

Implementation Manual Updates: Changes and Corrections Summary

Programmatic Changes Effective in April 2016 and October 2016





Introduction Presenter: Corinne Mauck



Planning Presenter: Phillip Kelsven



Summary

244 expiring measures

308 measures with a new measure structure

1,631 measures with a 7th power plan update



Summary

- We are carrying through over 1.5 years of RTF updates
- Large changes in HVAC, Manufactured Home weatherization, duct sealing, and DHPs, are due to SEEM model calibration update



New Measure Structure

- Air-Source Heat Pumps
- Commercial Clothes Washers
- Duct Sealing
- Ductless Heat Pumps
- Energy Star Home Oregon
- Heat Pump Water Heaters
- Montana House
- NEEM Certified Home
- Variable Speed Heat Pumps



7th Plan Update

- The NWPCC and RTF have a new cost effectiveness methodology
- Treats capacity differently
- New load shapes
- New methodology to analyze load shapes



7th Plan Update

- There is a new relationship between site and busbar savings, causing busbar savings to go down for most measures
- Previously used same multiplier for all measures, the total average line loss
- Now using time varying line loss based on load shape, each measure set has a unique multiplier



7th Plan Update

- Savings that occur in times of high system load are more valuable to the system = higher busbar savings = line losses that would have happened but didn't
- The new average marginal line loss is 4.7% compared to 5% in 6th plan
- The previous average site to busbar factor was 1.0908, now the average is 1.0749



Deferred Generation

- The region is capacity short
 - RPM is building resources for system adequacy
- Conservation defers purchase of alternate capacity resource
 - Simple-cycle combustion turbine frequently marginal resource for capacity
 - Size of SCCT similar to annual conservation build out of RPM



Deferred Generation cont.

 Deferred generation and distribution values were not included in 6P formulation

 Now making these values explicit in the TRC cost – benefit calculation



Cost Effectiveness

 New methodology increases the TRC benefit / cost ratio for many measures, and decreases for others

Depends on when the savings occurs



7th Plan Update

 BPA ran all of our UES measures through the new version of Pro Cost

Result is new busbar savings and new cost effectiveness metrics

 More precise and complete distribution and transmission system kW savings values



IM Notice

 IM notice savings table will present all of the October 2016 measure changes in one workbook

** You can find the "October 2016 Measure Changes" workbook in the Other Documents section at the bottom of the Implementation Manual Document Library. **

https://www.bpa.gov/EE/Policy/IManual/Pages/IM-Document-Library.aspx



October Measure List

- Planners are currently working with programs to develop the October measure list
- We have documented and will address concerns previously voiced by utilities
- Since we are touching every measure, we will take the opportunity to make changes so that key characteristics align across measure sets



October Measure List cont.

 Measure list will be released on 8/15/16 along with the Implementation Manual



Agricultural Sector Presenter: Tom Osborn



Effective April 1, 2016

Change: The Agricultural Payment Summary table has been updated to include the new BPA Qualified LEPA and LESA measure incentives. The table section for Irrigation-Related Measures now includes:

Low Energy Precision Agriculture \$100.00

Low Elevation Sprinkler Application \$100.00

Rationale: New Measures



Effective April 1, 2016

Change: The Irrigation-Related Measures Sprinkler payment table has updated footnotes to allow some measures to qualify for the new BPA Qualified LEPA and LESA conversion. All payments remains the same. Affected lines on the payment table now read:

- New multi-trajectory sprays that replace impact sprinklers iii
- New multi-trajectory sprays that replace low-pressure sprinklers iii
- New goose-neck elbow for new drop tubes (to convert existing sprinkler equipment mounted on top of the pivotⁱⁱ to low-pressure sprinkler package for LEPA or LESA^{iv})

The following footnotes have been added:

- iii Regular sprays allowed for LESA conversions.
- iv Allowed for LEPA or LESA conversions.

Rationale: New Measures



Effective April 1, 2016

Change: A new BPA Qualified measure for Low Energy Precision Agriculture (LEPA) has been added. This measure is designed for conversion of a center pivot or lateral move irrigation system with a variety of methods to have the water delivered directly onto the soil using bubblers, hoses, and/or socks. Lowering the water delivery point directly onto the soil has been shown to reduce the water evaporation during irrigation as well as reduce the pressure requirements of the overall irrigation system thus reducing the energy required to efficiently water crops.

BPA will pay \$100.00 for each system conversion upon submission of the project information form to EEdocs. Customers can also claim all qualifying irrigation measures installed for the LEPA conversion in the UES Measure Upload Template.

Rationale: New Measure



Effective April 1, 2016

Change: A new BPA Qualified measure for Low Elevation Sprinkler Application (LESA) has been added. This measure is designed for conversion of center pivot and lateral move irrigation systems to place the sprinkler within 3 feet of the soil surface. LESA improves application efficiency, reduces direct evaporation from the sprinkler, and requires less pressure to operate; thus reducing the energy consumption.

BPA will pay \$100.00 for each system conversion upon submission of the project information form to EEdocs. Customers can also claim all qualifying sprinkler hardware measures such as goose necks, pressure regulators and sprinklers installed for the LESA conversion in the UES Measure Upload Template.

Rationale: New Measure



Commercial Sector Presenter: John Wilson



Effective April 1, 2016

Correction: Unitary Air Conditioning Equipment in Commercial Buildings

Clarified former language "Heat pumps are excluded". The language now reads:

Unitary air conditioning equipment refers to air-cooled, packaged, air conditioning equipment for both new construction and retrofits in commercial buildings. This equipment can be used in conjunction with gas or electric heating systems. Heat pump installations are not eligible for this measure.

Rationale: Modified language for clarity



Effective April 1, 2016

Change: Removed Type 1 ARC Retrofit requirement for operational economizer and continuous operation during occupied hours; removed Type 1 and Type 2 ventilation requirements. The language now reads:

Qualifying ARC Retrofit applications must meet the following requirements:

The existing RTU must have the following qualities:

- Greater than five tons of cooling capacity
- Unitary equipment (no split-systems),
- Constant speed supply fan (no variable speed fans)

The Type 1) Full ARC Retrofit must have the following qualities:

- Either supply-fan variable speed, multi-speed or cycling, and
- Digital, integrated economizer control.

The Type 2) Lite ARC Retrofit must provide:

Either supply-fan variable speed, multi-speed or cycling.

Rationale: This requirement removal was made to expand measure eligibility.



Effective April 1, 2016

Correction: Heat Pumps in Commercial Buildings

Added language to clarify that heat pumps must meet all applicable CEE Tier 1 or Tier 2 performance specifications (e.g. both EER and IEER). The language now reads:

Requirements and Specifications:

 To qualify, the installed equipment must be an air to air heat pump system that meets all applicable CEE Tier 1 or Tier 2 performance specifications (e.g. both EER and IEER).

Rationale: This change is made to clarify that products must meet all tier specifications.



Effective April 1, 2016

Correction: Door gasket replacement for walk-in and reach-in coolers and freezers.

Units in the payment table have been changed to "per door". The language now reads:

Payment (per Door)

Rationale: Units listed in the payment table have been corrected.



Effective April 1, 2016

Correction: Electric Commercial Steam Cookers

The payment table has been modified to apply to 10-pan "or greater". The language now reads:

10 pan or greater

Rationale: The payment table in Oct. 1, 2015 left out "or greater" in description of the 10-pan unit.



Effective April 1, 2016

Correction: Retrofit Windows for Commercial Buildings (BPA Qualified)

While the IM clearly states that all electric heating types qualify for this measure, there is currently no option for electric forced air in the UES Measure List. Until this is added to the UES Measure List in October, utilities may report electric resistance forced air as zonal heat in the measure list.

A footnote has been added to the payment table that reads:

¹ Existing conditions with electric forced air may be reported as zonal heat in the UES measure list.

Rationale: This change is made to clarify measure eligibility.



Effective April 1, 2016

Correction: Electric Water Heater

Payment has been changed from "per unit" to clarify "per water heater." The language now reads:

Payment

BPA will pay \$25.00 / water heater.

Rationale: Clarification



Effective April 1, 2016

Correction: Heat Pump Water Heater (BPA Qualified)

Language was added to clarify that all Tiers on the Northern Climate Specifications meet requirements. The language now reads:

Requirements and Specifications

 This measure is for the installation of Heat Pump Water Heaters in commercial buildings. To qualify, the product must be listed on NEEA's Northern Climate Specification HPWH qualified products list. All tiers on the Northern Climate Specification qualify.

Rationale: This change is to clarify measure requirements.



Effective April 1, 2016

Change: Energy Star Commercial Clothes Washers

The requirement for laundromats was removed so that these savings apply to other types of businesses. The word "laundromat" has been removed from the payment table The language now reads:

"The clothes washer must be an ENERGY STAR product."

Rationale: This measure is no longer restricted to laundromats.



Effective April 1, 2016

Change: Smart Power Strips

The word "offices" has been removed from the description of Commercial Sector Smart Power Strips. The language now reads:

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 must automatically switch off power to peripheral plug loads, while preventing false switching through the use of resistor-capacitor circuit filters or equivalent.

Rationale: This measure is no longer required to be in offices only.



Effective October 1, 2016

Change: LED Traffic Signals

BPA will retire this measure as a stand-alone. If a utility wants to pursue it, consider submitting it as a non-standard measure in the BPA Lighting Calc.

Rationale: This measure is expiring

Change: LED Case Lighting and Motion Sensors

BPA will retire this measure. If a utility wants to pursue it, consider submitting it through the BPA Lighting Calc as a deemed measure for linear LED lighting.

Rationale: This measure is expiring



Effective October 1, 2016

Change: Unitary Air Conditioning Equipment in Commercial Buildings BPA will retire this measure.

Rationale: This measure is expiring

Change: Advanced Rooftop Unit Control (ARC) Retrofit Type 1 ARC Retrofit will be updated to require web-enabled monitoring and alarms.

Rationale: New requirement. This change is to enhance functionality and enduser control



Effective October 1, 2016

Correction: Ductless Heat Pumps in Commercial Buildings Clarify that areas conditioned by Air Source Heat Pumps do not qualify for DHP payments and adding clarification to requirements and specifications.

Rationale: This clarification was made to refine measure eligibility based on existing conditions

Change: Ductless Heat Pumps in Commercial Buildings The payment will change to \$800 per ton.

Rationale: This change will be made to increase program uptake.



Effective October 1, 2016

Change: Ductless Heat Pumps in Commercial Buildings A Qualified Products List will be published.

Rationale: This change will be made to streamline implementation

Change: New Measure for Heat Pump Upgrades

Effective October 1, 2016, a new measure will be created for Heat Pump Upgrades. This measure will be applicable to both existing buildings and new construction. Note that the Commercial Heat Pump Tool will no longer be required for this measure.

Rationale: This measure will be available.



Effective October 1, 2016

Change: Web-Enabled Programmable Thermostats (Connected Thermostats)

The payment will change to \$200 per qualified thermostat.

Rationale: This change will be made to simplify measure implementation

Change: EnergySmart Grocer

Section 7.8.1 will be removed. ESG ended March 31, 2016, and will be largely removed from the IM October 1, 2016, except for the section concerning ESG Performance Payments which will continue to apply through September 30, 2017.

Rationale: The ESG program has ended.



Effective October 1, 2016

Change: Display Case – Evaporator Fan Motor:

Shaded Pole to ECM savings will increase.

Rationale: Energy savings will increase per recent RTF decision.

Change: Demand Controlled Kitchen Ventilation

This this measure will apply to retrofits only, and will no longer apply to new construction.

Rationale: This change is due to numerous variations in state codes.



Effective October 1, 2016

Change: Commercial Insulation

The requirement for pre-existing insulation levels will be changed from R-0 to less than or equal to R5 (≤R5).

Rationale: This change was made to expand measure eligibility so that it is applicable to conditions where there is no or very little existing insulation.

Change: Retrofit Windows for Commercial Buildings (BPA Qualified)

A new measure will be created in the measure list to enable reporting of buildings with electric forced air heat.

Rationale: The new measure will be added to increase ease of measure reporting.



Effective October 1, 2016

Change: Retrofit Windows for Commercial Buildings (BPA Qualified)

The building space requirement will be changed from 5,000 sq. ft. or less to 20,000 sq. ft. or less.

Rationale: This change is intended to increase the amount of businesses that would benefit from window retrofits.

Change: Retrofit Windows for Commercial Buildings (BPA Qualified)

The "wood frame construction" requirement will be removed from this measure making all building types applicable.

Rationale: This change will be made to expand measure eligibility.



Effective October 1, 2016

Change: Electric Water Heater

The incentive will be \$50/water heater.

Rationale: The incentive and savings will increase as a result of the RTF updating the analysis for existing baselines.

Change: Heat Pump Water Heater (BPA Qualified)

New measures will be created for all HPWH Tiers.

Rationale: New measures for new tiers will have new savings.



Effective October 1, 2016

Change: Heat Pump Water Heater (BPA Qualified)

Existing water heaters must be electric. Existing gas water heaters will not qualify for payment.

Rationale: This change will be made to clarify measure eligibility

Change: Networked Computer Power Management

This measure will no longer be eligible for incentives.

Rationale: This measure has expired.



Effective October 1, 2016

Change: Energy Star Commercial Clothes Washers

Required information on the product documentation will be replaced.

Rationale: This change is to align documentation requirements with other EnergyStar product documentation requirements.

Change: Energy Star Commercial Clothes Washers

The savings for this measure will change

Rationale: The savings will change due to an RTF action.



Effective October 1, 2016

Change: Smart Power Strips

"Load sensing" will be removed from the measure title so that motion sensing power strips also qualify for payment.

Rationale: The RTF savings estimate for Smart Power Strips was based on both load sensing and motion sensing power strips.



Industrial Sector Presenter: Steve Brooks



Industrial Sector

Effective April 1, 2016

Correction: Energy Project Manager

The payment table for Payment No. 4 has been clarified to allow for multiple EPMs. The language now reads:

Payment No. 4

The lesser of (a) \$0.025 per kWh of **actual** verified busbar energy savings, (b) the total annual cost of the EPM(s) as described in the EPM Comprehensive Plan, or (c) \$250,000.00 per EPM(s) contracted, less previous payments

The footnote ii has been modified and now reads:

• 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(s) as described in the EPM Comprehensive Plan, (c) \$250,000.00 per EPM(s) contracted, or (d) an amount specified within the EPM agreement.

Rationale: At the request of BPA utilities, this clarification provides greater flexibility for EPM co-funding, while reducing complexity, paperwork and the reducing the labor burden of needing multiple agreements for utilities, end users and BPA ESI.



Industrial Sector

Effective April 1, 2016

Correction: SEM Projects (Optional Energy Management Feature)

The language in the Requirements, Savings Reports table M&V Protocol section has been clarified. The section now reads:

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 <u>Document Library</u>).

SEM energy savings may not include energy savings from other ESI program components BPA programs (e.g., custom projects or deemed projects).

SEM energy savings are relative to a baseline period immediately preceding the performance year.

Rationale: At the request of BPA utilities, this clarification addresses any confusion on how BPA determines SEM energy savings.



Industrial Sector

Effective April 1, 2016

Correction: SEM Projects (Optional Energy Management Feature)

The Milestone "BPA Approves Annual Completion Report Payment" language in the Requirements, Savings Reports table M&V Protocol has been changed. The language now reads:

Supporting Invoices provided

- Lesser of the following:
 - \$0.075 per kWh of verified annual busbar-adjusted energy savings
 - 70% of documented action item costs
- No Invoice
 - \$0.025 per kWh of verified annual busbar-adjusted energy savings

Rationale: At the request of BPA utilities this clarification addresses any questions about SEM Project payment milestones.



Residential Sector Presenter: Sarah F. Moore



Effective April 1, 2016 - Relief of requirements

Change: Linear Fluorescent Fixtures

The requirement for a minimum ballast efficiency factor (BEF) has been removed. Just look for Energy Star Qualified T8 Linear Fluorescent <u>Fixtures</u>.

Change: Ductless Heat Pumps - all

The note about a 208 voltage/230 volt circuit requirement has been removed. 110 volt systems can now be added to the Qualified Products List. QPL has been updated.



Effective April 1, 2016 – Corrections / Clarifications

Correction: Ductless Heat Pumps - all

Under Requirements and Specifications the requirement "Ducted indoor DHP units do not qualify for payment" has been modified. The language now reads:

"Ducted indoor DHP units do not qualify for payment as a DHP **but may be claimed as a PTCS** Variable Speed Heat Pump provided the installation meets all PTCS requirements."

Correction: Ductless Heat Pumps – all

Ductless Heat Pumps payments are one DHP per house.

Payment

"Payments are per home as listed in the table below."



Effective April 1, 2016 – Corrections / Clarifications

Correction: PTCS Heat Pumps – all

The CheckMe! form has met all requirements to be considered equivalent to the PTCS Air Source Heat Pump form.

Correction: PTCS Heat Pumps – all

A clarification of the PTCS Heat Pumps Installation specifications is provided.

The specification language stating "The heat pump system shall be sized, rounding up or down to the nearest 6000 Btu/hr capacity at AHRI rating conditions, using a balance point of 30°F or less" does not specifically require that the Balance Point be 30°F or less.

A range that includes <u>less than 30°F or up to 35°F is acceptable</u> to meet the Basis for Energy Savings.



Effective April 1, 2016

Correction: Montana House (ID / MT / NV / WY)

These New Construction measures <u>are also reportable</u> by BPA utilities in Nevada and Wyoming.

Change: A new measure was added for Insulated Exterior Doors for Multifamily and for Low Income Insulated Exterior Door Multifamily.

LI Insulated Exterior Door - Dollar for dollar, not to exceed \$400.00/door



Effective April 1, 2016

Correction: Simple Steps, Smart Savings

Non-Participating Sales generated by the Simple Steps program will be reported by BPA for credit towards regional self-funding goals.

The language now reads:

The Simple Steps program results in energy efficiency savings that are distributed among the utility participants using the Retail Sales Allocation Tool (RSAT). Additionally, because the program model requires a commitment to all qualified sales of efficient products in active stores (including those that would be attributed to non-participating utilities) the program also acquires savings from these unclaimed sales. These non-participating/unclaimed sales will be reported by BPA for credit towards regional self-funding goals to be consistent with the Implementation Manual requirements and utility ECA agreements.



Lighting Changes Effective October 1, 2016

ENERGY STAR CFLs - Savings and payments will be reduced

ENERGY STAR CFL Fixtures - will expire.

Linear Fluorescent Fixtures - Savings will change.

ENERGY STAR LEDs - Savings and payments will change

ENERGY STAR LED Fixtures - Savings will change. No change to payment

CFL bulb payments have decreased by \$.50 - \$2.00 per CFL LED bulb payments have <u>increased</u> by \$1.00 - \$3.00 per LED



Changes Effective October 1, 2016

Showerheads - Savings and payments will change.

Simple Steps, Smart Savings program - CFL Fixtures, Refrigerators and Freezers will be removed from the program.

Advanced Power Strips - Savings will decrease. No change to payment

Showerhead payment changes: payments have increased by \$3.00 /shwrhd



Appliances-HPWH Changes Effective October 1, 2016

Clothes Washers - Savings will change. Most payments have been reduced.

Clothes Dryers - The Any Dryer measure will be expired. New Dryer measures will be available October 1, 2016.

Refrigerator measures will expire.

Freezer measures will expire.

Ref/ Freezer Decommissioning - Savings will decrease. No change to payment.

Heat Pump Water Heaters – Current measures will be expired and replaced with "Any tank size" measures with updated savings and payments. Form will be updated.



DHP Changes Effective October 1, 2016

Ductless Heat Pumps – all

DHP requirements and specifications will be updated to also require the use of a vacuum pump during installation and that the DHP system shall be installed on a dedicated electrical circuit. The DHP form will be updated.

Ductless Heat Pumps – Single Family and Manufactured Homes (Zonal)

Measure savings will change. DHP zonal measures will be expanded by HZ/CZ No change to payment for zonal DHP

Ductless Heat Pumps – Single Family and Manufactured Homes (EFAF)

Measure savings and payment will change (from \$1200 to \$1000)



PTCS HP Changes Effective October 1, 2016

PTCS Measures - Savings will change. No change to payment

- Air Source Heat Pump (ASHP) –Conversions /Upgrades, SF & Manuf
- PTCS Commissioning & Controls SF & Manuf
- Ground Source Heat Pumps Conversions/Upgrades, SF
- GSHP measure simplified combined open & closed loop

PTCS Measures - <u>Savings & payments will change</u>.

PTCS Variable Speed Heat Pumps (VSHP) Conversions/Upgrades, SF



Duct Sealing Changes Effective October 1, 2016

PTCS & Prescriptive Duct Sealing – Single Family Homes

Measure savings will change. There is no change to payment.

PTCS & Prescriptive Duct Sealing – Manufactured Homes

Measure savings and payments will change (increases to \$250/500)

Line Voltage Thermostats- Single Family

Measure savings and payment will change (to \$125)



New Homes Changes Effective October 1, 2016

New ENERGY STAR Manufactured Homes - Savings and payments will change.

New High Performance Manufactured Homes - Savings will change. No change to payment.

New ENERGY STAR/Built Green Single-Family Homes (OR) - Savings and payments will change.

New ENERGY STAR/Built Green Single-Family Homes (WA) - Savings will change. No change to payment

New ESTAR/Built Green Single Family Homes (ID/MT) - Measures will expire.

Montana House (ID/MT/NV/WY) - Savings and payments will change. MT House now available for use in all four states (ID, MT, NV, WY)

New ENERGY STAR Multifamily Construction - Savings will change. No change to payment.



Weatherization Changes Effective October 1, 2016

Residential Weatherization Specifications and Best Practices Field Guide will be updated. A summary of changes will be posted.

Insulation - Single Family Savings will change. No change to payment.

Insulation - Manufactured Homes - Savings and payments will change.

Insulation - Multifamily Homes - Savings will change. No change to payment.

Prime Windows/Patio doors-SF/ Manuf / Multifamily -

Savings will change. No change to payment.



Weatherization Changes Effective October 1, 2016

Insulated Exterior Doors – SF /Manuf Savings will change. No change to payment.

Whole House Air Sealing - SF - Savings will change. No change to payment.

Whole House Air Sealing - Manuf - Savings and payments will change.

Prescriptive Air Sealing - SF - Savings will change. No change to payment.



Low Income Changes Effective October 1, 2016

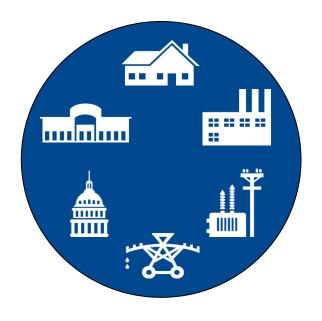
Low Income Weatherization - All savings will change. No change to payment

Low Income Ductless Heat Pumps –

Savings will change. No change to payment.

Low Income Duct Sealing (PTCS/Prescriptive)

- Savings will change.
- Manufactured Homes Duct Sealing payment will increase to \$500.
- The payment for Low Income PTCS and Prescriptive Duct Sealing measure cost is capped at \$500/unit.



Multi Sector Presenter: John Wilson

Multi-Sector

Effective April 1, 2016

Correction: Measure Distribution Processes

Language has been added to the By Request and Direct Install sections to clarify that the end-user survey is for only for Residential Advanced Power Strips and does not apply to Commercial Smart Power Strips. The language now reads:

Additional requirements such as: documenting water heater fuel for showerheads and distributing a Customer Survey for Advanced Power Strips may apply. *The Customer survey is not required for Commercial Smart Power Strips*.

Rationale: This change is made to clarify requirements

Multi-Sector

Effective April 1, 2016

Correction: Multi-Sector Non-residential Lighting

Added clarification to the batch submission process. The language now reads:

The following requirements are for submitting batch lighting projects. Using the batch submission format is intended to streamline large-scale projects and is optional. Individual lighting calculators may be submitted instead of using the batch format.

Requirements: The project addresses or locations shall be entered in the notes section of the lighting calculator or in a customer-generated spreadsheet. When applicable, the customer address may be entered as the site address. In cases where a street address is not applicable, enter the nearest street intersection.

Rationale: Clarified that the batch submission process is optional for multiple installations.

Multi-Sector

Effective October 1, 2016

Change: Commercial Clothes Washers – Multi-family

The savings will change

Rationale: This change is due to an RTF action.

