

Low Income Energy Efficiency Workgroup Meeting

Date: January 31, 2017

Time: 10:00 am-1:00 pm Pacific Time

Location: Training and Event Space (1st Floor North) of the Pacific Tower, 1200 12th Ave. S., Seattle, WA

[Add the meeting to your calendar.](#)

[Join WebEx meeting](#)

Join by phone: **1-650-479-3208** Meeting Materials can be found [here](#).

Agenda

- 10:00 Welcome, Recap and Round Robin of developments and announcements to share
- Recap of October 6 Portland meeting
 - Building on the [Quick Start Guide](#). Reminder about [new multifamily/renter section draft](#) on Conduitnw.org
 - Update on national LIEE workgroups and the RBSA (Carrie Nelson)
 - [Proposal for workgroup structure and steering team](#) (Summer Goodwin)
- 10:30 [Seattle City Light's low income strategy](#): lessons learned and plan for future – Lars Henrikson and Andy Gibb, Seattle City Light
- 11:15 Break
- 11:30 [Repair costs versus installation costs](#): possible scenarios and Q&A with a BPA Energy Efficiency Representative and a COTR -- Dena Hilde and Melissa Podeszwa, BPA
- 12:15 BPA Programs Update—Jess Kincaid, BPA
- 12:30 Wrap Up and Next Steps
- 1:00 Adjourn

Please note: This event is in the Training and Event Space (1st Floor North) of the Pacific Tower, 1200 12th Ave. S., Seattle, WA 98144. The parking for events is on P2 and P6 of the garage in that building.



About this workgroup

BPA invites its public power customers and regional stakeholders to participate in the [Low Income Energy Efficiency workgroup](#). BPA is convening this workgroup as agreed to as part of the Post-2011 Review public process. Background on that process and Workgroup 3 can be found [here](#).

Facilitator: [Summer Goodwin](#), BPA, 503-230-3158

Steering Committee

[Hans Berg, Washington Department of Commerce](#)

[Todd Blackman, Franklin PUD](#)

[Shawn Collins, The Energy Project](#)

[Steve Jole, HACSA](#)

[Travis Hardy, Northern Wasco PUD](#)

[Wid Ritchie, Idaho Falls Power](#)



CITY LIGHT LOW INCOME STRATEGY

Lessons Learned and Plan for the Future

Andy Gibb and Lars Henrikson | January 31, 2017



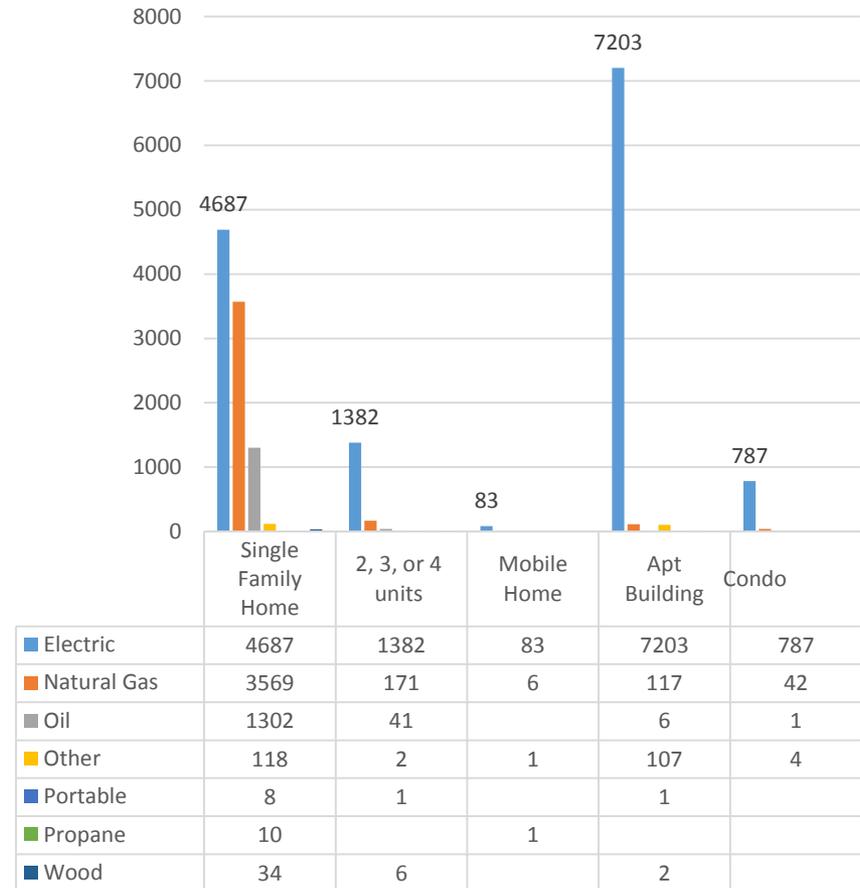
ENERGY ASSISTANCE FOR LOW INCOME

- Utility Discount Program (UDP)
 - Customers < 70% of State Median Income
 - 60% off of electric bill (50% off water sewer garbage)
 - Electric heat homeowners should be weatherized
 - Mayor and City Council support for increasing participation in UDP
 - Currently ~ 28,000 participants
 - Up to 72,000 customers may be eligible
- Project Share
- Emergency Low-Income Assistance

SEATTLE CITY LIGHT UTILITY DISCOUNT PROGRAM

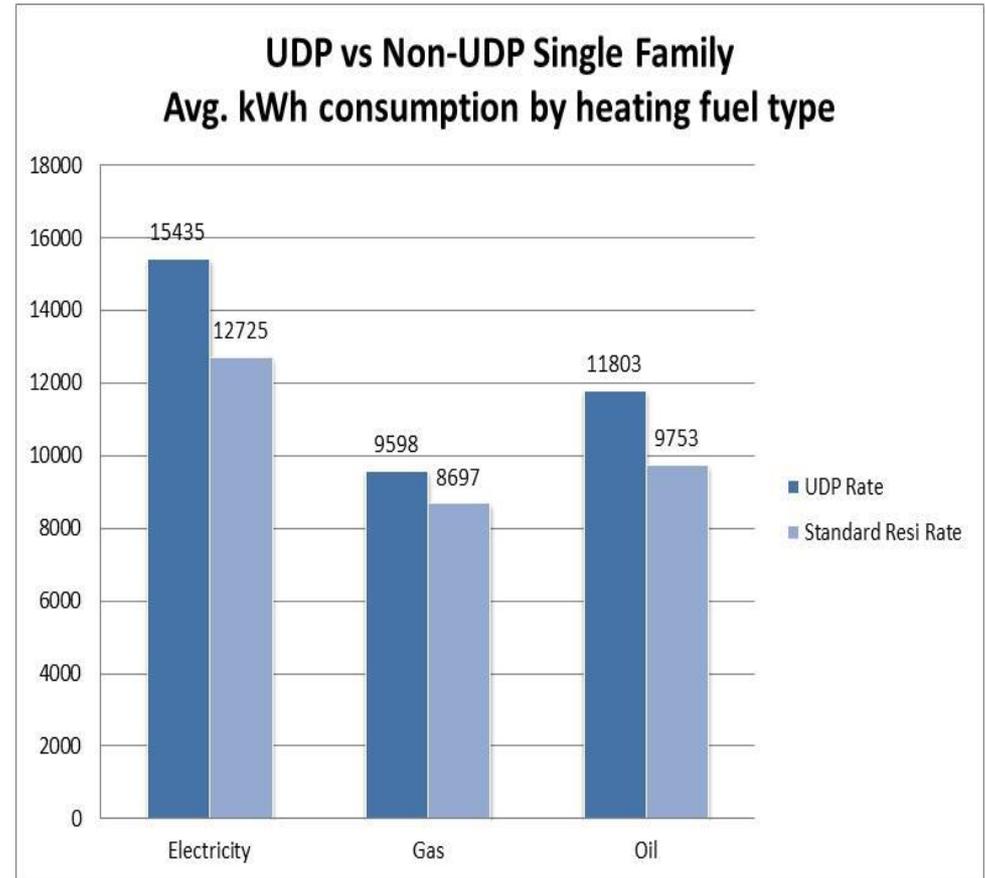
- Utility provides 60% discount to qualified low-income customers
- Ethnically and linguistically diverse
- Approximately 28,000 UDP customers,
 - 43% 1-4 units; 57% MF
- 14,000 electrically heated UDP customers
 - 6,150 Single Family (1-4 units)
- 1,670 oil and gas SF homes where electric heat is likely

UDP Customers by Heating & Housing Type



UDP = 20% HIGHER USAGE

- Electric and Oil heat UDP customers use 21% more electricity than non-UDP
 - Based on pre-post!
- Increased usage correlates to heating season
- \$202 annual **additional** subsidy/home/year
 - **\$1,000,000+ additional subsidy/year** at current UDP participation



Source: SCL Billing data (CCSS)

WEATHERIZATION ASSISTANCE FOR LOW INCOME

Office of Housing's HomeWise Program

- Weatherization of low-income homes
 - Single-family and Multifamily
 - Serving all heat types
 - Electrically heated homes funded by City Light
- Currently serving 400-600 multifamily units and 100-200 single-family electric heat homes per year



UTILITY PROGRAMS SERVING LOW INCOME

Programs that serve all customers

- Retail markdowns
 - LED lamps for under \$2
 - WaterSense showerheads for under \$6
- Refrigerator/freezer recycling (\$30 rebate)
- Appliance Rebates



UTILITY PROGRAMS SERVING LOW INCOME

Programs with extra focus on Low Income

- Direct Installation
 - Currently multifamily only
 - 12,000+ homes/year (primarily renters)
 - Targeted outreach
 - Low-income, Non-native English speakers, and Seniors
- Home Electricity Reports (Opower)
 - Many low-income customers in program
 - New effort to increase service specifically to UDP

CAN WE DO MORE FOR LOW-INCOME SF?

Direct Install Pilot launched to learn:

- What is the EE potential in low income homes?
- Can we reach this population?
- What is the cost to serve?
- Can we leverage an initial visit?
 - Gathering information on home characteristics
 - Passing leads to low-income Wx program
 - Customer education

D.I. PILOT – OUTREACH AND RESULTS

- Direct Mail –
 - 3000 Utility Discount Program (UDP) customers
 - No filtering for heating fuel type
 - Outreach letter from City Light in English
- Nearly 300 responses (10% response rate)
 - 30% were non-native English speakers
- Planned e-mail outreach not tested

D.I. PILOT – MEASURES PROVIDED

- LED Bulbs to replace incandescents only
 - A-Lamps
 - Reflectors
 - Globes
 - Candelabras
 - MR 16s



- 1.5 GPM showerheads & 1.0 GPM aerators
- Advanced Power Strips
- Walk-through energy audit

D.I. LIGHTING 2015-16 COMPARED TO 2010

Pilot – 2016

- 24+ LEDs per home
 - 12 A-Lamps
 - 3 Globes
 - 4.5 Reflectors
 - 4.5 Candelabras (not available in 2010)
 - 0.5 MR16s (not available in 2010)



ARRA Program – 2010

- 18 CFLs per home
 - 12.6 A-Lamps
 - 2.9 Globes
 - 2.5 Reflectors



D.I. LEAVE-BEHINDS 2015-16 COMPARED TO 2010

Pilot – 2016

- Leave-behinds
 - 0.4 showerheads
 - 1.1 aerators
 - 1.2 Advanced Power Strips (not available in 2010)

ARRA Program – 2010

- Leave-behinds
 - 0.5 showerheads
 - 0.9 aerators

(in 2010 both gas and electric water heat were served)

LESSONS LEARNED FROM D.I. PILOT

Current Offerings are not Enough

- Low income customers have not been fully participating in retail mark-down efforts
- LEDs open up new opportunities
- Low income weatherization has done a lot but there are still opportunities
- Even with direct referral, not all home owners submitted applications for weatherization

BEYOND LEDES

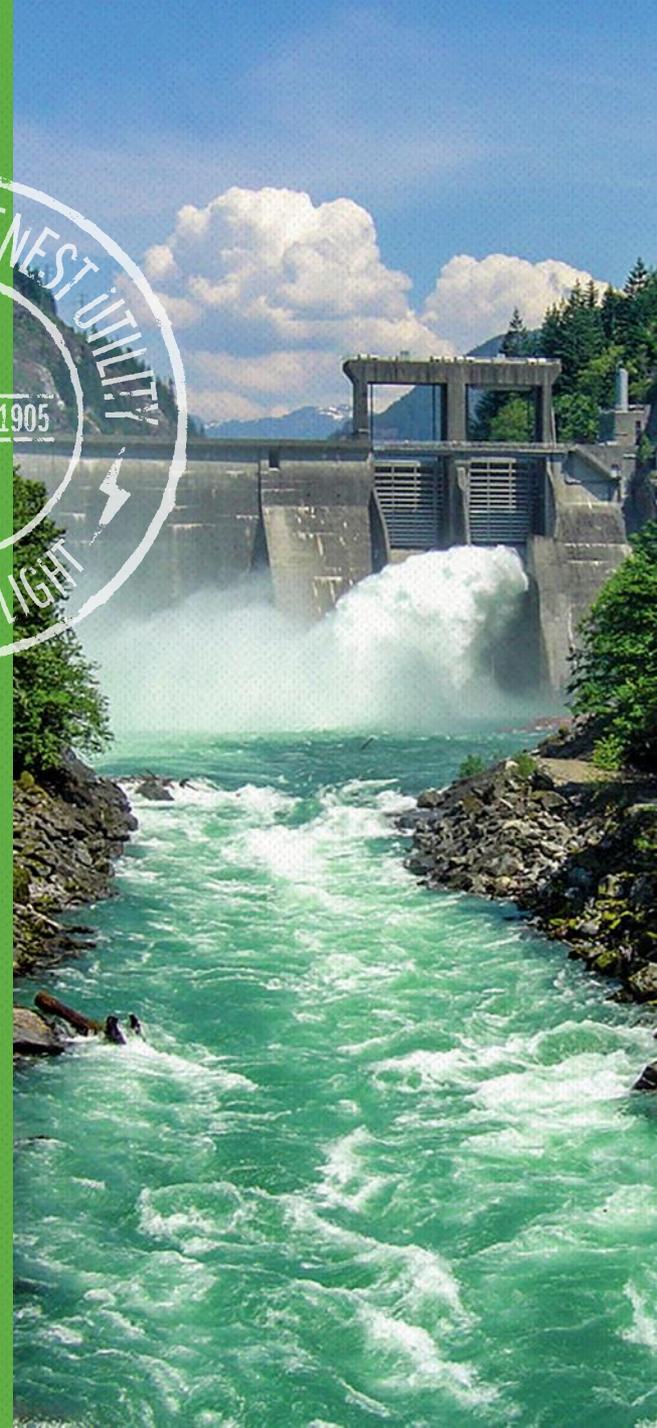
Walk-through audits identified opportunities

- Majority of electric heat homes did not need weatherization but:
 - 10% of electrically heated homes were referred to and received weatherization services from HomeWise
 - All electrically heated homes visited could benefit from a ductless heat pump (DHP)
 - Most homes with electric water heat could use a heat pump water heater (HPWH)



CITY LIGHT'S PLAN GOING FORWARD

Knowing what we know, what's next?



GOALS FOR LOW INCOME PROGRAM

Improve Service to Low Income Customers

- “Low-hanging” measures for UDP customers
- Improve understanding of market and needs
- Ductless Heat Pump, Heat Pump Water Heater, and other high-value installations
- Effective screened referrals to HomeWise
- Look for ways to improve B/C ratio

IN THE WORKS

- New RFP for LED direct install: multifamily + UDP
- RFP for high value measures direct install for UDP
- Coordinate with Seattle Public Utilities' water efficiency efforts
 - Shared cost of efficient washers
 - Maximize value of plumber in home
 - Heat pump water heater
 - Installation of showerheads and aerators
 - Efficient toilets

EXPECTED RESULTS FROM D.I.

Direct Installation:

- 10,000 – 13,000 Multifamily units/year
 - 300+ kWh/home
 - 2,000 – 4,000 low income customers/year
- 2,000 Single family UDP homes/year
 - LEDs, showerheads, advanced power strips
 - 1,000 kWh/home
- 200 High-value measure UDP homes/year
 - <5,000 kWh/home



CITY LIGHT

OUR VISION

To set the standard—to deliver the best customer service experience of any utility in the nation.

OUR MISSION

Seattle City Light is dedicated to exceeding our customers' expectations in producing and delivering environmentally responsible, safe, low-cost and reliable power.

OUR VALUES

Excellence, Accountability, Trust and Stewardship.



Differentiating Between Low-Income Measure and Repair Costs

Jess Kincaid, BPA Program Mgr

Melissa Podeszwa, BPA EER

Dena Hilde, BPA COTR

January 31, 2017





Program Manager



Energy Efficiency
Representative
(EER)



Contracting
Officer's Technical
Representative
(COTR)



WHO DOES WHAT – PROGRAM MGR

- Program Manager (Jess):
 - Develops and designs programs that meet Energy Efficiency targets
 - Creates measures, requirements and RefNos
 - Writes/Updates and manages the program rules in the IM
- Program Manager **Doesn't**:
 - Assist utilities in choosing programs to run, or help manage their budgets
 - Review IS2 invoices
 - Provide official determinations for the ECA

WHO DOES WHAT - EER

- EER (Melissa):
 - Signs the ECA between BPA-utility
 - Presents the IM rules and opportunities to utilities and helps them navigate the variety of offerings
 - Guides utilities on how to distribute their funds across available BPA program offerings
- EER **Doesn't**:
 - Design programs or write the rules in the IM
 - Review IS2 invoices
 - Provide official determinations for the ECA

WHO DOES WHAT – COTR

- COTR (Dena):
 - Reviews/Rejects/Approves IS2 invoices
 - Revises utility budgets in the ECA
 - Provides official determinations (compliance, eligibility, etc.) for the ECA
- COTR **Doesn't**:
 - Provide target or budget portfolio advice to utilities
 - Design programs or write the rules in the IM
 - Create measure requirements or RefNos

Measure Cost or Repair Cost Does it Matter?

(Answer: Yes!)

WHAT'S THE DIFFERENCE?

MEASURE COST – Cost of installing a measure per the program specifications and requirements.

REPAIR COST – Intended to cover the extra costs *beyond the ECM installation* that the low-income homeowner may not be able to pay for, thereby jeopardizing the efficacy of the measure.

WORKING BACKWARDS STARTING AT THE PAYMENT

INCENTIVE	(Up to 100% of Measure Costs)	MEASURE COST: Costs incurred for meeting requirements (e.g., verification of income, attic and crawl space ventilation, removal of knob & tube wiring, underfloor moisture barriers)
+		
REPAIR COST	(100% of Repair Costs - no limit)	REPAIR COST: Costs for 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).
=		
TOTAL PAYMENT		

REAL LOW-INCOME EXAMPLES

- Windows
- Exterior Door
- Ductless Heat Pump
- Attic Insulation: Home with attic
- Attic Insulation: MH without attic

WINDOWS

MEASURE COSTS (incurred for meeting installation requirements)	REPAIR COSTS (required for health/safety or to ensure the efficacy of the measure)
Windows, caulk, weatherstripping, labor, etc.	Replacing a rotten window frame or missing siding against the new window.

EXTERIOR DOOR

MEASURE COSTS (incurred for meeting installation requirements)	REPAIR COSTS (required for health/safety or to ensure the efficacy of the measure)
Exterior door, hardware, weatherstripping, labor, etc.	Repairing a landing/platform so the exterior door meets code.

DUCTLESS HEAT PUMP

MEASURE COSTS (incurred for meeting installation requirements)	REPAIR COSTS (required for health/safety or to ensure the efficacy of the measure)
Upgrading an electric panel to allow for dedicated circuits if existing panel doesn't have adequate capacity.	Replacing a Zinsco panel (fire/safety hazard).
Example: If the specs say the line-set has to be covered by UV protection, that's a Measure Cost.	Remove asbestos siding for the placement of the conduit.

ATTIC INSULATION - HOME WITH ATTIC

MEASURE COSTS (incurred for meeting installation requirements)	REPAIR COSTS (required for health/safety or to ensure the efficacy of the measure)
Insulation and labor.	Fixing holes in a roof to protect the insulation.
	Fixing/replacing a bathroom fan that is venting into the attic.

ATTIC INSULATION - MH W/O ATTIC

MEASURE COSTS (incurred for meeting installation requirements)	REPAIR COSTS (required for health/safety or to ensure the efficacy of the measure)
<p>Single-wide MHs do not have any "attic" space for blown insulation. Rather, insulation is added to the top of the original metal roofing by screwing down a rigid foam-like insulation pad, which of course puts holes in the roof.</p>	<p>Special rubber membrane on top of the rigid foam insulation to cover, seal and protect it.</p>

5.2 Exterior Roof Insulation

Contractors install exterior insulation when they replace or re-roof over the existing flat roof. Exterior insulation keeps the roof cavity warm, reducing the potential for condensation. Contractors must comply with these insulation requirements when adding exterior roof insulation.

1. Install exterior roof insulation to a minimum of R-7.
2. Fully insulate the ceiling cavity below and eliminate all vents. Don't install insulation over vented ceiling cavities or over cavities containing air spaces.
3. Roof systems must effectively drain water away from the structure. All penetrations through the roof covering and all joints between the roof covering and vertical surfaces must be flashed (for example: walls, chimneys, plumbing vents).
4. Other methods of installing exterior roof insulation must be approved by the utility in writing prior to beginning the work.

HOW DOES BPA ANSWER QUESTIONS NOT ADDRESSED IN IM?

- GOAL: Consistent, Reliable Answers
 - Group check
 - Official response is provided by appropriate person for type of question
 - COTR tracks the answer for future reference and possible modification to future IM

Questions?



Program Manager



Energy Efficiency Representative
(EER)



Contracting Officer's Technical
Representative (COTR)



Low Income Workgroup Meeting
January 31st, 2017
Seattle, WA

Summary

Summer Goodwin: Welcome, Recap and Round Robin of developments and announcements.
Recap of October 6 Portland meeting.

On the Phone (only)

Jim Maunder, Ravalli Electric
Wid Richie, Idaho Falls Power
Dan Cunningham, City of Ashland
Kathy Grey, EWEB along with Charlie Shifferdecker and Ron Norris
Brandy Neff, PNGC
Deann Star from Springfield Utility Board
Andrew Shepard, Energy Trust of Oregon
Dan, Greys Harbor PUD
Eric Miller, Benton REA
Ed Monson, Benton PUD
Ben Schuller, WSU
Boyd Wilson, BPA

Present In the room in Seattle

Dan Auer
Any Gibbs, Seattle City Light
Lars Henderson
John Davies
Charlie Comstock
Shawn Collins, Energy Project
Nathan Heber
Julie Hayes
Melissa Podeszwa, BPA EER, Seattle
Jess Kincaid, BPA
Faith Graham, MPower
Hans Berg, WA Dept of Commerce
Amanda Rains, WA Dept of Commerce
Mike Seeley
Jennifer Finnegan
Jeremy Stuart
Josh Warner, BPA CAE, Portland
Carrie Nelson, Low Income Grant Program and Tribal EE at BPA
Eugene Rosalie, NEEA
Travis Hardy, Northern Wasco PUD
Juliana Williams, WS Housing Finance Corp
Linda Esparza, Franklin PUD
Todd Blackman, Franklin PUD
Keith Kueny, CAPO
Aaron Dumas

Desiree Shernoff
Carl Seip
Summer Goodwin, BPA Marketing and Low Income Lead
Steve Joel, HACSA
Margaret Lewis, BPA

Roundtable Discussion:

- Travis Hardy is working on a multifamily section for the quick start guide, it is available in draft form on Conduit
 - Linda Esparza is going to edit
 - Julie Hays will look as well
 - Summer will send the link out so everyone can review and make changes in the comments
- Dan Auer has 20 years experience in weatherization in PSE territory, which pays 100% of the cost of the installation of weatherization measures in low-income housing. Has a new measure that uses Thermographic equipment. The new measure is dense pack insulation and air sealing multifamily homes. The work requires different skills and different training. A lot of work has been done in the King County area, but Public Utilities do not recognize it as a measure.
- Linda Esparza asked about ASHP incentives, Jess will look into this
- Julie Hayes - embarking on implementation of MF Strategic Energy Management program for PSE for market rate, senior and low-income housing. They are working with King County Housing Authority and Bellingham Housing Authority. It will be a year long project
- John Davies- started a partnership with the City of Blaine, WA. They did their first house this month.
- Todd Blackman, is very interested in Heat Pump Water Heaters (HPWH)
- Julianna Williams-WS Housing Finance Corp –commented on multifamily coordination with CAAs. She recommends reaching out to the housing finance committee in their states. They have a lot of data. She advised to consider them a resource for multifamily projects. She is reaching out to Housing Finance Corps in each state.

National Low-Income Workgroup Update, Carrie Nelson BPA

- Summarized the ACEEE low-income utility working group. ACEEE has participants on a national level including most states. It started in September and has met almost monthly. ACEEE have released two related reports recently:
 - *Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low-Income and Underserved Communities* Link: <http://aceee.org/research-report/u1602>
 - *Building Better Energy Efficiency Programs for Low-Income Households* Link: <http://aceee.org/research-report/a1601>
- For the first time, the Residential Based Socket Assessment will include questions about income level.

Proposal for workgroup structure and steering team, Summer Goodwin, BPA

Summer discussed the Steering Team and the informal Charter.

- Adding Carrie and Jess as members
- Adding process for replacing participants

Seattle City Light's low income strategy: lessons learned and plan for future – Lars Henrikson and Andy Gibb, Seattle City Light.

- Utility Discount program requires anyone on the program to be weatherized if they have electrically heated program. Only homeowners. 28k participants currently but 72k still eligible.
- Usage might actually go up once they are in the program but that could be because they were cold before.
- They have a direct install program with showerheads, aerators, and LEDs. They also did a direct install pilot by mail to 3000 UDP customers. They learned that 30 percent were nonnative speakers. They are thinking about how to do bilingual outreach in future. Had 300 responses. ECOVA runs the program for that.
- It doesn't look like their retail buy down program is reaching low income homes. There was still a lot of opportunity for lighting in the low income homes.
- They did a walk through audit program and it showed that a lot of those homes could use a DHP if electrically heated and use a HPWH if they have electric water heaters.
- They might give the LI customer a voucher to go on the SCL online store and buy what they need in terms of lighting. There could be collaboration with the water utility on a clothes washer replacement program, also DHPs and HPWHs. They are encouraging their housing office, Home Wise® to encourage those upgrades.
- SCL has an RFP that will be coming out for LED direct install for multifamily and UDP. Also a RFP for high value measures direct install.
- Goals: improve services, improve understanding of market, increase DHP and HPWH installations. In the works: new RFP for LED direct install MF, coordinate with Seattle Public Utilities water efficiency efforts. Expecting 10 - 13k MF units per year for direct install (300+kWh/ year)

Differentiating Between Low Income Measure and Repair Costs - Melissa Podeszwa, BPA Energy Efficiency Representative and Jess Kincaid BPA Program Manager

Repair costs versus installation costs: possible scenarios and Q&A

- Jess gave a Low Income program overview (not the Grant program). Please refer to the PowerPoint presentation.
- Melissa and Jess went over the Repair Costs versus installation costs 0 – utilities have to report to BPA the costs in two columns: one is measure costs, aka install costs, and the other is the repair cost. Together those two make up the total payment. Bottom line is that if there are questions, route them to your EER.
- Melissa and Jess went over specific examples for items that might be repair costs versus measure costs for DHPs, windows, and attic insulation for site built and manufactured housing. For specifics see the appropriate power point.
- Jess-points out that the reason why repair costs are relevant for utility program, is that sometimes there are caps on the repair costs.
- Steve Jole-does this allow more money to be spent if it is divided into other categories (i.e.) repair. Answer-depends on the budget of the utility still.
- Travis questioned about stairs, landings, etc. Jess advised it can be a case by case issue and it's helpful to always take pictures.
- Dan asks about apartment buildings with no room for attic insulation, and the opportunity because apartment owners need to replace roofs anyways.
- Charlie points out that this requires very specific line items for what can be billed and what can't. usually what they see from the contractor is one line item per measure.
- Eugene Rosalie-good to figure these things out ahead of time with CAA.

Upcoming Program Activities – Jess Kincaid, BPA

- The October IM will allow income qualification for multifamily dwellings by building or complex, not just building as currently stated.
- BPA is considering a new low-income payment for HPWHs in single family homes and MFHs. This is for October 1. It is not guaranteed, and there will be a cost cap.
- Todd-take into account that lower income homes have a bigger demand for hot water.
- BPA currently has a measure for new manufactured homes. We are looking into whether there is enough additional energy savings when replacing a pre-HUD code manufactured home with a new high efficiency home to develop a replacement measure.

Wrap Up and Next Steps

April 18th in Portland (Morning meeting at PNGC), suggested topics

- Multifamily air sealing dense pack
- WAP Program guidelines for solar
- Low income community solar
- Shrinking conservation potential for low income measures and projects
- CO2 water heaters (NEEA could present) or water heating and DHPs
- Multi-zone DHPs (Might ask Robert Weber to help)
- Engaging Low Income customers in behavioral change – Community Energy Project
- Refrigerator recycling program
- Air source heat pumps
- ERVs
- Single family rental units
- RBSA (might be too soon)
- Tacoma's study on Rate Design

Low Income Energy Efficiency Workgroup Meeting

Date: April 18, 2017

Time: 10:00 am-12:30 pm Pacific Time

Location: PNGC Power, 711 NE Halsey St, Portland, OR 97232

[Join WebEx meeting](#)

Meeting number (access code): 991 514 813

Meeting password: sYx94Gq5

Join by phone

1-650-479-3208 Call-in toll number (US/Canada)

[Add to Calendar](#)

Agenda

10:00 Welcome, Recap and Round Robin of developments and announcements to share

- Workgroup Updates, Safety Procedures, Role Call/Introductions – Carrie Nelson, BPA
- Recap of January 31 Seattle meeting

10:30 Low-Income EEI Program Update – Jess Kincaid, BPA

10:45 Panel and Roundtable Discussion: Educating Installers and Customers –Hans Berg, WA Commerce

- Education on use of Advanced Technologies –
 - Heat Pump Water Heaters, Best Practices for Installation - Jill Reynolds, NEEA
 - Ductless Heat Pumps, Best Practices for Installation - Suzi Asmus, NEEAClient Education –Charlie Schifferdecker, EWEB and Rick Gregg, The Heat Pump Store
- Round Table Discussion

12:15 Wrap Up and Next Steps

12:30 Adjourn



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[Wid Ritchie, Idaho Falls Power](#)

NW DUCTLESS HEAT PUMP PROJECT



DHP Low Income Workgroup Presentation

Suzi Asmus, Program Manager, NWDHPP

AGENDA

- Market Opportunity
- Market Trends
- Quality Installations
- Resources Available
 - Market and Customer Insights

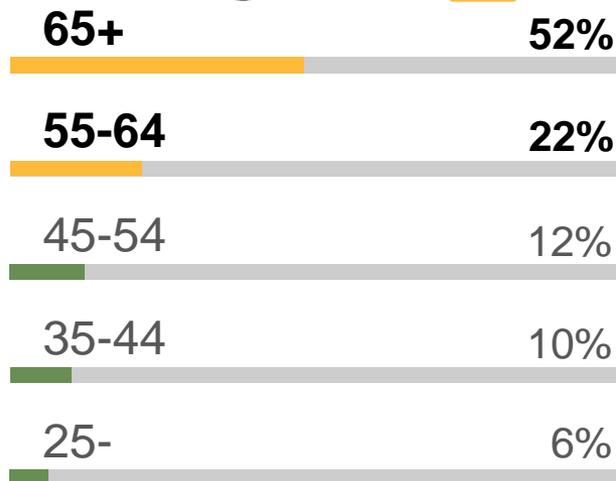
Ductless Market Opportunity: NW Market Profile*

Housing Stock

- Built in the early 1960s
- 1,592 sq. ft.

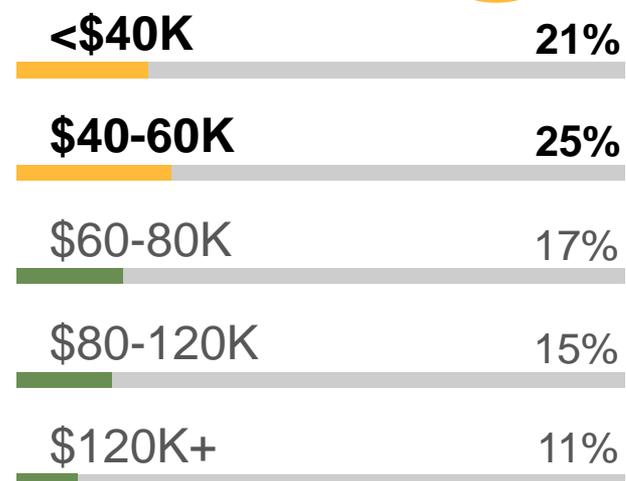


Age (yrs)**



34

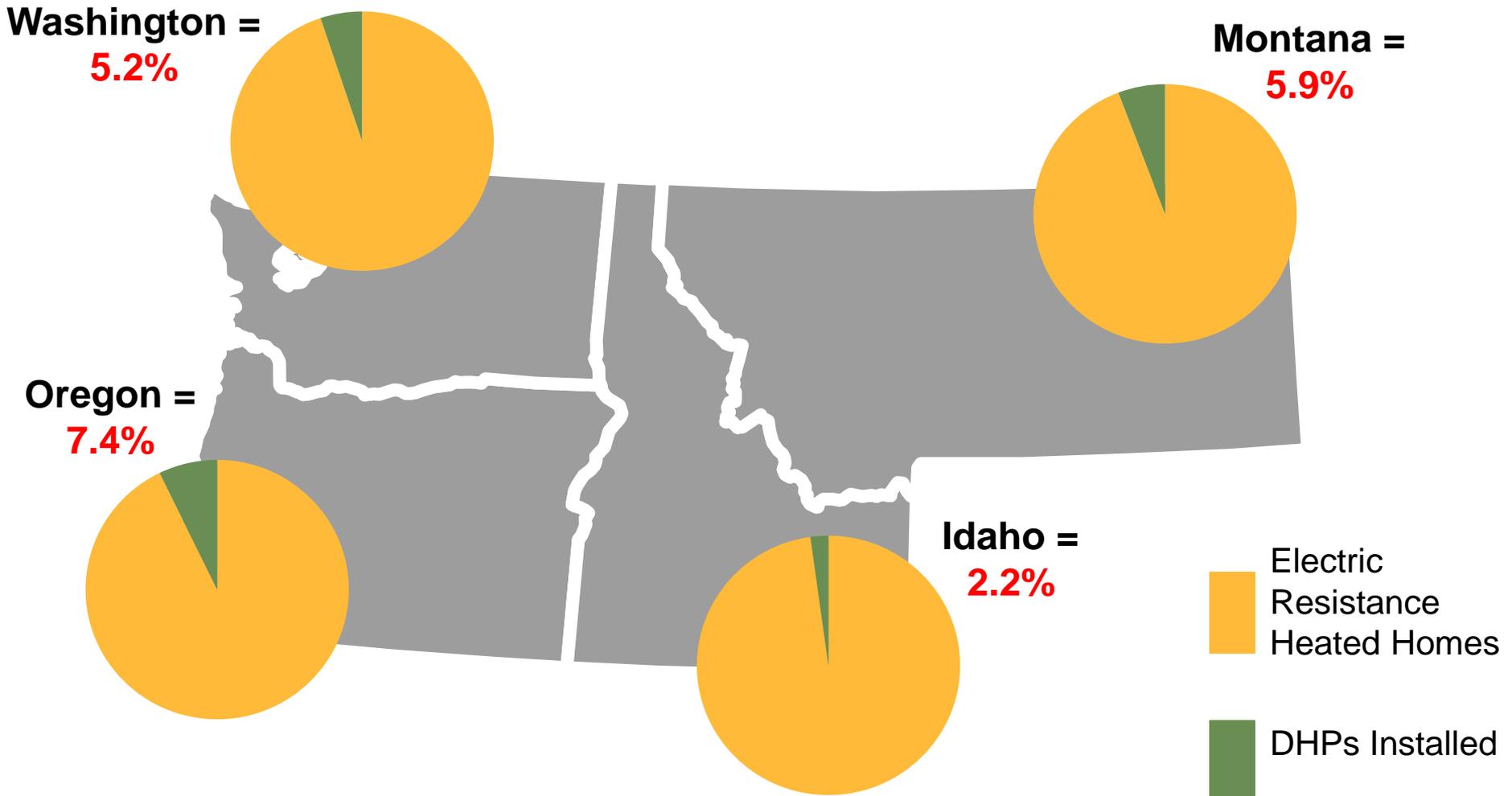
Income**



* From 2012 RBSA

**Percentages reflect averages across the 4 Northwest states and thus don't equal 100%

Ductless Market Opportunity: Saturation



*The data in this chart represents Project incented DHP installations 2008-2015

Market Trends

- Whole Home Solutions
- Multi-zone
- “System enhancements”
 - Cold climate systems
 - Smart thermostats/Nest
 - Phone apps
 - Surge protector
 - Financing

Market Trends: NW Install Configuration

Year	# of Utilities	# of Rebates Processed	1:1	1:2	1:3	1:4	2:2	Other
2013	27	1,850	62.3% (1,152)	24.7% (457)	7.5% (139)	1.8% (34)	2.4% (44)	1.3% (24)
2014	24	1,590	60.0% (955)	23.1% (368)	9.0% (144)	3.4% (54)	2.7% (43)	1.6% (25)
2015	22	1,715	61.2% (1,050)	23.6% (404)	8.8% (151)	3.5% (60)	1.3% (23)	1.5% (26)
2016	21	2,078	54.2% (1,126)	26.2% (545)	11.9% (252)	4.6% (95)	0.9% (18)	2.2% (31)

Source: Utility rebate data

Opportunities

Opportunities

- DIY/Quick Connect
- Fujitsu Halcyon 115V
- Bulk purchase
- Rebate program design

Best Practices

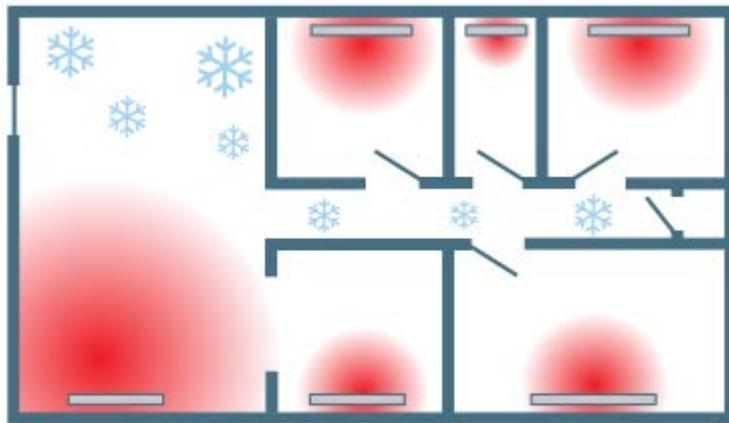
Best Practices: Displacement Approach

Displace Electric Resistance Heat With a Ductless System

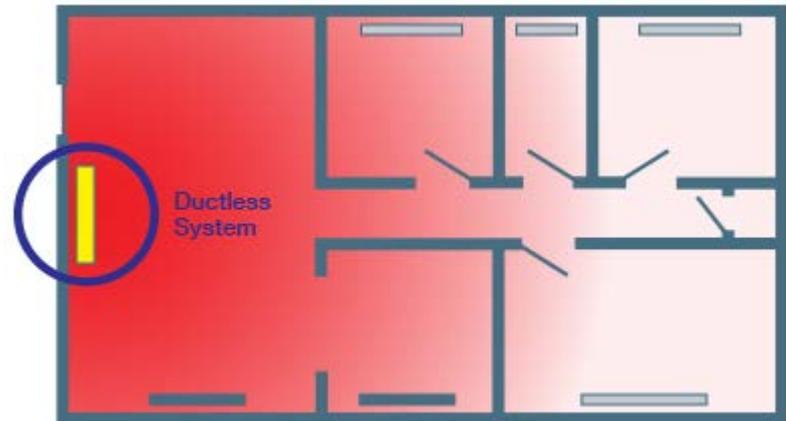
Step 1: Install ductless unit in primary living area

Step 2: Retain electric resistance heat as backup

Results: Maximize energy savings, cost effectiveness and sales opportunities



Existing condition

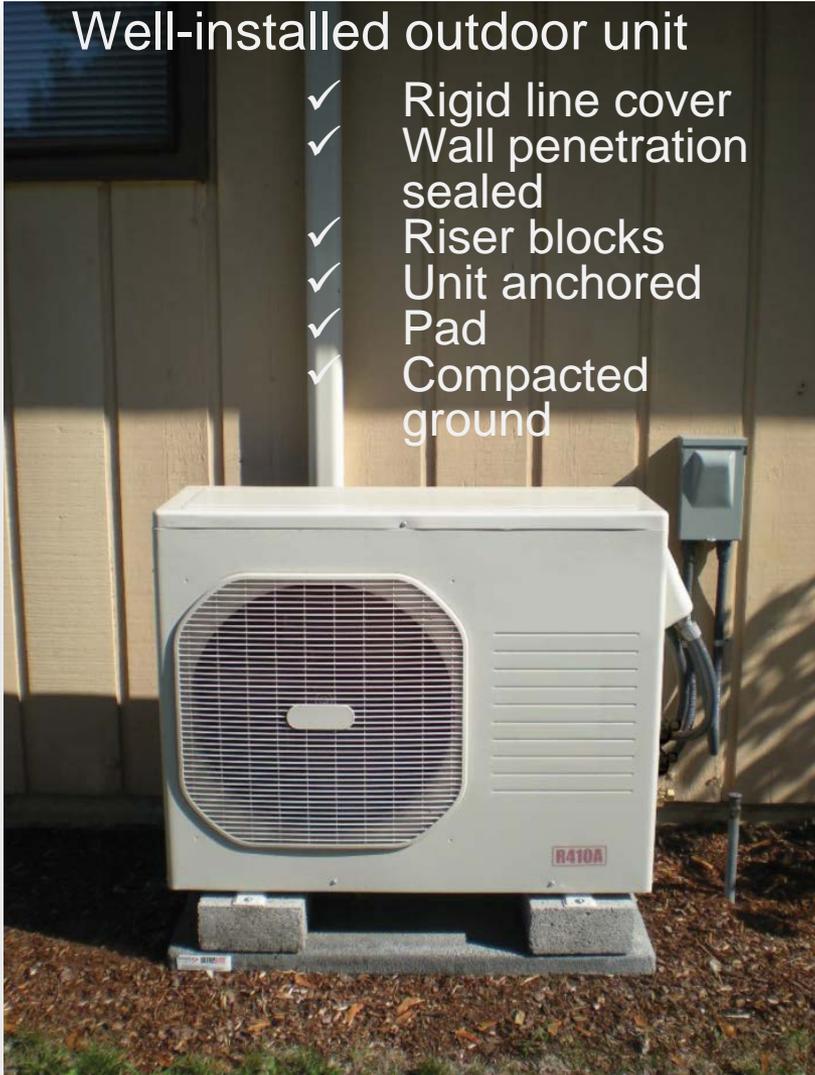


Displacement solution

Best Practices: Installations

Well-installed outdoor unit

- ✓ Rigid line cover
- ✓ Wall penetration sealed
- ✓ Riser blocks
- ✓ Unit anchored
- ✓ Pad
- ✓ Compacted ground



Well-installed indoor unit

- ✓ Installed high on wall
- ✓ Leveled properly
- ✓ Main indoor unit is centrally located in home for best air circulation



Best Practices: Defrost Discharge and Drainage

Defrost Discharge

- In cold weather, outdoor units may discharge considerable amounts of water
- Frozen discharge water poses serious safety hazards

Cold Climate Installations

- Installation considerations:
 - Use a pan heater to avoid defrost discharge freezing inside compressor unit
 - Increase clearance under outdoor unit to promote easy drainage and reduce snow and ice build up
 - Consider wall-mount brackets to maximize outdoor unit clearance



Best Practices: Homeowner Education

Educate Your Customers

- Walk through operation and maintenance
- Provide a copy of the Homeowner's Guide
- Satisfied customers tell their family, friends & neighbors



Our heating bill is at least half. I tell everyone that listens they need to get a ductless heating and cooling

YEAR-ROUND COMFORT AND LONG-TERM SAVINGS

Ductless heat pumps give you more control of your home's temperature while heating and cooling at a fraction of the cost of baseboard, wall and ceiling heat or electric furnaces.

Get the most from your new ductless heat pump by following the operational guidelines.

THE SYSTEM OPERATION MODE TO "HEAT" OR "COOL"

Set the system to HEAT mode during the cooler months and COOL mode during the warmer months. If you have multiple indoor units, set them all to operate in the same mode. Do not use the AUTO operation mode, which does not provide the most efficient or comfortable results in the Northwest.

THE "AUTO" FAN SPEED SETTING

Maximize efficiency and comfort by using the AUTO fan speed setting instead of other fixed speeds, such as quiet, low, medium and high. The AUTO fan speed setting automatically adjusts fan speeds to match your heating and cooling needs.

CONTROL YOUR COMFORT

A ductless system is designed to adjust to changing conditions automatically and continuously. Set your ductless heat pump to a comfortable temperature and let the system adjust to your needs.

EXPAND YOUR COMFORT ZONE

Depending on the size of your ductless system and the efficiency and configuration of your home, it is likely that your system can provide efficient heating and cooling beyond the room in which it is located. Leave interior doors open to allow the system to provide conditioned air to additional rooms.



Best Practices: Forced Air Furnace and Ductless

- Integrate the ductless system and devise a heating control strategy for each homeowner
 - Thermostat location and settings
 - Remote thermostat sensors
 - Set electric resistance heat thermostat back to avoid competing with DHP
- Address homeowner perception
 - Zonal heating
 - Comfort and savings expectations

Resources

Resources: Best Practices Installation Guide

INSTALLER'S GUIDE

DUCTLESS
HEATING & COOLING SYSTEMS

BEST PRACTICES FOR INSTALLING DUCTLESS HEATING AND COOLING SYSTEMS

Quality service and installations generate referrals, increase sales and improve customer satisfaction. Make sure your customers get the most from their ductless system by following installation best practices and educating homeowners. This guide does not replace manufacturer's specifications. Follow manufacturer's installation instructions and building code requirements.

BEFORE YOU BEGIN

- Review the existing heating and cooling system location and layout with your customers. Consider occupancy, usage and climate when integrating the ductless system as the primary heating and cooling system in the home.
- If there is an electric furnace, determine if it is the best backup heat source or if other backup options are more appropriate.
- Review utility rebates and tax credits. Consult GoingDuctless.com for up-to-date information.
- Install system on a dedicated electrical circuit.

OUTDOOR UNIT (COMPRESSOR)

- Set the unit on a stable, level surface
- Use adjustable risers to prevent debris and snow buildup and allow better drainage
- Secure outdoor units to the pad, risers and/or resting surface using bolts and/or adhesive

REFRIGERANT TUBING

- Create new flares using appropriate R410A flaring tool and measurement gauge; DO NOT USE manufacturer-provided tubing flares and fittings
- Apply refrigerant oil to the end of each flare
- Connect tubing with R410A nuts (supplied with your outdoor unit) and tighten to manufacturer's specifications

REFRIGERANT CHARGE

- Adjust refrigerant charge ONLY IF NECESSARY; most installations do not require adjustment

- Gauges are not needed to verify refrigerant levels; if adjustments are necessary, use a scale when adding/removing refrigerant
- Consult the manufacturer's installation manual to verify refrigerant protocols

LINE SET INSULATION AND PROTECTION

- Insulation must cover entire line set length to avoid condensation and decreased efficiency
- Protect the outdoor line set from insulation damage with rigid line hide and building code-approved line set protection
- An insulative sealant must seal penetrations through the shell of the home; return any insulation disturbed by installed line set to original (or better) condition

CONDENSATE DRAIN

- Must slope downhill; can be routed with line set and run to a suitable termination point, away from crawl spaces and walkways

COLD CLIMATE RECOMMENDATIONS

- Avoid installing outdoor unit along pathways; freezing discharge can pose a slip hazard
- Use a pan heater to prevent defrost discharge from freezing inside the compressor
- Use wall-mount brackets to maximize clearance under the outdoor unit for easy drainage and reduced snow and ice buildup

REQUIRED TOOLS

RATCHET FLARING TOOL

PROGRAMMABLE REFRIGERANT CHARGING SCALE

TORQUE WRENCH

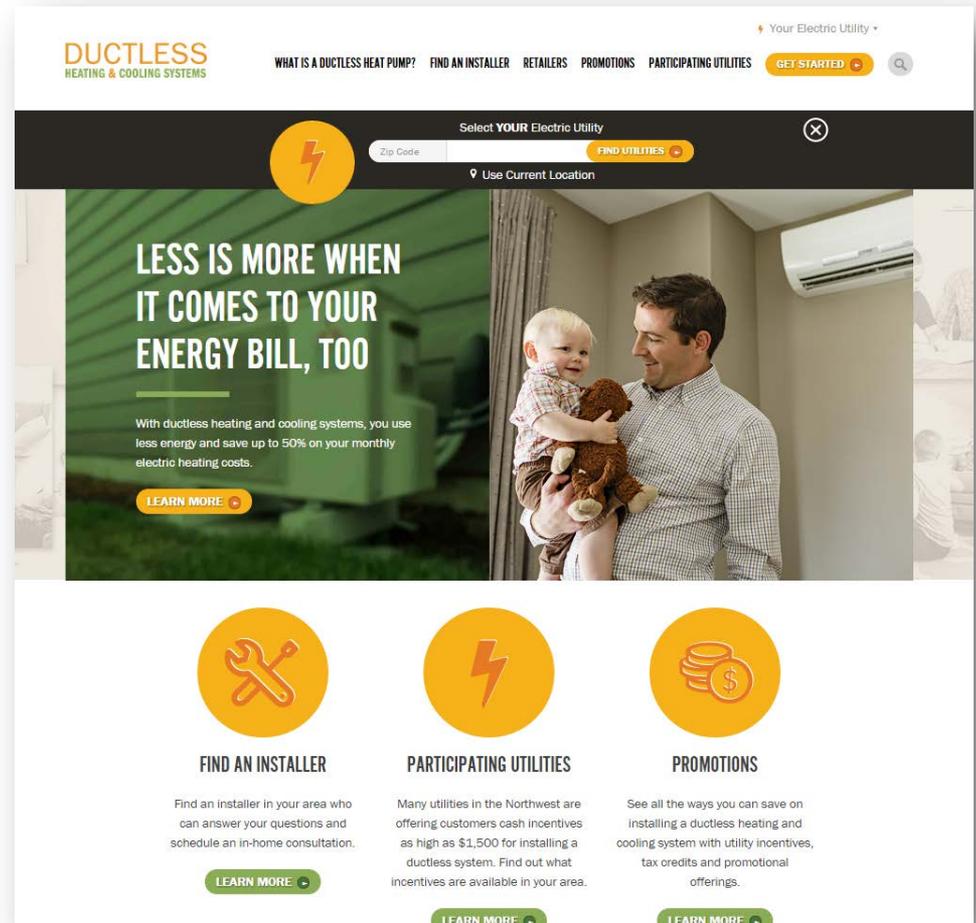
R410A GAUGE AND HOSE SET

Available for download at: www.GoingDuctless.com/Partners

GoingDuctless.com - Consumer Resources

GoingDuctless.com

- Connect to utility
- Consumer-friendly technology information
- Installer Finder
- Heat Comparison Tool
- Homeowner Testimonials



GoingDuctless.com - Partner Resources

Goingductless.Com/Partners

- Participation forms
- List of participating utilities
- Project requirements
- Master Installer Program information
- Homeowner Operation Guides
- Free marketing materials



GoingDuctless.com – Marketing Resources



- Image Library
- Customizable Ads
- Infographic
- Marketing & Messaging Copy
- Homeowner testimonial videos



GoingDuctless.com – Sales Resources

- Standard & Manufactured Homes Sales Sheets
- FAQ Sales Sheet
- Installer Best Practices Guide
- Homeowner Guide



DUCTLESS
HEATING & COOLING SYSTEMS

WHAT IS A DUCTLESS HEATING AND COOLING SYSTEM?

It's a highly efficient heating and cooling system using heat pump technology.

WHAT ARE THE BENEFITS OF A DUCTLESS SYSTEM?

- Save 25%-50% on electric heating costs
- Also provides energy-efficient cooling
- Maintains a constant comfort level in every room
- It's ductless, making it easy to install
- Utility incentives and tax credits may be available for qualified systems
- Ductless systems are ultra-quiet and heat rooms evenly

IS THIS A NEW TECHNOLOGY?

The technology was developed in the 1970s and is widely used throughout Asia and Europe. Ductless systems have been used in the U.S. for more than 30 years and are ideally suited for our Northwest climate. This is a proven, highly efficient technology.

HOW DO I KNOW IF IT'S A GOOD FIT FOR ME?

Ductless systems are a cost-effective solution for:

- Upgrading electrically heated homes
- Replacing or supplementing inefficient baseboard, wall or ceiling units
- Remodels, room additions or new homes

WHAT KIND OF MAINTENANCE DOES A DUCTLESS SYSTEM REQUIRE?

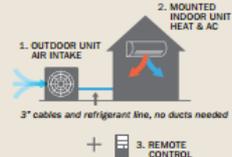
As with all heating and cooling systems, ductless heat pumps require basic maintenance. In most cases, this is limited to keeping filters and coils clean, which can easily be done by the homeowner. We also recommend a professional maintenance visit every one to three years to ensure optimum performance.

INCENTIVES AND TAX CREDITS

Homeowners in the Northwest may qualify for utility incentives and/or tax credits.

HOW DOES IT WORK?

Ductless heating and cooling systems are reversible, two-way heat pumps that simply take heat energy from one place and move it to another by compressing and expanding refrigerant.



1. OUTDOOR UNIT AIR INTAKE
2. MOUNTED INDOOR UNIT HEAT & AC
3. REMOTE CONTROL

3" cables and refrigerant line, no ducts needed

1. Outdoor unit: connects to the indoor unit by a small bundle of cables, including a refrigerant line. The unit is placed outside of the home on ground level.
2. Indoor unit: mounted on a centrally located wall. One ductless system is enough to heat and cool an average-sized Northwest home.
3. Remote control: allows occupants to adjust the settings for maximum efficiency, comfort and control.

The NW Ductless Heat Pump Project is an initiative of the Northwest Energy Efficiency Alliance (NEEA), an alliance of more than 140 Northwest utilities and energy efficiency organizations working to accelerate the innovation and adoption of energy-efficient products, services and practices in the Northwest.

Visit GoingDuctless.com for more information.



Thank you

Suzi Asmus

Sasmus@neea.org

503-688-5407

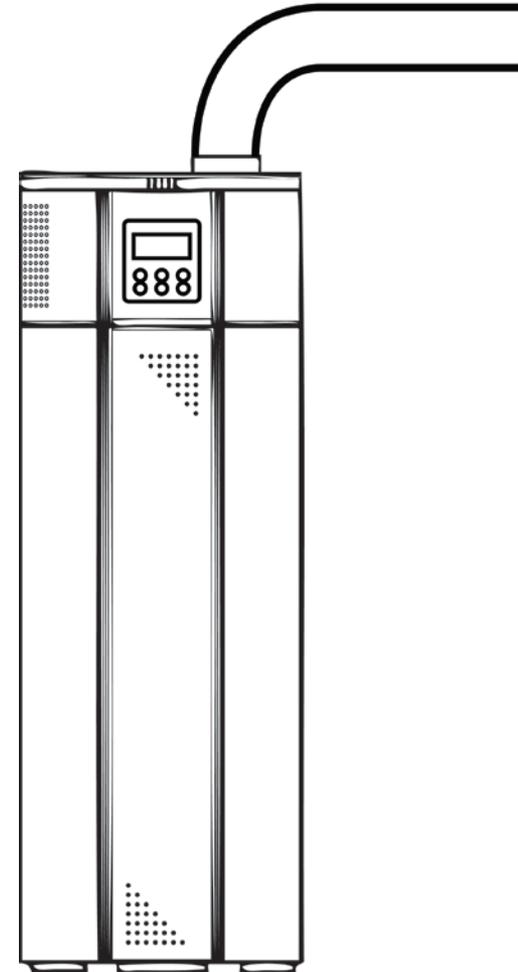


Hot Water Solutions Installer Orientation

HOT
WATER
SOLUTIONS

Agenda

- HPWH Opportunity
- Quality Installations
- Resources





Heat Pump Water Heater Opportunity

HOT
WATER
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Why Heat Pump Water Heaters?

- Prime choice for consumer adoption:
 - **Over 5 million homes in the NW;** **55%** of NW homes have electric water heaters
 - **6.3%** of existing homes replace their water heater yearly
 - **One of the largest energy saving** measures for the Northwest residential portfolio



Technology Benefits

- Water heating is the second largest energy consumer in a home
- HPWH are at least **twice as efficient** as ordinary electric water heaters
- Heat pump water heaters can reduce water heating costs by up to **60%**





Quality Installations

HOT
WATER
SOLUTIONS

Installation Best Practices

Pre-Installation Considerations

- Confirm electric resistance water heater
- Minimum clearance requirements
 - Allows for proper air flow and maintenance

Installation Best Practices

Sizing Guidelines

- Guidelines are determined by the number of household occupants
- Ensure unit is properly sized to deliver adequate hot water for current and future occupants of home
- For sizing guidance, refer to the [Advanced Water Heater Specification](#)
- Always adhere to applicable federal, state and local plumbing codes

Installation Best Practices

Installation Tips

- Install vibration/dampening mounts when needed
- Remove condensate
 - Pump or sloped system
 - Terminate into an existing drain or outside
- Follow local building codes and permitting requirements



Installation Best Practices

Maintenance

- Clean filter as recommended
- Inspect and clean condensate drain periodically
- Perform other routine maintenance typical for water heaters
- Proper maintenance ensures highest efficiency



Installation Best Practices

- Efficiency mode education
 - Electric
 - Auto/Hybrid
 - Efficiency/Economy
 - Vacation/Timer

3. DIAL IN EFFICIENCY



Efficiency/Economy—We recommend starting in this mode, as it maximizes energy efficiency and savings.

Auto/Hybrid—The default setting is ideal for daily use, providing energy-efficient water heating with sustained heat.

Electric/Heater—This setting heats water quickly but only uses the electric heating elements, making it the least energy-efficient setting. Use this mode during high-demand situations (such as when you have guests or high multi-appliance demand) to make sure there's no delay in hot water delivery.

Some units have additional settings, including a cold climate setting ideal for the Northwest—please refer to your manufacturer's manual for more information.

Vacation and timer—This mode saves energy when you're away from home by placing the unit in a "sleep" mode until you return. Available on select models.

GET THE MOST OUT OF YOUR HEAT PUMP WATER HEATER: A QUICK REFERENCE GUIDE

A heat pump water heater's special features offer more flexibility than standard electric water heaters, providing you with reliable hot water and saving you up to 50% on water heating costs.

USE THESE FIVE QUICK STEPS TO MAXIMIZE THIS ENERGY-SAVING TECHNOLOGY!

- 1. SET IT UP**
Read your owner's manual before installation. Follow the instructions for proper installation. Check for proper venting and electrical requirements. Verify the unit is properly grounded and properly vented.
- 2. SET THE TEMPERATURE**
Set your water heater temperature to 120°F. A good starting temperature is the average between your lowest water temperature and the highest temperature you need for your daily needs.
- 3. DIAL IN EFFICIENCY**
Efficiency/Economy mode is the best starting point for most heat pump water heaters. Auto/Hybrid mode is the best starting point for most heat pump water heaters. Electric/Heater mode is the best starting point for most heat pump water heaters. Vacation/Timer mode is the best starting point for most heat pump water heaters.
- 4. KEEP IT QUIET**
If you hear a loud noise, check the fan filter. If you hear a loud noise, check the fan filter. If you hear a loud noise, check the fan filter.
- 5. KEEP IT CLEAN**
Clean your water heater tank annually. Clean your water heater tank annually. Clean your water heater tank annually.

VISIT HOTWATERSOLUTIONS.COM FOR MORE INFORMATION.

Installation Best Practices

Homeowner Education

- Controls, maintenance and clearance requirements
- Temperature settings and scalding hazards
- Manufacturers' operation instructions
- Homeowner Quick Reference Guide
- Contact information on unit



Installation Best Practices

Installer's Guide

- Developed using field observations and market feedback
- Provides installation tips in an easy-to-follow guide

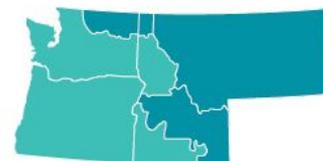


INSTALLER'S GUIDE BEST PRACTICES FOR HEAT PUMP WATER HEATER INSTALLATION

Heat pump water heaters are the most efficient replacement option for standard electric water heaters. Use this best practices guide to ensure quality installations and satisfied customers.

CLIMATE CONSIDERATIONS

- Consider your climate when choosing a heat pump water heater. Cool climates and warm climates may require different equipment and placement.
- Tier 2 and higher units are well suited for cooler climates; they operate in lower temperatures and can vent cool air to the outside.



■ WARMER ■ COOLER

INSTALLATION LOCATION

- Tier 1 units are well suited for unconditioned spaces.
- Tier 2 and higher units are suitable for both unconditioned and conditioned spaces.
- For all units, allow for minimum clearance requirements for proper airflow and accessibility.

	TIER 1	TIER 2
Unconditioned space installation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Conditioned space installation		<input checked="" type="checkbox"/>
Minimum 40-46 degree installation location	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Installation location >1,000 cu ft (garage, etc.)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Installation location <1,000 cu ft (utility room)		<input checked="" type="checkbox"/>

Download here:
HotWaterSolutionsNW.org/partners

Hot Water Solutions Resources

Consumer Resources

- [Technology information](#)
- [Do-It-Yourself Installation Tips Sheet](#)
- [Homeowner Quick Reference Guide](#)
- [‘Is a HPWH Right for You?’ Tool](#)
- [Incentive listings](#)
- [Installer finder](#)
- [Retailer finder](#)



GET THE MOST OUT OF YOUR HEAT PUMP WATER HEATER: A QUICK REFERENCE GUIDE

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USE THESE FIVE QUICK STEPS TO MAXIMIZE THIS ENERGY-SAVING TECHNOLOGY

- 1. GIVE IT SPACE**
Heat pump water heaters need space around them for airflow and maintenance. Crowding the area surrounding it can reduce its energy efficiency and heating potential.
- 2. SET THE RIGHT TEMPERATURE**
Both heat pump water heaters and standard electric water heaters are preset to 120°F, a good starting temperature for the average homeowner. Most models allow temperature adjustments between 90°F and 160°F.
SCALD WARNING! Water temperatures over 125°F can cause severe burns or death. Children, the disabled and the elderly are at a higher risk of being scalded.
- 3. DIAL IN EFFICIENCY**

Efficiency/Economy—We recommend starting in this mode, as it maximizes energy efficiency and savings.
Auto/Hybrid—The default setting is ideal for daily use, providing energy-efficient water heating with sustained heat.
Electric/Heater—This setting heats water quickly but only uses the electric heating elements, making it the least energy-efficient setting. Use this mode during high-demand situations (such as when you have guests or high-multi-appliance demand) to make sure there's no delay in hot water delivery.
Some units have additional settings, including a cold climate setting ideal for the Northwest—please refer to your manufacturer's manual for more information.
Vacation and timer—This mode saves energy when you're away from home by placing the unit in a "sleep" mode until you return. Available on select models.
- 4. THE SOUND OF HOT WATER**
Your heat pump water heater will generate sounds similar to an electric fan. Don't worry, it's just the sound of energy-efficient hot water.

- 5. KEEP IT RUNNING**
All water heaters require maintenance. With heat pump water heaters, there are a few extra things to consider:
 - The air filter must be cleaned at least once a year
 - A visual inspection should be done periodically to ensure the moisture drains are clear
 - If ducted, make sure the exhaust duct vent is free of dust and debris**WARNING!** Always shut off power to the unit at the circuit breaker/fuse box before inspecting and cleaning moisture drains.

VISIT HOTWATERSOLUTIONSNW.ORG FOR MORE INFORMATION

This Quick Reference Guide provides general tips for operating your heat pump water heater. For complete information regarding features, operation and maintenance, review your manufacturer-provided owner's manual.

Hot Water Solutions is an initiative of the Northwest Energy Efficiency Alliance (NEEA), an alliance of more than 140 Northwest utilities and energy efficiency organizations working to accelerate the promotion and adoption of energy-efficient products, services and practices in the Northwest.

Hot Water Solutions Resources

Installer Resources

- [Best Practices Installation Guide](#)
- [Advanced Water Heater Specification and Qualified Products List](#)
- [Hot Water Solutions Image Library](#)
- [Incentive listings](#)
- [Events calendar](#)
- [Sales sheet](#)
- Digital download:
<http://hotwatersolutionsnw.org/partners/resources>



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THANK YOU

Jill Reynolds

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HOT
WATER
SOLUTIONS



Wall Mounted 115V Inverter 9 and 12,000 BTU Systems

SYSTEMS 9RL2, 12RL2

Function

Stylish, slim and elegant, these popular wall mounted units are designed for single rooms. Indoor units have a clean, aesthetic design and are small but mighty and shorter in length than competing units, helping them blend into any room. These 16-SEER heat pump systems now feature Inverter technology, environmentally friendly R410A refrigerant, both heating and cooling operation, quiet mode and easy maintenance.

Applications

This category of equipment is ideal for smaller spaces where spot cooling or heating is required. Residential applications including sunrooms and additions are made easier with these 115 volt air conditioners and heat pumps. Do you have a warm or cool spot in your home? Our mini-splits can provide extra cooling or heating capacity for those hard to cool areas. Commercially, their small size makes them ideal for small offices, providing individual temperature control.



Up to 16.0-SEER

Standard Features

- Wireless Remote Control
- Sleep Timer
- Dry Mode
- Auto Louver
- Auto Mode
- Quiet Mode
- Economy Mode
- Auto Restart/Reset
- Auto Changeover
- Low Ambient
- Cold Prevention



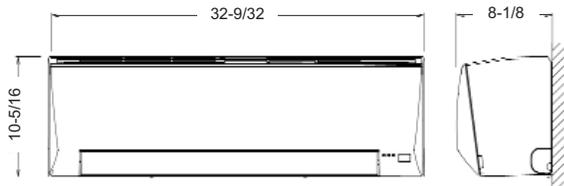
FUJITSU

Easy Maintenance

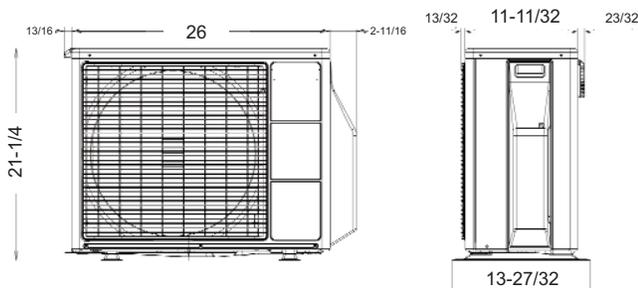
Front panel is easily removed for cleaning.



FRONT & SIDES OF ASU9RL2, ASU12RL2

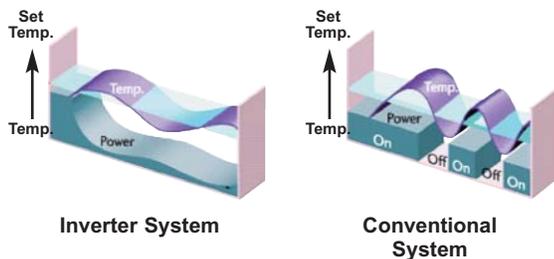


FRONT & SIDES OF AOU9RL2, AOU12RL2



Inverter Technology Means Constant Comfort

Inverter technology is like cruise control for a heating or cooling system. Compressors only run as fast as they need to handle the cooling or heating demand. They can handle greater extremes in temperature, are smoother and more stable in operation, and reach the desired temperature more quickly than conventional air conditioners.



	9RL2 Heat Pump	12RL2 Heat Pump		
Nominal Cooling <i>BTU/h</i>	9,000	12,000		
Nominal Heating <i>BTU/h</i>	10,000	14,000		
HSPF <i>BTU/hW</i>	9.0	9.0		
SEER <i>BTU/hW</i>	16.0	16.0		
EER <i>Clg/Htg</i>	10.8/13.0	10.0/11.5		
Clg. Operating Range °F(°C)	15~115 (-10~46)	15~115 (-10~46)		
Htg. Operating Range °F(°C)	15~75 (-10~24)	15~75 (-10~24)		
Moisture Removal <i>Pt./h(l/h)</i>	1.3 (2.7)	1.8 (3.8)		
Voltage/Frequency/Phase	115/60/1	115/60/1		
Recommended Fuse Size (A)	15	20		
Air Circ. <i>C.F.M. (m³/h)</i> : Hi	436 (740)	436 (740)		
Medium	353 (600)	353 (600)		
Low	265 (450)	265 (450)		
Quiet	191 (325)	191 (325)		
Noise Level <i>dB(A) Clg/Htg</i> : Hi	43/43	43/43		
Medium	38/38	38/38		
Low	33/33	33/33		
Quiet	23/23	23/23		
Outdoor Fan Speed <i>RPM</i>	730	860		
Outdoor Noise Level <i>dB(A) Clg/Htg</i>	47/48	51/51		
Current (A): Cooling	7.5	10.9		
Heating	7.0	11.0		
Power Use (<i>kw</i>): Cooling	0.83	1.20		
Heating	0.77	1.21		
Fan Speeds <i>Stage</i>	4 + Auto	4 + Auto		
Air Direction: <i>Horizontal</i>	Manual	Manual		
<i>Vertical</i>	Automatic	Automatic		
Air Filter	Washable	Washable		
Connection Method	Flare	Flare		
Combined Max. Lgth <i>Ft (m)</i>	66 (20)	66 (20)		
Max. Vertical Diff. <i>Ft (m)</i>	49 (15)	49 (15)		
Conn. Pipe Diameter <i>Inch</i>	Suc. 3/8	Dis. 1/4	Suc. 3/8	Dis. 1/4
Net Weight <i>lbs. (kg)</i>	16 (7)	64 (29)	16 (7)	69 (31)
Dimensions: Height <i>Inch</i>	10-5/16	21-1/4	10-5/16	21-1/4
<i>mm</i>	262	540	262	540
Width <i>Inch</i>	32-9/32	26	32-9/32	26
<i>mm</i>	870	660	870	660
Depth <i>Inch</i>	8-1/8	11-11/32	8-1/8	11-11/32
<i>mm</i>	206	290	206	290
Refrigerant	R410A		R410A	
	Indoor ASU9RL2	Outdoor AOU9RL2	Indoor ASU12RL2	Outdoor AOU12RL2

Note: Figures are based on 115 Volts.

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 Rev. 12/12

Notes from April 18, 2017 Low-Income Workgroup Meeting

Welcome, Recap and Round Robin of developments and announcements to share, Carrie Nelson BPA

The meeting started with introductions and a recap of the January 31 meeting in Seattle. Carrie Nelson provided a summary of the responses to the post January meeting survey. Steering Committee members will continue to send this survey in the future.

Attendees:

Ashley Spurgeon, Brian Dekiep, Carrie Nelson, Casey Mitchell, Cyrus Collins, Dan Kinnaman, Dena Hilde, Eugene Rosolie, Hans Berg, Jeremy Stewart, Jess Kincaid, Jim Maunder, John Blomgren, Kathy L. Moore, Ken Tobias, Kevin Watier, Lars Henrickson, Linda Esparza, Lindsey Hobbs, Melissa Podeszwa, Pat Didion, Paul Rich, Shawn Collins, Steve Jole, Terry Mapes, Todd Blackman, Sherrishepard, Juliana Williamson, Jim Abrahamson, Allison Spector, Ken Centner, Paul Hawkins, Cori Millon, Jill Reynolds, Suzi Asmus, Rojilio Cortez, Jessica Kramer, Rick Greg, Charles Schifferdecker, Mike Selig, Brandy Neff, Oriana Magnera, Jessica Adams, Joe Marcotte, Jim Alisou.

Low-income EEI Program Update, Jess Kincaid BPA :

Working on three measures (Manufactured Home Replacement, HPWH, ASHP):

- 1) **Manufactured Home Replacement:** Energy savings needs to be approved by RTF before offering, it may be reviewed this summer. BPA needs to wait for the RTF analysis before we can create the measure, therefore we will miss the deadline for the October IM.
- 2) **Heat Pump Water Heaters:** Coming in October with a Qualified Products List. Payment has not yet been finalized, looking at the average install cost but there are various sizes and in-building configurations, expect Tier 1: \$1300 range, Tier 2/3: \$1700 range. This measure needs to leverage our retail offering which is based on energy tier, not size.
- 3) **ASHP:** Would need to qualify under the current requirements for an ASHP, designing a measure at \$3800 cap. Would be similar rules for repair/ measure cost as with the DHP measure.

Panel: Educating Installers and Customers on Use of Advanced Technologies, Hans Berg, WA

Department of Commerce:

- *Heat Pump Water Heaters (HPWH)*, Jill Reynolds NEEA, Jill provided a summary of best practices for training and installation of Heat Pump Water Heaters. NEEA provides training and guides. This technology is a prime choice for the region given high use of electric water heating, one of the largest energy savers in the portfolio (290 aMW).
- *Ductless Heat Pumps (DHP)*, Suzi Asmus, NEEA Suzi provided a summary of market trends and best practices for DHP installations. The market is median to lower income and older homeowners. NEEA's current program approach is keeping costs in mind, but not specific to low-income population. Cost containment is important for keeping the program cost effective too. Current market trends include system enhancements that are increasing costs. Financing is

one of the enhancements that can drive up costs. Multi-zone solutions are becoming more common, which are typically more expensive. Opportunities, quick connect, 115v, bulk purchase, rebate program design. NEEA has several guides including guides for homeowners for using in their home and installation best practices and cold climate best practices and combining forced air and ductless that can be found at goingductless.com

- *Client Education, Charlie Schifferdecker, EWEB and Rick Gregg, The Heat Pump Store, EWEB is currently running a limited income DHP program in house and with HACSA, which includes a heat sheet on operation and maintenance of DHPs. EWEB covers low-income DHP costs under a cap but requires three bids and reviews them for capacity for the home, cost, and extended warranty cost. They see similar demographics and trends to NEEA. Program is typically for single head systems, displacement program for low-income. Challenges include: head placement, interior versus exterior walls, condensate pumps, whether customers really need a second head (is it worth the loan). Permit inspections in manufactured homes in parks can also be a challenge because the notice is sent to the landowner, avoid by not paying until inspections take place. Can usually get standard size with a 10 year warranty from manufacturer within the cost cap. Program is available for owner occupied and rental units, but the incentives are different – EWEB payment is \$1k and zero interest loan available for the rest.*

The Heat Pump Store developed a top 10 document for getting the most out of a heat pump because customers don't read the owner's manual. The list includes: set the mode of operation, understand the defrost function, set the fan speed, set the temperature to be comfortable, avoid frequently adjusting the temperature, get to know the zones, adjust temperature settings in severe weather, clean the filters regularly, get used to sounds (and smells), read the manual. Also has a list of FAQs.

- *Roundtable discussion:*

- *Heat Pump Water Heaters:*

How can utilities best support agencies and LI advocates in encouraging HPWH installations in low-income housing? Incentives, limited income measure (dedicated REFNO), educating the trades about them and making the products more available,

Are people doing low-income HPWH already? Some, but not many. Hard time getting bids,

Concerns – installed cost of HPWH can be higher than just the HPWH cost. Need to design program to ensure the installation cost isn't significantly higher than the rebate. Reasons for high installed cost include that they are considered an upsell measure, supply chain doesn't necessarily carry them, same issues that had with DHPs at the beginning, lack of familiarity, plumbers are afraid of the heat pump side so working more with heat pump installers.

What is the average monthly cost of heating hot water? \$40/ month.

Snohomish found 80% planned replacement for retail rebate, NEEA seeing 15% planned water heater replacement but 80% of HPWH are planned.

Should one have to take a class to install HPWH (like the NEEA class): need to take a training to install HPWH in OR already, maybe more isn't necessary.

- Ductless Heat Pumps:

Outdoor unit location is important, indoor affects cost.

Summarize information from today and add to quick start guide. Make sure to include customer education portion.

Educating sales force would help.

Wrap Up and Next Steps:

Next meeting will likely be in July, 10 – 12:30 time frame is ok for participants.

Suggested topics include: more on HPWH, including manufactured home installations, how to maintain high technology, coordinating better with the trades and getting people to install, cost containment.

Low Income Energy Efficiency Workgroup Meeting

Date: August 2, 2017

Time: 10:00 am-1:00 pm Pacific Time

Location: Franklin PUD, 1411 W Clark St. Pasco, WA

[Join WebEx meeting](#)

Meeting number (access code): 902 442 953

Meeting password: eJt2KkwP

Join by phone

+1-415-527-5035 US Toll

[Add to my calendar](#)

Agenda

10:00 Introductions-Carrie Nelson, BPA

10:15 *Hard to Reach Markets –*

Oriana Magnera, Northwest Energy Coalition

Kevin Smit, Northwest Power and Conservation Council

Phillip Kelsven, BPA

11:30 -----Break-----

11:45 *Weatherization Funding*

BPA Grant Program, Carrie Nelson, BPA

BPA EEI Program, Jess Kincaid, BPA

LIHEAP, Hans Berg WA Department of Commerce

Community Energy Efficiency Program (CEEP), Hans Berg WA Department of Commerce

12:10 *Manufactured Home Replacement*

Jess Kincaid, BPA

Kathy Grey, Eugene Water and Electric Board

12:45 *Round Table – all*



About this workgroup

BPA invites its public power customers and regional stakeholders to participate in the [Low Income Energy Efficiency workgroup](#). BPA is convening this workgroup as agreed to as part of the Post-2011 Review public process. Background on that process and Workgroup 3 can be found [here](#).

Facilitators: Carrie Nelson, Jess Kincaid BPA, 503-230-3000

Steering Committee

[Hans Berg, Washington Department of Commerce](#)

[Todd Blackman, Franklin PUD](#)

[Shawn Collins, The Energy Project](#)

[Steve Jole, HACSA](#)

[Travis Hardy, Northern Wasco PUD](#)

[Wid Ritchie, Idaho Falls Power](#)

Hard-to-Reach Communities and Energy Efficiency

THE WHY



Who are hard-to-reach communities?

What could make a community hard-to-reach?

How do we reach and serve all communities?

Why do we need to reach and serve all communities?

Who Are Hard-to-Reach Communities?



A Note on Terms:



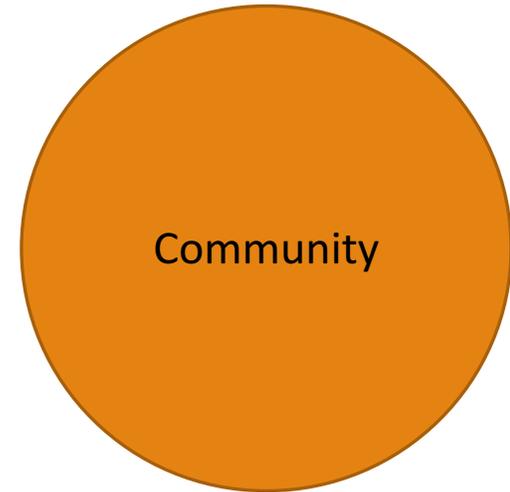
Hard-to-Reach Can Mean Many Things...

- ❖ Low-income and middle income
- ❖ Rural communities
- ❖ Tribes
- ❖ Communities of color
- ❖ Multi-family or single-family (renters)
- ❖ Manufactured housing
- ❖ Small commercial, industrial

Income and wealth
Rural
Structure Quality/Type
Ownership



Race and Ethnicity
Income and wealth
Rural
Tribes



We don't know who is hard-to-reach unless we have data.



What Could Make a Community Hard-to- Reach?



- ❖ Lack of expendable income/cash
- ❖ Incentives such as tax credits and rebates aren't accessible
- ❖ Split incentives that don't benefit renters
- ❖ Structural condition can't be retrofitted

Resource/Spatial Barriers

Cultural/Historical Barriers

Practical Barriers

- ❖ Lack of outreach or information-sharing
- ❖ Programs aren't relevant or community-driven
- ❖ Messengers aren't trusted

- ❖ Too much paperwork
- ❖ Complicated process to access
- ❖ Inconvenience

How Can We Reach All Communities?



Gather Data and Do Outreach...

❖ Who is in your program?

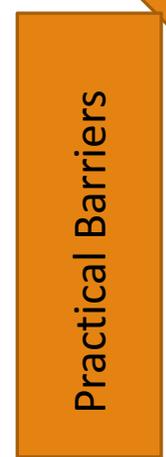
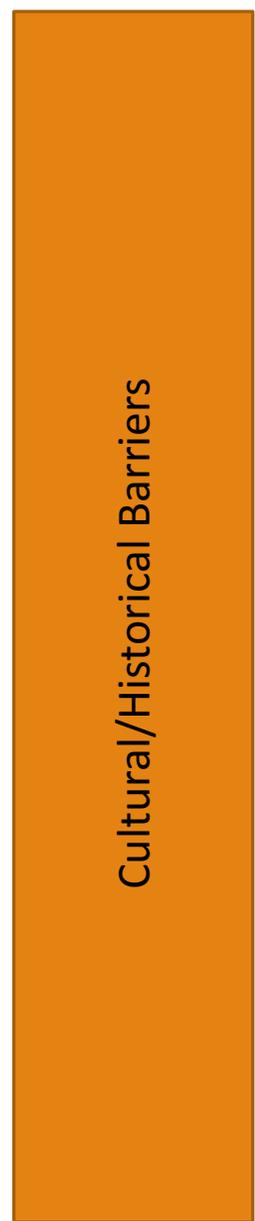
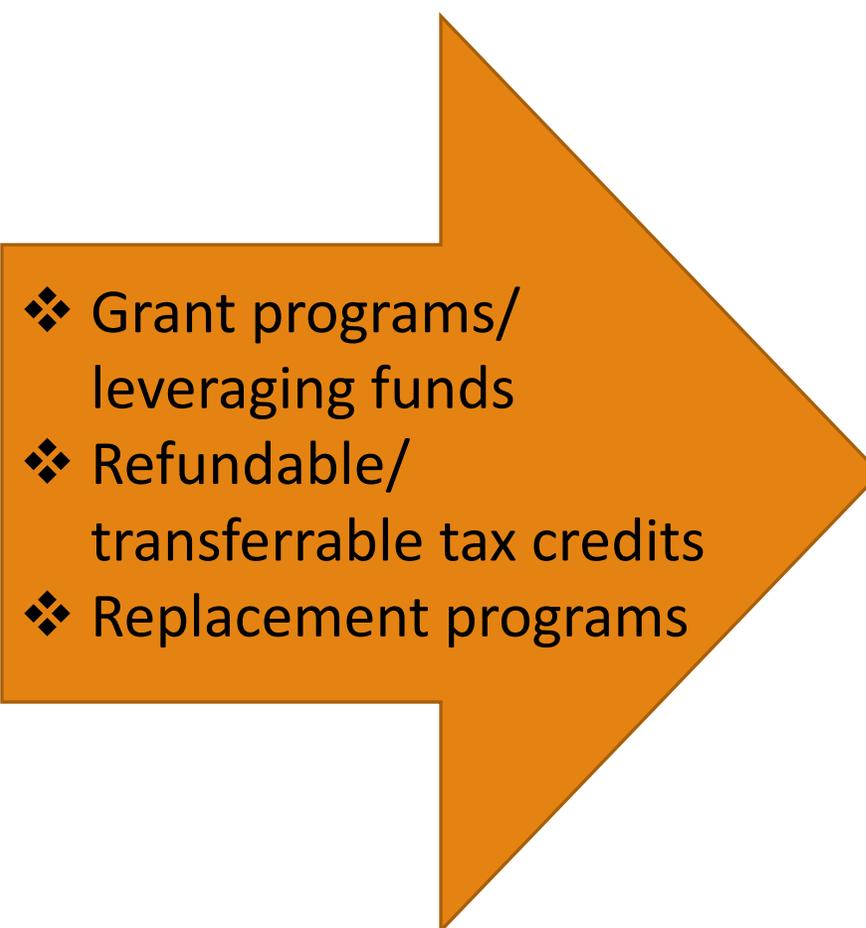
- Address/location
- Income
- Ownership
- Race/Ethnicity
- ...

❖ Lack of Participation Factors

- Late bill payment
- Disconnections
- Bill assistance
- ...

❖ Outreach

- What makes someone decide to use your program?
- What makes someone decide not to use your program?
- ...



Make it relevant
Use accessible language
And multiple languages

Simple
Transparent
Accessible

Why Do We Need to Reach All Communities?



Northwest Power Plan

“to ensure that the region captures all regional cost-effective savings, utilities should secure proportional savings from hard to reach populations.” ~ Chapter 17

“implementation of nearly all remaining cost-effective potential in the low-income segment by 2035...

adoption of measures in the manufactured home segment is on pace to complete implementation of nearly all remaining cost-effective potential over the next 20 years.”

~ Chapter 4, MCS-1

Is the BPA grant program meeting proportional need?



It's cost-effective...and under-utilized

“1. Low-income efficiency achieves cost-savings for the utility by reducing bad debt, arrearages, and the administrative costs of collection and service termination.

2. The efficiency and demand savings delivered by low-income programs reduce strain on the grid, which is particularly valuable during summer and winter peaks.

3. Since low-income rate subsidies are generally funded via tariff riders, high-performing efficiency programs reduce costs for all ratepayers.”

~ OPOWER. “Unlocking Energy Efficiency for Low-Income Utility Customers: Four Key Lessons from Real-World Program Experience.” 2014.

To Create the Best Possible Customer Experience

- ❖ Affordability is important for customers
- ❖ Building trust over time through good programs
- ❖ Untargeted programs don't reach diverse customer-bases and don't create proportional savings

Questions?



NW Energy Coalition
for a clean and affordable energy future

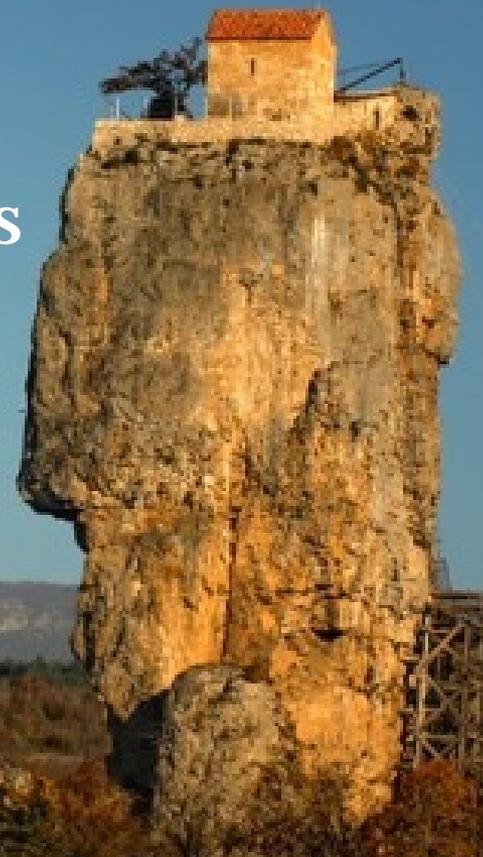
**7th Power Plan
Action Item on Energy Efficiency for
Hard to Reach Markets**

LIEE Meeting

**Kevin Smit
August 2, 2017**

Agenda

- Context
- Goals of Council HTR Efforts
- What the Action Item says
- What “we” are doing
- What to expect



Ivane Goliadze

General Context

- **7th Power Plan**
 - Released in February 2016
 - Sets regional conservation targets (1400 aMW by 2021, 4300 aMW by 2035)
 - Defines some actions the region should take towards meeting those targets
- **MCS – Model Conservation Standards**
 - A separate section of the Power Plan that calls for specific energy efficiency actions
 - For reference, in the first Plan, the MCS section was building code related
 - Typically carries more weight than the other action items
 - MCS-1 is the Action Item directing BPA and regional utilities to investigate possible Hard to Reach Markets



Context for MCS-1

- Significant interest in making sure programs are reaching underserved populations
 - Received input from many organizations during Plan development
 - Substantial effort and discussion went into this Action Item (over 2 pages long)
 - Continues to receive interest
- Some misconceptions about what it says and doesn't say
- Our primary interest is in identifying possible gaps



Goal of MCS-1

MCS-1: Ensure All Cost-Effective Measures are Acquired

Secure proportional savings from underserved populations

“Bonneville and the regional utilities should determine how to improve participation in cost-effective programs from any underserved segments.” (MCS-1, first paragraph)

What do we **think** is happening?

“There are segments of the population that . . . participate in programs at lower rates than others.”

- *Seventh Power Plan, Chapter 17 - Model Conservation Standards*



MCS-1 – A Few Terms

- **Terms**

- **Hard to reach**
- **Underserved**
- **Gaps**
- **Untapped potential**
- **Equity**



*For our purposes,
we use these
interchangeably.
Depends on
perspective*

MCS-1 Goals 2017-2022

Two key parts to MCS-1:

1. Determine, using data, what segments are underserved and by how much
2. Determine how to improve participation from underserved segments

“Ideally, the customers in the HTR segments should participate in similar proportion to non-HTR customers, assuming similar savings potential”

- MCS-1 First Paragraph

What are the HTR Segments?

- We don't know, yet
- MCS-1 listed several possibilities:
 - Low income
 - Mid-income
 - Customers in rural regions
 - Small business owners, tenants
 - Multifamily tenants
 - Manufactured home dwellers
 - Small and rural utilities
- But, remember the first step. Use data to determine/show if any of these are underserved



Goals

2017-2022

MCS-1: Ensure All Cost-Effective Measures are Acquired

Secure proportional savings from underserved populations

Action Item MCS-1

- 1) Use data to identify underserved segments
- 2) Report findings to Council by end of 2017

Quick History of Work to Date

- **February 2016** Council releases Power Plan, significant interest in MCS-1
- **November 2016** Conservation Resources Advisory Committee (CRAC) meeting, sharing case studies
- **February 2017** Senior Utility Managers Met with Council Staff
 - Committed to conduct or support research
 - Formed the working group
- **May 11, 2017** Working group meeting

Strategy for 2017 Report

- There won't be one large regional study to identify all the gaps
 - Primary concern is sharing customer-specific data
- Individual utilities in the working group will conduct their own studies and share the results
 - Important to recognize utility-specific gaps also
- Council staff will collect the results and produce report



“Coalition of the Willing” (Participating Entities)

- **Level of interest and experience varies**
- **BPA “covering” many smaller utilities**
- **High level of collegial interaction among the analysts and program planners/designers**
 - **most want better designed programs to reach all customers**

Participating Entities:

Puget Sound Energy
BPA
Energy Trust of Oregon
Seattle City Light
Snohomish PUD
Tacoma Power
Clark PUD
Idaho Power
PacifiCorp
Northwestern Energy
NEEA (data support)

Residential Data Sources

- **Utility Data (Program Participants)**

- Measures adopted
- Energy Usage
- Meter numbers
- Addresses
- House type?

- **Non-Utility Data**

- **Assessor data**
 - House Type
 - Year built
 - Heat fuel type
 - Heating system
 - Size of home
- **Experian data**
 - Income levels
 - Ethnicity
 - Number of people in home
- **Address**
 - Etc.
- **Etc.**

Key Link:
Site
Address



NEEA Data

These data are available to all NEEA members. These kinds of data relieve the utilities of soliciting the information

NEEA Data Sources

- A few of NEEA Data Sets include:
 - Dunn & Bradstreet (financial)
 - RBSA & CBSA (physical characteristics)
 - Dodge (new construction)
 - Costar (leasable commercial space)
 - Zillow (real estate characteristics)
 - NEEA Program Data, RBSA metered data
 - Equipment sales (from distributors, retailers, mfgs)
 - Experian (age, gender, income, household size)
 - Census (population characteristics)
 - GPS – Tom Tom data (population within drive time)
 - GIS data (Platts), shape files (ability to define a region geographically)



How Do we Know Who's Underserved?

PROGRAM

high-income participants
all participants

VS.

POPULATION

high-income households
all households

Program participants,
by income

Income	Parts	All HH
Under \$50k	10%	40%
\$50-\$100k	20%	40%
Over \$100k	70%	20%

How you define the population matters. The working group is collaborating to define consistent metrics

Planned Research Activities: High Level

- **#1 High level** - all participants (not broken out by measure/program).
Back to 2014
- Overall (all participants/all customers)
 - Also sector characteristics: residential and commercial
 - example finding: programs touched 15% of residential customers and 80% of commercial customers
- All are doing this level so we will get a view across all utility programs



Sector Characteristics

- Residential characteristics to assess (compare distribution of participants to all customers by):
 - Income
 - Home type (*SF, MF, MH*)
 - Owner/renter
 - Urban/rural/suburban (if relevant)
 - Race/ethnicity/language (if relevant)
- Commercial Characteristics
 - Building type
 - Building size (sqft)
 - Owner/renter
 - # of employees
 - Urban/rural

Planned Research Activities: Measure Level

- **#2 Measure Level Work** - Measure-level analysis for select measures, e.g.,
 - Ductless heat pump
 - Insulation
 - Heat Pump Water Heater
 - Commercial Lighting
- This will give a view into how successful these measures are across key building characteristics
- But needs careful analysis since not all measure are applicable everywhere
- In the end should lead to better program marketing



Next Steps for MCS-1 Effort

Resulting from May Workshop

- **June** **Working group members finalize scope of gap analysis**
- **Sept 7** **Interim status reports, CRAC Meeting**
- **Oct 16** **Utility reports/results to Council staff**
- **Nov 15** **Council staff share draft report**
- **Dec 12/13** **Presentation to Council**
- **Dec 29** **Final report released**

Conclusion

- This action item generated significant interest during plan development
- Initially there was confusion and hesitation by utilities to tackle this item
- Council staff is facilitating an effort among 10 utilities to conduct assessments in 2017
 - Focused on identifying gaps
 - Produce a compilation of ‘case studies’, data mining methods & lessons learned
 - Template for ongoing gap analysis including more utilities & program operators
- For 2018 – Start to focus on capturing untapped potential found in gap analysis
 - Participants already sharing some of this

Thank You

Questions?

Manufactured Home Replacement Measure

August 2, 2017

Jess Kincaid, Bonneville Power Administration
jbkincaid@bpa.gov



New Measure

This is a measure, not a program, program design is up to interested customer utilities

Proposed for inclusion in Implementation Manual beginning October 1, 2017

New Measure

- For all income levels (not a low-income measure)
- Must be replacing a pre-1976 manufactured home with a new NEEM home
- Two-tier measure that leverages existing (and forthcoming) NEEM program:
 - Replacement with NEEM 1.1 = \$2,200 (ave 4900 kWh)
 - Replacement with NEEM 2.0 = \$2,500 (ave 5300 kWh)

New Measure

New measure has additional reporting requirements:

1. NEEM 1.1 or 2.0 Certificate of Compliance
2. Pre-1976 Construction Documentation
 - a. Copy of Title or Data Plate
 - b. Simple BPA Pre-1976 Documentation Form
3. Completed Documentation of Decommissioning Form (no requirements for how decommissioned)
4. Completed BPA Manufactured Home PIF (because it is a planning measure)

New Measure +

Heating Measures are Additional:

- Air Source Heat Pump
- Ductless Heat Pump
- Smart Thermostats

But, if claiming low-income level payment for the heating measure, the customer must meet BPA income and documentation requirements.

Next Steps

BPA is planning to facilitate a best practices workshop on Manufactured Home Replacement this fall or winter to cover:

- Decommissioning
- Reducing Costs
- Leveraging Funding
- Other Topics on Request

Jess Kincaid

New and Existing Homes Program Manager

jbkincaid@BPA.gov

BPA Hard to Reach Markets Analysis

Phillip Kelsven

Bonneville Power Administration



BPA Limitations

- BPA is very interested in learning about how to serve hard to reach markets better
- BPA has legal limitations that utilities do not
- BPA has strict rules on handling Personally Identifiable Information (PII)
- BPA cannot merge demographic information for individual addresses to program participant sites

BPA Plan

- BPA can append census data on census block groups to participant data
- BPA will append American Community Survey data at the census block group level to participant data

Process

- Get the census block group identifier for participant addresses
- Merge in ACS demographic and housing characteristic data
- Calculate the participation rate in HVAC, weatherization, and appliance measures where addresses are available
- Compare data for the high and low participation block groups

Data Elements

- Language
- Income
- Education
- Age
- Ethnicity
- Household size
- Presence of children
- Length of time in home
- Home size
- Home age

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

10:00 Introductions-Carrie Nelson, BPA

Attendees: Carrie Nelson, Shani Taha, Robert Frost, Jeremy Stewart, Terry Mapes, Linda Esparza, Lindsey Hobbs, Todd Blackman, Brandy Neff, Cyrus Collins, Eric Miller, Hans Berg, Jess Kincaid, Julie Hayes, Kathy Grey, Lars Henrickson, Michael Karp, Nancy Philipp, Randy Managnuson, Randy Olson, Steve Jole, Wid Ritchie, Julianna Williams, Oriana Magnera, Kevin Smit, Boyd Wilson, Paul Williamson, Anita Clever, Suzi Asmus, Amy Burke, Dena Hilde, Melissa Podeszwa, Travis Hardy, DeeAnn Starr, Andrea Cheny, Greg Million, Mark Ralston, Phillip Kelsven, Tanya Clark, Marsha Lemons, Sheri Shepherd, Amy Gomez, Vic Hubbard.

Hard to Reach Markets –

Oriana Magnera, Northwest Energy Coalition

NWEC advocated Hard to Reach Markets work as part of the 7th Plan. The meaning of hard to reach is difficult to determine and can have many meanings including underserved, underrepresented, marginalized and next generation, can all cover hard to reach. Another way to think about is based on the type of barrier. We don't know who is hard to reach unless we collect data. Issue is effective outreach and program design and not creating another set of barriers. NWEC requests that utilities gather data about who is participating and outreach on why customers take advantage of programs or not. Design programs that make customers easier to reach. Design programs for the communities we want to reach, when possible communicate in many relationships.

Kevin Smit, Northwest Power and Conservation Council

Kevin provided background on the Plan and the Model Conservation Standards. MCS – 1 directed BPA and regional utilities to investigate possible Hard to Reach Markets and assure all cost effective measures are acquired. The Council thinks there are segments that are participating less than others, but we don't have data to show which segments or how much less. The Council is looking at gaps in service and how we can fill them. First determine using data what segments are underserved, then work on the programs to serve them. There are several possibilities, but the first step is to show which segment is actually underserved. 2017 Goal is to identify and report underserved segments. There won't be one large regional study to identify all the gaps, the primary concern is sharing customer specific data. Individual utilities in the working group will collect own data and report the results.

Data is coming from multiple sources, but two key: utility data and non-utility data and how they link is the address. NEEA market Intelligence group has purchased data sets in 12 buckets that will support this work. This data can be run with utility data under a confidentiality agreement to provide additional information. The workgroup is considering how it will define populations to use the data. Participants agreed to a standardized way of looking at the data so that the information is consistent.

Phillip Kelsven, BPA

BPA has legal limitations that utilities do not, as well as rules on personally identifiable information that provides limitations to what can be done with some data. Census data can be used, BPA will append American Community Survey at the Census Block group level to BPA program data going back to 2012. BPA will compare data for high and low participation block groups. BPA is looking at HVAC for residential, weatherization, heat pump water heaters and possibly commercial lighting.

Weatherization Funding -

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

BPA Grant Program, Carrie Nelson, BPA

Follows USDOE Weatherization Assistance Program with a few exceptions, for customers that are electrically heated and in BPA service area. Have new measures for air source heat pumps and heat pump water heaters. Some tribes participate in the full weatherization program. Some offer limited measures. Some work with another service provider. Tribes that are currently participating in the BPA grant program are the Yakama Nation, Nez Perce, Tulalip, Blackfoot Nation, Makah, Fort McDermitt Paiute and Shoshone (served by Rural Nevada Development Corporation), and Kalispel Tribe.

BPA EEI Program, Jess Kincaid, BPA

EEI funding is consistent, but programs are switching to a two-year Implementation Manual which will mean no significant changes will occur to programs during the next two years. New measures for low-income customers include air source heat pumps and heat pump water heaters. Measures that qualify in mid and high-rise multifamily buildings will be clarified in the new Manual.

LIHEAP, Community Energy Efficiency Program (CEEP), Hans Berg WA Department of Commerce

DOE slightly increased funding for 17/18 WAP even though the president's budget currently zeroes out DOE WAP and HHS LIHEAP. No federal budget for FY18 LIHEAP at this time, but WA has some unallocated LIHEAP reserve funds for allocation that will help bridge the gap for WA grantees.

CEEP comes from State capital budget dollars. There is no WA capital budget at this time and it is possible that one will not be passed until 2018. Budget for CEEP and other programs are bundled into a current proposed package. Proposal in capitol budget is approximately \$1 million for lead remediation, \$5 million for low-income rural rehab, \$5 million for CEEP, \$10 million for Matchmakers (down from \$15 million last year). Currently planning how to provide bridge funding to maintain WA weatherization network capacity.

Manufactured Home Replacement -

Jess Kincaid, BPA

BPA will have a new measure for manufactured home replacement available beginning October 1, 2017. The measure will be available for all income levels. The baseline for energy savings is a pre-1976 construction manufactured home, the new home must be a NEEM 1.1 or 2.0 Home that replaces a pre-1976 manufactured home. BPA will require proof of age of home being replaced, decommissioning, documentation of NEEM compliance, and a project information form that provides information necessary for evaluation of the measure.

BPA is planning to host a workshop to discuss best practices for manufactured home replacement either this fall or winter. Stay tuned for more information.

Kathy Grey, Eugene Water and Electric Board

Decommissioning costs can be significant. Some utilities are spending significant funding for weatherizing manufactured homes; this allows them to design something that allows them to get the older homes out of the market. There are additional water and sewer savings for EWEB.

There are big hurdles, especially for the low-income community. Encourage discussing how as a larger group they can influence the market to bring down costs.

Several non-profits are available to provide financing.

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

Future Agenda items: Tribal weatherization through the Grant.

Low Income Energy Efficiency Workgroup Meeting

Date: November 7, 2017

Time: 1-3:30 Pacific

Location: BPA Rates Hearing Room
1201 NE Lloyd St, Portland OR 97232 Second Floor, Suite 206

[Join WebEx meeting](#)

Meeting number (access code): 906 062 322

Meeting password: xREUifUs

Join by phone

+1-415-527-5035 US Toll

Agenda

1:00 Introductions-Carrie Nelson, BPA

- Overview of materials available on website
- Tribal grant program overview

1:30 New BPA Rate Period- Melissa Podeszwa, BPA

- What are the opportunities and challenges to providing EE to low-income customers in this new rate period?
- How can we get more utilities involved?

2:00 Break

2:15 LI Funding for Manufactured Home Replacement

- Carry over from the morning

3:00 Roundtable

- Recent successes in utility/ non- profit partnerships
- How can we use the workgroup to assist with HPWH and DHP -technical training?
- WA Matchmaker Program

4:00 Happy Hour

- Join BPA staff for a no-host happy hour at "Gather" (the restaurant inside the Double Tree across the street from BPA).



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Facilitators: Carrie Nelson, Jess Kincaid BPA, 503-230-3000

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[Steve Jole, HACSA](#)

[Travis Hardy, Northern Wasco PUD](#)

[Wid Ritchie, Idaho Falls Power](#)

BPA's Low Income Energy Efficiency Tribal Grant Program

Carrie Nelson

**Program Manager, Low Income Energy Efficiency
Bonneville Power Administration**



BPA Low Income Energy Efficiency Program



Grant program that funds weatherization and the installation of energy efficient measures in low income tribal households



Benefits of the Tribal Set Aside Program

- The Tribal Set Aside Program allows for a more effective way in reaching Native Americans.
- The program allows for flexibility in the implementation based on the tribe's specific needs.
- Many tribal residents may be more comfortable in participating in the program when working with their tribe
- Provides long term employment opportunities for tribes
- Government to Government



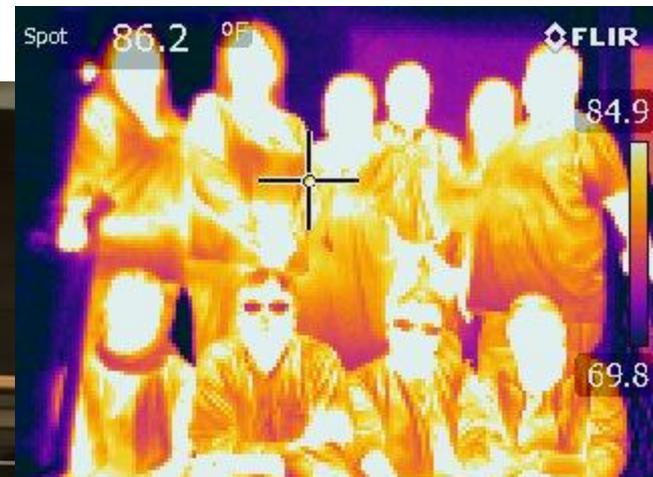
Options For Tribal Program Structure

- Tribe independently implements program utilizing BPA funding
 - Outreach, qualification screening, coordination and marketing activities to full weatherization, refrigerator and lighting installation programs
 - Tribe can conduct installations and audits when they have the trained staff
- Tribe can collaborate with the State and the local Community Action Agency (CAAs) for installations and audits
- Tribes can collaborate with other tribes for installation and audits



Building a Tribal Program with BPA Funding

- **BPA Funded Workshops**



BPA Training Workshop, BPC, Bellingham WA



Building a Tribal Program with BPA Funding



Technical Training
Hosted By Yakama





Building a Tribal Program with BPA Funding

- **Equipment, Training and Certifications**



Siletz Tribal Auditor



Encourage Collaboration with Utilities and CAAs

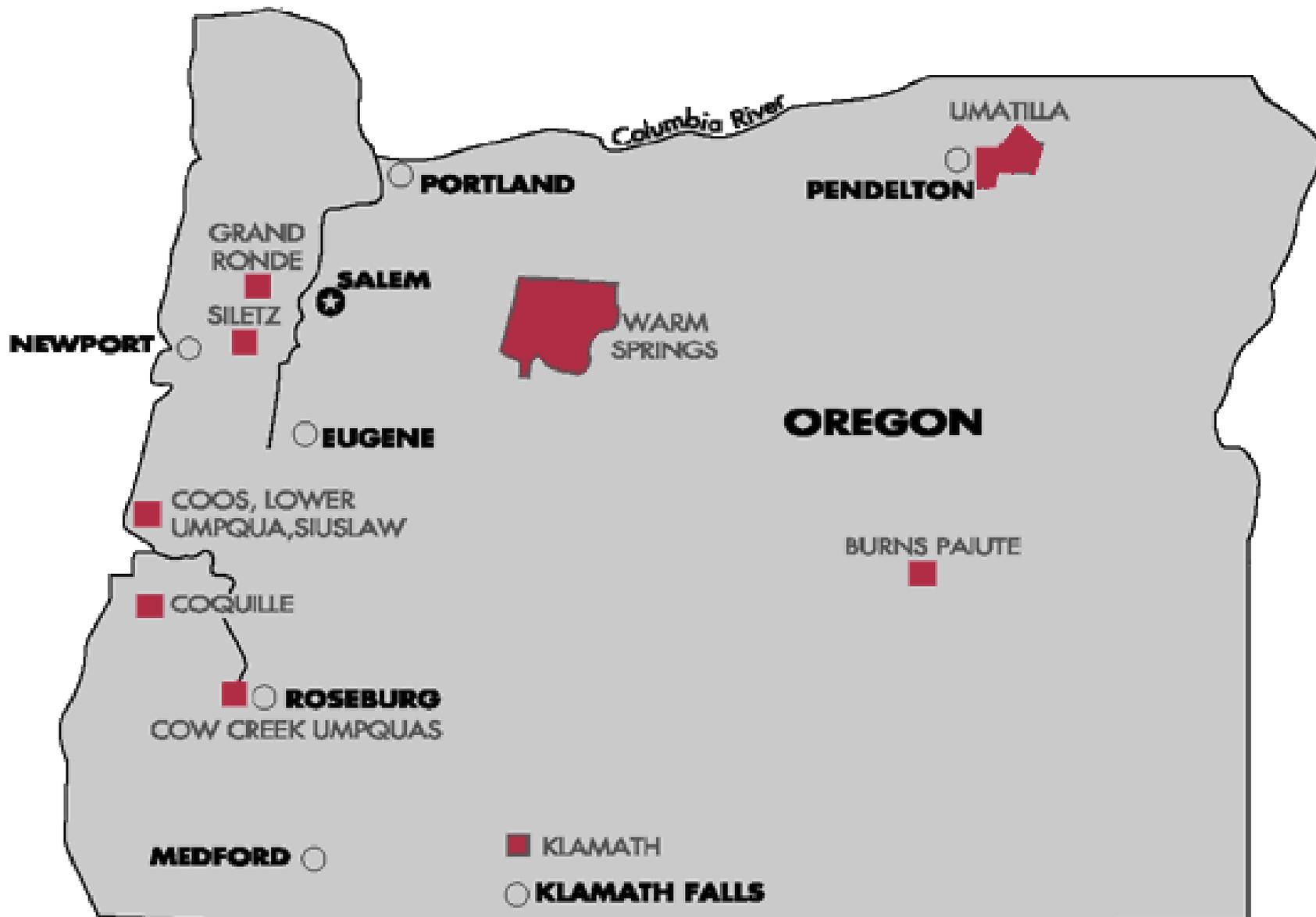


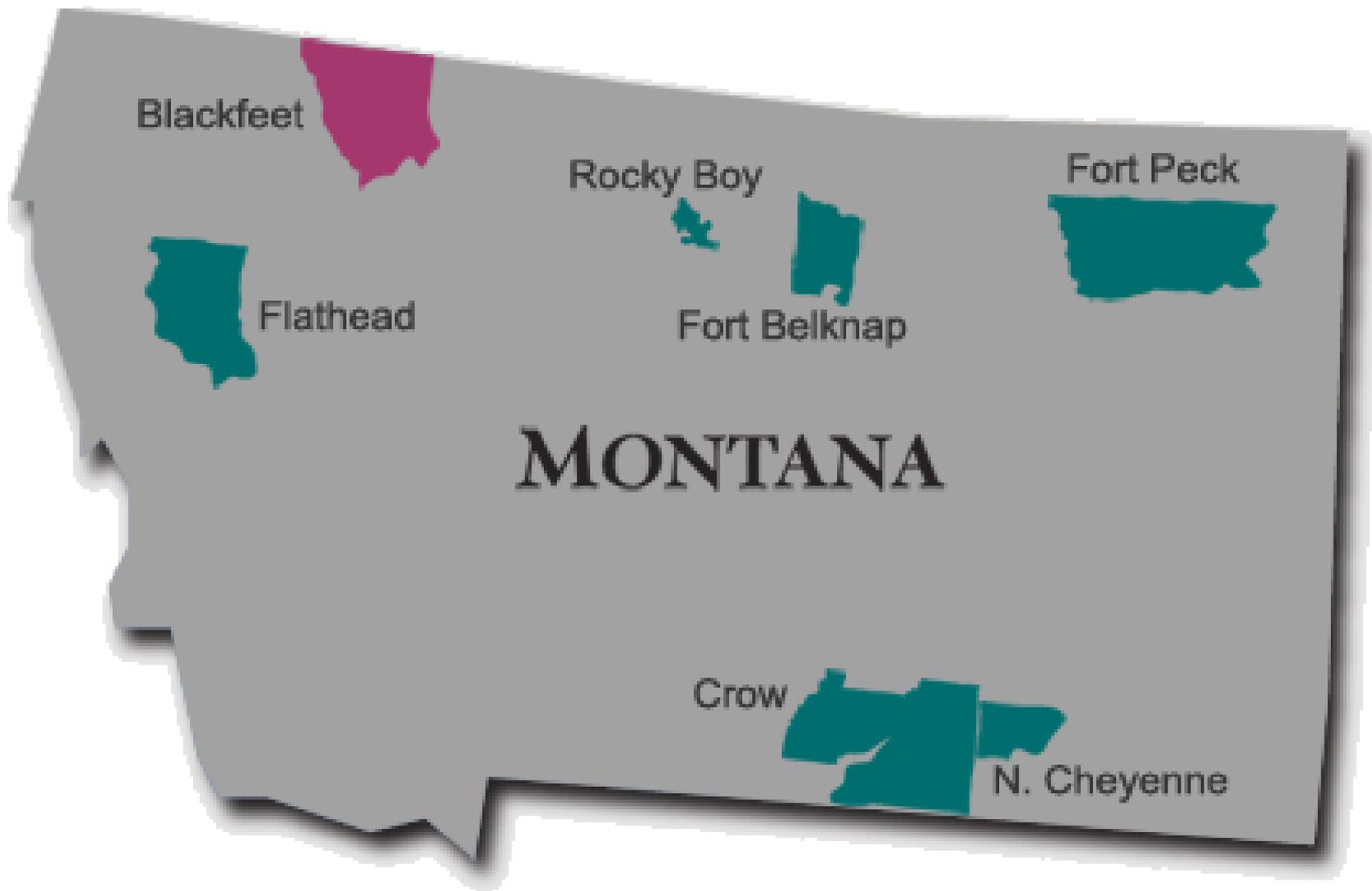
Quileute Housing Authority











Eligible Tribes: ID, MT, WA, OR, CA, NV

Tribes In BPA Public Utility Territory

Blackfeet Nation	Kootenai Tribe of Idaho
Burns Paiute Tribe	Lower Elwha Klallam Tribe
Coeur D-Alene Tribe	Makah Nation
Confederated Salish and Kootenai Tribes	Nez Perce Tribe of Idaho
Confederated Tribes and Bands of the Yakama Nation	Pit River Tribe
Confederated Tribes of Siletz	Puyallup Tribe of Indians
Confederated Tribes of the Colville Reservation	Quileute Nation
Confederated Tribes of the Umatilla Indian Reservation	Quinault Indian Nation
Confederated Tribes of the Warm Springs Reservation of Oregon	Shoalwater Bay Tribe
Cowlitz Indian Tribe	Shoshone-Paiute Tribes of the Duck Valley Reservation
Fort Bidwell Indian Community of the Fort Bidwell Reservation of CA	Squaxin Island Tribe
Fort McDermitt Paiute-Shoshone Tribe	The Suquamish Tribe
Hoh Indian Tribe	The Confederated Tribes of Grand Ronde
Jamestown S'Klallam Tribe	Tulalip Tribes
Kalispel Tribe of Indians	Cedarville Rancheria Northern Paiute Tribe

	FY 2017 Program Participants
	Previous Participation



Contact Information

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On-Site Quality Assurance Form

Inspector:	Date:	Customer ID#
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Site Information: Please report actual conditions and note if any rebate form data does not match

1. Home type: <input type="checkbox"/> Site-built Single Family <input type="checkbox"/> Manufactured home <input type="checkbox"/> Multi-family <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>
2. Type of primary heating system prior to ductless install: <input type="checkbox"/> Furnace <i>Zonal:</i> <input type="checkbox"/> Ceiling <input type="checkbox"/> Baseboards <input type="checkbox"/> Wall <input type="checkbox"/> Floor <input type="checkbox"/> Electric Hydronic <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i> <input type="checkbox"/> Other:
3. Type of secondary heating system prior to ductless install: (record type) <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>
4. Record number of indoor units & model numbers: <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>
5. Record number of outdoor units & model numbers: <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>

Site Inspection:

1. Describe the unit's settings, as found: (<i>temp, heat/cool/auto, high/low/auto</i>) <i>Notes:</i>	2. Is there a natural gas line to the house? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>
3. Are there any self-diagnosis lights blinking? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Notes:</i>	4. Has the homeowner been educated on proper system operation and maintenance? <input type="checkbox"/> Yes <input type="checkbox"/> No
5a. Does the homeowner have an operation manual? <input type="checkbox"/> Yes <input type="checkbox"/> No	5b. Does the homeowner have a homeowner's guide? <input type="checkbox"/> Yes <input type="checkbox"/> No
Operation test: <i>Run the unit on high (highest heating setting & lowest cooling settings, or at least 5 degree temperature difference) for 5-10 minutes and assess operation.</i>	
9. Heating/Cooling mode test: <i>Heating temp. _____ Cooling temp. _____ Notes:</i>	
10. Did contractor discuss how to ensure the ductless system serves as the primary heating source and back-up heat strategies? <input type="checkbox"/> Yes <input type="checkbox"/> No	11. How often is the backup heat running in the heating months? <input type="checkbox"/> Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never
12. Which method is used to ensure ductless system functions as primary heating system? <input type="checkbox"/> Furnace/zonal heater(s) off at thermostat <input type="checkbox"/> Thermostat(s) set back, ductless as primary <input type="checkbox"/> Furnace/zonal heater(s) off at breaker <input type="checkbox"/> Previous electric heat removed/partially removed <input type="checkbox"/> Other: <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>	
13. What is the temp. setting at the previous primary electric heat source? <i>Zonal (main living space) _____ (secondary spaces) _____ Furnace _____ <input type="checkbox"/> N/A</i> <i>Notes:</i>	
14. Is the unit elevated & secured? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Notes:</i>	15. Does the condensate drain terminate outside the home? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Notes:</i>
16. Is line set insulated and protected? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial <i>Notes:</i>	17. Approximate line set length? <i>Matches form data?</i> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <i>Notes:</i>

Inspection Report:

1. Inspection outcome (choose one) <input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/> Major Deviation <input type="checkbox"/> Minor Deviation	2. Inspection summary:
3a. Site inspection notes: 	
4. Was a utility representative present during the QA visit? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Utility Name & Notes:</i>	5a. Was the contractor present during the QA visit? <input type="checkbox"/> Yes <input type="checkbox"/> No 3b. Does the inspection require contractor follow up? <input type="checkbox"/> Yes <input type="checkbox"/> No <i>Notes:</i>

Customer ID#

How was the installation process?

How did you learn about the system? Why did you choose to upgrade to a ductless heating and cooling system?

What do you like most about your new system and how satisfied are you? Describe the comfort level in your home.

What type of energy reduction have you noticed since your system was installed?

Have you talked to friends or family about your new system?

RELEASE AND PERMISSION TO USE RECORDINGS

I hereby assign to the Northwest Energy Efficiency Alliance, Inc. ("NEEA"), its designees, agents, contractors, funders, successors and assigns a worldwide, irrevocable, royalty free right to record, copy, distribute, display, publish, and use my image, voice, likeness, testimonial, biographical data, and persona (the "Recordings") in and through any media in existence or yet to be invented for any purpose whatsoever, including publicity and advertising. I hereby waive any right to any compensation and waive any right that I may have to inspect and approve the finished product used or to which the Recordings may be applied. I retain no rights to the Recordings. I release and agree to hold harmless NEEA, NEEA's officers, employees, agents, nominees, departments, and/or others for whom or by whom NEEA is acting, of and from any liability arising from any use whatsoever of the Recordings. I agree that NEEA or a third-party may contact me for an interview regarding my experience and satisfaction.

I certify that I am at least 18 years of age. YES NO

If no, please complete parent/guardian release below.

Printed Name

Signature

Date

PARENT/GUARDIAN RELEASE: I am the parent or legal guardian of the below mentioned minor and have the legal right and authority to execute the above on behalf of the minor.

Minor's Printed Name

Parent/Guardian's Printed Name

Parent/Guardian's Signature

Date

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

10:00 Introductions-Carrie Nelson, BPA

Attendees: Carrie Nelson, Shani Taha, Robert Frost, Jeremy Stewart, Terry Mapes, Linda Esparza, Lindsey Hobbs, Todd Blackman, Brandy Neff, Cyrus Collins, Eric Miller, Hans Berg, Jess Kincaid, Julie Hayes, Kathy Grey, Lars Henrickson, Michael Karp, Nancy Philipp, Randy Managnuson, Randy Olson, Steve Jole, Wid Ritchie, Julianna Williams, Oriana Magnera, Kevin Smit, Boyd Wilson, Paul Williamson, Anita Clever, Suzi Asmus, Amy Burke, Dena Hilde, Melissa Podeszwa, Travis Hardy, DeeAnn Starr, Andrea Cheny, Greg Million, Mark Ralston, Phillip Kelsven, Tanya Clark, Marsha Lemons, Sheri Shepherd, Amy Gomez, Vic Hubbard.

Hard to Reach Markets –

Oriana Magnera, Northwest Energy Coalition

NWEC advocated Hard to Reach Markets work as part of the 7th Plan. The meaning of hard to reach is difficult to determine and can have many meanings including underserved, underrepresented, marginalized and next generation, can all cover hard to reach. Another way to think about is based on the type of barrier. We don't know who is hard to reach unless we collect data. Issue is effective outreach and program design and not creating another set of barriers. NWEC requests that utilities gather data about who is participating and outreach on why customers take advantage of programs or not. Design programs that make customers easier to reach. Design programs for the communities we want to reach, when possible communicate in many relationships.

Kevin Smit, Northwest Power and Conservation Council

Kevin provided background on the Plan and the Model Conservation Standards. MCS – 1 directed BPA and regional utilities to investigate possible Hard to Reach Markets and assure all cost effective measures are acquired. The Council thinks there are segments that are participating less than others, but we don't have data to show which segments or how much less. The Council is looking at gaps in service and how we can fill them. First determine using data what segments are underserved, then work on the programs to serve them. There are several possibilities, but the first step is to show which segment is actually underserved. 2017 Goal is to identify and report underserved segments. There won't be one large regional study to identify all the gaps, the primary concern is sharing customer specific data. Individual utilities in the working group will collect own data and report the results.

Data is coming from multiple sources, but two key: utility data and non-utility data and how they link is the address. NEEA market Intelligence group has purchased data sets in 12 buckets that will support this work. This data can be run with utility data under a confidentiality agreement to provide additional information. The workgroup is considering how it will define populations to use the data. Participants agreed to a standardized way of looking at the data so that the information is consistent.

Phillip Kelsven, BPA

BPA has legal limitations that utilities do not, as well as rules on personally identifiable information that provides limitations to what can be done with some data. Census data can be used, BPA will append American Community Survey at the Census Block group level to BPA program data going back to 2012. BPA will compare data for high and low participation block groups. BPA is looking at HVAC for residential, weatherization, heat pump water heaters and possibly commercial lighting.

Weatherization Funding -

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

BPA Grant Program, Carrie Nelson, BPA

Follows USDOE Weatherization Assistance Program with a few exceptions, for customers that are electrically heated and in BPA service area. Have new measures for air source heat pumps and heat pump water heaters. Some tribes participate in the full weatherization program. Some offer limited measures. Some work with another service provider. Tribes that are currently participating in the BPA grant program are the Yakama Nation, Nez Perce, Tulalip, Blackfoot Nation, Makah, Fort McDermitt Paiute and Shoshone (served by Rural Nevada Development Corporation), and Kalispel Tribe.

BPA EEI Program, Jess Kincaid, BPA

EEI funding is consistent, but programs are switching to a two-year Implementation Manual which will mean no significant changes will occur to programs during the next two years. New measures for low-income customers include air source heat pumps and heat pump water heaters. Measures that qualify in mid and high-rise multifamily buildings will be clarified in the new Manual.

LIHEAP, Community Energy Efficiency Program (CEEP), Hans Berg WA Department of Commerce

DOE slightly increased funding for 17/18 WAP even though the president's budget currently zeroes out DOE WAP and HHS LIHEAP. No federal budget for FY18 LIHEAP at this time, but WA has some unallocated LIHEAP reserve funds for allocation that will help bridge the gap for WA grantees.

CEEP comes from State capital budget dollars. There is no WA capital budget at this time and it is possible that one will not be passed until 2018. Budget for CEEP and other programs are bundled into a current proposed package. Proposal in capitol budget is approximately \$1 million for lead remediation, \$5 million for low-income rural rehab, \$5 million for CEEP, \$10 million for Matchmakers (down from \$15 million last year). Currently planning how to provide bridge funding to maintain WA weatherization network capacity.

Manufactured Home Replacement -

Jess Kincaid, BPA

BPA will have a new measure for manufactured home replacement available beginning October 1, 2017. The measure will be available for all income levels. The baseline for energy savings is a pre-1976 construction manufactured home, the new home must be a NEEM 1.1 or 2.0 Home that replaces a pre-1976 manufactured home. BPA will require proof of age of home being replaced, decommissioning, documentation of NEEM compliance, and a project information form that provides information necessary for evaluation of the measure.

BPA is planning to host a workshop to discuss best practices for manufactured home replacement either this fall or winter. Stay tuned for more information.

Kathy Grey, Eugene Water and Electric Board

Decommissioning costs can be significant. Some utilities are spending significant funding for weatherizing manufactured homes; this allows them to design something that allows them to get the older homes out of the market. There are additional water and sewer savings for EWEB.

There are big hurdles, especially for the low-income community. Encourage discussing how as a larger group they can influence the market to bring down costs.

Several non-profits are available to provide financing.

August 2, 2017 Low-Income Workgroup Meeting, Pasco WA

Future Agenda items: Tribal weatherization through the Grant.