



BPA ENERGY EFFICIENCY  
RESIDENTIAL  
NEW OPPORTUNITIES GUIDE



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# Introduction

The Bonneville Power Administration, or BPA, energy-efficiency program is continuously evolving to meet Public Power's share of energy-savings targets laid out by the Northwest Power and Conservation Council's Power Plan. Strategically, BPA also uses energy efficiency to address future energy-resource constraints in a cost-effective manner. To achieve these two goals, BPA periodically reviews program offerings. This Residential New Opportunities Guide is a resource that utilities can use to help identify measures, programs and opportunities that support their energy efficiency programs. For more information on the complete suite of Residential sector program components and offerings, please consult the [BPA Implementation Manual](#).



# Residential Measures

BPA has changed its focus on residential measures to better align with our resource program and system needs, and adapt to the transformation of the residential lighting market. BPA is focusing our infrastructure and program support on measures that reduce residential heating and cooling loads, and high-efficiency water heating, while continuing to offer a more extensive suite of measures.

This Residential New Opportunities Guide will help utilities focus on priority measures that will assist utilities with keeping their power rates low and provide insight into what BPA is doing to support utilities in their implementation of these measures.



## Sector Offerings

Residential energy efficiency is primarily offered through Unit Energy Savings, or UES, measures in Section 10 of the BPA Implementation Manual. The BPA engineering team is available for custom projects for technologies that aren't available in the Implementation Manual or projects that address a whole-building approach, such as multifamily retrofits.

Priority measures in the Residential sector include:

### WEATHERIZATION

BPA offers the [Comfort Ready Home](https://www.comfortreadyhome.com) program to support utilities with the implementation of contractor-installed residential weatherization, HVAC and heat pump water heater upgrades. The Program support helps ensure utilities and their end-use consumers have well-trained contractors available to properly perform the installations. Learn more about Comfort Ready Home at [comfortreadyhome.com](https://www.comfortreadyhome.com).

BPA's priority weatherization measures include:

#### 10.10.1 INSULATION

Adding insulation to attics, walls and floors can significantly reduce home heating costs and help ensure homes are more comfortable by providing a better distribution of heating and cooling flows. Insulation is a priority measure for BPA because the resulting energy savings align with the region's need for additional electricity resources. To help utilities implement residential insulation measures, BPA recently tripled payments for most completed projects.

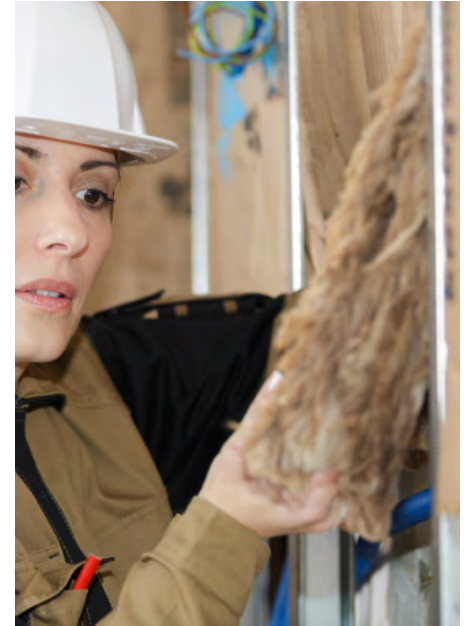
#### 10.10.2 PRIME WINDOW REPLACEMENT

Replacing older single-pane windows can help reduce drafts, improve comfort and reduce home heating costs. Prime window replacement complements insulation measures by helping to reduce drafts. To help utilities implement residential window replacement measures, BPA recently doubled payments for most completed projects.

#### 10.10.5 WHOLE HOUSE AIR SEALING AND TESTING

Whole-house air sealing and testing allows contractors to find the sources of air leaks and seal them so conditioned air stays in the home and air from unconditioned spaces, such as attics and crawlspaces, stays out of the living space. Whole-house air sealing and testing compliments residential insulation measures by helping ensure potential energy savings from insulation is achieved and improving indoor air quality.

Most residential weatherization measures are also available with higher payments for verified low-income customers under Section 10.10.7 Low-Income Energy Efficiency Measures.



# HEATING, VENTILATION AND AIR CONDITIONING

BPA provides payments for high-efficiency HVAC equipment, including ducted air source heat pumps, ductless heat pumps, ground source heat pumps and thermostats. BPA also manages an equipment commissioning program, Performance Tested Comfort Systems, or PTCS, which ensures air source heat pumps, ground source heat pumps and duct sealing are installed in a manner most likely to achieve energy savings, long-term reliability and home comfort. More information about the PTCS program is available on BPA's [website](#).

Over the next year, BPA will focus on ensuring the energy-savings reliability and cost effectiveness of all residential HVAC measures. Through [Comfort Ready Home](#), BPA will also focus on providing quality training for contractors who install residential measures that foster reliable energy savings. BPA continues to create new measures in response to increasing regional cooling loads and changes in technology.

BPA offers incentives for many HVAC technologies both through the PTCS program and outside of it. BPA's priority residential HVAC measures include:

## 10.7.2.1 AND 10.7.2.2 PTCS AIR SOURCE HEAT PUMPS

The PTCS program offers commissioning for air source heat pumps, among other technologies, following a stringent specification to help ensure energy savings, reliability and home comfort from installations of air source heat pumps. BPA is currently simplifying the PTCS program to make it easier for contractors and utilities to participate and report savings.

## 10.7.4 AND 10.7.5 ASHP CONVERSIONS (WITHOUT PTCS)

BPA also offers payments for air source heat pumps based on their energy-efficiency levels. While this measure doesn't include the commissioning components of PTCS, it allows utilities to claim energy savings without the additional technical and reporting components of PTCS.

## 10.8.2 ADVANCED SMART THERMOSTATS

Advanced smart thermostats reduce the energy consumption of electric forced air furnaces and air source heat pumps by optimizing furnace run times, and responding to household behaviors to reduce overall heating energy use. BPA's specification for advanced smart thermostats is more stringent than many utility specifications for the technology, which ensures higher energy savings and allows payments that can cover the whole product cost of lower cost-qualified products.

Some residential HVAC measures are also available with higher payments for verified low-income customers under section 10.10.7 Low-Income Energy Efficiency Measures.



## 10.5.7 UNITARY HEAT PUMP WATER HEATERS

Heat pump water heaters can reduce home water heating costs by as much as 50%, and the technology is rapidly advancing to become more reliable and retain performance under a wider range of ambient temperatures. However, determining whether a home is a good candidate for a heat pump water heater can be challenging. BPA works with the Northwest Energy Efficiency Alliance, or NEEA, [Hot Water Solutions program](#), which helps consumers understand if the technology is right for them, and connects them to incentives and contractors. The [Comfort Ready Home](#) program supports heat pump water heater technology by developing a qualified contractor list and training contractors on installation requirements. This training helps promote contractor installations and ensure the equipment saves energy and meets household hot water needs.

BPA provides payments for unitary and split-system heat pump water heaters, but the implementation focus is on unitary systems because they have a lower cost. Over the next year, BPA will increase its focus on providing support to contractors so they can increase their heat pump water heater installations.



## 10.6.1 ENERGY SAVER KITS

Energy Saver Kits provide instant low- or no-cost energy-saving measures to customers by request. The kits are a great way to welcome new residential customers and also offer a small amount of relief to customers who want to reduce their electric bills. BPA has measures for a range of Energy Saver Kits, many of which are fully funded by BPA incentives. Your energy efficiency representative, or EER, can provide more information about available vendors that assemble and distribute kits.

## 10.2.5.2 BEHAVIORAL ENERGY SAVINGS

In April 2020, BPA offered a new measure for residential behavioral home energy reports. These reports are provided by qualified third-party vendors listed on our qualified programs list. Behavioral Home Energy reports provide information on household energy use to end-use consumers, tips on further reducing energy consumption, and can be used to promote targeted energy-efficiency measures to consumers based on their home's energy use. This measure complements BPA's weatherization, HVAC and water heating measures by further helping consumers understand how they may benefit from energy-efficiency upgrades and connect them to helpful utility programs.



# BPA Resources

The following resources are available to help utilities optimize their working relationships with BPA, program operations and other personnel to support utilities in their work to achieve better energy efficiency and savings.

## MARKETING MATERIALS

The primary tool BPA's Energy Efficiency Program Marketing team uses to help utilities communicate with their customers about energy efficiency is the [Energy Efficiency Marketing Portal](#). The portal offers a range of easily customizable, ready-made marketing materials, and an image library to help utilities communicate about the benefits of energy-efficiency products and current rebate offers. Marketing resources are also located on the [Residential Marketing Toolkit](#) page on bpa.gov, but for ease of use, they are not password protected.

Utilities may also work directly with the [Program Marketing team](#) to adapt portal materials if they lack the capability or resources to work with the files, or need a level of customization beyond what the portal offers. Your EER and the BPA marketing staff are happy to help you find a solution that meets your needs.



**COMPANY LOGO PUBLIC UTILITIES** Energy Efficiency Rebate Program Incentives for Single-Family Homes

Free Energy Audits and other services are also available.

Need more information?  
UTILITY NAME  
UTILITY PHONE  
UTILITY EMAIL

*It's a Good Place TO BE*

**Hot water is something everyone can smile about.**

**COMPANY LOGO PUBLIC UTILITIES**

Did you know? Heat pump water heaters have the flexibility to efficiently meet all your hot water needs. They can also reduce the water usage by up to 50 percent. **Smart utility name here** can help you find a qualified installer and offers customers to help offset the cost. Take control of your comfort and make your home a **Good Place To Be**. Contact us about installing a heat pump water heater at [powerful.com](#) or call 800-XXX-XXXX.

**SMART THERMOSTATS**  
Comfort gets a high-tech makeover

A home that helps you make smarter energy choices. Now that's comfort.

<b>Save Energy</b> The smart thermostat adjusts your home's temperature based on your lifestyle. The result? Greater comfort and less waste.	<b>Save Money</b> Smart thermostats are proven to lower energy bills so you have more money to enjoy doing the things you love.	<b>Get Cash Back!</b> We've even sweetened the pot with rebates for your qualified smart thermostat purchase. Rebates are available for qualified purchases.
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**BENEFITS MAY ALSO INCLUDE**

- Simple programming
- Remote access via smart devices
- Automatic updates
- Web-based monitoring and alerts
- Reduced energy costs

**Tips to help reduce your energy bills while staying at home**  
Spending more time at home — whether you're teleworking, homeschooling, or both — can create concerns about finding the balance between keeping energy costs down and using the amount of energy needed to keep your home.

Here are a few easy ways you can help reduce energy use and costs while spending more time at home.

- Be aware of savings.** Turn your power loads — or power consumed even when electronics are turned off — can add up to about \$200 in yearly costs! Advanced power strips, primarily used for home office and entertainment centers, prevent vampire loads by cutting power to specific cables only you use your devices again. Several energy efficient air conditioners, including smart, condenser coils and infrared sensor monitoring. Can't get out to the store or unable to locate one online? Keep us on hand. Our specialist electronics department will get you what you need to get the job done.
- Never come the sun.** Simply close your curtains to allow the sun to naturally warm the rooms of your home without using electricity. Natural sunlight can also do the job for you in the morning or late in the afternoon, so you can save your energy.
- Rest your schedule.** Instead of running high energy-use appliances such as dishwashers and clothes dryers during the afternoon or early evening hours, consider them early in the morning or late at night. Some clothes dryers have off-peak times, which can help reduce your costs.
- Fill it up.** Wash full loads, whether it's clothes or dishes. Washing multiple small loads means you're using and heating more water, which can increase your expenses. Using cold water or colder washing can also help lower your costs.
- Turn off the tap.** Keep the faucet off while handwashing, brushing your hands and brushing your teeth. Letting the water run during these simple activities can waste several gallons of water, which means your water heating and water use costs. Turning the faucet off can save up to \$100 a day for handwashing, and up to \$200 a day for brushing your teeth.
- Replace furnace filters.** Keep your heating and cooling system running more efficiently by regularly replacing your furnace filters. As a best practice, check your filter regularly and clean or replace them when they get dirty or every six months.
- Put it away.** Calculate how often you need to break away from electronic devices. Whether you take a walk, work on your car or go to the gym, unplugging a plug-in device can help reduce your personal energy needs while saving on energy costs.

Contact your local utility for more information or to learn how to save energy and reduce costs while spending more time at home.

**COMPANY LOGO PUBLIC UTILITIES**

**Let's get comfortable!**

**PERFORMANCE TESTED COMFORT SYSTEMS**  
Feel the difference. Count the savings.

*It's a Good Place TO BE*

**Be a Home Energy Hero**

**COMPANY LOGO PUBLIC UTILITIES**

All tasks and equipment installation contribute to safety and environmental friendliness in your home. Contact **Smart utility name here** to find a recommended contractor who can make improvements for your home that help keep you comfortable, your wallet and your energy bills. Improvements could also be eligible for rebates from **Smart utility name here**. Or check in your home. Have a certified comfort and energy audit. Each state has its own **Good Place To Be**. Learn more about weatherization and available rebates at [powerful.com](#) or call 800-XXX-XXXX.

**MORE COMFORT**  
in your home.  
**MORE MONEY**  
in your wallet.

Maximize the comfort in your home and minimize your energy bill.

Don't let your energy bills grow your energy use. And, let us help you save up to 50 percent on your energy bills by being green.

**COMPANY LOGO PUBLIC UTILITIES**

This is a **Good Place To Be** program. For more information, visit [powerful.com](#) or call 800-XXX-XXXX.

**LONG-TERM SAVINGS AND SHORT-TERM REWARDS.**  
Efficient Appliance Day

**Simple & Smart**

Look for the **Simple & Smart** logo on the front of the appliance. This logo indicates that the appliance is energy efficient and has a long life expectancy. For more information, visit [powerful.com](#) or call 800-XXX-XXXX.

**COMPANY LOGO PUBLIC UTILITIES** RESIDENTIAL WEATHERIZATION: INSULATION AND AIR SEALING FACT SHEET

**Where does my HOME lose the most Heat?**

Leaky Doors	30%
Attic	13%
Basement	21%
Windows	16%
Walls	3%

**Insulation**  
Increase the comfort of your home and reduce energy costs with proper insulation.

Did you know? Insulation is an important do-it-yourself home energy saving tip. It's also one of the most proven ways to reduce energy bills. By the end of the weatherization program, residential homeowners can save an average of 10% on heating and cooling costs. To study how your home is doing in the field, there are several ways to measure and monitor the energy use in your home.

Most people who insulate with R-19 or R-25 of attic insulation and a comparable amount of wall insulation, but not all.

Insulation is a classification of materials that are used to reduce heat transfer from the inside and outside of a building. Most materials are made of fibers, foam, or other materials. There are several types of insulation, each with its own benefits and drawbacks. For more information, visit [powerful.com](#) or call 800-XXX-XXXX.

**Types of insulation**

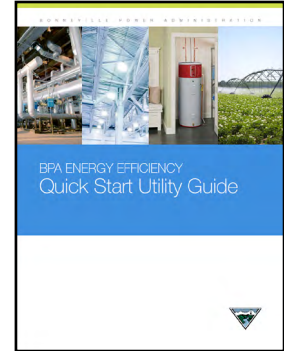
- Batts or rolls** are the most common and available form of insulation. They are manufactured in different thicknesses.
- Blown-in** insulation is made of cellulose or fiberglass fibers. It is blown into the attic or walls of a home to fill the gaps between studs.
- Fluid-applied** insulation is made of a liquid material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Perimeter** insulation is made of a material that is applied to the foundation of a home. It is available in spray foam or liquid form.
- Door and window** insulation is made of a material that is applied to the door and window frames of a home. It is available in spray foam or liquid form.
- Blanket** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Reflective** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Structural** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Acoustic** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Fire** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Sound** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Thermal** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Energy** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Weather** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Climate** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Control** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Reduce** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Energy** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Cost** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Save** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Money** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Time** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Effort** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Work** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Is** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Easy** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- To** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Install** insulation is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.
- Insulation** is made of a material that is applied to the walls or ceiling of a home. It is available in spray foam or liquid form.



## GETTING STARTED WITH RESIDENTIAL PROGRAMS

Getting access to Residential sector resources starts by first contacting your EER. Support for weatherization, HVAC and heat pump water heater installations is available through [Comfort Ready Home](#) Field Specialists. Contact [ResHVAC@BPA.gov](mailto:ResHVAC@BPA.gov) for PTCS installation support.

You can also consult the [BPA Energy Efficiency Quick Start Utility Guide](#) for information including overviews, references, links to additional resources for common tasks, and activities and responses to your potential questions.



## CUSTOMER SERVICE

EERs are accountable for building and maintaining customer relationships, and act as the key means to support Energy Efficiency's communication with utilities. EERs lead the Customer Service Team — composed of the EER, field engineer and the contracting officer's representative — for each utility. EERs work with all BPA staff, third-party staff and contract support to provide oversight, coordination, and the execution of communication to and from utilities. Your EER should be your first point of contact for any questions, comments or concerns about BPA's Energy Efficiency program. If your EER doesn't know the answer, he or she will find it and get back to you or put you in touch with the right person.

The EERs can bring in one of BPA's subject matter experts, or SMEs, such as the program manager, engineer or sector lead. If a visit to the project site would help, BPA's engineers or an SME may be available to perform a field visit or provide a building model to estimate potential energy savings.



## USER GROUPS

BPA convenes regular and ad-hoc workgroups to help inform and advise our residential energy-efficiency work.

- **Low-Income Workgroup:** BPA convenes utilities, Community Action Agencies and public interest groups on a regular basis to discuss best practices for serving low-income customers through energy-efficiency programs. The workgroup is open to the public.
- **PTCS Quality Assurance:** BPA holds a monthly workgroup for utilities that implement their own PTCS Quality Assurance inspections. The workgroup offers guidance on program refinement and development as well as insights into daily operations and market trends.
- **Weatherization:** BPA holds an informal weatherization workgroup for utility customers to update to the Weatherization Specifications and Best Practices Field Guide. The group meets on an as-needed basis and is open to all interested utility customers.

If you are not on these user group lists or have not been invited in the past 6-12 months, please inform your EER so you can be added to the invitation list.



# Measure Summary Table

The payment levels described in this table provide a summary only and can change. Complete, up-to-date details of the payment levels and associated requirements are in the Residential Sector section of the [Implementation Manual](#).

RESIDENTIAL	
PROGRAM COMPONENT OR MEASURE	PAYMENT
<b>10.2 Lighting</b>	
10.2.1 LED Lamps	\$0.75–\$9/LED
10.2.1 LED Fixtures	\$1–\$9/fixture
10.2.2 TLEDs	\$3–\$5/TLED
<b>10.3 Advanced Power Strips</b>	
10.3.1 Advanced Power Strips: Load Sensing (Home Entertainment Centers)	\$15–25/unit
10.3.2 Advanced Power Strips: Infrared Sensing (Home Entertainment Centers)	\$0/unit
10.3.3 Advanced Power Strips: PC Interaction Sensing (Personal Desktop Computers)	\$0/unit
<b>10.4 Appliances (New)</b>	
ENERGY STAR® Clothes Washers	\$15–\$100/washer
ENERGY STAR® Clothes Dryers	\$50–\$175/dryer
<b>10.5 Electric Water Heating</b>	
10.5.1 Showerheads	\$15–\$23/unit
10.5.2 Thermostatic Shut-Off Valves	\$14–\$23/unit
10.5.3 Aerators	\$3–\$8/unit
10.5.4 Unitary Heat Pump Water Heaters	\$300–\$600/water heater
10.5.5 Split System Heat Pump Water Heaters	\$800/water heater
10.5.6 Pipe Insulation	\$5–\$25/unit
<b>10.6.1 Energy Saver Kits</b>	
10.6.1 Energy Saver Kits	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
<b>10.7 Heating, Ventilation, Air Conditioning (HVAC) Measures</b>	
10.7.1 Ductless and Ducted Mini-Split Heat Pumps	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
10.7.2–10.7.5 Ducted Systems	See the payment section of this measure in the <a href="#">Implementation Manual</a> .

RESIDENTIAL	
PROGRAM COMPONENT OR MEASURE	PAYMENT
<b>10.8 Thermostats</b>	
10.8.1 Line Voltage Thermostats	\$18/unit
10.8.2 Smart Thermostats	\$100-\$125/unit
<b>10.9 New Construction</b>	
10.9.1 NEEM 1.1 Manufactured Homes	\$1,200/home
10.9.1 NEEM 2.0 Manufactured Homes	\$1,400/home
10.9.2 Manufactured Home Replacement	\$2,200-\$2,500/home
10.9.3 Single-family New Construction Performance Path	Varies based on measures installed
10.9.4 Montana House	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
10.9.5 Energy Efficient New Multifamily Construction	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
10.9.6 Zero Energy Ready New Multifamily Construction	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
<b>10.10 Weatherization (Standard Income)</b>	
10.10.1 Insulation	See the Unit Energy Savings (UES) Measure List in the <a href="#">IM Document Library</a>
10.10.2 Prime Window and Patio Door Replacement	\$2-\$16/square foot
10.10.3 Low-E Storm Windows	\$2/square foot
10.10.4 Exterior Insulated Doors	\$40/door
10.10.5–10.10.6 Whole House Air Sealing and Testing	See the UES Measure List in the <a href="#">IM Document Library</a> .
<b>10.10.7 Weatherization (Low-Income)</b>	
Low-income weatherization, ductless heat pumps, air source heat pumps, heat pump water heaters, duct sealing, and smart thermostats	See the payment section of this measure in the <a href="#">Implementation Manual</a> .
<b>13.2.5 New Residential Measures</b>	
13.2.5.1 Level 2 Electric Vehicle Chargers	\$20/charger
13.2.5.2 Behavioral Home Energy Reports	\$12 per household
13.2.5.3 Duct Insulation	\$0.60 per linear foot insulated