportable to BPA's targets.

Prior inclusion in this Manual, BPA conducts planning efforts to ensure funds expended on the offerings and programs are prudent and are expected to meet stated objectives and outcomes. Programmatic offerings are considered reportable when they are reliable, cost-effective and meet eligibility and documentation requirements. Reportable measures are eligible for the BPA payments outlined in this document.

1.2 Reliability

BPA has a responsibility to ensure reliability of its energy savings achievements. The Power Act specifically calls on BPA to pursue cost-effective energy efficiency that is "reliable and available at the time it is needed."[3] For EE, ensuring reliability is not a single action at a single point in time. Instead it is an ongoing process that includes planning, and implementing and using evaluation and oversight results to make improvements.

Reliability at the time of reporting to BPA varies by savings type: UES, custom projects and calculators. Custom projects require site-specific Measurement and Verification (M&V) to support reliable estimates of savings. BPA M&V Protocols[4] direct M&V activities and are the reference documents for reliable M&V. For UES measures and Savings Calculators, measure specification and savings estimates must be RTF approved or BPA Qualified.

The RTF reviews and approves costs, savings, lifetime and specifications for measures, based on the reliability standards in the RTF Guidelines. BPA reviews RTF-approved measures and makes decisions on whether to adopt the measures into offerings. The primary and preferred path for BPA's measure and savings calculator development and maintenance is through RTF approval because the RTF has a well-developed public

[2] "Bonneville Power Administration Long-Term Regional Dialogue Final Policy," http://www.bpa.gov/power/PL/RegionalDialogue/07-19-07_RD_Policy.pdf, p. 30-31.
[3] Power Act language summarized at: http://www.nwcouncil.org/reports/poweract/3_definitions.
[4] Protocols include: Protocol Selection Guide; Reference Guides for sampling, regression and glossary; Protocols on metering, indexing, engineering calculations with verification, energy modeling, and existing building commissioning.

review process, uniform standards of quality and documentation and staff to conduct the ongoing review and updating of UES measures.

To provide BPA and customers with additional UES measure flexibility, BPA may conduct internal approval of costs, savings, lifetime and specifications; this is known as "BPA-Qualified". It may only be used for structural purposes (e.g., adjust specifications or granularity for a gap in offerings) or research purposes (e.g., gain experience with new technology or improve savings estimates). BPA-Qualified measures are noted in the title of the measure. Documentation requirements may be higher for BPA Qualified measures to support research efforts.

To assure portfolio-level reliability, impact evaluation is also required. Impact evaluations follow the RTF Guidelines and are conducted on all savings types.

1.3 Cost Effectiveness

BPA has a responsibility to ensure the cost-effectiveness of its energy savings achievements, per the Northwest Power Act[5].

BPA maintains a cost-effective energy efficiency portfolio with an aggregate TRC benefit-to-cost ratio greater than or equal to one (TRC > 1.0). To maintain a cost-effective portfolio, BPA maintains TRC > 1.0 in each of the major savings types: UES, custom and calculators. BPA does not require that every measure or project is cost-effective; instead it uses a combination of cost-effectiveness thresholds and measure bundling to ensure cost-effectiveness while providing flexibility.

1.4 Payment

When BPA determines the appropriateness of payments, it assesses cost characteristics relative to established metrics as well as considers other influences.

Cost metrics reviewed for payment development are: incremental cost, first-year cost and levelized cost of the measure. First, payments are measured as a percent of incremental cost and capped based on savings type policies (e.g., custom projects capped at 70% of incremental cost). Next, BPA reviews the first-year cost[6] with the aim of keeping each offering at or below the sector average cost goals. Finally, BPA compares the levelized cost of the payment against the Power Plan's avoided costs to ensure that BPA's payment does not exceed the resource value of the savings.

Other factors considered include: Programmatic considerations, Market maturity or conditions, Payment influence and free ridership, TRC cost-effectiveness and regional benefits.

1.5 Policy for Measure Changes/Additions

BPA reserves the right to make changes to policies, procedures, measure eligibility, specifications and requirements.

Note, however, that changes are different from corrections. Corrections are introduced to fix ambiguous or incorrect language or to align conflicting terms between BPA's rules (e.g., Implementation Manual, standards of conduct, spreadsheets, calculators, outside specifications and the BPA Energy Efficiency reporting system). Corrections may be

[5] Power Act language summarized at: http://www.nwcouncil.org/reports/poweract/3_definitions.
[6] First-year cost is calculated as the ratio of the payment and first year savings.

implemented at any time in order to provide immediate clarification and alignment to customers and BPA.

Minimum of Six Months of Notice Required	No Notice Required
Savings change up or down	New measure
Payment amount change, up or down	Optional lighting calculators
Adding or substituting a requirement	Removing a requirement

Effective October 1, 2015, the Policy for Measures/Changes/Additions will be changed to reflect the "Revised Energy Efficiency Post-2011 Implementation Program".

BPA will publish the IM annually beginning October 1, 2015. Changes that require notice will be announced the previous April in a separate changes document. BPA's new change notice policy will be as follows:

Changes Taking Effect in October IM with Notice in April Changes Document	Changes Taking Effect in October IM AND April Changes Document Without Notice
Savings change up or down	New measure
Payment amount change, up or down	Optional calculators
Adding or substituting a requirement	Removal of a requirement
Expiration of a measure	

Note, however, that changes are different from corrections. Corrections are introduced to fix ambiguous or incorrect language or to align conflicting terms between BPA's rules (e.g., Implementation Manual, standards of conduct, spreadsheets, calculators, outside specifications and the BPA Energy Efficiency reporting system). Corrections may be implemented at any time in order to provide immediate clarification and alignment to customers and BPA.

1.6 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 Technical Representative (COTR)). 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

Pursuant to section 3(a) of the Energy Conservation Agreement (ECA), BPA Energy Efficiency will pay customers for the costs of energy savings from in-region projects.[7]

This section discusses (1) bilateral funding, (2) pooling organizations and (3) performance payments.

2.1.1 Bilateral Funding

Bilateral funds may be used for all BPA-funded measures, 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 (or in certain instances through a supplemental Large Project Fund budget in a separate exhibit).

Customers may request an ECA[8] 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). Customers may pursue budget changes under the ECA, per the terms of that agreement 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, BPA shall not pay amounts in excess of the implementation budget in Exhibit A.

The following section discusses (1) Energy Efficiency Incentive (EEI) allocation, (2) Inter-Rate Period Budget Flexibility (3) EEI redistribution, (4) EEI Budget Reduction (5) EEI increase from the Unassigned Account and (6) the Large Project Fund.

1. <u>EEI Allocation</u>

   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.

2. <u>Inter-Rate Period Budget Flexibility</u>

   Beginning October 1, 2015, customers will have the ability to move up to five percent of their start of rate period EEI budget to the subsequent rate period. This

[7] BPA will not pay for projects that have been or will be funded in part/full by another BPA funding source.

[8] Occasionally, BPA may negotiate a non-standard agreement with a customer that contains variations from Manual requirements, but only when there is a benefit to BPA (e.g., a reduction in the payment or staff time spent administering the agreement).

means customers will be able to move up to five percent of their start of FY 2014-2015 rate period EEI budget to the FY 2016-2017 rate period, consistent with the following:

No more than five percent of a customer's start of rate period EEI budget may be rolled over to the following rate period. The amount of funds remaining at the end of a given rate period, not to exceed the five percent customer cap, will be automatically added to the customer's EEI budget for the following rate period. There is no requirement that roll over funding be tied to specific projects or programs and there is no requirement of customer notification to BPA, i.e., the roll over is automatic up to the five percent cap.

The implementation of this policy is contingent upon BPA securing third-party financing or reaching an alternate arrangement to provide roll over funds.

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

   Customers may redistribute EEI funds among each other by forming a pooling organization or by sending a completed Bilateral Transfer Request and Attestation Form (available in the Document Library) to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955). Approved bilateral transfers will result in ECA implementation budget revisions.

4. ECA Implementation Budget Reduction

   Customers may reduce their implementation budget at anytime by submitting a request through the COTR Request and Acknowledgement 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.

5. 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 19th month of the rate period (3) Or at BPA's discretion as funding becomes available 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 to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955) the Unassigned Account Funding Request Template (available in the Document Library).

   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.

6. Large Project Fund Budget

   Customers may receive a supplemental Large Project Fund budget in a separate ECA exhibit to support qualifying custom projects. Per the terms of that exhibit,

BPA will lock Large Project funding equal to the projected payment, less either 1/3 of the customer's start-of-rate-period EEI allocation or 1/3 of the estimated payment (customer must choose one). The difference provides the BPA payment cap, but the actual payment is based on savings achieved as documented in the custom project completion report. 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.[9] A customer must request Large Project Fund budget by using the COTR Request and Acknowledgement Procedure and requesting such funds in the Option 1 Custom Project Calculator available in the Document Library.[10] [11] The request must indicate (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.

In order to qualify for the Large Project Fund, the requirements below must be met:

- The custom project's payment meets or exceeds 50% of the customer's rate period implementation budget.[12]
- The customer must pass through to the end user, at a minimum, the lesser of the estimated payment as documented in the proposal or the actual total available payment as documented in the completion report (including BPA and customer shares).
- 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.
- The customer must repay BPA for the large project funding received through (1) reductions to the customer's implementation budget, (2) reductions to two start-of-rate-period EEI allocations or (3) by the customer using its own funds.

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

The October 1, 2015 implementation of the Large Project Program is contingent upon BPA securing third-party financing or reaching an alternate arrangement.

[9] 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.

[10] Only projects initiated post-2011 may qualify for the Large Project Fund.

[11] Customers using Custom Project Process, Option 2 must use Custom Project Process, Option 1 for projects using Large Project Funds.

[12] For customers in a pooling organization, this requirement is calculated using the customer's individual, uncombined rate period implementation budget.

2.1.2 Rules for Pooling Organization

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 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 written notice to BPA at least 30 days prior to 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 allocated 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).[13]

SRR Status	Definition	Payment Rate *$/kWh*
Small	The customer's forecast net requirement is less than 10 aMW.	$0.08
Rural	The customer has fewer than 10 customers per line mile according to the Low Density Discount calculation.	$0.08
Residential	The customer's load is greater than 66% residential, according to U.S. Energy Information Administration data.[14]	$0.08
Non-SRR	The customer is not small, rural or residential.	$0.04

Customers may claim payment at a rate up to the rate in the table above, and the 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., at a rate less than the payment rate in the table above), there is no opportunity to later collect money for the unclaimed payment. If the customer does not wish to claim performance payment on invoices, they must submit the Performance Payment Form (available in the Interim Solution 2.0 Files). (Note, however, that the process for requesting payment for EnergySmart Grocer (ESG) savings is different; to request a performance payment on ESG savings, customers must e-mail their Energy Efficiency Representative and request a report of eligible savings and the ESG Performance Payment Form.)

The total of all performance payments is capped at 30% of the implementation budget for SRR customers and at 20% of the implementation budget for non-SRR customers. [15]

Pooling organizations may claim performance payments up to the aggregate of each pool participant's allowance.

[13] BPA will notify customers of their rate-period classification in the EEI eligibility letter.

[14] BPA reserves the right to request additional documentation (e.g., an annual report) to verify a customer's load.

[15] The implementation budget does not include Large Project Funds.

When funds are redistributed among customers, BPA may restrict the performance payment claimable on the transferred funds.[16]

BPA highly recommends that customers use performance payments to support implementation costs in support of the Manual's activities. Implementation costs may include (1) staff (direct labor and indirect overhead for the implementation and management of conservation activities); (2) marketing (market research, advertising and promotional material production and distribution); and (3) other operating costs (equipment (e.g., metering equipment, computer software/hardware), training, travel and program development).

2.2 Conservation Billing Credits

Effective October 1, 2015, BPA will offer conservation billing credits consistent with section 6(h) of the Pacific Northwest Electric Power Planning and Conservation Act of 1980, per the Final Conservation Billing Credit Supplement. The details of billing credit participation will be published in the October 1, 2015 Implementation Manual, consistent with billing credit contract terms.

2.3 Funding Sources and Savings Allocation

When reporting savings to BPA, customers must select one or more of the following funding sources.

Funding Source	BPA Energy Efficiency Reporting System Title	Description
Implementation Budget	EEI	BPA payment in the form of EEI funding; ECA funded activities that are accepted by BPA
Large Project Fund Budget	LPF	BPA payment in the form of EEI funding; ECA Large Project Funded activities that are accepted by BPA
BPA-accepted, Non-BPA Funds	Self-funding	Non BPA-funded activities that *are accepted* by BPA
Not-BPA-accepted, Non-BPA Funds[17]	Non-reportable	Non BPA-funded activities that *are not accepted* by BPA

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

[17] Customers are allowed, but not required, to include non-reportable savings to BPA. BPA will not review the non-reportable data. Customers will not be credited for the energy savings reported to BPA for non-reportable activities.

Customers are credited for all savings (except non-reportable) achieved in their service territory. Savings may be allocated to either the EEI or the customer depending on the amount of BPA payment requested by the customer.

BPA Payment Amount Requested	Available Applications	Savings Allocated to EEI	Savings Allocated to Customer
All	All	100%	0%
None	All	0%	100%
Partial	Custom projects	See tables, below.	See tables, below.

Partial BPA Payment Requests – Savings Allocation

EEI	$\frac{\textit{Amount of BPA Payment Requested}*}{\textit{Amount Paid to the End User}**} \textit{ X Total Reported Savings}$
Customer	$\frac{(\textit{Amount Paid to the End User}**) - (\textit{Amount of BPA Payment Requested}*)}{\textit{Amount Paid to the End User}**} \textit{ X Total Reported Savings}$

***Use the amount paid to the end user if less than the amount of BPA payment requested.**

****This amount may not exceed the total available BPA payment.**

3. General Requirements

3.1 Documentation Requirements

Each measure contains documentation requirements. All documentation must be retained in the customer's file (which may be in hard copy or electronic form), and certain documentation must be submitted to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955) or sent through BPA's energy efficiency reporting system.

Customers must retain required information for no less than three years after the term of the ECA or through September 30, 2017, whichever is later. Information must be available to BPA upon request.

If a customer agent or contractor was used for some or all of the measure development, implementation or verification, the customer must also retain documentation that Manual requirements have been met..

3.2 Reporting Requirements

Reports must include supporting documentation required by the Manual, and documentation must prove that measures were available for implementation during the claimed period and properly installed and operating. BPA may reject measures that do not meet these requirements.

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

For each submitted report, 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.

Until BPA Energy Efficiency procures a long-term reporting system, customers must use Interim Solution 2.0 (IS2.0) (available through BPA Customer Portal) to report energy efficiency achievements to BPA (with and without requests for payment). Customers may report energy savings, at any time, as long as the completion dates are in the current or previous rate period.

The following describes the reporting steps. All referenced documents are available in the Document Library or the Interim Solution 2.0 Files.

1. Gather invoice package documents which may include, but are not limited to, the following:
    - UES Measure Upload Template (Note that customers may report measures labeled "any" and/or "all" at any time. Customers may report these measures alone or in conjunction with other, more detailed measures from the same measure Technology/Activity/Practice)
    - Performance Payment Form (only if requesting less than the total available performance payment on an invoice)
    - Progress Payment Request Form (only if requesting custom project progress payments)
    - Calculators
        - Option 1 Custom Project Calculator (after COTR approval of project completion report, one calculator file for each COTR-approved completed project)

- Option 2 Custom Project Calculator (available in the BPA Customer Portal for completed projects only, bulk reporting of multiple projects in one or more calculator files)
- RTF-approved Small Compressed Air Calculator
- Energy Management Calculators (Energy Project Manager, Track and Tune and High Performance Energy Management)
- Lighting Calculators
- Custom Program Calculators

2. Use the File Naming Tool to name all invoice package documents. Improperly named documents will not be processed by the system and may result in the customer having to resubmit the entire invoice package.
3. Use the Summarizer (optional) to estimate the total invoice package payment and savings.
4. Upload invoice package documents (named using the File Naming Tool) to the BPA Energy Efficiency reporting system.

   BPA will review the submitted documents and create an invoice report showing the amount to be paid. BPA will work with the customer to resolve any errors in the invoice package and will determine the acceptability for payment for measures reported.

3.3 Oversight Review Process

As a part of the oversight review process, BPA shall (1) perform end-user site and record reviews and (2) conduct impact and process 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, at any 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 payments to achieve compliance.

2. Impact and Process Evaluations

   a. BPA may evaluate measures to assess the amount, cost-effectiveness and reliability of conservation. BPA will determine the timing, frequency and type of evaluations with input from the customers on the evaluation plan.

   b. BPA may also 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 identification) to allow BPA to assess savings by measure.

   c. BPA and/or 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 payment.

3.4 Third-Party Operated Program Requirements

It is unlikely, but possible that unforeseeable contract circumstances may result in the termination or change of third-party operated programs, without prior notice. If BPA is forced to change a third-party operated program, BPA will strive to minimize disruptions to delivery of program services through an alternate third-party provider or with BPA's own staff resources. BPA will give customers as much notice as possible of such terminations or changes or of potential terminations or changes and will work with customers to wrap-up and/or transition any work in progress.

The following programs are operated by third-parties: Energy Smart Grocer, Energy Smart Industrial, Northwest Trade Ally Network, Technical Service Providers, BPA Simple Steps, Smart Savings Retail Promotion and the Green Motors Rewind Initiative.

3.5 Other Requirements

1. The customer must comply fully with all laws and regulations.
2. If the customer is non-compliant with a requirement of this Manual or there is a significant environmental, health or safety threat, BPA shall notify the customer in writing of the specific noncompliance and suspend implementation.
    a. The customer shall have a number of days, as agreed to in writing by BPA, to correct (at its own cost) the noncompliance.
    b. BPA shall not accept claims with suspended activity, and if the customer does not complete the required corrective actions, BPA may terminate all funding.
    c. BPA shall review completed corrective actions and reassess the suspension. If BPA lifts the suspension, the customer may begin implementation of the activity with the changes required by BPA.
3. If BPA determines 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 implemented with the assistance of that contractor.[18]

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.

[18] BPA does not accept claims implemented in conjunction with AutoCell Electronics, Inc.

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 Projects

4.1 Custom Projects Payment Rate

Effective April 1, 2015, customers must use Custom Project Calculator Version 2.0 or later for new custom projects. BPA will no longer accept Custom Project Calculator Version 1 unless it is for a completion report on a project started prior to April 1, 2015.

The total available BPA payment for a custom project is equal to the lesser of (1) the BPA payment rate ($/kWh) or (2) the project cost cap.

The applicable BPA payment rate ($/kWh) is the rate in place at the time of project start date. BPA payment rate is calculated according to the table below:

Project Type	Measure Life (Years)	Sector	Payment Rate (*$/kWh)*
ESG	1	Commercial	$0.025
	2-3	Commercial	$0.05
	4+	Commercial	$0.17
Non-Residential Lighting	All	Agricultural Commercial Industrial	$0.18
Retrofit Construction (excluding ESG and Non-Residential Lighting)	1	All	$0.025
	2-3	All	$0.05
	4-19	Agricultural Industrial Utility Distribution	$0.25
		Commercial Residential	$0.20
	20+	All	$0.35
New Construction and Major Renovation (excluding ESG and Non-Residential Lighting)	1	All	$0.025
	2-3	All	$0.05
	4-19	Agricultural Residential Commercial	$0.27
		Industrial Utility Distribution	$0.25
	20+	Agricultural Commercial Industrial Residential	$0.35
		Utility Distribution	$0.25

Project cost cap: Payment for all sectors is capped at 70% of the incremental project cost. If incremental cost data is not available for commercial new construction projects, incremental cost may be calculated as 2.86% of the whole building.

Customers may request less than the available BPA payment. This option applies to all projects, regardless of the approval date. To make this request, the customer must enter the percentage or dollar amount of available payment requested in the Custom Project Calculator.

Customers must pass through the entire BPA payment received to their end users if such payment is for a progress payment or funded by large project funds.

Customers seeking partial self-funded credit on a project must (a) request a payment lower than the available BPA payment, (b) pay a portion of the available BPA payment with utility

funds (self-funding), (c) enter the actual end-user payment amount in the custom project calculator and (d) retain proof of actual end-user payment to substantiate the self-funding portion.

4.2 Custom Projects Special Funding

All utilities are eligible to request special funding (progress payments and Large Project Funds)[19]

4.2.1 Progress Payments

Customers requesting progress payments must use the Option 1 Custom Project Process and Calculator (available in the Document Library) to request approval. The customer must request progress payments in the proposal, and the request must include a schedule with estimated progress payments that coincide with incurred costs and measureable 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.
5. For projects seeking use of progress payments the custom project proposal and completion report must be approved prior to submission of the completion report into the BPA reporting system. There is no required minimum time between the date of BPA's acceptance of a custom project proposal and the date of completion report submission.

[19] Option 2 customers may request progress payments or Large Project Funds for a project only if they use the Option 1 custom project process to secure BPA's approval.

4.2.2 Large Project Funds

The customer must follow the process in section 2.1.1.6 and request Large Project Funds using the Option 1 Custom Project Calculator proposal.

4.3 Custom Projects Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Option 1 Custom Projects			
Option 1 Custom Project Calculator (Send to BPA for completion report review with all supporting documentation, including associated lighting calculator being used for estimates if applicable. Submit to BPA Energy Efficiency reporting system after approval of project completion report, when requesting BPA payment or reporting self-funding.)	X	X	X
End-user payment documentation (e.g. canceled check), if progress payments, large project fund or if partial self-funding credit is requested.			X
Option 2 Custom Projects			
Option 2 Custom Project Calculator (available in the BPA Customer Portal)	X		X
Responsible entity implementing M&V plan, M&V plan, pre and post measurement data, assumptions and any modeled or calculated data used to determine energy savings			X
Project documentation including, at a minimum: basic project information, baseline conditions, efficient measure conditions, description of M&V procedures used for the project (e.g., protocol used for estimating savings, calculations used, metering equipment, sampling) and deviations from planned M&V, M&V report and/or detailed savings model, name of M&V protocol used, verified savings and documentation showing how the projected non-energy benefits and operations and maintenance costs were calculated (if applicable), verified costs, including invoices, and delivery inspection report/date.			X
End-user payment documentation (e.g. canceled check) if progress payments, large project fund or if partial self-funding credit is requested.			X

4.4 Custom Projects Overview

4.4.1 Custom Projects Process Option Overview and Enrollment

There are two paths available for custom projects: Option 1 and Option 2.

Customers, by default, are enrolled in Option 1, but may elect Option 2 by using the COTR Request and Acknowledgement Procedure at the start of each rate period, and must submit/renew their application no later than September 1 preceding the new rate period.

A request to follow the Option 2 path must include the customer's proposed custom project delivery approach including documentation of rules, processes, and staffing capability to meet the custom project requirements. The request must also provide any internal M&V protocols used for custom projects for BPA review. BPA may request additional information before notifying the customer of its approval/non-approval of Option 2 status. Option 2 customers may switch to Option 1 through the COTR

Request and Acknowledgement Procedure (1) for any reason at the start of a new rate period[20] or (2) if customer circumstances change, making Option 2 unworkable.

- Option 1: BPA manages the project performance and cost-effectiveness of the bundle of energy savings from Option 1 custom projects. Option 1 customers may request technical support from BPA or BPA program implementers (i.e. Energy Smart Industrial or ESG) to develop projects and complete M&V regardless of the size of the project or the requirement for review and comment.
- Option 2: Customers manage the project performance and cost effectiveness of the bundle of energy savings from their custom projects. The customer conducts all aspects of M&V and custom project quality control (e.g., project proposal and project completion documentation review) internally. Technical assistance is available in relation to Manual clarifications and consultations regarding M&V methods and protocols as they apply to a single project or the customer's portfolio of projects; project implementation assistance is not available unless provided by third-party implementation contractors as part of a program (e.g., PECI through ESG, Cascade Energy through Energy Smart Industrial or the Northwest Trade Ally Network). Option 2 customers that request special BPA funding such as progress payments or Large Project Fund or those performing Emerging Field Test Demonstration Projects must follow the Option 1 custom project process.

4.4.2 Custom Projects General Requirements

1. 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.
2. Custom projects are limited to one sector each.
3. UES measures and calculated projects may be included in custom projects, on their own or in a project with other measures/projects, but must either (1) be included in the custom project M&V and not use the UES/calculated savings value or (2) be reported separately through the UES/calculated path and the savings must not be included in the custom project savings.
4. Option 1 Custom Projects must meet the following B/C ratio requirements:
   a. If the project savings are 200,000 kWh or less, no cost effectiveness screen is applied.
   b. If the project savings are over 200,000 kWh and the project has a BPA-approved proposal, the proposal must demonstrate that the project has a B/C ratio $\geq$ 0.5 based on proposed costs and savings. No additional screen will be applied at the completion report.
   c. If the project savings are over 200,000 kWh and the project does not have a BPA-approved proposal, the completion report must demonstrate that the project has a B/C ratio $\geq$ 0.5.
5. Option 2 custom projects must have a minimum B/C ratio of 1.0 at the invoice level, based on verified costs and savings.

[20] Customers wishing to return to Option 1 with the start of a new rate period must submit their request no later than September 1 immediately preceding the new rate period.

6. The BPA M&V Protocol Selection Guide (available in the Document Library) for custom projects must be used to select an appropriate M&V plan and documented in file. The implemented plan will be either (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 Guide, Engineering Calculations with a Verification Plan may be used for projects with an expected annual energy savings less than 200,000 kWh per year that qualify 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 Protocol Selection Guide and RTF Standard Savings Estimation Protocols.

4.5 Option 1 Custom Projects

4.5.1 Custom Project Proposal

Option 1 custom project proposals (a component of the Option 1 Custom Project Calculator) are not required unless the customer is applying for Large Project Funds or Progress Payments or is performing an Emerging Technology Demonstration Field Test Project.

Customers may, but are not required to, submit proposals to manage (1) energy savings risks (i.e., if BPA approves the M&V plan at the proposal stage and the M&V is carried out as stated in the plan, then BPA will accept the savings.**)** and (2) cost-effectiveness risks (i.e., customers can secure assurance of project eligibility based on proposed values (rather than the completion report values)). The customer may submit the Option 1 Custom Project Calculator and other supporting materials to BPA by emailing it to eedocs@bpa.gov or faxing to 1-866-535-7955 with the following tabs completed: “Project Information”, “Proposal” and “Measure Input” (all fields labeled “required for proposals”).

When a proposal is approved, BPA will notify the customer and e-mail the approved Option 1 Custom Project Calculator to the customer with the BPA-Assigned Project ID. This file must be saved and used by the customer for submittal of the completion report.

4.5.2 Custom Project Completion Report

Option 1 customers must submit a completion report to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955) in BPA’s Option 1 Custom Project Calculator with “Project Information”, “Measure Input” and “Completion Report” completed and provide supporting documentation for all custom projects.

When a completion report is approved, BPA shall notify the customer and email the approved Option 1 Custom Project Calculator to the customer. The customer must submit the BPA-approved calculator in the BPA Energy Efficiency Reporting System when requesting payment or reporting self-funding.

Note that Option 1 customers electing to submit non-reportable projects must do so using the Non-Reportable Custom Project Calculator.

4.5.3 BPA Review

Within 10 business days of receiving an Option 1 custom project proposal or completion report, BPA will review the proposal or completion report and either (1) accept the submittal, return the submittal for modification and resubmittal or (2) reject the submittal. BPA determination of acceptability of a completion report is based on the following criteria:

- Whether the Option 1 Custom Project Calculator and supporting documentation contain all required information
- Whether the project meets all requirements
- Whether verified energy savings are reliable (i.e., M&V was implemented per the approved M&V plan or M&V was appropriate for the project and consistent with BPA M&V Protocols)

For Option 1 projects without BPA-approved proposals and insufficient M&V, BPA will work with customers to adjust completion report savings, where appropriate and feasible. If it is not possible to make appropriate adjustments, the project will be rejected and is ineligible for reporting to BPA.

4.6 Option 2 Custom Projects

For Option 2 projects, BPA does not require or review proposals. Option 2 customers may apply for special BPA funding such as Progress Payments or Large Project Funds using the custom project proposal process for Option 1 custom projects, and if approved for such, the projects are Option 1 projects and must meet all requirements of Option 1 custom projects.

For all Option 2 projects, the customer must review and approve the completion report prior to customer submission of savings into the BPA reporting system. The completion report itself does not need to be submitted to BPA but must be retained in the customer file for oversight/evaluation. The completion report should also contain any information on additional quality control conducted on the project. To receive payment for a custom project, the customer must submit the Option 2 Custom Project Calculator through the BPA Energy Efficiency reporting system.

BPA may reject Option 2 projects that do not (1) have a completion report that contains all required information and demonstrates that project is consistent with the custom project requirements and (2) have verified energy savings that are reliable (i.e., M&V was implemented per the approved M&V plan or M&V was appropriate for the project and consistent with BPA M&V Protocols).

5. Custom Programs

Custom programs are a combination of similar projects, measures and/or end-users that have the same M&V or evaluation plan across the entire program. The scope of a custom program is multiple installations that may include one or more measures, or sectors[21] and may occur at one or more end-user sites.

5.1 Custom Programs Payment Rate

The total available BPA payment for an Evaluated Custom Program or project within a M&V Custom Program is equal to the lesser of (1) the BPA payment rate ($/kWh) or (2) the project cost cap.

The applicable BPA payment rate ($/kWh) is the rate in place at the time of Evaluated Custom Program approval or project start date for a project within a M&V Custom Program. BPA payment rate is calculated according to the table below:

Program Measure Type	Measure Life (Years)	Sector	Payment Rate (*$/kWh*)
Non-Residential Lighting	All	Agricultural Commercial Industrial	$0.18
Retrofit Construction (excluding Non-Residential Lighting)	1	All	$0.025
	2-3	All	$0.05
	4-19	Agricultural Industrial Utility Distribution	$0.25
		Commercial Residential	$0.20
	20+	All	$0.35
New Construction and Major Renovation (excluding Non-Residential Lighting)	1	All	$0.025
	2-3	All	$0.05
	4-19	Agricultural Residential Commercial	$0.27
		Industrial Utility Distribution	$0.25
	20+	Agricultural Commercial Industrial Residential	$0.35
		Utility Distribution	$0.25

Payment for all sectors is capped at 70% of the incremental cost. Eligible costs include measure costs (incremental measure costs, operations and maintenance costs) and program costs (implementation, evaluation and M&V).

Customers may request less than the available BPA payment.

Customers seeking partial self-funded credit on an evaluated program or project within an M&V Custom Program must (a) request a payment lower than the available BPA payment, (b) pay a portion of the available BPA payment with utility funds (self-funding), (c) enter the

[21] Savings must be reported separately for each sector.

actual program expenses (implementation, incentives and evaluation) in the custom program calculator and (d) retain proof of actual program expenses (payment to end-user and program costs) to substantiate the self-funding portion.

5.2 Custom Programs Requirements

Both Option 1 and Option 2 customers are eligible for custom programs, and both must meet the same requirements and follow the same process with BPA. Option 2 customers must use the custom program path when the BPA M&V protocols are insufficient to provide direction, including use of an impact evaluation to estimate savings or where the M&V protocols do not cover a specific measure/application/method.

Custom Programs must do the following:

1. Not result in fuel switching.
2. Contain only measures with a savings life of one year or more.

UES measures and calculated projects may be included in custom programs, on their own or in a program with other measures/projects, but must either (1) be included in the custom program M&V or evaluation and not use the UES/calculated savings value or (2) be reported through the UES/calculated path and netted out from the custom program savings.

There are two types of custom programs:

1. M&V Custom Program: Savings are estimated for individual sites based on M&V methodologies. M&V methods are based on the BPA M&V Protocol Selection Guide or RTF Standard Savings Estimation Protocols.

   M&V Custom Programs must be TRC cost-effective (TRC>1.0) at a calculator level.

2. Evaluated Custom Program: Savings estimation follows an impact evaluation plan, which may include a census or sample of the participants. Evaluation methods are known and tested for the specific measure/application. Evaluations must be, at a minimum, consistent with RTF Guidelines Section 5 (Impact Evaluation).

   Evaluated Custom Programs must be cost-effective at the program level (impact evaluation level) with TRC of 1.0 or greater based on verified costs and savings at the time of completion report and invoicing.

5.3 Custom Programs Approval and Modification Process

The customer must secure BPA's approval of its custom program or any modifications (including cancelation) thereto (e.g., new measures, measure exclusion, and M&V approach change).

Custom Program proposals must, at a minimum, contain[22] the following information:

1. Basic program information, including:
   a. Program name.
   b. Contact information: customer name, proposer contact information.
   c. Program summary, existing system and proposed system descriptions.
2. Documentation of baseline conditions.
3. A site-specific M&V plan or impact evaluation plan.
4. Proposed measure costs and savings.
5. Proposed program costs.
6. Estimated project-level cost effectiveness.
7. For M&V Custom Program, completion report submission requirements (e.g., approved reports prior to submission for all projects, some projects, or no projects).

The customer's request for approval must be sent to BPA (e-mail eedocs@bpa.gov or faxed to 1-866-535-7955) by submitting a Custom Program Calculator (available in the Document Library).

The customer may cease its custom program participation at any time using the COTR Request and Acknowledgment Procedure. BPA shall have no obligation for costs incurred for unreported savings.

Evaluation requirements differ for Evaluated and M&V Custom Programs, *but each evaluation plan must be customer funded unless otherwise directed by BPA*.

BPA may ask the customer clarifying questions during the approval process. Within 10 working days of the receipt of all documents (as listed below), BPA will e-mail the customer with its decision or a time-frame for a decision.

[22] Additional optional fields are included in the Custom Program Calculator.

5.4 Custom Programs Documentation and Reporting Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Custom Program Calculator	X	X	X
Evaluation Plan		X	X
Evaluation Report for completed evaluated program		X	X
End-user payment documentation (e.g. canceled check), if pass-through is required or for all projects requesting less than the total available BPA payment			X
Completion reports for M&V Custom Program projects, as defined in the proposal		X	X
For M&V Custom Programs, documentation of basic project information, baseline conditions, efficient measure conditions, description of M&V procedures used for the project (e.g., protocol used for estimating savings, calculations used, metering equipment, sampling) and deviations from planned M&V, detailed savings model including calculations and raw data if applicable, verified savings			X

Savings may be reported from projects that were completed prior to proposal approval, as long as those savings meet the savings estimation and reporting requirements.

The reporting requirements differ depending on whether the custom program is (1) M&V or (2) Evaluated.

1. M&V Custom Program

   The customer must conduct M&V in accordance with its approved M&V plan and must document the type and quantity of measures installed.

   Completed projects may be submitted for payment using the Custom Program Calculator for each project (including measure-specific results) no later than the reporting period immediately following project completion (i.e., when the project is installed and energy savings measured according to its M&V plan).The calculator will estimate the payment, consistent with the start date of each individual project.

   BPA will define M&V Custom Program completion report requirements at the proposal stage. Prior to customer submission in the BPA reporting system, BPA must approve the completion report to ensure alignment with the requirements given at proposal.

2. Evaluated Custom Program

   Prior to reporting in the BPA reporting system, the customer must submit a completed Custom Program Calculator and an evaluation report consistent with the previously approved evaluation plan.

   Payment is based on evaluated savings per the evaluation report.

   Upon conclusion of the program and approval of the final Custom Program Calculator and evaluation report, the COTR will direct the customer how to report the program savings to BPA.

6. Agricultural Sector

Please check the changes and corrections summary to see if revisions 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 livestock, 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).

Payment Summary*

Program Component or Measure	Payment
Freeze Resistant Stock Water Tanks/Fountains	$140.00-$225.00/tank or fountain
Irrigation-Related Measures	
o *Irrigation System Upgrades*	$0.75-$175.00
o *Scientific Irrigation Scheduling*	$5.20/acre
o *Irrigation Pump Testing and System Analysis*	$50.00-$300.00/test or analysis
Variable Frequency Drives in Agricultural Turbine Pump Applications	$60.00/horsepower
Transformer De-energization	$0.025/kWh or 70% of project incremental cost
New Agricultural Construction	See the custom projects payment table.
Other Agricultural Measures	See the custom projects payment table.
Multi-Sector Opportunities	
o *Green Motors Rewind Initiative*	$2.00/Horsepower
o *Non-Residential Lighting Program*	See the lighting calculators.
o *Engine Block Heaters*	$200.00-$1,500.00/unit
o *Limited Availability Emerging Technology Demonstration Field Test Projects*	See the custom projects payment table.
o *Variable Frequency Drives in Small Compressed Air System*	See the custom projects payment table.

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

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 have the following qualifications:

1. New (i.e., not home- or kit- made)
2. Enclosed, fully foam or dead air space insulated with the opening completely sealed in impact-resistance polyurethane
3. Possess elliptical or flap closures that tip easily so animals can drink without resistance
4. Sized in accordance with manufacturer's specifications for the type and number of animals for which it will be used
5. Hard-piped underground and stubbed up into the insulated portion of the fountain
6. Contain no electric heat
7. Possess a minimum five-year manufacturer defect warranty

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X

Payment

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 as listed in the UES Measure List (available in the Interim Solution 2.0 Files). Brass impact sprinklers shall be rebuilt by an established repair shop and shall meet or exceed manufacturers' specifications.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X

Payment

Sprinkler Equipment	Payment
Replace worn nozzle with new flow controlling type nozzle for impact sprinklers	$4.00/nozzle[i]
Replace leaking impact sprinkler with rebuilt or new impact sprinkler	$3.75/sprinkler[i]
New nozzle for impact sprinkler replacing existing worn nozzle of same flow rate or less	$1.50/nozzle[i]
New nozzle for center pivot and lateral moves	$1.00/nozzle
New rotating type sprinklers that replace impact sprinklers	$4.00/sprinkler[i]
Replace leaking pipe section and riser cap gaskets for wheel or hand lines or portable main line gasket with new gasket	$2.75/gasket
New low-pressure regulators	$5.00/regulator[i]
New rotating type sprinklers that replace low-pressure	$4.00/sprinkler[i]
New multiple configuration nozzles for low-pressure pivot[ii] sprinklers	$3.00/sprinkler[i]
New multi-trajectory sprays that replace impact sprinklers	$4.00/sprinkler[i]
New multi-trajectory sprays that replace low-pressure sprinklers	$1.00/sprinkler[i]
Replace leaking drain gaskets with new gaskets on wheel-lines, hand lines or pivots[ii]	$1.00/drain
New hubs for wheel-lines	$14.50/hub
New goose-neck elbow for new drop tubes (to convert existing sprinkler equipment mounted on top of the pivot[ii] to low-pressure sprinkler package)	$1.65/goose-neck
New drop tube for low-pressure pivot[ii] sprinklers (minimum three feet length)	$3.00/drop tube
Replace leaking center pivot base boot gasket with new gasket	$175.00/pivot
Pipe repair of leaking hand lines, wheel-lines and portable mainline	$10.00/pipe section
Rebuild or replace leaking or malfunctioning leveler with new or rebuilt wheel-line leveler	$0.75/leveler

[i] Rebate is limited to two units per sprinkled acre for solid set sprinklers.

[ii] Lateral moves are also included.

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, 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 Scientific Irrigation Scheduling M&V Calculator (available in the Document Library). 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.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Scientific Irrigation Scheduling M&V Calculator and data on measure costs, crop type, acreage and energy savings		X	X

Payment

BPA shall pay customers $5.20 per acre per year.

Irrigation Pump Testing and System Analysis (BPA Qualified)

Requirements and Specifications

- The irrigation pump must be electrically powered, 20 horsepower 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[23] must be performed by an individual possessing pump testing knowledge and experience.[24]
- Customers and qualified vendors must use the Irrigation Pump Testing and System Analysis BPA Screening Tool (available in the Document Library) 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.
  - Irrigation Pump Test and System Analysis:[25] Perform irrigation pump test and evaluate mainlines and critical sprinklers.
- Customers must deliver printed recommendation reports to the end user.

[23] 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.

[24] Pump tests performed by BPA engineers do not qualify for payment.

[25] 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.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Irrigation pump test and recommendation report			X
Completed "Agricultural Irrigation Pump Testing and System Analysis" tab in the BPA Qualified and Provisionally Deemed Input Sheet (available in the "other documents" section of the Document Library)		X	X

Payment

Test Type	Payment
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 in Agricultural Turbine Pump Applications (BPA Qualified)

Requirements and Specifications

This measure applies to pumping operations that deliver, distribute or transport irrigation water with qualifying VFDs from 20 to 500 horsepower. 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). BPA recommends that all new VFD installations meet the IEEE 519 standard. This measure provides an annual energy savings of 20% of the average of the previous three operating years' annual energy usage of the pump. Customers must use the Variable Frequency Drives in Agricultural Turbine Pump Applications - VFD Calculator to estimate savings (available in the Document Library). BPA no longer collects information for this measure from the BPA Qualified and Provisionally UES Input Sheet.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address.	X		X
Equipment/contractor invoice 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 and (c) cost.			X
Completed Agricultural Turbine Pump Applications VFD Calculator (available in the Document Library) regardless of completion date.		X	X

Payment

BPA shall pay $60.00 per installed horsepower.

Transformer De-energization

Requirements and Specifications

Transformer De-energization (TRX-DX) is disconnecting a transformer and downstream loads from the utility power supply during extended periods of agricultural inactivity and reconnecting prior to the irrigation season startup. TRX-DX applies to systems that serve only an agricultural load and must be submitted as an UES measure and have a one-year measure life.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Documentation of number of transformers de-energized, location of transformers, length of outage period and energy savings associated with each unit			X
Labor and mileage costs			X

Payment

BPA will pay the lesser of $0.025 kWh or 70% of the incremental project cost.

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.

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment 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.)

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment table.

Multi-Sector Opportunities

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

- Processes
- Measures and Initiatives
  1. Green Motors Rewind Initiative
  2. Non-Residential Lighting Program
  3. Engine Block Heaters
  4. Limited Availability Emerging Technology Field Test Projects
  5. Variable Frequency Drives in Small Compressed Air Systems

7. Commercial Sector

Please check the changes and corrections summary to see if revisions were made to any of the measures in this sector.

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Commercial Insulation 39
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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. The Commercial Sector includes multifamily buildings with five or more dwelling units within the same structure, and more than three stories.

Payment Summary*

Program Component or Measure	Payment
Commercial Custom Projects – Existing Buildings	See the custom projects payment table.
Commercial Lighting	See Multi-Sector chapter (except for LED Traffic Signals).
o *LED Traffic Signals*	$25.00-$30.00/traffic signal
Commercial HVAC	
o *Unitary Air Conditioning*	$45.00-$1,500.00/AC
o *Advanced Rooftop Unit Control Retrofit*	$150.00-$225.00/ton
o *Ductless Heat Pumps in Commercial Buildings*	$250.00/ton
o *Heat Pump Equipment Conversion and Upgrade in Commercial Buildings*	$100.00-$250.00/ton
o *Web-Enabled Programmable Thermostats*	$150.00-$800.00/thermostat
Commercial Shell Measures	
o *Retrofit Windows for Commercial Buildings*	$3.00-$6.00/square foot
o *Commercial Insulation*	$0.25-$1.85/square foot
Electric Water Heating	
o *Heat Pump Water Heating*	$300.00-$500.00/Heat Pump Water Heater
Commercial Refrigeration	
o *BPA ESG Program*	See the CLEAResult ESG Program rebate worksheet.
o *UES Refrigeration Retrofit Measures*	See the Document Library.
Commercial Kitchen and Food Service Equipment	
o *Demand Controlled Kitchen Ventilation*	$200.00-$400.00/Horsepower
o *Electric Commercial Steamers*	$50.00-$200.00/steamer
o *Hot Food Holding Cabinets*	$75.00-$200.00/cabinet
o *Electric Combination Ovens*	$500.00/oven
o *Electric Convection Ovens*	$300.00/oven
o *Commercial Electric Fryers*	$300.00/installation
o *Pre-rinse Spray Wash Valves*	$100.00/installation
Additional UES Offerings	
o *Networked Computer Power Management*	$10.00/workstation
o *ENERGY STAR Commercial Clothes Washers - Laundromats*	$25.00-$125.00/washer
o *Smart Power Strips – Load Sensing*	$15.00/strip
o *Commercial Showerheads*	$8.00-$11.00/showerhead
Commercial New Construction	
o *New Construction/Major Renovation*	See the custom projects payment table.
Multi-Sector Measures	
o *Electric Storage Water Heaters*	$25.00/Electric Storage Water Heater
o *Green Motors Rewind Initiative*	$2.00/Horsepower
o *Non-Residential Lighting Program*	See the lighting calculator.
o *Engine Block Heaters*	$200.00-$1,500.00/Engine Block Heater
o *Limited Availability Emerging Technology Demonstration Field Test Projects*	See the custom projects payment table.
o *Variable Frequency Drives in Small Compressed Air System*	See the custom projects payment table.
o *Commercial Clothes Washers – Multifamily Common Areas*	$25.00-$100.00/Clothes Washer
o *Multifamily, Multi-Sector Measures*	See the measure specific section.

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

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, existing building commissioning, high performance new building design and, in rare circumstances, some lighting projects.

Requirements and Specifications

These measures must be submitted as custom projects.

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment 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

Refer to the Non-Residential Lighting Program in the Multi-Sector Section for details on the lighting program, and stand-alone lighting measures.

LED Traffic Signals

Requirements and Specifications

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

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X

Payment

Traffic Signal Type	Payment
12-inch Left Turn Bay; 12-inch Thru Lane; Don't Walk	$30.00
8-inch Left Turn Bay; 8-inch Thru Lane	$25.00

Commercial HVAC

Non-UES HVAC opportunities are available only as custom projects.

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.

Additional information is also available on the CEE and AHRI Web sites.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Unitary Air Conditioning Business Owner Information Form (available in the Document Library) or other BPA-approved customer form		X	X

Payment

Measure payments by efficiency level and unit size are detailed in the table below. Though payments are the same across all cooling zones, each has a different reference number.

Category by Efficiency Tier and Unit Size Range (Btu/h; Tons)	CEE Tier	Payment ($/unit)
<65,000; <5.4	Tier 1	$45.00
	Tier 2	$75.00
≥65,000 and <135,000; 5.4-11.3	Tier 1	$125.00
	Tier 2	$200.00
≥135,000 and <240,000; 11.3-20.0	Tier 1	$250.00
	Tier 2	$400.00
≥240,000 and <760,000; 20-63.3	Tier 1	$700.00
	Tier 2	$1,200.00
≥760,000; >63.3	Tier 1	$1,250.00
	Tier 2	$1,500.00

Advanced Rooftop Unit Control (ARC) Retrofit (BPA Qualified)

Requirements and Specifications

Qualifying ARC Retrofit applications must meet the following requirements:

- The existing rooftop unit must have the following qualities:
  - Greater than five tons of cooling capacity
  - An existing economizer
  - Continuous operation during occupied hours
- The ARC Retrofit must have the following qualities:
  - Variable speed, multi-speed or cycling of the supply fan that meets ventilation and space conditioning needs
  - Digital, integrated economizer control

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Advanced Rooftop Unit Control Retrofit Information Form (available in the Document Library) or other BPA-approved customer form		X	X

Payment

Measure	Occupied Hours per Year	Payment per ton
Regular	2,000 – 4,000	$150.00
High occupancy	4,001 – 8,760	$225.00

Ductless Heat Pumps in Commercial Buildings (BPA Qualified)

Ductless Heat Pumps (DHPs) are BPA qualified to allow regional installations. These installations must be sufficient to support data collection for continued offer research and for potential future RTF simplified M&V approval. BPA will request customer billing data from qualified installations for purposes of program evaluation.

Requirements and Specifications

Qualifying applications for DHPs include those installed in commercial areas that meet the following requirements:

- The building (thermally isolated space) conditioned by the DHP has the following characteristics:
  - Less than 20,000 square feet of conditioned floor area
  - A construction date before 2009
- The zone conditioned by the DHP must have the following characteristics:

- o Electric resistance heat

- Installed DHPs must have the following characteristics:

  o An inverter driven outdoor compressor unit and a variable speed fan or indoor blower

  o Fully ductless

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Ductless Heat Pump Business Owner Information Form (available in the Document Library) or other BPA-approved customer form		X	X

Payment

Payment is $250.00 per ton of installed outdoor unit heating capacity for each DHP unit serving a qualified indoor space. To determine tonnage, divide installed BTU capacity by 12,000 and round up or down to the nearest tenth.

Heat Pump Equipment Conversion and Upgrade in Commercial Buildings (BPA Qualified)

Requirements and Specifications

The installed equipment must be an air to air heat pump system that meets CEE Tier 1 minimum efficiency level. The building in which the equipment is installed must have the following characteristics:

- An existing building (not new construction).
- 50,000 square feet or less conditioned building area.
- Consume less than 600,000 kWh annually.
- Electrically heated (buildings with gas heat are excluded).
- Have existing functional HVAC equipment.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address.	X		X
Equipment/contractor invoice 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 and (c) cost.			X
BPA Qualified Commercial Heat Pump Tool (available in the Document Library).		X	X
Equipment specification sheet (or BPA-approved alternative).			X

Payment

Measure Category	Payment ($/ton)
Resistance Heating to Tier 1 Premium Efficiency Heat Pump	$250.00
Heat Pump to Tier 1 Premium Efficiency Heat Pump	$100.00

Web-Enabled Programmable Thermostats (BPA Qualified)

Requirements and Specifications

Qualifying applications for Web-Enabled Programmable Thermostats (WEPT) include new and modified, existing WEPTs installed in commercial zones that meet the following requirements:

- Be installed in accordance with the manufacturer's instructions.
- Control the primary heating unit in the zone.
- Be capable of the following:
  - A limited duration occupied-period override.
  - A defined set-back schedule and temperature set-points during unoccupied periods (e.g., evenings, holidays and breaks).
  - Remote, web-based monitoring and programming.
- Have battery and memory back-up to retain settings during power or internet losses.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Web-enabled Programmable Thermostat Information Form (available in the Document Library) or other BPA-approved customer form		X	X

Payment

WEPT Type	Heating Type	Occupied Hours per Year	Payment
New WEPT	Electric	≤4,000	$800.00
New WEPT	Non-Electric	≤4,000	$700.00
New WEPT	Electric	>4,000	$600.00
New WEPT	Non-Electric	>4,000	$500.00
Modified, existing WEPT	Any	Any	$150.00

Commercial Shell Measures

Commercial Insulation

Requirements and Specifications

Insulation measures include wall and roof insulation in all commercial buildings that are electrically heated with resistance or air source heat pump (ductless heat pumps are included). Existing insulation values must be R-0. Specific measures are in the UES Measure List in the Interim Solution 2.0 Files by building use type, heating type, heating zone, location of insulation, and type of insulation.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Documentation of R-value and square footage of installed insulation			X

Payment per square foot of insulation

All Commercial (including K-8 Schools)			
	HZ1	**HZ2**	**HZ3**
Attic or Roof Insulation			
R-0 to R-19	$0.40	$0.60	$0.65
R-0 to R-49	$0.60	$0.70	$0.80
Wall Insulation			
R-0 to R-11	$0.25	$0.35	$0.40
R-0 to R-19	$0.40	$0.60	$0.65
K-8 Schools Only			
	HZ1	**HZ2**	**HZ3**
Attic Insulation			
R-0 to R-30	$0.50	$0.60	$0.65
Roof Insulation			
R-0 to R-30	$0.70	$0.80	$0.90
R-0 to R25 + R11	$1.20	$1.60	$1.85
Wall Insulation			
R-0 to R-9.5	$0.25	$0.35	$0.40

Retrofit Windows for Commercial Buildings (BPA Qualified)

Requirements and Specifications

Window retrofits must be performed in an existing commercial building that has the following characteristics:

- Electrically-heated
- Residential style wood-frame construction
- A total floor area under 5,000 square feet
- Pre-existing windows that are single pane or single pane with storms

The replacement windows must have a National Fenestration Rating Council rated U-value of 0.30 or lower.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Window Retrofit Program Business Owner Information Form (available in the Document Library) or other BPA-approved customer form		X	X
Documentation of U-value (specification sheets, NFRC stickers or other documentation)			X

Payment

Heating Zone	Payment/Square Foot of Window Replaced
1	$3.00
2	$6.00
3	$6.00

Electric Water Heating

BPA will pay customers for heat pump water heaters in some commercial settings. See also Electric Storage Water Heaters in the Multi-Sector chapter.

Heat Pump Water Heater (BPA Qualified)

Requirements and Specifications

Qualifying applications for Heat Pump Water Heaters include those installed in commercial areas that are listed on NEEA's HPWH qualified products list as meeting Tier 1 requirements of the Northern Climate Specification. At this time, Tier 2 Heat Pump Water Heaters are not included as a Commercial measure. If a customer believes a product should be on the list, and is not, it should use the COTR Request and Acknowledgement Procedure to request approval to use the product.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Commercial Heat Pump Water Heater Form (available in the Document Library) or other BPA approved customer form.		X	X

Payment

HPWH Tank Size	Payment
50-75 gallons	$300.00
Greater than 75 gallons	$500.00

Commercial Refrigeration

BPA EnergySmart Grocer (ESG) Program

Requirements and Specifications

The BPA ESG Program implemented by CLEAResult, installs energy efficiency measures in commercial refrigeration equipped facilities (see EnergySmart). CLEAResult processes and delivers rebate checks to end users, performs post-installation checks as required, manages required back-up documentation and reports installations to BPA.

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

Participating customers must (1) sign a participation agreement with CLEAResult and (2) deliver a completed ESG Program Sign-up Form (available in the Document Library) to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955). The sign-up form requires selection of the program option, funding amount and program scope. Changes to participation may be made by submitting a revised ESG Program Sign-up Form to BPA.

By selecting one or more scope add-ons, the customer may work with CLEAResult to implement custom projects in the selected areas. Custom projects completed under the ESG Program must follow the Option 1 requirements in the custom projects chapter, and CLEAResult will act in the role of the customer in approving, reviewing and submitting custom project documentation to BPA.

If customers decrease their funding amount or withdraw from a program component, they must notify CLEAResult at least 60 days in advance to verify that in-process projects have secured rebates. Customers may be able to decrease their funding amount or withdraw from a program component with less advance warning with CLEAResult's consent.

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 15th 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. Within the final quarter of the rate period, customers may still submit ESG Sign-up Form to BPA to increase or decrease funds up to the deadlines referenced below.

The following deadlines will be published with the end of the rate period deadlines in 2015:

- Last date to submit a revised FY15 ESG Program Sign-up Form to BPA;
- Last date to initiate a FY15 Performance Payment request for ESG savings;
- Last date to submit a FY15 ESG Performance Payment Form to BPA to claim ESG Performance Payments.

ESG Closeout

The current contract for the ESG program ends September 30, 2015. BPA will keep customers informed as decisions related to the program closeout become available.

Documentation Requirements

Self-funding customers must retain proof of payment for rebates on their behalf to end users in their service territory.

Payment

Payment rates for UES measures are available in CLEAResult's ESG Program rebate worksheet. Payment for custom projects follows the custom projects payment table.

Customers using BPA funds are eligible for a performance payment. To request a performance payment on ESG program, customers must e-mail their Energy Efficiency Representative requesting a report of eligible ESG savings and the ESG Performance Payment Form.

UES Refrigeration Retrofit Measures

Requirements and Specifications

UES refrigeration retrofit measures include auto-closers (walk-in and reach-in), anti-sweat heat controls, evaporator fan ECM controllers, doors for cases, gaskets, ECM motors, strip curtains, floating head on single compressors and open and reach-in case LEDs and de-lamping. These UES refrigeration measures are available for use outside of the ESG program. More complex refrigeration measures (i.e. measures from the savings calculator) are calculated through GrocerSmart4.0 software and are only available through the ESG program.

UES calculated measures remain available exclusively through the ESG Program.

Please refer to the UES Measure List (available in the Interim Solution 2.0 Files) for requirements and specifications. To locate additional details about the measures; sort by Sector (commercial) and End Use (refrigeration) in the drop-down menu.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X

Payment

Please refer to the UES Measure List available in the Interim Solution 2.0 Files for payment levels.

Commercial Kitchen and Food Service Equipment

BPA pays for a suite of high-efficiency commercial kitchen and food service electric equipment, including steamers, hot food holding cabinets, combination ovens, convection ovens, fryers and pre-rinse spray wash valves. All equipment must be new.

Demand Controlled Kitchen Ventilation (BPA Qualified)

Requirements and Specifications

Demand Controlled Kitchen Ventilation (DCKV) reduces fan speed during times of low activity or demand. Qualifying applications include new and modified existing exhaust hoods and the associated make-up air units installed in commercial zones that meet the following requirements:

- Installed in zones that contain a kitchen
- Control the primary ventilation and make-up air units in the zone
- Utilize one or more control sensors to modify the fan speeds

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed Demand Controlled Kitchen Ventilation Information Form (available in the Document Library) or other BPA-approved customer form		X	X

Payment

DCKV	DCKV Control Sensors	Payment/Horsepower of Fan
New or Retrofit	One	$200.00
New or Retrofit	Multiple	$400.00

Electric Commercial Steam Cookers

Requirements and Specifications

Measures must meet ENERGY STAR v1.2 requirements.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

Size	Payment
3 pan, 4 pan, 5 pan, or 6 pan	$50.00
10 pan	$200.00

Hot Food Holding Cabinets

Requirements and Specifications

Measures must meet ENERGY STAR v2.0 requirements.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

Size	Payment
Half	$75.00
Full	$200.00

Electric Combination Ovens

Requirements and Specifications

Measures must meet ENERGY STAR v2.0 requirements, and oven capacity must be between 6 and 20 pans.

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

BPA shall pay $500.00 per oven. Note that there are two measures for Combination Ovens: one for 6–15 pan ovens and one for 16-20 pan ovens.

Electric Convection Ovens

Requirements and Specifications

Measures must meet ENERGY STAR v2.0 requirements.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

BPA shall pay $300.00 per oven.

Commercial Electric Fryers

Requirements and Specifications

Measures must meet ENERGY STAR v2.0 requirements and be new.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

BPA shall pay $300.00 per fryer.

Pre-rinse Spray Wash Valves

Requirements and Specifications

The measure must be installed in a dishwashing facility and covers valves up to one gallon per minute. The existing spray valve must be regularly used every day of business. The spray valve must use hot water heated with an electric water heater. The measure requires direct installation (per the Measure Distribution Processes section in the Multi-Sector chapter) of a new nozzle.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
See the Measure Distribution Processes section in the Multi-Sector chapter.			X

Payment

BPA shall pay $100.00 per spray valve.

Additional UES Offerings

BPA pays customers for computer power management solutions and certain efficient commercial appliances and is developing additional UES measures.

Networked Computer Power Management

Requirements and Specifications

Networked Computer Power Management software must be installed in a commercial setting and 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); (b) monitor disk and central processing unit activity in determining whether a workstation is idle; and (c) apply specific power management policies to network groups.
3. Be compatible with multiple operating systems and hardware configurations in the same network.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
Documentation of software specifications demonstrating software meets requirements			X

Payment

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

ENERGY STAR Commercial Clothes Washers - Laundromats

Requirements and Specifications

The clothes washer must be ENERGY STAR and installed in a laundromat.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

Measure Name	Payment
Clothes Washers ENERGY STAR Electric Water Heater/Electric Dryer Laundromat	$125.00
Clothes Washers ENERGY STAR Electric Water Heater/Gas Dryer Laundromat	$100.00
Clothes Washers ENERGY STAR Gas Water Heater/Electric Dryer Laundromat	$75.00
Clothes Washers ENERGY STAR Gas Water Heater/Gas Dryer Laundromat	$25.00

Smart Power Strips - Load Sensing

Requirements and Specifications

Smart Power Strips must be distributed via direct install or by request per the Measure Distribution Processes section in the Multi-Sector chapter and (1) be installed in a commercial office setting and used in accordance with the manufacturer's instructions, (2) automatically switch off peripheral plug load from the control plug outlet and (3) prohibit false switching by incorporating resistor-capacitor circuit filters or equivalent.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements			X

Payment

BPA shall pay $15.00 per Smart Power Strip.

Commercial Showerheads

Requirements and Specifications

The showerhead must have a rated flow rate at 2.0 gallons (or fewer) per minute 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 or By Request per the Measure Distribution Processes section in the Multi-Sector chapter.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.			X

Payment

Measure Name	Payment
Showerheads, 1.5-2.0 Gallons Per Minute, By Request	$8.00
Showerheads, 1.5-2.0 Gallons Per Minute, Direct Install	$11.00

Commercial New Construction

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

New Construction and Major Renovation

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	International Performance Measurement and Verification Protocol Option D: Calibrated Model Simulation
	≤ 200,000 kWh/yr	BPA Protocols: Energy Calculations with Verification (ECwV)
Major Renovation	≥ 200,000 kWh/yr	International Performance Measurement and Verification Protocol Option D: Calibrated Model Simulation or The following BPA Protocols: • Energy Modeling • Verification by Energy Use Indexing
	≤ 200,000 kWh/yr	BPA Protocols: • End Use Equipment • Verification by Energy Use Indexing • ECwV
New Equipment	> 200,000 kWh/yr	BPA Protocols: • Equipment in New Construction • End Use Equipment • Verification by Energy Use Indexing
	≤ 200,000 kWh/yr	BPA Protocols: • Equipment in New Construction • End Use Equipment • Verification by Energy Use Indexing • ECwV

The project baseline annual energy usage helps establish the 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.

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment table.

Multi-Sector Opportunities

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

- Processes
- Measures and Initiatives
  1. Electric Storage Water Heaters
  2. Green Motors Rewind Initiative
  3. Non-Residential Lighting Program
  4. Engine Block Heaters
  5. Limited Availability Emerging Technology Field Test Projects
  6. Variable Frequency Drives in Small Compressed Air Systems
  7. Commercial Clothes Washers – Multifamily Common Areas
  8. Multifamily, Multi-Sector Measures

8. 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 section under which they are offered. Customers must report new projects under “federal,” and customers, rather than BPA, must provide incentive payments to end users.

9. Industrial Sector

Please check the changes and corrections summary to see if revisions 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.

Payment Summary*

Program Component or Measure	Payment
Custom Projects	See the custom projects payment table.
Energy Management Pilot	
o *Energy Project Manager*	See the payment section of this offering.
o *Track and Tune and High Performance Energy Management Projects*	See the payment section of this offering.
o *Strategic Energy Management Projects*	See the payment section of this offering.
o *Limited Availability Small Industrial High Performance Energy Management*	See the payment section of this offering.
Trade Ally Delivered Small Industrial Measures	See the custom projects payment table.
BPA Funded Technical Service Providers (TSP)	Not applicable
Variable Frequency Drives for Fans in Spud and Onion Storage Facilities	$200.00/horsepower
Multi-Sector Measures	
o *Green Motors Rewind Initiative*	$2.00/horsepower
o *Non-Residential Lighting Program*	See the lighting calculators.
o *Engine Block Heaters*	$200.00-$1,500.00/unit
o *Limited Availability Emerging Technology Demonstration Field Test Projects*	See the custom projects payment table.
o *Variable Frequency Drives in Small Compressed Air System*	See the custom projects payment table.

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

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 (ESIP) and offered the following program components:

- Industrial Custom Projects
- Energy Management Pilot: Energy Project Managers; Track and Tune Projects; High Performance Energy Management; and Limited Availability Small Industrial High Performance Energy Management
- Trade Ally Delivered Small Industrial Measures
- Northwest Trade Ally Network (Non-Residential Lighting Program)
- Technical Service Providers (TSP)
- VFDs for Fans 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 (ESIP): An ESIP (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 ESIP engagement, but, generally, the ESIP 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: 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
Develop M&V Plan.	ESIP, TSP or Customer	ESIP, TSP or Customer
Prepare Option 1 custom project proposal documents (optional).	ESIP or Customer	n/a
Submit Option 1 custom project proposal documents (optional).	Customer	n/a
Review Option 1 custom project proposal documents, if submitted.	BPA ESI Engineer, ESI program partner Quality Control Engineer and COTR	n/a
Provide technical advice to customer.	ESIP	ESIP
Develop custom project results data.	ESIP, TSP or Customer	ESIP, TSP or Customer
Prepare custom project completion documentation.	ESIP or Customer	ESIP or Customer
Submit custom project completion documentation to BPA.	Customer	Customer
Review custom project completion documentation.	BPA ESI Engineer, ESI program partner Quality Control Engineer and COTR	BPA ESI Engineer, ESI program partner Quality Control Engineer and COTR

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment 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, (3) High Performance Energy Management and (4) Limited Availability Small Industrial High Performance Energy Management. Effective October 1, 2015, the Strategic Energy Management requirements will supersede Track and Tune, High Performance Energy Management, and Small Industrial High Performance Energy Management requirements.

Required documents to be submitted by customer to BPA in support of ESI Energy Management projects must be sent to BPA by e-mail (as a link of the document from the secure, online ESI SharePoint site) to eedocs@bpa.gov or fax 1-866-535-7955.

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, UES lighting and High Performance Energy Management (HPEM), at the end users' facilities. A customer may request EPM co-fund approval by contacting BPA (e-mail eedocs@bpa.gov or 1-866-535-7955). The customer must send to BPA a link from the ESI SharePoint site by e-mail to eedocs@bpa.gov the executed EPM agreement between itself and the end user that, at a minimum, identifies an energy savings goal of at least 1,000,000 kWh of verifiable annual busbar energy savings per year and the end user's obligation to employ a qualified EPM.

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 sends to BPA by email eedocs@bpa.gov the executed EPM agreement, (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, UES 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 to 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 by e-mail eedocs@bpa.gov the EPM Comprehensive Plan (available in the Document Library) to the customer and BPA. 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, costs associated with attendance at ESI-sponsored annual EPM meeting, and associated direct costs (e.g., travel and training[26]), if known.[27]

   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.[28]

The EPM must submit either a secure link or status reports to the customer and BPA (e-mail eedocs@bpa.gov) describing (1) energy savings achieved and projected and (2) projects

[26] EPM training costs must be pre-approved by BPA 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 BPA. BPA will not pay customers for EPM time in a custom or Track and Tune project if that project was included in the EPM Comprehensive Plan.

[27] 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. Where an EPM term is less than 12 months, the eligible EPM costs must be based on pay records from the period between the EPM commencement date and BPA acceptance of the final project. Customers may include a performance incentive as a portion of the EPM's salary.

[28] T&T and HPEM first year savings and subsequent years' incremental savings may be applied toward the EPM savings goal.

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 six-month status update section 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 payment calculations.

Upon completion of the EPM Agreement, the customer may elect to extend the agreement for an additional 12-18 months by sending a request to BPA (e-mail eedocs@bpa.gov) including either a secure link of or the subsequent executed EPM agreement between the customer and end user for the second 12-18 month period that identifies an additional energy savings goal of at least 1,000,000 kWh of verifiable annual busbar energy savings and the end user's obligation to employ a qualified EPM. The customer must repeat the same process for the ensuing contract period including creating a new EPM Comprehensive Plan.

A customer may send a request to BPA (e-mail eedocs@bpa.gov) for consideration of BPA directly contracting with its end users to provide EPM funding. The request must include the following:

a. Documentation of the direct contract qualification, either because (a) the customer is prevented by charter or policy from contracting with its end users or (b) the EPM will be assigned to multiple facilities served by multiple customers

b. End-user information (name, address and contact information)

c. 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; $250,000.00; or an amount specified in the EPM agreement.

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 payment 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 paid the end user, the remaining budget will be returned to the customer's ECA implementation budget.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov	Customer File
Executed EPM agreement between customer and end-user		X	X
EPM Comprehensive Plan and status reports		X	X
EPM Calculator (available in the Document Library)	X		X

Payment

To receive payment, the customer must invoice BPA upon the end user reaching the milestones in the chart below. If the customer elects to renew the EPM for an additional period, the payment schedule repeats with the first payment starting with Payment No. 2. Customers are not obligated to return money already received.

Use the EPM Calculator (available in the Document Library) to calculate payment amounts.

Payment No.	Funding Amount	Milestone
1	$25,000.00[i]	Commencement Date
2	1/3 of the funding[ii] less previous payments	BPA approves the EPM Comprehensive Plan
3	2/3 of the funding[ii] 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 **actual** 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

[i] Payment No. 1 is issued in the first year of an EPM engagement to address initial recruiting and placement costs. In subsequent years of the engagement, the payment schedule begins with Payment No. 2. 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.

[ii] 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, (c) $250,000.00 or (d) an amount specified within the EPM agreement.

High Performance Energy Management & Track and Tune Projects (Optional Energy Management Pilot Feature)

Requirements

High Performance Energy Management (HPEM) and Track and Tune (T&T) Projects are optional energy management components of the ESI program. 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 performance incentives are available from BPA for verified savings from the HPEM Completion Report. T&T Projects are a combination of site or sub-system tune-ups that focus on operations and maintenance (O&M) opportunities for increased energy efficiency. Option 1 and Option 2 customers must follow the M&V requirements addressed in the ESI MT&R Reference Guide (available in the Document Library). The tables below describe the requirements for (1) enrollment and staffing, (2) performance period, (3) component implementation, and (4) savings reports.

Enrollment and Staffing

To enroll in the HPEM and T&T components, customer must meet these enrollment and staffing requirements outlined below.

Activity	HPEM *Develop energy management capabilities to drive the implementation of energy efficiency measures.*	T&T *Tune-up site or sub-system through no-cost or low-cost operations and maintenance (O&M) action items.*
Enroll. Send a request to BPA (e-mail eedocs@bpa.gov) and send a link from ESI SharePoint.	Required	Required
Appoint Energy Champion. The Energy Champion is a key contact person for the energy management continuous improvement process and implements energy efficiency measures.	Required	Required
Appoint Executive Sponsor. The Executive Sponsor is the management level supporter of the energy management system.	Required	n/a
Attend Energy Management Training. Classroom and onsite training develops the end user's energy management system. End users must present their energy efficiency implementation. Training sessions are confidential.	Required as follows: • Two employees must attend monthly HPEM training sessions during the performance period.	n/a

Performance Period

The customer must select a three-year or five-year performance period. The selected length of performance period determines the measure life and affects the T&T Performance Tracking System (PTS) maintenance budget.

	HPEM	T&T
Length	The customer may select either a three-year or five-year performance period. The Measure Life by Year lists the measure life by year for each of the performance period options.	
Performance Period Selection	Selection is made in first HPEM submission, Year-1 Completion Report.	Selection is made in first T&T submission, PTS Installation.

*Performance Period	Measure Life by Year					
	T&T Completion Report (T&T Only)	Year 1	Year 2	Year 3	Year 4	Year 5
3 year	1 year	1 year	1 year	3 year	n/a	n/a
5 year	1 year	1 year	1 year	1 year	1 year	6 year

Depending on the project type and customer request, BPA may allocate customers 75% of the calculated first-year savings. The remaining 25% verified energy savings from the first reporting period will be held and carried over to the second reporting period in order to increase the likelihood that booked energy savings persist.

	HPEM	T&T
Description	Customers will be credited with 75% of the verified energy savings as reported in the Year 1 HPEM Completion Report. Customers receive credit on the Year 2 Sustained Savings Report for sustained savings in excess of 75% of the Year 1 HPEM Completion Report verified energy savings.	Customers will be credited with 75% of the verified energy savings as reported in the T&T Completion Report. Customers receive credit on the Year 1 Sustained Savings Report for sustained savings in excess of 75% of the T&T Completion Report verified energy savings.
Requirement	Optional. BPA will allocate 75% of the calculated first-year HPEM savings, unless customer requests 100% in the Year 1 HPEM funding request.	Required

Component Implementation

The HPEM and T&T components generate energy savings through project implementation.

Activity	HPEM	T&T
Performance Tracking System (PTS)	n/a	Follow requirements in the Performance Tracking System (PTS) requirements table.
Energy Management System	Conduct an assessment of current energy management practices (e.g., does end user track, manage or reduce energy usage?). Establish an energy management policy with goals and an energy team to implement energy efficiency measures.	n/a
Implement Energy Efficiency Measures	Use continuous improvement practices (led by the energy team) to identify potential energy efficiency measures, implement energy efficiency measures, and evaluate the energy efficiency measures.	Follow requirements in the T&T Tune-up requirements section.

	Performance Tracking System (PTS) – T&T Only
Description	The PTS is metering hardware or electric energy data collection software that 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.
Requirements	1. Collect actual energy consumption and key energy driver variable data sufficient to predict energy consumption. 2. Provide data frequently enough to measure T&T changes.
PTS Design Approval	Prior to installing the PTS, BPA may approve the PTS to ensure that collected baseline data will sufficiently model baseline energy consumption. BPA approval is optional.
Verification	Prior to beginning tune-up activities, BPA will verify the PTS and collected baseline data sufficiently models baseline energy consumption.

	T&T Tune-up Requirements – T&T Only
Scoping	Energy Champion, with T&T Provider (BPA provided, in-house expert, ESIP) must perform scoping study that results in tune-up scoping and monitoring plan. The tune-up scoping and monitoring plan includes: 1. An estimate of savings potential 2. Recommendations for energy savings tracking 3. Determination of baseline electrical energy consumption 4. Proposal for follow-up technical services to tune-up the system 5. A secure link or the scoping study (submitted to eedocs@bpa.gov)
Tune-Up	1. Facilitate a tune-up with the T&T Provider (BPA provided, in-house expert, ESIP, or contracted provider), which generates an Action Plan Report. 2. Action items are low-cost energy savings activities identified and recommended in the T&T Action Plan Report that in aggregate produce cost-effective energy savings. The end user does not have to implement every implementable action item. 3. The Action Plan Report includes: ▪ A summary of the activities and results of the tune-up ▪ A plan to implement specific energy efficiency project action items ▪ A secure link or the Action Plan Report (prepared by T&T Provider) (submitted to eedocs@bpa.gov)
Action Item Implementation	Upon Action Item completion, the participating end user begins the action item verification period. After the action item verification period, the customer submits either a secure link or the T&T Completion Report to eedocs@bpa.gov.

Savings Reports

	HPEM	T&T
M&V Protocol	Both Option 1 and Option 2 customers must calculate verified energy savings following the M&V prescribed in the ESI MT&R Reference Guide (available in the Document Library).	
	HPEM energy savings may not include energy savings from other ESI program components BPA programs (e.g., custom projects, UES measures or T&T projects).	*T&T energy savings* may not include energy savings from other ESI program components BPA programs (e.g., custom projects, UES measures or HPEM projects).

Tracking	Establish and maintain a system to track energy use and energy savings, making available to BPA all information necessary to determine savings (e.g., electrical data, natural gas data, and production quantity).	Verify energy saved during the action item verification period (typically 90-days, using data collected by the PTS and production data, if necessary) and document the action items completed, implementation costs and verified energy savings in the T&T Completion Report (which must be submitted to customer and BPA).
Performance Period	The first year HPEM performance period starts no earlier than the date of the BPA HPEM Kick-off Workshop and no later than the first full monthly billing cycle following the workshop.	The first T&T year concludes the date the end user completes the implementation action items, no later than nine months following tune-up. After the performance period (typically 90 days), customers either send a secured link or the actual T&T Completion Report to BPA at eedocs@bpa.gov.
Sustain Savings.	• Customers are required to send either a secure link or the annual Completion Report to BPA at eedocs@bpa.gov documenting energy usage and unit production over the previous year. Annual completion reports document energy usage and unit production over the previous year.	

Documentation Requirements

Documentation Description	Due Date	HPEM	T&T	Retention/Submittal Locations		
				BPA Energy Efficiency Reporting System	eedocs@bpa.gov	Customer File
Signed Customer/ End-user Agreement (secure link or file)	At sign-up (HPEM) or prior to requesting PTS payment or Tune-Up Event (T&T) At sign-up	X	X		X	X
PTS design proposal (secure link or file)	Prior to requesting PTS payment Completion of T&T Scoping		X		X	
PTS installation invoice, and verification report (secure link or file)	Prior to requesting PTS payment		X		X	X
Tune-Up & Monitoring Plan (secure link or file)	Prior to requesting T&T Completion Payment		X		X	X
Action Item Plan	Prior to requesting T&T Completion Payment		X		X	X
Completion Report and supporting invoices (secure link or file)	After conclusion of 90-day T&T performance period		X		X	X

Annual Report (secure link or file)	Prior to annual payments	Completion Report	Sustained Savings Report		X	X
Calculator (secure link or file)	Prior to annual payments	HPEM Calculator	T&T Calculator	X		X
PTS Maintenance Invoice (secure link or file)	Prior to annual payments		X		X	X

Payment

The customer may invoice BPA when the end user reaches the milestones in the chart below. Use the T&T or HPEM Calculator (available in the Document Library) to calculate payment amounts.

Milestone	HPEM	T&T
For any payment, the customer may set a lower than allowable cap (i.e., select a payment smaller than the calculated payment).		
End user purchases and installs BPA-approved PTS.	n/a	> 4 Million kWh Baseline Lesser of the following: • Documented PTS costs • $0.0025 per kWh of estimated annual busbar-adjusted consumption • $50,000.00 =< 4 Million kWh Baseline Lesser of the following: • Documented PTS costs • $10,000.00
BPA Approves T&T Completion Report	n/a	• $0.075 per kWh of verified annual busbar-adjusted energy savings • 70% of documented action item costs
BPA Approves Annual Sustained Savings Report (Year 1-5)	$0.025 per kWh of verified annual busbar-adjusted energy savings for previous year. In the first year, the customer must also complete HPEM training.	Lesser of the following: • $0.025 per kWh of verified annual busbar energy savings
BPA Approves PTS maintenance payment (Year 1-5). The PTS maintenance budget is cumulative for the performance period. The customer can request an annual advance PTS maintenance payment.	n/a	Cumulative PTS maintenance payment > 4 Million kWh System Baseline Lesser of the following: • Documented PTS costs • If 5-year performance period, $0.0025 per kWh of estimated annual energy consumption • If 3-year performance period, $0.0015 per kWh of estimated annual energy consumption. • $50,000.00 =< 4 Million kWh System Baseline Lesser of the following: • Documented PTS costs • $10,000.00

Strategic Energy Management Projects (Optional Energy Management Pilot Feature) Effective October 1, 2015

Effective October 1, 2015, the Strategic Energy Management (SEM) requirements supersede the requirements for High Performance Energy Management, Track and Tune, and Small Industrial High Performance Energy Management components

Requirements

Strategic Energy Management (SEM) Projects are optional energy management components of the ESI program. SEM is designed to acquire energy savings by improving facilities' energy intensity through custom projects and operations and maintenance improvement. Annual performance incentives are available from BPA for verified savings from the annual Completion Report.

Option 1 and Option 2 customers must follow the M&V requirements addressed in the ESI MT&R Reference Guide (available in the Document Library). The tables below describe the requirements for (1) enrollment and staffing, (2) performance period, (3) component implementation, and (4) savings reports.

Enrollment and Staffing

To enroll in the SEM components, a customer must meet these enrollment and staffing requirements outlined below.

Activity	Requirement
Enroll	Send a request to BPA (e-mail eedocs@bpa.gov) and send a link from ESI SharePoint
Appoint Energy Champion	The Energy Champion is a key contact person for the energy management continuous improvement process and implements energy efficiency measures.
Appoint Executive Sponsor	The Executive Sponsor is the management level supporter of the energy management system.
Engagement	**Attend Energy Management Training** Classroom and onsite training develops the end user's energy management system. End users must present their energy efficiency implementation. Training sessions are confidential. Two employees must attend training sessions during the performance period. Or **Implement Action Items** *Tune-up site or sub-system through no-cost or low-cost operations and maintenance (O&M) action items.*

Performance Period

SEM projects are enrolled in two-year performance periods. The customer may enroll end users in consecutive performance periods.

	Measure Life by Year	
	Year 1	**Year 2**
Strategic Energy Management	1 year	1 year

Customers will be credited with 100% of the verified energy savings as reported in Year 1 of the SEM engagement.

Component Implementation

SEM generates energy savings through project implementation.

Activity	SEM Requirements
Performance Tracking System (PTS)	Follow requirements in the Performance Tracking System (PTS) requirements table.
Energy Management System	Assess of current energy management practices (e.g., does end user track, manage or reduce energy usage?). Establish an energy management policy with goals and an energy team to implement energy efficiency measures.
Implement Energy Efficiency Measures	Use continuous improvement practices (led by the energy team) to identify potential energy efficiency measures, implement energy efficiency measures, and evaluate the energy efficiency measures.

Optional – Performance Tracking System

	Performance Tracking System (Optional)
Description	The PTS is metering hardware or electric energy data collection software that 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.
Requirements	1. Collect key process energy performance indicators sufficient to predict energy consumption. 2. Provide data frequently enough to measure changes in energy performance.
PTS Design Approval	Prior to installing the PTS, BPA may approve the PTS to ensure that collected baseline data will sufficiently model baseline energy consumption. BPA approval is optional.
Verification	Prior to beginning tune-up activities, BPA will verify the PTS and collected baseline data sufficiently models baseline energy consumption.

Optional - Tune-up

	Tune-up (Optional)
Scoping	Energy Champion, with T&T Provider (BPA provided, in-house, ESIP) must perform scoping study that results in tune-up scoping and monitoring plan. The tune-up scoping and monitoring plan includes: **1.** An estimate of savings potential **2.** Recommendations for energy savings tracking **3.** Determination of baseline electrical energy consumption **4.** Proposal for follow-up technical services to tune-up the system **5.** A secure link or the scoping study (submitted to eedocs@bpa.gov)
Tune-Up	**1.** Facilitate a tune-up with the T&T Provider (BPA provided, in-house expert, ESIP, or contracted provider), which generates an Action Plan Report. **2.** Action items are low-cost energy savings activities identified and recommended in the T&T Action Plan Report that in aggregate produce cost-effective energy savings. The end user does not have to implement every implementable action item. **3.** The Action Plan Report includes: ▪ A summary of the activities and results of the tune-up ▪ A plan to implement specific energy efficiency project action items ▪ A secure link or the Action Plan Report (prepared by T&T Provider) (submitted to eedocs@bpa.gov)
Action Item Implementation	Upon Action Item completion, the participating end user begins the action item verification period. After the action item verification period, the customer submits either a secure link or the T&T Completion Report to eedocs@bpa.gov.

Savings Reports

	Requirement
M&V Protocol	Both Option 1 and Option 2 customers must calculate verified energy savings following the M&V prescribed in the ESI MT&R Reference Guide (available in the Document Library).
	SEM energy savings may not include energy savings from other ESI program components BPA programs (e.g., custom projects or deemed projects).
Performance Period	The Strategic Energy Management performance period starts **1.** No earlier than either: **a.** The Kick-off **b.** The end user begins action item implementation **2.** No later than the first full monthly billing cycle following either: **a.** The Kick-off **b.** The end user begins action item implementation.
Annual Completion Reports	Customers are required to send either a secure link to BPA at eedocs@bpa.gov documenting energy usage and unit production over the previous year. Annual completion reports document: • Energy usage and unit production over the previous year. • Energy efficiency measures implemented • SEM action items implemented Optional: SEM implementation costs (invoices).

Documentation Requirements

Documentation Description	Due Date	Retention/Submittal Locations		
		BPA Energy Efficiency Reporting System	eedocs@bpa.gov	Customer File
Signed Customer/ End-user Agreement (secure link or file)	Prior to requesting first payment		X	X
PTS design proposal (secure link or file)	Completion of T&T Scoping		X	
PTS installation invoice, design proposal and verification report (secure link or file)	Prior to requesting PTS payment		X	X
Annual Completion Report (secure link)	Prior to annual payments		X	X
SEM Calculator (secure link or file)	Prior to annual payments	X		X
PTS Maintenance Invoice (secure link or file)	Prior to annual payments		X	X

Payment

The customer may invoice BPA when the end user reaches the milestones in the chart below. Use the SEM Calculator (available in the Document Library) to calculate the payment amount.

Milestone	Payment
For any payment, the customer may set a lower than allowable cap (i.e., select a payment smaller than the calculated payment).	
End user purchases and installs PTS	<u>> 4 Million kWh System Baseline</u> Lesser of the following: • Documented PTS costs • $0.0025 per kWh of estimated annual energy consumption • $50,000.00 <u>=< 4 Million kWh System Baseline</u> Lesser of the following: • Documented PTS costs • $10,000.00
BPA Approves Annual Completion Report	Lesser of the following: • Supporting Invoices provided o $0.075 per kWh of verified annual busbar-adjusted energy savings o 70% of documented action item costs • No Invoice o $0.025 per kWh of verified annual busbar-adjusted energy savings
BPA Approves PTS maintenance payment	Lesser of the following: • Documented PTS costs • $10,000.00

Limited Availability Small Industrial High Performance Energy Management (Optional Energy Management Pilot Feature)

This limited availability Small Industrial High Performance Energy Management (SI HPEM) offering is designed to help 10 small industrial sites generate electrical energy savings through (a) operations and maintenance (O&M) improvements, (b) behavior-based changes, and (c) identification and implementation of custom projects.

Requirements and Specifications

Customers may nominate industrial end users with an annual, connected electric energy load between 1,000,000 kWh and 2.0 aMW by submitting a SI HPEM Utility Questionnaire (available in the Document Library) to the ESI program. From the qualifying nominations, the ESI program will work with customers to plan and conduct initial site visits prior to making the final selection of the 10 participants. Final SI HPEM participant selection is at BPA's discretion and will be based on:

1. Order nominated (first come, first served)
2. End user electric energy load (i.e., seeks a full range of eligible participants)
3. Geographic dispersion (i.e., seeks participants throughout BPA's service territory)
4. End user's readiness for energy management (e.g., stable process, available staff time, and continuous improvement programs)
5. Availability of data needed to model end user's energy consumption

If selected by BPA, a customer may enroll in the offering by sending a request to BPA (e-mail eedocs@bpa.gov or 1-866-535-7955) for enrollment. The customer must sign an SI HPEM agreement with the end user and report savings to BPA. The customer will send to BPA (a link from the secure, online ESI SharePoint site by e-mail to eedocs@bpa.gov;) the executed agreement and must demonstrate that the end user will meet the following requirements:

1. The end user must assign a staff member as Energy Champion, the point of contact for SI HPEM training. The assigned staff member is expected to complete assigned online SI HPEM training and attend at least one year of quarterly BPA SI HPEM training webinars.
2. Concurrent with SI HPEM training, and over the course of the SI 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:
   a. Establish energy management goals
   b. Implement energy efficiency activities and projects
   c. M&V

Option 1 and Option 2 customers must follow the SI HPEM requirements and report savings using one of the SI HPEM M&V Plans described below.

1. Top Down M&V Plan (two-year measure life): This M&V plan establishes and maintains an energy use data tracking system with an established baseline, energy use and energy savings and must follow the M&V requirements addressed in the ESI MT&R Reference Guide (available in the Document Library).
2. Bottom Up M&V Plan (one-year measure life): This M&V plan tracks and reviews indicators of improvement made to reduce energy usage. It applies short-term measurements of key performance indicators to calculate energy savings of discrete O&M improvement measures by using the BPA M&V Engineering Calculations with Verification Protocol (available in the Document Library).

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	**eedocs@bpa.gov**	**Customer File**
Executed SI HPEM agreement between customer and end user (secure link or file)		X	X
SI HPEM Completion Report (secure link or file)		X	X
SI HPEM Calculator (available in the Document Library)	X		X

Payment

To receive payment, the customer must invoice BPA upon the end user reaching the milestones in the chart below. Use the SI HPEM Calculator (available in the Document Library) to calculate the Year 1 payment amount.

Funding Period	M&V Plan	Funding Amount	Milestone
Year 1	Top Down M&V Plan	Not to exceed $0.025 per kWh of BPA verified MT&R energy savings for previous year*	End user completes HPEM training, implements a continuous improvement process program for energy management and BPA receives and approves annual SI HPEM Completion Report.
	Bottom Up M&V Plan	Not to exceed $0.025 per kWh of BPA verified energy savings for previous year*	End user completes HPEM training, implements a continuous improvement process program for energy management and BPA receives and approves annual SI HPEM Completion Report.
Year 2	Top Down M&V Plan	Not to exceed $1,000*	BPA approves customer submission of end-user model data (production and consumption)
	Bottom Up M&V Plan	NA	NA

*Customers may choose a funding amount up to the amounts listed.

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 ESIP is closely involved with Small Industrial Measures.

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment table.

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.

Documentation Requirements

There are no documentation requirements.

Payment

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

Variable Frequency Drives (VFD) for Fans in Spud and Onion Storage Facilities

Requirements and Specifications

Ventilation fan VFD installations in spud and onion storage facilities have a UES of 1,193 kWh per horsepower. BPA recommends that all new VFD installations meet the IEEE 519 standard.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X

Payment

BPA shall pay $200.00 per hp. To calculate the payment, the customer will add the total fan VFD horsepower installed on a per building basis.

Multi-Sector Opportunities

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

- Processes
- Measures and Initiatives
  1. Green Motors Rewind Initiative
  2. Non-Residential Lighting Program
  3. Engine Block Heaters
  4. Limited Availability Emerging Technology Field Test Projects
  5. Variable Frequency Drives in Small Compressed Air Systems (If customer does not enroll in ESI, it may use the RTF-approved NW Regional Small Compressed Air Calculator without technical assistance from BPA or ESI program partner.)

10. Residential Sector

Please check the changes and corrections summary to see if revisions 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 and all common areas within multifamily housing are considered commercial.)

* *Installations of High Intensity Discharge lighting in residential settings must be reported as commercial sector. See the Non-Residential Lighting Program.*

Payment Summary*

Program Component or Measure	Payment
Lighting	
o *General Purpose CFLs*	$1.00-$4.00/CFL
o *ENERGY STAR CFL Fixtures*	$10.00/fixture
o *LED Bulbs*	$4.00-$6.00/LED
o *LED Fixtures*	$ 10.00/fixture
Showerheads	$12.00-$20.00/unit
BPA *Simple Steps, Smart Savings* Retail Promotion	See the payment section of this measure.
Advanced Power Strips	$40.00-$60.00/unit
Appliances (New)	
o *ENERGY STAR Clothes Washers*	$20.00-$70.00/washer
o *ENERGY STAR Freezers*	$15.00/freezer
o *ENERGY STAR Refrigerators*	$5.00-$20.00/refrigerator
Refrigerator and Freezer Decommissioning	$100.00/unit
Electric Water Heating	
o *Heat Pump Water Heaters*	$300.00-$500.00/water heater
o *Pipe Insulation*	$5.00-$25.00/unit
HVAC Measures	
o *Ductless Heat Pumps*	$800.00-$1,200.00/unit
o *Ducted Systems*	See the payment section of this measure.
Line Voltage Electronic Thermostats	$115.00-$160.00/unit
New Construction	
o *New ENERGY STAR Manufactured Homes*	$850.00-$1,450.00/unit
o *New HIGH PERFORMANCE Manufactured Homes*	$4,500.00/unit
o *New ENERGY STAR/Built Green Single- family Homes*	See the payment section of this measure.
o *Montana House (v 2.0)*	$200.00-$1,500.00/unit
o *New Multifamily Construction*	$200.00-$500.00/unit
Weatherization (Standard Income)	
o *Insulation*	See the UES Measure List in the Document Library.
o *Prime Window and Patio Door Replacement*	$6.00-$8.00/square foot

o *Insulated Exterior Doors*	$40.00/unit
o *Whole House Air Sealing and Testing*	See the UES Measure List in the Document Library.
Low-income Weatherization, Ductless Heat Pumps and Duct Sealing	See the payment section of this measure.
Residential Custom Projects	See the custom projects payment table.
Multi-Sector Measures	
o *Electric Storage Water Heaters*	See the payment section in the Multi-Sector chapter.
o *Multifamily, Multi-Sector Measures*	See the measure specific section.

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

Lighting

ENERGY STAR CFLs and Fixtures

Requirements and Specifications

These measures are available for all types of residential buildings (single-family, manufactured and multifamily).

Compact Fluorescent Lamps (CFLs) and fixtures must be more than 5 watts, ENERGY STAR qualified; installed in a residential building 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).

General purpose and specialty CFLs are both eligible. Specialty CFLs are defined as the following screw-base bulbs: decorative and minibase; three-way; reflector; and outdoor CFLs. *Note: T-2s, A-lamps and dimmable CFLs are general purpose, not specialty.*

Customers may distribute CFLs and fixtures via Retail, By Request, Mailed Non-Request (bulbs only, limited to four CFLs per household per fiscal year), or Direct Install, per the Measure Distribution Processes section in the Multi-Sector chapter. CFLs distributed via Direct Install must replace incandescent or halogen bulbs. Direct Install measures are also categorized by the RTF using the Regional Building Stock Assessment (RBSA) as Exterior, Moderate/High-use interior or Low-use interior.

RBSA RoomType	RTF Category
Exterior	Exterior
Bedroom	Moderate and High-use Interior
Dining Room	Moderate and High-use Interior
Family Room	Moderate and High-use Interior
Garage	Moderate and High-use Interior
Kitchen	Moderate and High-use Interior
Laundry Room	Moderate and High-use Interior
Living Room	Moderate and High-use Interior
Master Bedroom	Moderate and High-use Interior
Bathroom	Low-use Interior
Closet	Low-use Interior
Hall	Low-use Interior
Office	Low-use Interior
Other	Low-use Interior

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.			

Payment

Type	Retail	By Request	Mailed Non-Request	Direct Install
General Purpose CFLs (includes dimmables)	$1.00	$2.50	$2.50	$4.00
Specialty CFL *(Decorative and minibase; Globe, reflector and outdoor, and three-way CFLs)*	$2.25	$4.00	$4.00	$5.50
ENERGY STAR CFL Fixture	$10.00	$10.00	na	$10.00

Effective October 1, 2015 Globe CFLs will be reclassified to the General Purpose category and the payment for General Purpose CFLs (Retail) will be reduced to $0.75.

Type	Retail	By Request	Mailed Non-Request	Direct Install
General Purpose CFLs (includes dimmables & globes)	$0.75	$2.50	$2.50	$4.00
Specialty CFLs: (Decorative and minibase; reflector & outdoor, and three-way CFLs)	$2.25	$4.00	$4.00	$5.50
ENERGY STAR CFL Fixture	$10.00	$10.00	n/a	$10.00

ENERGY STAR Solid-State Lighting/Light Emitting Diodes Bulbs and Fixtures

Requirements and Specifications

These measures are available for all types of residential buildings (single-family, manufactured and multifamily).

Solid state lighting, also known as light emitting diodes (LED) bulbs, must be ENERGY STAR qualified or listed on the Lighting Design Lab (LDL) Qualified LED Lamp List as integral omnidirectional, directional or decorative, with corresponding measures on the UES Measure List in the Document Library.

For LED fixtures, only LED downlight retrofit kit qualifies.

LED bulbs may be distributed via Retail, By Request, Mailed Non-Request (bulbs only, limited to four LEDs per household per fiscal year), or Direct Install per the Measure Distribution Processes section in the Multi-Sector chapter. LED fixtures[29] may be distributed via Retail only.

Direct Install measures are also categorized by the RTF using the Regional Building Stock Assessment (RBSA) as Exterior, Moderate/High-use interior or Low-use interior.

[29] LED fixtures via other delivery mechanism are pending development and review by the RTF.

RBSA RoomType	RTF Category
Exterior	Exterior
Bedroom	Moderate and High-use Interior
Dining Room	Moderate and High-use Interior
Family Room	Moderate and High-use Interior
Garage	Moderate and High-use Interior
Kitchen	Moderate and High-use Interior
Laundry Room	Moderate and High-use Interior
Living Room	Moderate and High-use Interior
Master Bedroom	Moderate and High-use Interior
Bathroom	Low-use Interior
Closet	Low-use Interior
Hall	Low-use Interior
Office	Low-use Interior
Other	Low-use Interior

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR/Lighting Design Lab product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.			

Payment

Type	Retail	By Request	Mailed Non-Request	Direct Install
LED Decorative and Minibase*	$4.00	$4.00	$4.00	$6.00
LED General purpose and dimmable, Globe, Three-way (Omnidirectional)*	$4.00	$4.00	$4.00	$6.00
LED Reflectors and Outdoor (Directional, includes R, PAR, BR, MR)*	$4.00	$4.00	$4.00	$6.00
LED Fixtures (LED downlight kit only)	$10.00	n/a	n/a	n/a

* Savings is determined by LED bulb type and lumen categories. See the UES Measure List in the Document Library for details.

Showerheads

Requirements and Specifications

These measures are available for all types of residential buildings (single-family, manufactured and multifamily).

Showerheads must have a gallon per minute (GPM) flow rate of 2.0 or less and may be distributed via Retail, By Request, or Direct Install per the Measure Distribution Processes section in the Multi-Sector chapter.

- Customers claiming the measures for showerheads By Request or Direct Install must document a request by the end user and water heater fuel type.
- Direct Install showerheads are only eligible in homes with electric water heat.
- All showerhead measures are limited to two showerheads per residence.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
Fuel source documentation (By Request or Direct Install showerheads)			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.			

Payment

Measure	Retail	By Request	Direct Install
All Showerhead measures	$12.00	$12.00	$20.00

BPA *Simple Steps, Smart Savings* Retail Promotion

Requirements and Specifications

The BPA *Simple Steps, Smart Savings* Retail Promotion, is implemented by a third party Simple Steps contractor (the Contractor). Current contact information may be found on the Residential Lighting Web site. The Contractor currently provides regional coordination of the delivery of retail CFLs, LEDs, lighting fixtures, showerheads, appliances and advanced power strips measures and offers bulk purchase, direct mail and direct install delivery options.

New retail appliance measures for refrigerators, freezers and clothes washers are now available for use through the Simple Steps Retail promotion. The Retail Sales Allocation Tool is used for allocation of savings to customers.

Participating customers receive credit for savings achieved in their service territory. Customers may participate by either signing a contract directly with the Contractor or by allocating ECA funds to the promotion through BPA. The participation options are described in the table below.

Participation Option	Requirements
Signing a contract directly with the Simple Steps Contractor	• Customers must sign a Promotion Services Agreement with the Contractor and pay the Contractor directly for qualified sales under that agreement. • Interested customers must contact the Contractor, contact information available on the Residential Lighting Website. Customers may use any funding source available under this option and may invoice BPA for eligible measures.
Allocating ECA funds to the promotion through BPA	• Customers must send to BPA (e-mail eedocs@bpa.gov or fax 1-866-535-7955) (1) a completed *Simple Steps, Smart Savings* ECA Implementation Budget Release Form (available in the Document Library) and (2) a sales projection provided by the Contractor. • Customers must commit to a funding period of a minimum of six months, or be approved for participation by the Contractor. The funding period may not exceed the rate period. • BPA will reduce the customer's ECA implementation budget by the allocated amount in the budget release form and will pay the Contractor for program incentives using these funds. • BPA will track savings, and the Contractor will send the customer monthly savings reports. • If actual sales are below the sales projection at the mid-point of the customer's selected funding period, BPA, the Contractor and the customer may work together to recommend corrective action. If sales are still below the sales projection at the third quarter of the funding period, at the customer's request, BPA will return the unused funds to the ECA implementation budget. If allocated funds have not been spent at the conclusion of the rate period, they will be returned to the customer's ECA implementation budget. • If actual sales are above the sales projection at the mid-point or at the third quarter of the customer's funding period, the customer may elect to add funds by submitting a new budget release form; if no funds are added, work in its service territory may be subject to curtailment. • If the Contractor fails to deliver according to its projection, the customer may terminate participation with 30 days notice to BPA using the COTR Request and Acknowledgement Procedure.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Proof of payment to Simple Steps contractor and copy of invoice for sales in service territory (self-funded customers, only).			X

Payment

Customers are paid according to the established payment levels for ENERGY STAR CFLs, CFL fixtures, LED bulbs, LED fixtures, showerheads and advanced power strips.
Retail appliances are paid according to the chart below.

Simple Steps Retail Appliance Measures	Retail
Any ENERGY STAR Refrigerator	$10.00
Refrigerator - CEE Tier 1	$5.00
Refrigerator – CEE Tier 2	$10.00
Refrigerator – CEE Tier 3	$20.00
Any ENERGY STAR Freezer	$15.00
Any ENERGY STAR Clothes Washer (any water heater)	$20.00
Clothes Washer MEF 2.20 – 2.45 (must be Energy Star qualified) (any water heater)	$20.00
Clothes Washer MEF 2.46+ (any water heater)	$20.00

Effective October 1, 2015 the freezer measures for Upright Freezers will be expired. The Any Freezer measures will remain.

Effective October 1, 2015 ENERGY STAR refrigerator, freezers and clothes washer measures will be expired and replaced with new measures (including the new retail refrigerator, freezer and clothes washer measures). ENERGY STAR Top Load Clothes Washers with an IMEF of less than 2.38 will not qualify. Savings and payment will change. Please see the Residential Appliance Measures Changes effective 10/1/15 in the Document Library.

Simple Steps Retail Appliance Measures	Retail
Any ENERGY STAR Refrigerator (7.75 cubic feet or larger)	$10.00
Refrigerator - CEE Tier 1 (7.75 cubic feet or larger)	$5.00
Refrigerator – CEE Tier 2 (7.75 cubic feet or larger)	$10.00
Refrigerator – CEE Tier 3 (7.75 cubic feet or larger)	$30.00
Any ENERGY STAR Freezer (7.75 cubic feet or larger)	$15.00
Any Front Load ENERGY STAR Clothes Washer Any water heater	$20.00
Any Top Load ENERGY STAR Clothes Washer (IMEF 2.38+) Any water heater	$20.00
Any Clothes Washer - CEE Tier 1 Any water heater	$20.00
Any Clothes Washer - CEE Tier 2 Any water heater	$30.00
Any Clothes Washer - CEE Tier 3 Any water heater	$40.00

Advanced Power Strips

Requirements and Specifications

This measure is available for all types of residential buildings (single-family, manufactured and multifamily).

The Residential Advanced Power Strip measure is an infrared remote sensing strip that reduces power consumption of home entertainment centers by shutting off power to the main device (television) and controlled peripherals when no infrared remote signal is detected for a predetermined period of time. This measure must be used on home entertainment centers only (TV with any combination of peripherals)

Qualified products are on the Advanced Power Strip Qualified Products List and may be distributed via Retail, By Request, or Direct Install. (If a customer believes a product should

be on the list, and is not, it should use the COTR Request and Acknowledgement Procedure to request approval to use the product.)

A qualified Advanced Power Strip must meet the following qualifications:

- Infrared remote sensing
- Consume less than 1W of energy
- One-year warranty and any length warranty for connected devices
- Surge protection to 740 joules
- UL1449 listed
- Rated for 15 amps
- Resettable circuit breaker
- Customers shall deliver a short Advanced Power Strip survey (By Request or Direct Install only) to gather data on this measure to help move it to a proven UES measure. Customers shall deliver the survey or an online hyperlink to the online version of the survey within 30 days of distributing an Advanced Power Strip. A Word version of the APS End User Survey is available in the Document Library and is also available as an APS End User Survey Monkey tool. Contact your EER for more information.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Equipment/contractor invoice 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 and (c) cost			X
See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.			
Completed end-user surveys received for APS delivered via By Request or Direct Install. This survey is available in the Document Library and is also available as an APS End User Survey Monkey tool.		X	

Payment

Measure	Retail	By Request	Direct Install
Advanced Power Strip	$40.00	$40.00	$60.00

Appliances (new)

Requirements and Specifications

These measures are available for all types of residential buildings (single-family, manufactured and multifamily).

Appliances must be ENERGY STAR qualified.

New Retail delivered appliance measures for refrigerators, freezers and clothes washers have been added to the Simple Steps Retail promotion. The Retail Sales Allocation Tool is used for allocation of these retail savings to customers. See the Simple Steps section for

details. See the Measure Distribution Processes section in the Multi-Sector chapter for additional requirements.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X
Documentation of water heater fuel and clothes dryer fuel (applies to clothes washers only, and when claiming measures with fuel-specific savings) Customers who are able to document the absence of natural gas within their service territory (through a statement or map provided by the public utilities commission or equivalent regulatory body) may claim Clothes Washer electric domestic hot water heater/electric dryer without the verification of water heater or dryer fuel type.			X

Payment

The payment differs for each type of appliance, listed below

Appliance	Payment
Any ENERGY STAR Refrigerator	$5.00
Refrigerator – CEE Tier 1	$5.00
Refrigerator – CEE Tier 2	$10.00
Refrigerator – CEE Tier 3	$20.00
Freezers 7.75 cubic feet or greater	$15.00
Any ENERGY STAR Clothes Washer (electric water heater)	$30.00
Clothes Washer MEF 2.20-2.45 electric water heater)	$50.00
Clothes Washer MEF 2.46+ (electric water heater)	$70.00
Clothes washers with gas/unknown water heater	$20.00

Effective October 1, 2015 the freezer measures for Upright Freezers will be expired. The Any Freezer measure will remain.

Effective October 1, 2015 ENERGY STAR refrigerator, freezer and clothes washer measures will be expired and replaced with new measures (including the new retail measures). ENERGY STAR Top Load Clothes Washers with an IMEF of less than 2.38 will not qualify. Savings and payment will change. Please see the Residential Appliance Measures Changes effective October 1, 2015 in the Document Library.

Appliance	Payment
Any ENERGY STAR Refrigerator (7.75 cubic feet or larger)	$10.00
Refrigerator – CEE Tier 1 (7.75 cubic feet or larger)	$5.00
Refrigerator – CEE Tier 2 (7.75 cubic feet or larger)	$10.00
Refrigerator – CEE Tier 3 (7.75 cubic feet or larger)	$30.00
Freezers 7.75 cubic feet or greater (7.75 cubic feet or larger)	$15.00
Any Front Load ENERGY STAR Clothes Washer (electric water heater)	$30.00
Any Top Load ENERGY STAR Clothes Washer IMEF 2.38+ (electric water heater)	$30.00
Any Clothes Washer – CEE Tier 1 (electric water heater)	$30.00
Any Clothes Washer – CEE Tier 2 (electric water heater)	$50.00
Any Clothes Washer – CEE Tier 3 (electric water heater)	$60.00
Any Front Load ENERGY STAR Clothes Washer (gas/unknown water heater)	$20.00
Any Top Load ENERGY STAR Clothes Washer IMEF 2.38+ (gas/unknown water heater)	$20.00

Refrigerator and Freezer Decommissioning

Requirements and Specifications

These measures are available for all types of residential buildings (single-family, manufactured and multifamily).

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

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Disposal/recycling documents (from recycler) for each unit			X
Disposal/recycling summary (from recycler)			X

Payment

BPA shall pay $100.00 per unit.

Effective October 1, 2015 the savings for Refrigerator Decommissioning will decrease and savings for Freezer Decommissioning will increase. Payment for both measures will be reduced to $80.00.

Electric Water Heating

BPA will pay customers for electric storage water heaters, heat pump water heaters and pipe insulation. See Electric Storage Water Heaters in the Multi-Sector chapter.

Effective October 1, 2015 Residential Electric Storage Water Heater measures will expire.

Heat Pump Water Heater (Provisionally Deemed)

Requirements and Specifications

Effective April 1, 2015, BPA will no longer provide payment for AirGenerate and Electrolux Heat Pump Water Heaters. These products have been removed from the HPWH Qualified Product list due to ongoing equipment issues.

- Only new construction and existing single-family homes qualify for the heat pump water heater (HPWH) payment. In existing homes, the HPWH must replace an electric storage water heater.
- HPWHs must be (1) listed on the HPWH Qualified Products List and (2) installed, according to manufacturer's specifications. The installer must have received installation training from the manufacturer of the installed HPWH equipment, if available. (If a customer believes a product should be on the list, and is not, it should use the COTR Request and Acknowledgement Procedure to request approval to use the product.)

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Heat Pump Water Heater Form (available in the Document Library)		X	X

Payment

Tier, Tank Size	Payment
Tier 1, 50-75 gallons	$300.00
Tier 1, greater than 75 gallons	$500.00
Tier 2, 50 gallons or greater*	$500.00

*Tier 2 tanks installed in conditioned space with tank not ducted must use Tier 1 measures.

Pipe Insulation (BPA Qualified)

Requirements and Specifications

This measure is available for all types of residential buildings (single-family, manufactured and multifamily) with an electric water heater. Customers may claim only one measure per project.

Both Short and Whole House insulation measures must meet the following requirements:

- Hot and cold pipes must be insulated with a minimum of R-3 closed cell foam insulation for at least the first three feet past the water heater and if accessible, up to six feet adjacent to the water heater
- Insulation material, any jackets or facing and adhesive (if used) must have a flame spread/smoke density rating in accordance with ASTM E-84

- Pipe insulation must not cover pressure relief values, any handles, safety drain valves or any other safety control device
- All pipe elbows and joints must be mitered to ensure coverage to the same thickness as straight runs
- Pipe insulation must be secured with twine, corrosion resistant wire, or plastic compression ties every 12 inches and within 3 inches of the ends.

For the Whole House insulation measure, insulation must be installed on all accessible hot water pipes. If hot water pipes (trunk and branch lines) are already covered with floor or attic insulation, the project is not eligible.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID, address, and water heater fuel type			X
Equipment/contractor invoice 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 and (c) cost			X

Payment

Application	Payment
Short (3-6 foot minimum, hot and cold water pipes)	$5.00
Whole House (trunk lines and all exposed hot water pipe)	$25.00

HVAC Measures

This section covers the following:

- Ductless Heat Pumps (DHP)
- Ducted Systems

Ductless Heat Pumps (provisionally deemed)

Requirements and Specifications

- BPA will pay customers for one DHP per existing residence with electric resistance heating as the primary heating system. Qualifying applications include the following:
    - Single-family residences with zonal electric heat, including hydronic systems (provisionally UES)
    - Single-family residences with electric forced air furnaces, with or without air conditioning (BPA qualified)
    - Manufactured homes with zonal electric heat (BPA qualified)
    - Manufactured homes with electric forced air furnaces, with or without air conditioning (BPA qualified)
- The DHP must be (1) a split system heat pump employing inverter-driven outdoor compressor, with inverter-driven or variable-speed indoor blowers, (2) listed on BPA's

DHP Qualified Product List and (3) installed, according to manufacturers' specifications and the Northwest DHP Project Best Practices Guides, by a contractor who attended a Northwest Ductless Orientation and received installation training from the manufacturer of the installed DHP equipment. (If a customer believes a product should be on the list, and is not, it should use the COTR Request and Acknowledgement Procedure to request approval to use the product.)

- Ducted indoor DHP units do not qualify.
- Homes with electric forced air furnaces are eligible for PTCS or Prescriptive Duct Sealing.
- The system must meet a Heating Seasonal Performance Factor (HSPF) requirement of 9.0 for single head systems and 8.0 for multi-head systems.
- Homes where plug-in electric heaters are the primary heating system in the home qualify for BPA DHP payment. The customer should determine if a weather-related heating signature exists that demonstrates electric resistance heating use.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Ductless Heat Pump Installation Form (or other form(s) that contain the same information) (available in the Document Library)			X

Payment

Building Type	Existing Heating System Type	Payment
Single-family Homes	Zonal electric heat	$800.00
	Electric forced air furnace	$1,200.00
Manufactured Homes	Zonal electric heat	$800.00
	Electric forced air furnace	$1,200.00

Ducted Systems

Effective October 1, 2015 PTCS and Prescriptive Duct Sealing measures for New Construction Single-Family homes will be expired. PTCS duct sealing measures with Cooling Zones and HVAC details will be expired and replaced with updated measures summarizing Cooling Zone and HVAC to "Electric Heat".

Effective October 1, 2015 PTCS and Prescriptive Duct Sealing measures must be sealed according to the "PTCS Duct Sealing Specification" or "Prescriptive Duct Sealing Specification", both dated April 1, 2015.

Effective October 1, 2015 Open Loop Ground Source Heat Pumps must be installed according to the "PTCS Ground Water Source Open Loop Heat Pump Installation Specification" dated April 1, 2015.

Measures include new high-efficiency heat pump upgrades; heat pump conversions; ground source heat pump systems installed to PTCS specifications; PTCS commissioning and controls for heat pumps of any efficiency; PTCS duct sealing; and prescriptive duct sealing.

Requirements and Specifications

The following requirements apply:

- Installations may be in new construction single-family, existing single-family or existing manufactured homes. Primary heating system requirements are listed in the measure table below.
- PTCS work must be performed by a technician certified in PTCS, or an approved alternative (listed in the PTCS Program Requirements), and the technician must be certified as PTCS in the online registry. PTCS specifications and forms are available here.
- Prescriptive Duct Sealing must be performed by a technician certified in Prescriptive Duct Sealing, or an approved alternative (listed in the Prescriptive Duct Sealing Program Requirements), and must be certified in Prescriptive Duct Sealing in the online registry. Prescriptive Duct Sealing specifications and forms are available here.
- Heat pump equipment must be AHRI tested and certified. Manufacturer claims of "equivalent to AHRI certified equipment" will not be accepted.
- All eligible installations must be entered into the online registry.
- Installations must comply with one of the following specifications. All specifications are available in the Document Library and on the BPA Residential HVAC webpage:
    - Air Source and Variable Speed Heat Pumps must be installed according to the "PTCS Air Source Heat Pump Installation Specification" dated June 11, 2013;
    - Closed Loop Ground Source Heat Pumps must be installed according to the October 4, 2011 "Ground Source Heat Pump System Installation Standards";
    - Open Loop Ground Source Heat Pumps must be installed according to April 15, 2007 "Ground Source Heat Pump System Installation Standards";
    - PTCS Duct sealing must be done according to the April 2009 version of "Performance Tested Comfort Systems® Duct Technical Specifications"; or
    - Prescriptive Duct Sealing must be done according to the April 8, 2014 Prescriptive Duct Sealing Specification.
- In existing homes with two independent and electrically-heated duct systems, each duct system is eligible for duct sealing and a PTCS air source heat pump, provided all other program requirements are met.
- Where a home is hydronically heated, an electric resistance water heater is considered equivalent to an electric furnace.

The table below outlines additional requirements, which apply to the following measures: air-source heat pump upgrades and conversions, commissioning and controls, ground source heat pump systems, PTCS duct sealing, and Prescriptive duct sealing. All documentation and requirements are also posted online.

Air-Source Heat Pump Upgrades and Variable Speed Heat Pump Upgrades	• Heat pump must be rated as having a minimum of 9.0 HSPF and 14 Seasonal Energy Efficiency Ratio (SEER). • Heat pump upgrades include replacing an existing heat pump, adding a heat pump to a non-electric heating system (i.e., gas/oil/propane/wood), replacing the heat pump portion of a ground source heat pump system, or upgrading from zonal to air-source heat pump. • Homes with heated floor area greater than 4,500 square feet or with two separate duct systems may claim up to two heat pump measures when two qualifying heat pumps are installed provided all other program requirements are met.
Electric Forced-Air Furnace to Air-Source Heat Pump Conversions and Variable Speed Heat Pump Conversions	• Heat pump must be rated as having a minimum of 9.0 HSPF and 14 SEER. • The installation must convert an electric forced air furnace to a high efficiency heat pump. • Homes with heated floor area greater than 4,500 square feet or with two separate duct systems may claim up to two heat pump measures when two qualifying heat pumps are installed provided all other program requirements are met.
Commissioning, Controls and Sizing	• This measure may be applied to any new heat pump that meets federal standards, found here. • This measure cannot be claimed in combination with any other heat pump measure.
Ground Source Heat Pump Systems	• This measure is only available for existing and new construction single-family homes in heating zones 2 and 3. • For existing homes, only ground source heat pumps replacing an electric forced air furnace, an electric boiler used for hydronic heating, or an air source heat pump qualify. For new construction homes, the baseline is considered to be an electric forced air furnace. Projects which only replace the heat pump portion of an existing ground source heat pump system should be claimed using the Air-Source Heat Pump upgrade measure (see above). • All system components must be newly installed. The replacement of an existing ground source heat pump unit or the thermal exchange loop does not qualify. • Ground source 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 technician certified in PTCS (or an approved alternative found in the PTCS Program Requirements) and IGSHPA. • Only one ground source heat pump per home qualifies for BPA payment. Ground source heat pumps may be connected to hydronic heating systems in residential end-use applications if all PTCS and IGSHPA specifications are met.
PTCS Duct Sealing	• New and existing single-family homes and existing manufactured homes are eligible for PTCS duct sealing provided the ducts are connected to electric heat. • For manufactured homes, pre-existing duct leakage to the outside must be greater than 100 CFM_{50} for single-wide homes or 75 CFM_{50} leakage per section for multi-section homes (e.g., double wide 150 CFM_{50}, triple wide 225 CFM_{50}). • For existing single-family homes, pre-existing duct leakage to the outside must be greater than 250 CFM_{50} or 15% of the floor area, whichever is less. • For new single-family homes, the home must be new construction and occupied for less than a year. Pre-existing duct leakage test is not required. • Homes with two independent, electrically-heated duct systems may claim up to two duct sealing measures provided all other program requirements are met.

Prescriptive Duct Sealing	• New and Existing Single-family homes and Existing Manufactured homes are eligible for prescriptive duct sealing provided the home is electrically heated. • Prescriptive Duct Sealing measures are treated as PTCS measures for all documentation and Quality Assurance (QA) purposes, including the online registry. • Homes with two independent and electrically-heated duct systems may claim up to two duct sealing measures, provided all other program requirements are met.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	Site Registry	Customer File
End-user identifying information including unique site ID and address	X		X
PTCS site registry measure ID	X	X	
Equipment/contractor invoice 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 and (c) cost			X
Proof that the required form(s) for the claimed measure have been accepted in the PTCS site registry of certified systems		X	
Heat pump/Duct sealing relevant forms/certificates (forms are available in the Document Library): • PTCS Air Source or Ground Source Heat Pump Form (handwritten form completed by technician) and • AHRI certificate, and • Documentation of size (e.g., PTCS Heat Pump and Central Air Conditioner Sizing Calculator) Duct sealing measures: • PTCS or Prescriptive Duct Sealing Form (handwritten form completed by technician)			X

Payment

Measure Category		Payment
Heat Pump Upgrade to Air-Source or Variable Speed Heat Pump		$500.00
Conversion from Electric Forced-Air Furnace to Air-Source or Variable Speed Heat Pump		$1,400.00
Commissioning, Controls and Sizing		$300.00
Ground Source Heat Pump Systems	Single-family homes only – HZ 2-3 (for cost-effective applications)	$3,000.00
	Add desuperheater to a qualified ground source heat pump installation (HZ 2-3 only)	$500.00
Duct Sealing, PTCS or Prescriptive	Manufactured and new single-family homes	$200.00
	Existing single-family homes	$250.00

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 according to the current National Electric Code and must meet the following requirements:

- Have a digital display
- Be electronically anticipated
- Have a thermistor temperature sensing element accurate to within 1.5º or better

- Be UL or CSA listed for use with their application (i.e. fan-forced, baseboard, wall or ceiling radiant).

In addition, programmable thermostats must maintain temperature and program settings during power failures and have a temporary override feature.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
Written statement from end user that all thermostats (except those in bathrooms) have been replaced			X

Payment

Payments are per home as listed in the table below.

Heating Zone	Payment
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 and is operated by Northwest Energy Works. Contact Brady Peeks of Northwest Energy Works (888) 370-3277 ext. 102 for current information.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
NEEM ENERGY STAR certificate of compliance			X

Payment

Heating Zone	Payment
1	$850.00
2	$1,150.00
3	$1,450.00

New HIGH PERFORMANCE Manufactured Homes

Requirements and Specifications

Manufactured homes must be new electrically-heated and designed, constructed and certified by NEEM as HIGH PERFORMANCE Manufactured Homes.

NEEM has an online tracking and certification system and is operated by Northwest Energy Works. Contact Brady Peeks of Northwest Energy Works (888) 370-3277 ext. 102 for current information.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
NEEM HIGH PERFORMANCE Certificate of compliance			X

Payment

BPA shall pay customers $4,500.00 per home.

New ENERGY STAR/Built Green Single-family Homes

Requirements and Specifications

Single-family homes must be new and certified compliant with Northwest ENERGY STAR Homes standards by the state certifying organization or NEEA-approved RESNET Provider. Built Green opportunities must meet Northwest ENERGY STAR Homes standards. Current specifications for options below may be found on the Northwest ENERGY STAR website.

BPA will accept claims for homes built to the following standards:

- ENERGY STAR Builder Option Package #1 for homes with gas heat or a heat pump(s) (OR, ID, MT)
- ENERGY STAR Builder Option Package #2 for homes with zonal electric heat (OR, ID, MT)
- The ENERGY STAR Northwest Performance Path using the Northwest REM/Rate Modeling Software (OR, ID, MT, WA)

When the Northwest Performance Path is used to certify a home, the ENERGY STAR Home certificate will indicate the appropriate measure to use for claiming the BPA payment.

Qualifying measures differ by state.

Northwest ENERGY STAR single-family homes may use one of the approved Technical Compliance Options (TCO) listed in the table below. All TCOs in the table below must use Building Option Package #1.

State	Home Type	TCO
OR	Gas	Natural-Gas-Fired Hydronic Heating System
	Heat Pump	Hybrid "Ductless-Split" Heat Pump/Electric Resistance Zonal Heat
		Packaged Terminal Heat Pump/Electric Resistance Zonal Heat
ID/MT	Gas	Natural-Gas-Fired Hydronic Heating System
	Heat Pump	Hybrid "Ductless-Split" Heat Pump/Electric Resistance Zonal Heat
	Heat Pump or Gas	Unvented Crawlspaces
WA	Heat Pump	Hybrid "Ductless-Mini-Split" Heat Pump/Electric Resistance Zonal Heat

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

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Certification label from Northwest ENERGY STAR Provider organization that includes the name of the ENERGY STAR/Built Green home verifier/rater.			X

Payment

BPA shall pay customers as shown in the table below.

Home Type	State	Specification	Payment/Home
Northwest ENERGY STAR Homes*	ID, MT, OR, WA	• Zonal Electric Heat, ID, MT, and OR only • DHP/Zonal Electric Heat TCO** • PTCS Heat Pump	$1,500.00
		Gas Heat (electric savings only) ID, MT, and OR only	$200.00

* Built Green 4 Star Homes, in WA, are equivalent to Northwest ENERGY STAR Homes and should be claimed as such.

** Homes built to the DHP/Zonal Electric Heat TCO should be claimed as Heat Pump Home built to Building Option Package 1.

Montana House (v 2.0)

Requirements and Specifications

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

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Builder information (name and contact information)			X
HVAC system details (type of equipment, ventilation system, specific measures installed including rated CFM); foundation type; and home square footage			X
Report of inspections performed by the customer, including any substantial findings and documentation of any corrective actions taken			X

Payment

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

Measure	Payment
Shell Upgrade only	$1,500.00
Air-Source Heat Pump	$300.00
Duct Sealing (prescriptive)	$200.00
Commissioning & Controls (customer verified)	$200.00

New ENERGY STAR Multifamily Construction

Requirements and Specifications

New residential multifamily construction may be made more efficient than code or standard practice per the Northwest Energy Star Homes Multifamily program. The following Builder Option Packages are available in the Document Library.

- The Northwest Multifamily Builder Option Package 1 (NWBOP1 MF) applies to multifamily units with gas heat or an air source, packaged terminal, or ductless mini-split heat pump.
- The Northwest Multifamily Builder Option Package 2 (NWBOP2 MF) applies to multifamily units with zonal electric heat.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Northwest ENERGY STAR certificate documenting that the building meets or exceeds the ENERGY STAR Multifamily specification described in NW Multifamily BOP 1 or BOP 2			X

Payment

ENERGY STAR Multifamily Specification	Heating System	Payment
NWBOP 1 MF	Gas	$200.00
NWBOP 1 MF	Heat pump*	$500.00
NWBOP 2 MF	Zonal electric	$500.00

*Heat pump includes air-source, ground source, packaged terminal and ductless heat pumps.

Weatherization (Standard Income)

Effective October 1, 2015, current insulation, prime windows and patio doors, and whole house air sealing measures will be expired and replaced with updated savings and payments. The payment for Prime window replacement measures for single family and manufactured homes will be reduced to $3.00/$4.00 per square foot. Please see the October 2015 Weatherization Measure Changes found in the Document Library. Prescriptive Air Sealing and Exterior Insulated Door measures will not be changed.

Weatherization measures include insulation, prime window replacement, insulated exterior doors and air sealing. All weatherization measures must be installed according to the 2014 BPA Residential Weatherization Specifications in the Document Library.

Weatherization measures must be installed in electrically heated homes with an electric heating system as the primary system (see definitions); or homes must have one of the following as an existing heating system:

1. A permanently-installed electric heating system with either (a) no other functioning non-electric heating system or (b) a wood stove, pellet stove, fireplace, fireplace insert (wood or pellet) or wood furnace
2. An electric heat pump system integrated with a non-electric heating system (e.g., natural gas, propane, or wood supplementary/backup system)
3. A wood stove or pellet stove with no other non-electric space heating system, accompanied by the current usage of plug-in electric space heaters
4. An electric heat system and a separate functional or non-functional, non-electric space heating system (i.e. oil, natural gas, or wood furnace) with the entire non-electric space heating system decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected. System equipment includes furnace, air-handler, fuel lines, fuel tanks (abated in compliance with local code). If, however, construction limitations prevent the removal of the entire non-electric system (or other portions of the space heating equipment), then the remainder of the system must be decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected.

Insulation

Effective October 1, 2015, current insulation, prime windows and patio doors, and whole house air sealing measures will be expired and replaced with updated savings and reimbursements. Please see the October 2015 Weatherization Measure Changes found in the Document Library.

Requirements and Specifications

This measure is available for all types of residential buildings (single-family, manufactured and multifamily).

Insulation measures must be installed according to the 2014 BPA Residential Weatherization Specifications found in the Document Library.

Insulation	Home Type	Existing is:	Installed will be (minimum values):
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
		R-19 to R-38	R-49
	Multifamily	Less than R-11	R-19, R-38 or R-49
		R-11 to R-19	R-38 or R-49
		R-19 to R-38	R-49
	Manufactured	Less than R-11	R-19
		Less than R-11	R-30
		R-11 to R-19	R-30
Wall Insulation	Single-family	Closed cavity – none present	Closed cavity – R-11 or fill cavity
		Open cavity – none present	Open cavity – R-13*
	Multifamily	Closed cavity – none present	Closed cavity – R-11 or fill cavity
		Open cavity – none present	Open cavity – R-13*
	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 or R-30
		R-11 to R-19	R-30
	Manufactured	Less than R-11	R-11 or R-22
		R-11	R-22

* Open cavity or unfinished walls (e.g., knee walls in attic spaces) must fill to R-13 minimum. Refer to the Weatherization Specifications in the Document Library.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Documentation of pre and post insulation R-values and square footage of installed insulation			X
A description of home type (single-family, multifamily or manufactured)			X

Payment

Payments and busbar energy savings for specific measures are available in the UES Measure List in the Interim Solution 2.0 Files.

Prime Window and Patio Door Replacement

Effective October 1, 2015, current insulation, prime windows and patio doors, and whole house air sealing measures will be expired and replaced with updated savings. The payment for Prime window replacement measures for single family and manufactured homes will be reduced to $3.00/$4.00 per square foot. Please see the October 2015 Weatherization Measure Changes found in the Document Library.

Requirements and Specifications

Pre-existing windows and patio doors must be (1) single pane with/without storms, any frame type (e.g., metal, wood, vinyl), or (2) double pane, metal frame only. The weighted average of replacement windows must have a National Fenestration Rating Council (NFRC) minimum U-value of 0.30 or 0.22 for windows; 0.35 or 0.30 for patio doors. Multifamily does not qualify for 0.22 windows or 0.30 patio doors at this time.

Window and patio door measures must be installed according to the 2014 BPA Residential Weatherization Specifications found in the Document Library.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
NFRC stickers or other verifications of U-value			X
Documentation (a) of number and square footage of windows or patio doors replaced (b) pre condition (frame type, ie. wood, metal, single/double pane) and (c) post condition U-value			X
Description of home (single-family, multifamily or manufactured)			X

Payment

Home Type	Existing Window or Patio Door Condition	Installed Average U-Factor	Payment (Square foot of glazing)
Single-family or Manufactured	Single pane window, any frame type or double pane window, metal frame type	0.30	$6.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.35	$6.00
	Single pane window, any frame type or double pane window, metal frame type	0.22	$8.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.30	$8.00
Multifamily	Single pane window, any frame type or double pane window, metal frame type	0.30	$6.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.35	$6.00

Effective October 1, 2015 payment on window measures will be reduced (see table below).

Payment (effective October 1, 2015)

Home Type	Existing Window or Patio Door Condition	Installed Average U-Factor	Payment (Square foot of glazing)
Single-family or Manufactured	Single pane window, any frame type or double pane window, metal frame type	0.30	$3.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.35	$3.00
	Single pane window, any frame type or double pane window, metal frame type	0.22	$4.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.30	$4.00
Multifamily	Single pane window, any frame type or double pane window, metal frame type	0.30	$6.00
	Single pane patio door, any frame type or double pane patio door, metal frame type	0.35	$6.00

Insulated Exterior Doors (BPA Qualified)

Requirements and Specifications

This measure is available for existing single-family or manufactured homes. Multifamily does not qualify at this time.

The door must be a pre-hung ENERGY STAR qualified door, include replacement of the threshold and replace an un-insulated or otherwise substandard (e.g., from a thermal perspective) exterior door.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo. (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.)			X
Documentation of number of doors replaced and pre and post conditions.			X
Description of home type (single-family or manufactured)			X

Payment

BPA shall pay $40.00 per door.

Whole House Air Sealing and Testing

Effective October 1, 2015, current insulation, prime windows and patio doors, and whole house air sealing measures will be expired and replaced with updated savings and reimbursements. Please see the October 2015 Weatherization Measure Changes found in the Document Library.

Requirements and Specifications

- Whole house air sealing requires the use of a blower door to measure and identify air leakage locations in the home. Mechanical ventilation may be required.
- If PTCS duct sealing is performed at the same time as air sealing, the baseline blower door CFM_{50} reading for the whole house air sealing and testing 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.
- 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 present or be installed.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Documentation of the following conditions are required: • Pre and post conditions CFM_{50} (CFM at 50 Pascals) • Total square footage of the pressure zone tested and sealed (typically this is the interior space (conditioned) heated floor area of the home) • Building volume • Notes on mechanical ventilation requirement • Age and description of home type (single family/manufactured)			X

Payment

BPA payment is based on the reduction in air infiltration per reduction in CFM_{50}, rounded to the nearest whole number. Payments and busbar energy savings are available in the UES Measure List in the Interim Solution 2.0 Files.

Total Payment = Quantity x Payment

Quantity = Difference between pre and post CFM_{50}

Prescriptive Air Sealing

Requirements and Specifications

This measure is available for existing single-family homes only. Multifamily and manufactured homes do not qualify at this time.

Prescriptive air sealing must be done according to the checklists found in sections 4.2 and 6.2 of the BPA Residential Weatherization Specifications Effective October 1, 2014 in the Document Library.

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 present or be installed.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Documentation of square footage of area air sealed (attic and/or crawlspace) air sealed and the age of home			X

Payment

Payments and busbar energy savings are available in the UES Measure List in the Document Library and are based on the square footage of the area where prescriptive air sealing is performed.

Low-income Weatherization, Ductless Heat Pumps and Duct Sealing

Low-income household eligibility is defined in the Federal Weatherization Assistance Program as 200% of the poverty income levels. Approved statewide eligibility definitions may substitute for federally established low income levels, if provided.

Customers shall retain documentation of the total number of individuals in the household and proof that the end user's income eligibility was reviewed from a verifiable source.[30]

Customers may use the eligible measures listed below to run low-income weatherization programs themselves, through an implementation firm or Community Action Program agency, but must retain responsibility for and control over the program.

Requirements and Specifications – Low Income Weatherization

Effective October 1st, 2015, current insulation, prime windows and patio doors, and whole house air sealing measures will be expired and replaced with updated savings. Please see the October 2015 Weatherization Measure Changes found in the Document Library. Prescriptive air sealing and exterior door measures will not be changed.

All housing types (single family, manufactured and multifamily) are eligible for low income weatherization, although not all measures are applicable to each housing type. See chart below for eligible measures.

All weatherization measures must be installed according to the 2014 BPA Residential Weatherization Specifications in the Document Library and follow the Specification, Requirements and Documentation requirements as listed under Weatherization (Standard Income) above.

To be eligible, homes must have an electric heating system as the primary system (see definitions); or homes must have one of the following as an existing heating system:

[30] "Verifiable" refers to any documentation that can be verified by another source (e.g. pay stub, copies of IRS form 1040, Section 8 eligibility, certification by a CAP agency, etc.)

1. A permanently-installed electric heating system with either (a) no other functioning non-electric heating system or (b) a wood stove, pellet stove, fireplace, fireplace insert (wood or pellet) or wood furnace
2. An electric heat pump system integrated with a non-electric heating system (e.g., natural gas, propane, or wood supplementary/backup system)
3. A wood stove or pellet stove with no other non-electric space heating system, accompanied by the current usage of plug-in electric space heaters
4. An electric heat system and a separate functional or non-functional, non-electric space heating system (i.e. oil, natural gas, or wood furnace) with the entire non-electric space heating system decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected. System equipment includes furnace, air-handler, fuel lines, fuel tanks (abated in compliance with local code). If, however, construction limitations prevent the removal of the entire non-electric system (or other portions of the space heating equipment), then the remainder of the system must be decommissioned, removed, all penetrations sealed, and all fuel (electric, gas, oil) connections to the decommissioned heating system disconnected.

Requirements and Specifications – Low Income HVAC (Ductless Heat Pumps and Duct Sealing)

Single family and manufactured homes are eligible for low-income Ductless Heat Pump and Duct Sealing.

Low income HVAC measures must be installed according to the corresponding Ductless Heat Pump and Duct Sealing Specifications in the Document Library and follow the Specification, Requirements and Documentation requirements as listed under Ductless Heat Pump and Duct Sealing (Standard Income) sections above.

The table below summarizes eligible measures, which must be individually reported to BPA.

Documentation Requirements

Documentation Description	Retention/Submittal Locations			
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	PTCS Site Registry	Customer File
End-user identifying information including unique site ID and address	X			X
Documentation of total number of individual's in the household and documentation that the end user's income eligibility was reviewed from a verifiable[31] source (e.g. paystub, Section 8 voucher, etc.)				X
Equipment/contractor invoice 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 and (c) cost of installed measures, and (d) cost of any related repairs				X
Description of home type (single-family, multifamily or manufactured)				X
Insulation (if installed): square feet and pre/post R-value documentation				X
Prime window/Patio door: (a) number and square footage of windows or patio doors replaced, (b) pre-condition (frame type/ ie. Wood, metal, single/double pane) and (c) NFRC stickers or other verification of U-values.				X
Exterior insulated doors: Documentation of number of doors replaced				X

[31] "Verifiable" refers to any documentation that can be verified by another source (e.g. pay stub, copies of IRS form 1040, Section 8 eligibility, etc.)

Documentation Description	Retention/Submittal Locations			
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	PTCS Site Registry	Customer File
and pre and post conditions.				
Ductless Heat Pumps: DHP Installation form				X
PTCS or Prescriptive Duct Sealing Form (handwritten form completed by technician)				X
PTCS/Prescriptive Duct Sealing information entered into the PTCS Site Registry			X	
PTCS site registry measure ID	X		X	

Payment

BPA allows customers to report costs directly attributable to the installation of the measure as eligible for dollar-for-dollar payment (except as noted in the table below, not to exceed 100% of actual cost). This includes any cost incurred for meeting requirements and specifications (e.g. verification of income, attic and crawl space ventilation, removal of knob & tube wiring, underfloor moisture barriers).

Customers may also report costs related to repair work directly associated with the installation of the measure that is required for health and safety or to ensure the efficacy of the measure (e.g. replace rotting wood in window frame, repair hole in roof). Repair costs must be documented on contractor invoices and reported separately.

Customers may combine funding sources within a residence, but may not combine funding from multiple BPA sources for the same measure.

Home Type	Low Income Qualifying Measure	Installed Measure Cost Payment - dollar for dollar (except as noted)	Repair Cost Payment - dollar for dollar (examples provided)
Single-family	Attic Insulation (up to R49)	Dollar for dollar	*Examples include: repair roof leak, re-build external entrance covering, fix hole in siding*
	Floor Insulation (up to R30)	Dollar for dollar	
	Wall Insulation (up to R11)	Dollar for dollar	
	Prime Window	Dollar for dollar, not to exceed $20.00/square foot	*Examples include: address dry-rot in window framing, replace rotten threshold, repair cracked header*
	Patio Door	Dollar for dollar, not to exceed $20.00/square foot	
	Exterior Insulated Door	Dollar for dollar, not to exceed $400.00/door	
	Whole House Air sealing	Dollar for dollar	*Examples include: re-frame attic access hatch, repair pull-down stair*
	Prescriptive Air Sealing	Dollar for dollar	
	PTCS duct Sealing	Dollar for dollar	*Examples include: replace rusted duct work, repair broken filter slot*
	Prescriptive Duct Sealing	Dollar for dollar	
	Ductless Heat Pump	Dollar for dollar, not to exceed $3,800.00	*Examples include: improve structural support for interior head*

Home Type	Low Income Qualifying Measure	Installed Measure Cost Payment - dollar for dollar (except as noted)	Repair Cost Payment - dollar for dollar (examples provided)
Multifamily	Attic Insulation (up to R49)	Dollar for dollar	*Examples include: repair roof leak, re-build external entrance covering, fix hole in siding*
	Floor Insulation (up to R30)	Dollar for dollar	
	Wall Insulation (up to R11)	Dollar for dollar	
	Prime Window	Dollar for dollar, not to exceed $20.00/square foot	*Examples include: address dry-rot in window framing, replace rotten threshold, repair cracked header*
	Patio Door	Dollar for dollar, not to exceed $20.00/square foot	
Manufactured	Attic Insulation (up to R30)	Dollar for dollar	*Examples include: repair roof leak, re-build external entrance covering*
	Floor Insulation (up to R22)	Dollar for dollar	
	Prime Window	Dollar for dollar, not to exceed $20.00/square foot	*Examples include: address dry-rot in window framing, replace rotten threshold, repair cracked header*
	Patio Door	Dollar for dollar, not to exceed $20.00/square foot	
	Exterior Insulated Door	Dollar for dollar, not to exceed $400.00/door	
	Whole House Air sealing	Dollar for dollar	*Examples include: install whole-house ventilation fan*
			Examples include: replace rusted duct work, repair broken filter slot
	PTCS Duct Sealing	Dollar for dollar	
	Prescriptive Duct Sealing	Dollar for dollar	
	Ductless Heat Pump	Dollar for dollar, not to exceed $3,800.00/DHP	*Examples include: improve structural support for interior head*

Residential Custom Projects

Requirements and Specifications

Residential custom projects may be submitted using the custom projects process.

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment table.

Multi-Sector Opportunities

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

- Processes
- Measures and Initiatives
  1. Electric Storage Water Heaters
  2. Non-Residential Lighting Program (High Intensity Discharge lighting, only, reported as commercial sector)
  3. Engine Block Heaters
  4. Limited Availability Emerging Technology Field Test Projects
  5. Commercial Clothes Washers – Multifamily Common Areas
  6. Multifamily, Multi-Sector Measures

11. 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 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 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.

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

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 (optional)	TSP	n/a	Customer or TSP	n/a
Custom project proposal submittal (optional)	Customer	n/a	Customer	n/a
Custom project proposal review, if proposal is submitted	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

Documentation Requirements

See the custom projects documentation requirements.

Payment

See the custom projects payment table.

12. Multi-Sector

Please check the changes and corrections summary to see if revisions were made to any of the measures in this sector.

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Measures and Initiatives 109
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ENERGY STAR Commercial Clothes Washers – Multifamily Common Areas 117
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This section contains general information applicable across sectors.

Payment Summary*

Program Component or Measure	Payment
Electric Storage Water Heaters	$25.00/heater
Green Motors	$2.00/horsepower
Non-Residential Lighting Program	See the lighting calculators.
Engine Block Heaters	$200.00-$1,500.00/unit
Limited Availability Emerging Technology Field Test Projects	See the custom projects payment table.
Variable Frequency Drives in Small Compressed Air System	See the custom projects payment table.
Commercial Clothes Washers – Multifamily Common Areas	$25.00-$100.00/unit
Multifamily, Multi-Sector Measures	See the specific measure section.

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

12.1 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 its request.

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

Measure Distribution Processes

Measures requiring distribution may allow one or more of the following distribution methods: Retail, By Request, Mailed Non-Request and Direct Install. Allowable distribution methods are listed in the specific measure section, and the requirements herein apply.

Distribution Type	Requirements and Specifications	Documentation Description (Retain in Customer File)
Retail	Retail mechanisms include in-store markdowns midstream/upstream promotions and coupons. See specific measure for complete requirements and specifications.	For in-store markdown or midstream/upstream promotions customers must submit a store sales report or invoice detailing: date period for sales, sales by store location, qualified product make, model and manufacturer sufficient to assign corresponding energy efficiency measure. Reports must document the allocation methodology when a store serves multiple customers. Retail appliance, showerheads and advanced power strip measures must be reported using the Retail Sales Allocation Tool. 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) provide store
By Request	Applies to other delivery mechanisms that include distributing products "over the counter", at events, or otherwise directly to the end user upon their request. The customer must document the request by the end user. Also applies to reimbursing end users for a qualified purchase. Additional requirements such as: documenting water heater fuel for showerheads and distributing a Customer Survey for Advanced Power Strips may apply. See specific measure for complete requirements and specifications.	Product invoice documenting that product meets BPA's requirements. The customer must document the request by the end user. Examples of end user requests may be postcards, Measure Distribution Log (available in the Document Library) or equivalent form with required information. Mailed By Request also requires documentation of mailing, air waybill

Distribution Type	Requirements and Specifications	Documentation Description (Retain in Customer File)
		or bill of lading to document the date the product entered the mail stream (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).
Mailed, Non-Request (CFL and LED bulbs only)	Applies to CFLs and LED bulbs only. Limited to 4 bulbs per fiscal year, per household. See specific measure for complete requirements and specifications.	Product invoice documenting that product meets BPA's requirements. Documentation of mailing, air waybill or bill of lading to document the date the product entered the mail stream (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).
Direct Install	Measures must be (1) installed by the customer or their agent, (2) witnessed by the customer or their agent, or (3) visually inspected by a representative sample after installation by another party.[32] Additional requirements such as: documenting water heater fuel for showerheads and distributing a customer survey for Advanced Power Strips may apply. See specific measure for complete requirements and specifications.	Product invoice documenting that product meets BPA's requirements. Completed Measure Distribution Log (available in the Document Library) or equivalent form with required information.

12.2 Measures and Initiatives

Electric Storage Water Heaters

Requirements and Specifications

Tank Type	Tank Size (Gallons)	Minimum Requirements
Residential Applications		
Residential	25-54.99	Energy Factor of 0.94 or higher
	55-74.99	Energy Factor of 0.93 or higher
	75-99.99	Energy Factor of 0.92 or higher
	100-119.99	Energy Factor of 0.85 or higher
Commercial Applications		
Commercial	25-34.99	Standby loss of 157 Btu/hr or lower
	35-44.99	Standby loss of 185 Btu/hr or lower
	45-54.99	Standby loss of 201 Btu/hr or lower
	55-74.99	Standby loss of 238 Btu/hr or lower
	75-99.99	Standby loss of 249 Btu/hr or lower
	100-119.99	Standby loss of 287 Btu/hr or lower

[46] Installation, witness or verification may be conducted by a customer program employee or an agent/contractor of the customer.

Tank Type	Tank Size (Gallons)	Minimum Requirements
Residential	25-34.9	Energy Factor of 0.94 or higher
	35-44.9	Energy Factor of 0.94 or higher
	45-54.9	Energy Factor of 0.94 or higher
	55-74.99	Energy Factor of 0.93 or higher
	75-99.99	Energy Factor of 0.92 or higher
	100-119.99	Energy Factor of 0.85 or higher

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X

Payment

BPA will pay $25.00 per unit.

Effective October 1, 2015, Residential Electric Storage Water Heaters will be expired.

Green Motors Rewind Initiative

Requirements and Specifications

The Green Motors Rewind Initiative uses Direct Acquisition. The incentives paid through the Green Motors Rewind Initiative are paid by BPA as part of the third party program and are not counted against customer's EEI budget. No payments are required to BPA, the program implementer, or the participating end user. Customers receive credit for all energy savings achieved by the program in their service territory.

Qualified motors include National Electric Manufacturers Association (NEMA) standard horsepower rated motors between 15 and 5,000 horsepower (either NEMA premium or other) that are rewound via certified Green Motor Practices Group member service centers. Customers may enroll using the COTR Request and Acknowledgement Procedure.

A monthly report and annual report is created and sent to participating customers with end user names, total horsepower rewound, energy savings and incentives paid. Monthly reports will only be created/sent to customers with end user participation in their service territory.

Customers may be contacted by the program implementer to verify an end users' eligibility to receive incentives through the program.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
Third-party provided monthly reports			X
Third-party provided annual reports			X

Payment

A payment of $2.00 per horsepower is made to the service center that rewound the motor. The service center acknowledges the payment is provided by the end user's serving customer and passes through $1.00 per horsepower to the end user as a credit on the end user's invoice.

Non-Residential Lighting Program

The Non-Residential Lighting Program applies to the following:

1. Existing building (retrofit/upgrade)
2. New construction projects in the agricultural, commercial, federal and industrial sectors
3. All High Intensity Discharge (HID) (metal halide, high pressure sodium, low pressure sodium and mercury vapor) lighting in exterior applications regardless of sector (installations in residential settings must be reported as commercial).

To participate in the program, customers capture project data in the lighting calculator and submit it to BPA for review and approval.

Lighting Calculators

Option 1 customers must use an eligible BPA lighting calculator. BPA will periodically release updated lighting calculators with improved functionality and other changes necessary to respond to an evolving marketplace. When a new lighting calculator is released, it will be posted in the Document Library, upon which time customers may begin using it immediately. The table below shows the effective dates and retirement dates for lighting calculators that are currently in use.

Calculator	Effective Date	Retirement Date*
LC 3.3 (and LC 3.35, the promotional version of LC 3.3)	October 1, 2014	To Be Determined

* Note that "retirement date" means the last date that customers may submit a completed calculator to the BPA reporting system.

Measure Types and Approval Procedures

The lighting program includes two types of measures: (1) deemed and (2) calculated, which are submitted as projects, as discussed below.

1. Deemed Lighting Measures

   Deemed measures have been pre-approved by BPA and do not require review by BPA prior to submission to the BPA reporting system. Available deemed lighting measures are in the Program Offerings section of the BPA lighting calculator.

2. Calculated Lighting Measures

   If a proposed measure is not on the Deemed Measure List, it may be submitted as a calculated measure. There are three types of calculated lighting measures:

   - Decommissioning: the number of proposed fixtures is less than the number of existing fixtures.
   - Fixture Increase: the number of proposed fixtures is greater than the number of existing fixtures.
   - Non-Standard: the measure is not deemed, decommissioning, or a fixture increase.

   No BPA approval is required for decommissioning or fixture increase measures. The BPA lighting calculator will automatically apply a calculated payment.

To request a non-standard measure in the BPA lighting calculator, the user should select the "non-standard" option from the available drop-down menu. The calculator will highlight the measure in red and will indicate that the measure is non-standard and requires BPA approval. The customer must send the lighting calculator and any applicable product documentation requested by the BPA Lighting Team such as cut sheets, product specification sheets or third party tests (e.g. LM-79) to lighting@bpa.gov for review and acceptance.

The BPA Lighting Team will review the non-standard measures and notify the customer whether or not the measures were accepted. Once the measures are accepted, the red highlighting and Project-Level Alert about needing BPA approval will disappear. No further documentation is required for non-standard measures.

Project Types and Requirements

There are four types of projects: (1) new construction, (2) retrofit, (3) batch and (4) custom projects. This section outlines eligibility criteria, requirements and payments for each of these project types.

1. New Construction Projects

   Eligibility: A non-residential lighting project is new construction if the answer to any of the following questions is "yes."

   - Is this a newly-constructed facility or newly-constructed exterior area with new lighting fixtures?
   - Is this a newly-constructed addition to an existing facility that adds usable floor area?
   - Is the project a major renovation? A project is considered a major renovation whenever a whole building permit is required.
   - Is there a change in occupancy type (e.g. office to food service or retail to office)?

   Requirements: For new construction lighting projects, enter the Lighting Power Allowance (i.e., total watts allowed by applicable lighting code) and the project's Proposed Lighting Power (total watts of project) from the applicable code compliance form into the lighting calculator. The project must achieve at least a 20% kWh reduction from the Lighting Power Allowance.

   Payments: Payments are calculated at $0.18 per kWh saved, using the fully adjusted savings (factoring in HVAC and busbar adjustments).

2. Retrofit Projects for Existing Buildings

   Eligibility: Non-residential lighting projects which do not meet the criteria for new construction are eligible as retrofit projects.

   Requirements: The project must achieve at least a 25% kWh reduction. For non-standard measures, the minimum payment to the end user is $5.00 and the minimum fully adjusted savings as determined by the lighting calculator must be at least 10%,

   Payments: See the Program Offerings page in the lighting calculator for payments.

3. Batch Lighting Projects

   Eligibility: Retrofit projects that target a specific technology and specific application across an entire customer service territory (such as customer-owned street lights or area lights) may be submitted in a BPA lighting calculator or in a customer-generated spreadsheet in batch form. These projects may cover multiple pre and post conditions but are limited to a single technology and application.

   Requirements: For site address, enter the customer's address. Enter the project addresses or locations in the notes section of the lighting calculator or in a customer-generated spreadsheet. In cases where a street address is not applicable, enter the nearest street intersection.

   Payments: See the Program Offerings page in the lighting calculator for payments.

4. Custom Lighting Projects

   Eligibility: any non-residential lighting project may be submitted as a custom project.

   Requirements: Custom lighting projects may be submitted using a BPA custom project calculator or an equivalent, such as a vendor-provided lighting calculator or energy modeling software, and must follow the custom projects requirements of the Manual. BPA will review the calculator or energy model and supporting documentation to determine whether the project qualifies as a custom lighting project. Once the project is accepted as a custom lighting project, it must meet the following requirements:

   - Equivalent calculators must use all current BPA baselines (as determined by applicable baseline on project start date), controls and requirements.
   - If the measures contain additional fixtures (not replacements) that are required to meet operating requirements, the measures must be identified as new fixtures in the custom project, and incremental cost and savings information must be provided. The baseline description must contain the justification for the additional fixtures (e.g. required for safety, change in equipment layout or change in use of area).
   - Power measurements for new induction and fluorescent fixtures are not required; customers may use manufacturers' published wattage specifications (e.g., cut sheets) to determine energy savings.
   - The actual input power of all new or existing LED and high-intensity discharge (HID) fixtures must measure true root-mean-square power.
   - Customers may use the manufacturer's stated wattage or lighting power estimates in the form of the submitted lighting calculator for all other non-HID or non-LED lights.
   - Fixed schedule controls (e.g. time-based and photo cells) must have a fixed control operating schedule which documents commissioning and clearly outlines programmed hours of operation. These types of controls do not require logging.
   - Non-fixed schedule controls (e.g., occupancy sensors and day lighting) require a minimum of two weeks of data logging to accurately determine hours of operation. Foot candle measuring is acceptable.

Payment

See the custom projects payment table.

Lighting Promotions

Periodically, BPA may promote specific lighting measures and applications by temporarily offering higher incentives and/or allowing the total incentive to cover up to 100% of the project cost. To claim these promotions, customers must contact Lighting@bpa.gov, and BPA will modify customers' existing version of 3.3 (creating version 3.35) to accommodate the promotions. This modified calculator may only be used for the specific lighting measures eligible within the promotion. If a project also contains non-promotional measures, such measures must be submitted on a non-promotional lighting calculator.

Promotions will be announced through normal communication channels.

Baselines

Baselines are used by the lighting calculator to determine the savings delta reportable to BPA. As the market changes and federal codes and standards take effect, BPA modifies reportable baselines as applicable. The table below follows the guidance offered by the RTF Lighting Protocols for baseline determination

Baseline	Application	Notes
Preconditions Baseline	Retrofit projects; technologies not deemed obsolete by RTF lighting protocols or covered by codes or standards	The Preconditions Baseline is the same as "what's in the ceiling."
Energy Policy Act: General Service Fluorescent Lamp	All 4' and 8' T12 linear fluorescent lamps	See the Market Average Baseline table
State and/or local Codes	New construction	The maximum lighting power allowance is the baseline.
Energy Independence and Security Act (EISA)	All 100, 75, 60, and 40 watt standard incandescent A lamps	See the EISA Baseline table.

Market Average Baseline		
Existing Obsolete Equipment (Applies to all Ballast Types)		**New Market Baseline**
Lighting System Categories	**Existing T-12 Lamp Wattages**	**Reportable Fixture Wattage/Lamp** (multiply by number of lamps in fixture to scale)
All 4' T12	34	28.7
	40	
All Slim line 8' T12	60	51.7
	75	
All HO 8' T12	95	90
	110	
All VHO 8' T12	185	131.5
	215	

EISA Baseline	
Existing 'Obsolete' Equipment	**Reportable Lamp Wattage**
100 watt incandescent	72
75 watt incandescent	53
60 watt incandescent	43
40 watt incandescent	29

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
New Construction Lighting Projects			
Completed lighting calculator	X		X
Applicable code compliance form documenting the source of Lighting Power Allowance (watts) and Proposed Lighting Power (watts) figures used in lighting calculator			X
Retrofit Lighting Projects			
Completed lighting calculator	X		X
Project invoice(s) documenting site address and total project cost including costs incurred from equipment, labor, permits and disposal fees			X
Batch Lighting Projects			
Completed lighting calculator	X		X
Documentation of location and quantity of fixtures in batch, either in customer-generated spreadsheet or in the "notes" section of the lighting calculator			X
Custom Lighting Projects			
Custom projects must follow the custom projects documentation requirements.			

Engine Block Heaters (BPA Qualified)

Requirements and Specifications

Engine Block Heaters must be installed in generators or engines that meet the following requirements:

- The forced circulation heater must replace a thermo siphon electric resistance block heater.
- The generator or engine must be stationary and fixed.
- The install must meet manufacturer's recommendations and be performed by a manufacturer-certified installer.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address	X		X
Equipment/contractor invoice 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 (c) cost (d) installer's manufacturer assigned training number		X	X
Manufacturer's installation checklist			X

Payment

Replacement Heater Size	Payment
< 3 kW	$200.00
≥ 3 kW	$1,500.00

Limited Availability Emerging Technology Field Test Projects

Requirements and Specifications

Emerging Technology Field Test Projects allow BPA to collect detailed data to more accurately estimate savings and potential performance to create future UES and BPA-qualified measures. BPA may contract with third parties to deploy the emerging technology, evaluate performance and verify energy savings.

On the BPA Emerging Technologies Web site, BPA maintains a list of available emerging technology projects with defined eligibility requirements, number of installations targeted, participation obligations, savings and payment.

If a customer is eligible and wishes to participate in a project, they must use the Option 1 custom project process and submit a custom project proposal that uses the Engineering Calculations with Verification Protocol for measurement and verification. BPA will provide the information necessary to complete the custom project documentation and will provide staff assistance in the development of the proposal and completion report.

BPA may require metering to continue after project completion and may require customers to perform additional duties to support the research efforts (e.g., customers may be asked to provide access to end-user billing history and contact information). If additional metering is required, it will not change customers' payment or savings.

Documentation Requirements

Customers must follow the Option 1 custom project documentation requirements and may be required to provide end-user billing information and contact information.

Payment

See the custom projects payment table.

Variable Frequency Drives in Small Compressed Air Systems

Requirements and Specifications

VFDs applied to a single air compressor 75 horsepower or less must use the RTF-approved Small Compressed Air Savings Calculator (available in the Document Library). Each VFD compressor must be submitted as an individual project (i.e., compressors may not be combined or divided).

The calculator will determine energy savings.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique Site ID and address	X		X
Equipment/contractor invoice 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 and (c) cost			X
Completed RTF-approved Small Compressed Air Savings Calculator (available in the Document Library)		X	X

Payment

Though this is not a custom project, payment is paid according to the custom projects payment table.

ENERGY STAR Commercial Clothes Washers – Multifamily Common Areas

Requirements and Specifications

The clothes washer must be ENERGY STAR and installed in the common area of a multifamily building.

Documentation Requirements

Documentation Description	Retention/Submittal Locations		
	BPA Energy Efficiency Reporting System	eedocs@bpa.gov or fax 1-866-535-7955	Customer File
End-user identifying information including unique site ID and address			X
Equipment/contractor invoice 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 and (c) cost			X
A copy of the ENERGY STAR product list showing the product or the product information insert or packaging that includes the ENERGY STAR logo (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.)			X

Payment

Measure Name	Payment
Clothes Washers ENERGY STAR Electric Water Heater/Electric Dryer Multifamily Common Area	$100.00
Clothes Washers ENERGY STAR Electric Water Heater/Gas Dryer Multifamily Common Area	$50.00
Clothes Washers ENERGY STAR Gas Water Heater/Gas Dryer Multifamily Common Area	$25.00
Clothes Washers ENERGY STAR Gas Water Heater/Electric Dryer Multifamily Common Area	$50.00

Multifamily, Multi-Sector Measures

Multifamily housing is defined as five or more dwelling units within the same structure. Multifamily housing may be either residential or commercial. Residential multifamily housing includes structures no more than three stories. Commercial multifamily housing includes structures more than three.

The table below provides opportunities and guidance for measures that may be used in multifamily applications by using existing measures contained elsewhere in the Manual.

Requirements and Specifications

Multifamily measures may be (1) non-envelope/HVAC or (2) envelope/HVAC as listed in the tables below. All measures must meet requirements and specifications found in the noted sector section.

1. Non-envelope/HVAC Measures

   Non-envelope/HVAC measures may be applied to multifamily structures regardless of number of stories as provided in the table below.

Measure	Measure Installation Location	
	Residential Unit	**Common Area**
Lighting	Residential Sector • ENERGY STAR CFLs and Fixtures • ENERGY STAR Solid-State Lighting/ LED Bulbs and Fixtures	Multi-Sector • Non-Residential Lighting
Appliances	Residential Sector • ENERGY STAR Refrigerator and Freezer • ENERGY STAR Clothes Washer • Refrigerator and Freezer Decommissioning	Commercial Sector • Commercial Food Service Reach-in Refrigerators and Freezers • Commercial Combination and Convection Ovens • Commercial Dishwashers Multi-Sector • Commercial Clothes Washers – Multifamily Common Areas
Showerheads	Residential Sector • Showerheads	Commercial Sector • Commercial Showerheads
Power strips	Residential Sector Advanced Power Strips	Commercial Sector Smart Strips (offices)
Water Heating	Multi-Sector • Residential Electric Storage Water Heaters	Multi-Sector • Commercial Electric Storage Water Heaters Commercial Sector • Heat Pump Water Heaters

2. Envelope/HVAC Measures

   Envelope/HVAC measures shall be applied based on the definition of Residential multifamily or Commercial multifamily as found in the Definitions section.

Measure	Residential measures	Commercial measures
Weatherization	Custom Projects Residential Sector • Insulation • Prime Window Replacement	Custom Projects Commercial Sector • Commercial Insulation
HVAC	Custom Projects	Custom Projects Commercial Sector • Unitary Air Conditioning Equipment in Commercial Buildings • Ductless Heat Pumps in Commercial Buildings • Heat Pump Equipment Conversion and Upgrade in Commercial Buildings

Documentation Requirements

See the measure specific information in the sector section referenced in the table, above.

Payment

See the measure specific information in the sector section referenced in the table, above.

Effective October 1, 2015, Residential Electric Storage Water Heater measures will expire and no longer be available.

13. Updates/Revisions

The table below contains a directory of any revisions made to this Manual outside 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	Rationale	Effective Date (Posted Date)	Location
General			
Introduction			
Funding			
General Requirements			
Custom Projects			
Custom Programs			
Agricultural Sector			
Commercial Sector			
Federal Sector			
Industrial Sector			
Effective October 1, 2015, the Strategic Energy Management requirements will supersede Track and Tune, High Performance Energy Management, and Small Industrial High Performance Energy Management requirements.	Consolidating requirements simplifies project reporting without significant impact to project implementation. The Strategy Energy Management is updated for clarity and consistency.	October 1, 2015	56
Residential Sector			
Dimmable CFLs were included in the General Purpose CFL measure category in the updated CFL measures provided by the RTF that became effective April 1, 2015.	The RTF classified Dimmable CFLs as General Purpose bulbs. These measures were posted on October 1, 2014.	April 1, 2015	76
Refrigerators and Freezers must be a minimum of 7.75 cubic feet to be eligible.	This information was inadvertently removed from the measure chart in the last update.	April 1, 2015	84

Effective October 1, 2015, Residential Clothes Washer measures will be expired and replaced with new measures for ENERGY STAR Front Load Clothes Washers and Top Load Clothes Washers with an IMEF of 2.38+ (including the new retail Clothes Washer measures). Savings and payment will change and ENERGY STAR Top Load Clothes Washers with an IMEF of less than 2.38 will no longer be eligible. Please see the Residential Appliance Measures Changes effective October 1, 2015 in the Document Library.	The RTF updated these measures to reflect new baselines and CEE Tiers. An entire new measure set was required.	April 1, 2015	81
Documentation of income for Low Income eligibility was moved to the top of the Documentation Requirements chart and the word "form" was replaced with "documentation."	Because income verification applies to all measures this requirement was prioritized on the list and utilities may document proof of income eligibility as appropriate.	April 1, 2015	101
Utility Distribution Sector			
Multi-Sector			