

PROPOSED ENERGY EFFICIENCY PROGRAM
Submitted on behalf of
LOW-INCOME CUSTOMERS IN MANUFACTURED HOMES IN
PUGET SOUND ENERGY'S SERVICE TERRITORY
By Utility Conservation Services (UCONS)

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BACKGROUND

On January 10, 2018, the Utilities and Transportation Commission (Commission) considered Puget Sound Energy's (PSE's) Biennial Conservation Plan (BCP) prepared to fulfill requirement of Washington's Energy Independence Act (I-937) that PSE acquire "all cost-effective" conservation. At the January 10 open meeting, UCONS (on behalf of Washington customers in manufactured homes) advocated that the Commission require PSE to expand its proposed conservation programs for manufactured homes. This was consistent with the directive in the Northwest Power and Conservation Council's Seventh Power Plan (action item MCS-1) that utilities address this conservation potential.

Though the Commission did not act on UCONS request at the open meeting, Chairman Danner expressed concern whether "the rules are stacked against this particular [manufactured home, MH] sector" and that low-income customers should "have a shot at getting some help"¹ The Northwest Energy Coalition (NVEC) also advocated that "let's not wait two years" and urged that PSE "adaptively manage" its portfolio to implement programs to address this need.² PSE representative Bob Stolarski did not commit PSE to fully implementing a new program for all MH customers, but indicated that if low-income customers in the MH sector could be identified, then PSE could implement the program.³ Chairman Danner then stated to UCONS "you heard that offer."⁴

¹ Recording of Open Meeting, Jan. 10, 2018 (continuation of Dec. 28, 2017 Open Meeting) at 57:10.

² Open Meeting Recording at 1:03:02.

³ Open Meeting Recording at 54:57.

⁴ Open Meeting Recording at 55:50.

In developing a response to Chairman Danner and PSE, UCONS identified a level of service (above current BCP plans) to respond to Council goals and to provide an equitable level of funding for this customer class. Serving an additional 1000 low-income homes by December 2019 would achieve these goals and represent a good first step. This is a small fraction of the nearly 27,000 low-income ratepayers in PSE service area who have not been served by current low-income programs. Total program savings would be 6,300,000 kWh annually and total program costs would be an estimated \$3.8 million. Final program costs would be approved by PSE. The program complements current community action agency programs which serve a limited portion of PSE low-income customer base in manufactured homes.

UCONS also incorporated PSE's most recent independent evaluation of its low-income programs⁵ in the program design so as to ensure both program continuity, and use of those measures that have previously been employed successfully. To be consistent with the current low-income program process in which there is no competitive bidding, we have employed the following design and costing criteria so as to enable ease in prompt implementation:

- Serve low-income populations not currently served by community action agencies
- Provide the utility a very cost-effective new energy resource (with a total benefit to cost ratio above 2.0).

This program will provide PSE and the low-income ratepayer a significantly higher level of energy savings at a much reduced cost to all ratepayers, with a TRC significantly above PSE's currently approved BCP portfolio.

PSE, with the Commission's support, should implement this program in 2018 and 2019, before the next iteration of PSE's BCP. This proposal adheres to the recently released Council report issued through its Conservation Resource Advisory Committee (CRAC):

Manufactured Homes: The manufactured home segment may face special challenges related to income, ownership, building codes, and some difficult-to-implement conservation measures specific to manufactured housing and their heating systems.

The assessment should determine whether the 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. Where expected shortfalls appear, specific barriers to implementation should be identified and solutions targeted at those barriers. While this market segment has been successfully targeted with a limited set of conservation measures (e.g. duct sealing), a more comprehensive approach that identifies and implements an entire suite of cost-effective measures during a single visit may be more cost-efficient.

⁵ The Cadmus Group, *Low-Income Weatherization Program Final Evaluation Report* (Oct. 27, 2017).

There are nearly 180,000 manufactured homes in Washington. Puget Sound Energy alone has nearly 70,000 MH in its service area, over 90% of which are all-electric. As noted in the attached market penetration report and the recent Council draft report (<https://www.nwcouncil.org/reports/northwest-under-served-energy-efficiency-markets-assessment-draft>), PSE has provided a majority of this customer class with a single measure (duct sealing). However, fewer than 300 low-income homes receive comprehensive measures annually. This results in less than 1% of the utility's electric conservation budget to this class of customer (which consumes over 6% of its total electric load).

This low level of funding is counter to the goals of the region and of I-937 to acquire “all cost-effective conservation.” Commission rules require that utilities “adaptively manage” their conservation portfolio. WAC 480-109-100(1)(a)(iv). That is called for here.

CURRENT PROGRAM REVIEW: Assessment of Options

To respond promptly to the need for addressing this customer UCONS undertook the following steps:

- Discussed program options with customer groups, various PSE Conservation Resource Advisory Group (CRAG) members and state agencies;
- Reviewed with Washington State University Energy Program staff the number of remaining low-income manufactured homes that have not received a comprehensive conservation program;
- Reviewed the most current Regional Technical Forum (RTF) and Council updates on avoided costs and measure savings (attachment C);
- Reviewed lessons learned from prior PSE low-income weatherization programs and the success of prior comprehensive manufacture home programs in Washington; and
- Discussed with customer groups the types of measures and programs the customers want in their homes (attachment A).

Implementation of this proposed program would further those policies and secure important energy conservation for those customers and for the region. As a result of this process, UCONS has:

- 1) Identified how many manufactured homes have previously participated in low-income conservation programs; how many low-income homes remain to be served; and addressed the number of additional low-income homes that are required to serve in order to address Regional goals (see Attachment B).
- 2) Worked collaboratively with CRAG members, customer groups and The Energy Project in addressing program goals.
- 3) Incorporated successful elements of PSE's current low-income program, focusing on those measures that have demonstrated the greatest energy savings.
- 4) Incorporated the successful elements of UCONS' prior innovative manufactured home programs for Tacoma Power, PSE, and WSU.

- **MARKET POTENTIAL: Low-income ratepayers in manufactured homes**

We have confirmed (with both WSU and with the customer) that there is a large and cost-effective conservation potential to be tapped from services to low-income customers in manufactured homes. In supporting PSE residential conservation programs since 2010, UCONS has been in over 200 mobile home parks in the utility’s service area. We know which parks are heavily populated by low-income qualifying customers. In compiling data for PSE and community action agencies, we have learned that over one-half of customers in manufactured homes are low-income qualified.

In addition to the approximately 300 manufactured home customers receiving energy efficiency services from PSE pursuant to its BCP, UCONS proposes to serve an additional 1000 homes, all of which would be in manufactured home parks. UCONS will work with PSE in selecting the specific parks, and seek guidance from manufactured home owner or tenant associations. The following PSE guidelines apply for low-income weatherization assistance:

Number of Persons in Household	PSE Weatherization Assistance Qualifying Monthly Adjusted Gross Income Limit
1	\$2,255
2	\$2,949
3	\$3,643
4	\$4,337
5	\$5,031
6	\$5,725
7	\$6,190
8	\$6,887
9	\$7,583
10	\$8,280

Data from the Department of Commerce and WSU energy extension office (which maintain information for manufactured home low-income programs) show less than 3000 low-income MH in PSE’s service area have received a comprehensive conservation program the past 10 years. This leaves an unserved low-income MH population of over 27,000 homes remaining to be served.

PROPOSED LOW-INCOME PROGRAM

This program has been prepared to accomplish the following key objectives during program years 2018 and 2019:

- 1) Provide comprehensive and cost-effective conservation services to at least 5% of PSE's low-income customer base in manufactured homes by December 2019. This is in accordance with Council goals of reaching all such hard to reach customers within 20 years.
- 2) Provide an equitable level of conservation funding for this customer class. Treating 1000 manufactured homes with comprehensive conservation measures by December 2019 will increase total conservation expenditures by less than \$4 million (out of a \$100 million conservation budget) and address the low level of funding provided this customer class in the past.
- 3) Address the Council finding that this customer has typically received only 1 or 2 low cost measures. Not being comprehensive in prior years has resulted in the mistaken perception that "the market may be saturated." Of greater concern, avoiding a comprehensive program in the past resulted in a significant Lost Opportunity to this customer. "Go backs" to this hard to reach customer class have acted as an effective barrier (arising when a utility precludes a prior customer served with a single primary conservation measure -- from participating in a more comprehensive program). This low-income program has been designed to capture the primary major energy saving measures which the 7th Plan has identified as most cost effective.

- **Measures to Be Provided**

This proposal would serve an additional 1000 homes (above the current conservation plan filed with the UTC) with the following projected measures:

- 1000 ductless heat pumps
- 1000 aerators (this is a new measure approved by the RTF)
- 1000 low flow showerheads (in 500 homes not previously provided this measure)
- 6000 LED lamps (in 600 homes with 10 LED lamps not previously provided this measure)

There would be no required customer contribution for these measures. UCONS experience is that low-income customers simply cannot afford such co-pays. And with customers who rent their manufactured homes, there is little incentive for them to invest in such measures.

A Market Penetration chart (attachment B) demonstrates the current low penetration of (most) cost-effective measures installed in manufactured homes in PSE's service territory. Only the duct sealing measure has been provided in a large number of homes.

Each of the measures identified for this proposed program have been successfully delivered (and evaluated) under prior PSE low-income weatherization programs. In addition, each of these measures have also been successfully employed by UCONS to this customer class, and each of these measures are shown to be very cost-effective (see Council ProCost model evaluation, RTF unit measure energy information).

- **Funding and Delivery for Current low-income programs:**

Current funding for low-income weatherization (conservation services) has been through Community Action Agencies. However, Agency guidelines for this customer class reflect why so few low-income ratepayers in manufactured homes receive conservation benefits. Federal funding guidelines (as well expensive repairs required by these agencies) preclude this customer class from deriving the significant conservation benefits other customers and the region may enjoy. This matter has been reviewed with both WSU Energy Extension Office and with The Department of Commerce.

This not only reduces a utility budget for low-income programs (if only funding community action agencies) but has denied conservation services to the low-income ratepayer. This proposal addresses the customer as the highest priority.

We have assured The Energy Project and all state agencies that, should this program be implemented on a trial or Pilot basis for 2018 and 2019, we wish to engage and collaborate with any community action agency that has sufficient staff and resources for this expanded conservation program. Unfortunately, few of the community action agencies have the staff to deliver a larger program in 2018 and 2019, and none of them are contracting to do this work at the levels as proposed herein. Indeed, according to the *Low-Income Weatherization Program Final Evaluation Report*, at pages 25 and 30, agencies are limited in their staffing capabilities to seek out new customers eligible for their programs. Accordingly, this proposal would add customers that otherwise would not be served.

It is not UCONS goal to address this large unserved market sector alone. We have previously trained and shown many interested contractors how to serve the MH customer. This proposal is on behalf of the ratepayer, not a single contractor.

Under current BCP and Rule practices in Washington, each of the IOUs have indicated that they address “low-income ratepayer needs through low-income agencies.” However, as indicated in the *Low-Income Weatherization Program Final Evaluation Report*, those agencies have staffing limitations. This unfortunately has resulted in NO conservation services to over 85% of the customer class. This submittal addresses that issue.

- **Costs for Delivering This Proposal**

The currently approved BPA low-income incentive for ductless heat pumps (DHP) is \$3800. UCONS has provided this service for both community action agencies and for Tacoma Power the past 2 years. UCONS has also been the successful bidder for most low-income DHP programs in Puget Sound the past 2 years at prices 10 to 30% below the current level of PSE costs for low-income DHP installations. Our goal is not to “win” a bid at this time, but to promptly get a program to the low-income ratepayer in a manufactured home.

To accommodate a schedule to bring an enhanced low-income program to customers this year, UCONS will commit to program costs at least 10 percent lower than current PSE low-income funding levels. Final program costs would be dependent on:

- How quickly the program can be launched; and
- Actual program size and level of marketing support from the utility

The “all in costs” for the program (for all measures including: DHP, lighting, showerheads and aerators) would be included in the cost for the DHP measure alone. Once a contractor is in a home, it is a very low-cost operation to do all the other services. This will address many of the lost opportunities of prior programs.

- **Marketing and Identification of Low-Income Customers**

UCONS has worked extensively with PSE’s manufactured home customer class since 1994 and is aware of the location of manufactured home parks where potential customers for this program reside. Based on that experience, we envision the following means for soliciting customers:

Direct marketing to potential customers. After selecting potential parks, PSE could directly contact the residents with a bill stuffer or other direct mail that would describe the program, include eligibility guidelines, and contact information for the contractor.

Door-to-door solicitation. In addition, the contractor could simply go door-to-door in the selected parks with information about the program and signing up candidates for the services.

Limitation of Program. The potential customers would be alerted that this new program will be open to the first 1000 low-income ratepayers who qualify for this new service. If successful, this program could be made an ongoing program and accelerated program in order to address the 20-year goal of the Council to be realized.

- **Cost Effectiveness**

This proposed low-income program addresses Council goals by providing a comprehensive level of cost-effective measures to 1000 low-income customers of PSE by December 2019. With support from Council staff, ProCost analysis demonstrates that the pilot will provide PSE with a benefit/cost (TRC) above 2.0 and deliver over 6,000,000 kWh annually. The program will substantially boost participation for this customer class and provide for an equitable level of conservation funding for the first time since passage of I-937. All energy savings and cost effectiveness assumptions are provided in attachment C.

Enclosures:

Attachment A: Letter from Don Carlson, President Association of Manufactured Home Owners (AMHO)

Attachment B: Current penetration level of cost-effective conservation measures in manufactured homes in PSE service area

Attachment C: RTF unit measure energy savings, incremental measure costs and benefit cost ratios (for proposed low-income program)

Association of Manufactured
Home Ownerswww.WAMHO.org

Chairman David Danner

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Dear Commissioner Danner:

I am writing this letter as President of Association of Manufactured Home Owners (AMHO). AMHO is a not-for-profit (IRS section 501(c)(3)) corporation . Our stated purpose is to promote, represent, preserve and enhance the rights and interests of manufactured home owners in the state of Washington through communication, education, negotiation and perpetuation of our communities.

We attended the UTC January BCP Open Meetings to hear updates on how the utilities were addressing the goals set forth in the 7th Plan (to improve delivery of conservation services to the manufactured home customer). None of the utility plans appeared to address this disadvantaged customer or address the Council goals to better address this customer. We were encouraged by your inquiry of PSE at this meeting and asking what could be done this year for the low-income customer in a manufactured home.

Our association represents all manufactured homeowners in Washington State, not just those who qualify as low income. We have reviewed the proposal made by UCONS for a program focused on low-income customers in manufactured home parks and support it. Many of those who live in manufactured homes are elderly on fixed income, veterans, the working poor and single folks. Many have difficulties paying high utility bills. We appreciate the efforts that are being made to reduce these costs by UCONS and the NW Power Planning Council to address the plight of many of our members.

We are pleased to support UCONS effort to propose positive suggestions and hope you will support their efforts as well. I believe we must help our residents to receive conservation programs that will truly help reduce costs in our older manufactured homes. Please let us know if we can be of support in helping reach people in our manufactured home parks and communities.

Sincerely yours,

A handwritten signature in black ink that reads 'Don M. Carlson'. The signature is written in a cursive, flowing style.

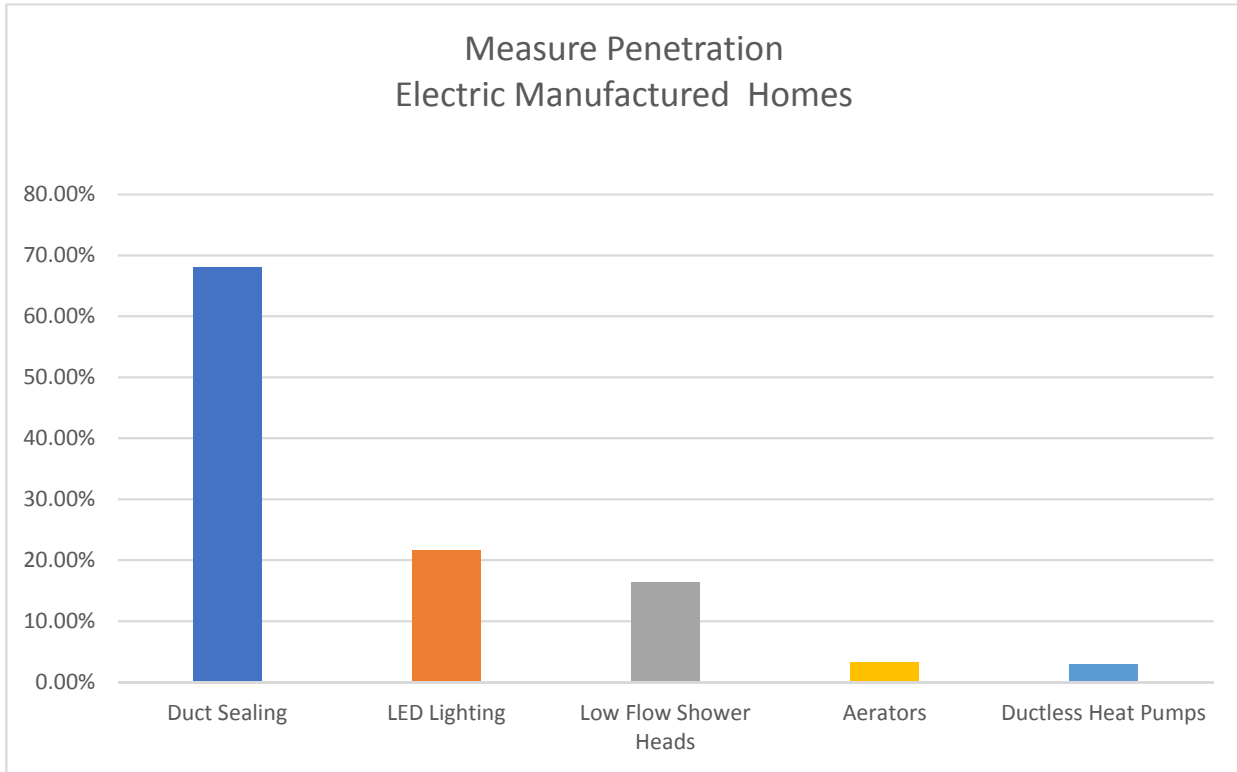
Don M. Carlson

President, AMHO

Attachment B

Current penetration level of cost effective conservation Measures in manufactured homes in PSE service area

Measure	%-age	Homes	# Measures	Assumption
Duct Sealing	68.14%	44,289	44,289	
LED Lighting	21.62%	30,884	140,533	Assumes 10/home
Low Flow Shower Heads	16.28%	25,109	21,168	Assumes 2/home
Aerators	3.18%	3,100	6,200	Assumes 3/home
Ductless Heat Pumps	2.84%	1,847	1,847	Assumes 1/home



Attachment C

RTF unit measure energy savings, incremental measure costs and benefit cost ratios (for proposed low-income program)

RTF Unit Measure Energy Information

Average Savings Measure Summary

Last update:

6/12/2018

Heating Zone 1

I. Measure Assumptions:

Metric	Value	Notes
Home type	Manufactured	Size and audits from prior PSE I-937 filings
Home age	20 to 40 years	From ~30,000 prior duct sealing measures provided PSE
Duct Seal	No	No longer an RTF deemed measure
Lighting Opportunity number fixtures	10	Assumes 10 General Purpose med-use fixture retrofits
Shower head Opportunity number of heads	2	Assumes electric water heat and 1.5 GPM LFSH
Aerator Opportunities number of kitchen faucets	1	New RTF deemed measure
Aerator Opportunities number of Bathroom faucets	2	New RTF deemed measure
Ductless Heat Pump Opportunity	Yes	Assumes existing forces air electric furnace
HVAC	Forced air electric	Most typical current heating system

All annual energy savings are per RTF and do not include interactive effects

II. Program Package Assumptions

Measure	Number Implemented	Notes
LED Lighting	5,000	500 homes with 10 LED lamps retrofit per home
LFSH By Request_MH_Any Electric	1,200	600 homes with 2 showerheads per home
Faucet Aerators Kitchen	1,000	1000 homes with 1 kitchen aerator per home
Faucet Aerators Bathroom	2,000	1000 homes with 2 bathroom aerators per home
Ductless Heatpumps	1,000	1,000 homes retrofit with DHPs

III. Measure Outputs Heating Zone 1: Unit Outputs

Measure	Incremental Cost Per Home (\$)	Measure life (years)	Annual Energy Savings (kWh/yr.)	TRC B/C ratio	Levelized Cost (mills/kWh)	Notes
LED Lighting: Direct install - High Use_General Purpose and Three-Way_1050 to 1489 lumens (GPS note: must be installed in LR, FR, or Kitchen)	\$104.90	12	520	1.6	8.2	- Net incremental cost reported as \$10.49 - does not take credit for \$0.776 O&M savings. - Annual savings assume Direct Install of 10 and high use fixtures at 52 kWh/yr. - Note annual savings reported for 2 years and then these are reduced to 9 kWh/yr. This decrease is not accounted for here. - Levelized cost is assumed per unit
Low Flow Showerhead: Direct Install_MH_Any Electric_1_75 GPM	\$34.40	10	464	19.4	-150.3	- Net incremental cost reported at \$17.20 per unit - Annual savings assume Direct Install of two (2) 1.75 GPM heads at 232 kWh/yr each. - Note annual savings reported for 3 years and then these are reduced to 88 kWh/yr. This decrease is not accounted for here. - Levelized cost is assumed per unit

Attachment C

RTF unit measure energy savings, incremental measure costs and benefit cost ratios (for proposed low-income program)

Measure	Incremental Cost Per Home (\$)	Measure life (years)	Annual Energy Savings (kWh/yr.)	TRC B/C ratio	Levelized Cost (mills/kWh)	Notes
Faucet Aerator Kitchen: Direct Install_Kitchen_MH_Electric Resistance Hot Water	\$4.57	10	44	14.1	-115.5	- Net incremental cost reported at \$4.57 per unit - Annual savings assume Direct Install of one (1) 1.0 GPM or less aerators at 44 kWh/yr each. - Levelized cost is assumed per unit
Faucet Aerator Bathroom: Direct Install_Bathroom_MH_Electric Resistance Hot Water	\$9.14	10	58	10.7	-137	- Net incremental cost reported at \$4.57 per unit - Annual savings assume Direct Install of two (2) 1.0 GPM or less aerators at 29 kWh/yr each. - Levelized cost is assumed per unit
Ductless Heat Pump: Install Ductless Heat Pump in House with Existing FAF - Manufactured Home - HZ1	\$4,023.66	15	5,736	2.1	-11.1	- Net incremental cost reported at \$4,023.66 per unit - Annual savings assume Direct Install of one (1) DHP per unit at 5,736 kWh/yr. - Levelized cost is assumed per unit
Total	\$4,177		6,822			

Notes:

1. All annual energy savings are per RTF and do not include interactive effects

IV. Measure Outputs Heating Zone 1: Program Package Outputs

Measure	Incremental Cost (\$)	Measure life (years)	Annual Energy Savings (kWh/yr.)	TRC B/C ratio	Levelized Cost (mills/kWh)
LED Lighting: Direct install - High Use_General Purpose and Three-Way_1050 to 1489 lumens (GPS note: must be installed in LR, FR, or Kitchen)	\$52,450	12	260,000	1.6	8.2
Low Flow Showerhead: Direct Install_MH_Any Electric_1_75 GPM	\$20,640	10	278,400	19.4	-150.3
Faucet Aerator Kitchen: Direct Install_Kitchen_MH_Electric Resistance Hot Water	\$4,570	10	44,000	14.1	-115.5
Faucet Aerator Bathroom: Direct Install_Bathroom_MH_Electric Resistance Hot Water	\$9,140	10	58,000	10.7	-137.0
Ductless Heatpumps	\$4,023,660	15	5,736,000	2.1	-11.1
Total	\$4,110,460		6,376,400		