

2019 Annual Report

NW Natural Washington



JUNE 1, 2020

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Standard Energy Efficiency Program 2019 Results

I. Introduction, background, oversight and goals

A. Introduction

This annual report covers 2019, the 10th full year that Energy Trust of Oregon provided services and incentives to residential and commercial customers of NW Natural in Washington. It addresses progress toward annual goals, information on expenditures, gas savings, projects completed, incentives paid during the year and highlights of program activity.

B. Background

At the request of NW Natural Energy Trust began implementing NW Natural's demand-side management programs in Southwest Washington on October 1, 2009. This report is a summary of activities from the 2019 program year as outlined in the Company's plan and per WUTC Order 06 of docket UG-181053.

C. Oversight

The Energy Efficiency Advisory Group (EEAG) was created, at the direction of the WUTC, to provide advice and oversight for NW Natural and Energy Trust energy-efficiency offerings in Washington. The advisory group is comprised of representatives from NW Natural, Energy Trust, WUTC, Washington Public Counsel, Energy Project, Association of Western Energy Consumers and the Northwest Energy Coalition. The EEAG meetings are open to additional stakeholders.

D. Goals

NW Natural, in collaboration with the EEAG, established performance metrics for 2019. This report presents Energy Trust's performance against those goals. The total savings goal for the portfolio was 369,196¹ therms. This is comprised of 221,714 therms for Residential and 147,481 therms for Commercial.

¹ Residential and Commercial targets add up to 369,195 which was included in the 2019 EE Plan. Rounding difference between forecasting and reporting resulted in this discrepancy.

II. Energy Efficiency annual highlights

A. General

- **In 2019, Energy Trust achieved 101% of the annual portfolio goal.**
- **Gas efficiency projects installed in 2019** by NW Natural's Washington customers saved 372,948 annual therms of natural gas—158,749 therms in the Commercial sector and 214,199 in the Residential sector.
- **A strong local economy continues to be a driving force** for many new construction and retrofit projects.

B. Commercial sector highlights

- **The Commercial sector achieved 108% of its annual goal.**
- **Therm acquisition was weighted heavily in fourth quarter** with 81% of 2019 savings.
- **Several larger projects expected to close before midyear were hampered by construction and equipment delivery constraints** and delays for large new buildings and installation of controls projects. As a result, a number of projects were delayed until quarter four.
- **The top four offers contributing to savings** were for boilers, tank water heaters, custom building controls and food service equipment, totaling 124,961 therms.
- **Three new offers contributed savings (14,853 therms) for the first time.** These were new refrigerated cases with doors installed in a new grocery store, gas rack ovens installed in a Safeway and a modulating boiler burner installed at Washington State School for the Blind.
- **The sector captured new savings in the multifamily market.** Savings were achieved through several tank water heaters, as well as pool pumps and heaters.
- **Outreach was increased to low-income sites managed or owned by the Vancouver Housing Authority,** resulting in three completed projects and an estimated additional nine projects planned over the next three years. Vancouver Housing Authority is a new participant in the Commercial sector in 2019.
- **A partnership with Clark Public Utilities was expanded through efforts that included** researching co-funded retro-commissioning opportunities and joint outreach efforts; partnering on joint meetings and presentations to customer groups; and participating in three co-funded technical analysis studies.

C. Residential sector highlights

- **The Residential sector achieved 97% of its annual goal.** Savings were up about 2% from 2018.
- **In 2019, savings were primarily driven by EPS² new construction,** heating system upgrades and thermostat offers.
- **Approximately 57% of savings were delivered via home retrofit upgrades,** while 35% came from EPS new construction. Retail showerheads made up the remaining 8%.

Home Retrofit

- **HVAC savings increased year over year** primarily due to fireplace electronic ignition savings exceeding forecast.
- **Smart thermostats underperformed** forecasts with fewer units installed than expected. Promotional efforts were not as effective as anticipated and a change to the way one major manufacturer accepted promotional discounts online contributed to this shortfall.
- **Thermostat offers accounted for 28% of Residential savings.** Savings and participation increased by 25% compared with 2018 due to an increase in market adoption of smart thermostats, while optimization opt-in rates were relatively flat.
- **Gas furnaces underperformed savings expectations** with a 12% year over year decrease. Customer perception, despite notable cold snaps, of a relatively mild heating season may have contributed to lower customer demand.
- **Retail showerhead savings declined more than 85%** compared with 2018. While the number of showerheads reported by participating retailers remained similar to 2018, the amount of energy savings Energy Trust can claim per showerhead declined due to updated impact evaluations of those measures.
- **Fireplace electronic ignition savings exceed forecasted savings** as the program added a new distributor, Gensco.
- **There was a small uptake in rental gas furnace incentives**—13 units recorded savings 2019—after the program began working with property managers.
- **Market adoption of multifamily incentives was slower than anticipated** and significantly underperformed savings goals. This has historically been a lagging market with energy-efficiency improvements, but the program is making progress toward reaching this customer type.

EPS New Construction

- **Energy Trust helped builders complete 756 energy-efficient new homes in 2019,** approximately 40% of new homes built in the NW Natural Washington territory.
- **Savings from EPS new construction projects exceeded goal by 10%** as a result of more homes coming through the program than forecasted and more savings achieved on a per home basis.
- **The program has helped builders complete 4,450 EPS and ENERGY STAR® homes since 2010.**

² EPS is a score based on an energy performance scoring tool used to rate residential new construction.

Trade Ally Network Highlights

- By the end of 2019, **307 trade allies were serving Washington, up from 267 in 2018**. This includes 102 trade allies based in Washington.

D. Program evaluations

- **In quarter four, Energy Trust finalized the 2017 Existing Buildings Impact evaluation.** This report can be found online at https://www.energytrust.org/wp-content/uploads/2019/10/2017_ExistingBuildings_Impact_Evaluation.pdf
- **In quarter four, Energy Trust finalized the Transition from Net to Gross Goal Setting and Reporting report.** This report can be found online at https://www.energytrust.org/wp-content/uploads/2019/11/Net-to-Gross_Transition_Memo.pdf
- **In quarter four 2019, Energy Trust finalized the 2015-2016 New Buildings Program Impact Evaluation.** This report can be found online at <https://www.energytrust.org/wp-content/uploads/2020/01/2015-2016-New-Buildings-Program-Impact-Evaluation-Final-wSR.pdf>
- **The expected Residential process evaluation** that will include Washington as reported in quarter three is still pending completion. A link to the evaluation report will be provided when it is available.

E. Washington Utilities and Transportation Commission performance metrics

The tables below compare quarterly results to 2019 goals, as established in NW Natural’s Energy Efficiency Plan for Washington (filed December 2018).

2019 Results compared to goals

Metrics	Goal	2019 YTD	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	369,196	372,948	28,806	64,080	31,807	248,255
Total Program Costs	\$ 2,432,821	\$ 2,326,767	\$ 409,701	\$ 464,244	\$ 404,114	\$ 1,048,708
Average Levelized Cost Per Measure	Less than \$0.65	\$ 0.48	\$ 1.07	\$ 0.52	\$ 0.89	\$ 0.34
Utility Cost at Portfolio Level	Greater than 1.0	\$ 2.31	Reported annually	Reported annually	Reported annually	Reported annually

2018 Results compared to goals (for reference)

Metrics	Goal	2018 YTD	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	359,880	372,005	44,057	81,330	54,009	192,609
Total Program Costs	\$2,254,265	\$2,110,012	\$363,417	\$525,787	\$451,237	\$769,571
Average Levelized Cost Per Measure	Less than \$0.65	\$0.43	\$0.59	\$0.48	\$0.61	\$0.31
Utility Cost at Portfolio Level	Greater than 1.0	2.46	Reported annually	Reported annually	Reported annually	Reported annually

2019 Utility Cost Test and Total Resource Cost Test benefit/cost ratios by program

Program	Utility Cost Test benefit/cost ratio	Total Resource Cost Test benefit/cost ratio
Commercial	3.94	3.18
Residential	3.88	1.69
Total NW Natural Washington portfolio	3.91	2.12

- 2019 avoided costs were used to calculate BCRs

2019 Utility Cost Test and Total Resource Cost Test benefit/cost ratios by program (for comparison)

Program	Utility Cost Test benefit/cost ratio	Total Resource Cost Test benefit/cost ratio
Commercial programs	2.34	1.93
Residential programs	2.29	1.03
Total NW Natural Washington portfolio	2.31	1.29

- 2018 avoided costs were used to calculate BCRs

III Energy efficiency results

A. Activity highlights—Projects completed

	Q1	Q2	Q3	Q4	Total
Commercial					
Boiler	-	1	-	8	9
Building operator certification incentive	-	2	-	8	10
Commercial tankless water heater	1	-	-	-	1
Condensing tank water heater	-	2	2	6	10
Custom building controls	1	-	1	2	4
Custom demand control ventilation	-	1	-	-	1
Custom water heater	-	1	-	-	1
Dishwasher	-	1	-	2	3
Gas convection oven	1	1	-	2	4
Gas fryer	4	11	3	9	27
Gas rack oven	-	-	-	2	2
Modulating boiler burner	-	-	1	-	1
New refrigerated cooler doors	-	-	-	1	1
Showerheads	-	-	-	1	1
Studies	2	-	-	5	7

	Q1	Q2	Q3	Q4	Total
Residential					
Energy Saver Kits	-	40	53	472	565
Gas furnace	78	80	78	152	388
Gas fireplace	22	19	6	25	72
Insulation	1	1	3	5	10
Online Home Energy Reviews	12	21	17	25	75
Smart thermostat	57	56	60	237	410
Tankless water heater	3	8	1	9	21
Windows	37	47	47	94	225
EPS new construction	80	306	117	253	756

B. Revenue

Source	Actual revenue	Budgeted revenue
NW Natural \$	2,230,921 \$	2,194,160

C. Expenditures

		Actual	Budgeted	
		expenditures YTD	expenditures YTD	Variance
Commercial program	Commercial	\$ 987,036	\$ 942,495	\$ (44,541)
	Commercial administration	\$ 46,027	\$ 46,776	\$ 748
Commercial total		\$ 1,033,063	\$ 989,270	\$ (43,793)
Residential program	Residential	\$ 1,236,064	\$ 1,375,295	\$ 139,231
	Residential administration	\$ 57,640	\$ 68,255	\$ 10,615
Residential total		\$ 1,293,704	\$ 1,443,551	\$ 149,846
Total expenditures		\$ 2,326,767	\$ 2,432,821	\$ 106,054

- The budgeted expenditures in Energy Trust’s system differs from the budgeted expenditures filed in NW Natural’s 2019 Energy Efficiency Plan by roughly \$1,758 due to changes made to internal Energy Trust costs that resulted after the efficiency plan was filed.

D. Incentives paid

	Actual incentives YTD	Actual expenditures YTD	Percent incentives/ expenditures
Commercial program	\$ 577,534	\$ 1,033,063	56%
Residential program	\$ 735,411	\$ 1,293,704	57%
Total incentives	\$ 1,312,945	\$ 2,326,767	56%

E. Savings

		Therms saved YTD	Annual goal	Percent achieved YTD	Levelized cost/therm
Commercial program	Existing Buildings - custom	32,738	44,100	74%	
	Existing Buildings - standard	60,034	32,765	183%	
	New Buildings - standard	65,978	70,616	93%	
Commercial total		158,749	147,481	108%	\$ 0.50
Residential program	Home retrofit	123,655	135,425	91%	
	Midstream and retail	14,323	9,897	145%	
	Small multifamily	523	7,279	7%	
	EPS new construction	75,698	69,114	110%	
Residential total		214,199	221,714	97%	\$ 0.47
Total savings		372,948	369,196	101%	\$ 0.48

Levelized cost is calculated based on the lifetime cost of the measure divided by the lifetime therms saved.

Energy Efficiency Appendix 1:

2019 Energy efficiency measure counts and savings

Table 1: Residential sector measures

Category	Measure	Measures installed	Total therms saved
Energy Saver Kits	Energy Saver Kits total	2,031	12,065
Online Home Energy Reviews	Online Home Energy Reviews total	75	0
Weatherization	Ceiling insulation	9	617
	Floor Insulation	2	65
	Wall insulation	3	52
	Windows	305	10,350
	Weatherization total	319	11,083
Space heating	Smart thermostat	410	13,099
	Seasonal Savings	2,768	44,288
	Furnace	392	35,804
	Gas fireplace	80	4,174
	Gas fireplace retailer & distributor SPIF	1,895	10,612
	Space heating total	5,545	107,978
Water heating	Retail showerhead	1,554	3,197
	Tank water heater retailer & distributor SPIF	21	514
	Tankless water heater	23	1,564
	Water heating total	1,598	5,274
EPS New Construction	EPS New Construction	756	75,698
Other	Other	2	2,098
Grand total		10,326	214,196 ³

- “Other” represents savings from projects that did not complete incentive applications materials needed to pay incentives, such as by omitting information on incentive application materials (i.e. customer/contractor signature, date of installation on invoice, etc.). Energy Trust claimed savings for these projects because they were influenced by the program even though they did not receive incentives. Energy Trust follows up with participants at least three times to collect any outstanding information.

³ Rounding causes the total to not match Table E.

Table 2: Commercial sector measures

Category	Measure	Measures installed	Total therms saved
Building Operation	Building Operator Certification	10	6,148
Building Operation total		10	6,148
Foodservice equipment	Dishwasher	3	1,191
	Gas convection oven	2	260
	Gas fryer	27	11,549
	Gas Rack Oven	2	5,472
Foodservice equipment total		34	18,472
Grocery	New Refrigerated Cases w/Doors	1	6,811
Grocery total		1	6,811
Space heating	Gas-fired condensing boiler	17	74,159
	Modulating burner boiler	1	1,231
Space heating total		18	75,390
Water heating	Commercial tankless water heater	1	575
	Condensing tank water heater	21	16,330
	Showerhead	2	330
Water heating total		24	17,235
Custom	Custom other	7	34,695
	Study	7	0
Custom total		14	34,695
Grand Total		101	158,751 ⁴

⁴ Rounding causes the total to not match Table E.

Energy Efficiency Appendix 2: Customer satisfaction

Energy Trust conducted short web and phone surveys of NW Natural customers in Washington who participated in Energy Trust programs in 2019 to determine their satisfaction with Energy Trust. Results from 151 residential customers and 16 commercial customers indicate a generally high level of customer satisfaction. Most residential customers in Washington were satisfied with their overall program experience, but a small proportion were neutral or dissatisfied with regard to the turnaround time to receive their incentive and the incentive application form.

Table 1: NW Natural Washington residential customer satisfaction 2019

Residential (n=151)	Dissatisfied	Neutral	Satisfied
Overall experience	1%	3%	96%
Incentive application form	0%	8%	92%
Turnaround time to receive incentive	3%	8%	89%

Energy Trust surveyed 16 commercial customers in Washington who participated in 2019. All respondents were satisfied with their overall program experience, incentive amount, ease of applying for the incentive, performance of their project and interaction with program representatives. Most were satisfied with the turnaround time to receive the incentive but a small number were neutral.

Table 2: NW Natural Washington commercial customer satisfaction 2019

Commercial (n=16)	Dissatisfied	Neutral	Satisfied
Overall experience	0%	0%	100%
Incentive amount	0%	0%	100%
Ease of applying for incentive	0%	0%	100%
Interaction with program representative	0%	0%	100%
Performance of project or system	0%	0%	100%
Turnaround time to receive incentive	0%	14%	86%

Washington Market Transformation

2019 Program Results

In 2019 NW Natural participated in the Northwest Energy Efficiency Alliance’s Gas Collaborative to support regional Market Transformation. NEEA funding comes from utilities across the region and allocated based on a set percentage with invoices based on actual spend for work on the 5-year plan. There were no add-on activities specific to NW Natural in 2019 and NW Natural contributed 2.73% in 2019 which resulted in the amounts in the table below. The NEEA summary memo can be found on the following pages.

Market Transformation		Budget	Actual
NEEA	Total	\$ 184,101	\$184,101

Market Transformation	Reported Therm Savings
Program Measures	7,641
Codes & Standards Measures*	-
Total Savings	7,641

These are savings allocated by funding share.

**Program Measures* can result in a code or standard. As a result, some of the savings from *Program Measures* are reported as *Codes & Standards Measures*.

The forecast does not include savings from programs in development.

Definitions

-Program Measures: These savings come from measures funded through NEEA's gas programs but not a code or a standard.

-Codes and Standards Measures: These savings come from codes or standards partly funded through NEEA's gas programs.

2019 Savings Estimate Summary

NEEA estimates NW Natural's 2019 annual gas energy savings associated with its initiatives is 7,641 Annual Therms⁵ (Table 1). These savings are above the NEEA baseline⁶ and exclude an estimate of savings that NW Natural and local utilities claim through locally run programs. NEEA allocates energy savings based on funder share.

Table 1: 2019 Annual Report Savings Estimates (Annual Therms)

Program	Gas Program Measures
Efficient Gas Water Heaters	-
Next Step Homes	7,530
Condensing Rooftop Units	111
Total Savings	7,641

Notes: Efficient Gas Water Heaters savings are expected during NEEA's 2020-2024 business plan cycle as gas heat pump water heater technology comes to market.

Net Market Effects = Total Regional Savings - Local Program Savings - Baseline Savings

Regional Savings Portfolio

The 2019 savings mostly come from Next Step Homes. This program develops and increases market adoption of energy efficient advanced building practices for single-family homes, ultimately influencing and accelerating code adoption. While NEEA's natural gas portfolio began funding Next Step Homes in 2019, this program has been funded by NEEA's electric portfolio for many years. In market transformation the investment comes upfront to create the conditions in the market for the savings stream to follow later. The savings being reported in 2019 come from above-code building activity only. When future residential codes are adopted, NEEA will analyze and report the savings from increased energy efficiency. As the initiative moves forward with dual fuel funding, a greater proportion of the savings will be directly associated with gas funding.

NEEA is also reporting savings from the Condensing Rooftop program related to two field studies conducted in 2015-2017 and 2018-2019.

This is the first year in which NEEA is reporting natural gas savings. Annual gas savings will increase over time as the programs in the portfolio advance into full-scale market development and as new programs are added to the portfolio. NEEA also anticipates future savings from gas-focused codes and standards work.

⁵ The term Annual Therms refers to the fact that NEEA reports first-year savings only in order to represent a sustained reduction in load.

⁶ NEEA estimates Baseline as the savings that would have occurred without NEEA, utility, the Bonneville Power Administration, and the Energy Trust of Oregon's market intervention

Appendix A: Methodology to Forecast Savings

Allocation Methodology

NEEA allocates regional savings (Idaho, Montana, Oregon, and Washington) using shares of investment by funder. These shares vary by funding cycle. Savings from previous investments receive the previous funder share. Savings from current investments receive the current funder share. Table 2 shows the funder shares.

Table 2: Funder Shares

Business Plan	Gas Funding Share
2019	2.73%
2020-2021 (f)	3.11%

Gas savings from NEEA’s electric-funded programs (electric-only and dual-fuel), such as Residential New Construction, come from the whole Northwest (Montana, Idaho, Oregon, Washington), whereas gas savings from gas-funded programs cover the service territory of just the gas funders (Avista Idaho, Oregon and Washington).

Baseline and Technical Assumptions

This report follows NEEA’s method of measuring gas energy savings from market transformation efforts. The baseline is an estimate of the market adoption without intervention by NEEA, Energy Trust of Oregon and utilities. Prior to reporting the savings above the baseline, NEEA removes the savings counted through the local programs. This effort avoids double counting energy savings.

The technical assumptions come from third-party research including NEEA contracted research and the Northwest Power & Conservation Council’s Regional Technical Forum.

Washington Low Income Energy Efficiency Program 2019 Program Results

NW Natural partners with Clark County’s Community Development Office to serve Clark County customers and Washington Gorge Action Programs (WAGAP) serving Skamania and Klickitat counties to administer its Washington Low Income Energy Efficiency (WALIEE) program. While offerings are available in Skamania and Klickitat counties, the agency that serves these counties did not provide services to any customers through WALIEE during 2019. Results below are specific to Clark County’s Department of Community Services.

In WAGAP’s territory, staffing and limited customers have been the historical challenge for the program’s gas efforts. In 2019 Community Action Council of Lewis, Mason & Thurston Counties (CACLMT) was selected to provide services in WAGAP’s territory. NW Natural continued engagement with the Energy Project and CACLMT, to help address these issues and support gas customers and projects.

The weatherization reimbursement cap changed for the 2019 program year with the additional Low-Income Program Adjustment. The agencies are allotted 15% of reimbursable job costs for administrative costs and allowed an average of \$1,000 per home for Health, Safety, and Repairs (HSR), which are not subject to cost effectiveness tests. A WALIEE job could cost the program no more than the base \$7,992 plus the Low-Income Program Adjustment of \$5,508 for a total of \$13,500. Projects in 2019 averaged \$11,821.

Measure Analysis:

The figure below provides a breakdown of weatherization occurrences by measure, as well as the associated annual therms savings.

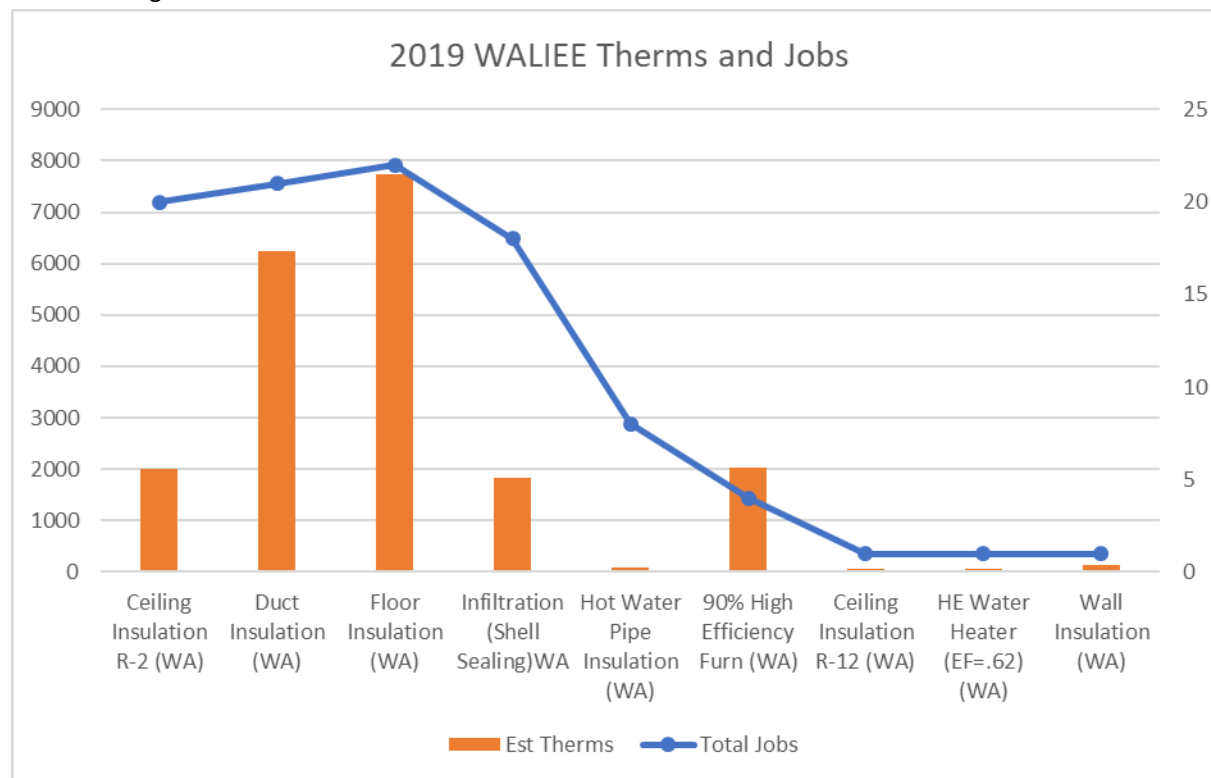


Figure 1: Measure Occurrence and Savings

2015-2019 Efficiency Results:

Efficiency Metric	2019	2018	2017	2016	2015
Homes served	22	16	13	16	9
Average Reimbursement per home ⁷	\$8,657	\$5,739	\$5,305	\$4,807	\$4,313
Total Reimbursed	\$190,457	\$91,828	\$68,965	\$76,918	\$38,817
Average estimated therms saved per home ⁸	918	474	472	378	357
Total estimated therms saved	20,170	7,578	6,132	6,048	3,213
Estimated Cost per therm	\$9.44	\$12.12	\$11.25	\$12.72	\$12.08

Figure 2 Efficiency Metrics

2019 Performance Metric	Goal	Actual
Homes served	18	22
Max reimbursement per home (Actual figure = avg per home)	\$7,992	\$7,992
Adjustment Program Max (Actual figure =avg per home)	\$5,508	\$3,829
Average estimated therms saved per home ⁹	351	918
Total estimated therms saved	6,318	20,170
Total Expenditure [(Max + Adjustment) * Homes]	\$243,000	\$260,071

Figure 3 Performance and Goal Metrics

NW Natural continues to be optimistic that the work with stakeholders and better utilization of data will result in future growth of the WALIEE program. The progress has led to additional pilots and programs which are anticipated to help development of the program which continues to be positive.

⁷ Note, reimbursed costs only reflect NWN's contribution for home weatherization. HSR and Admin are excluded.

⁸ An impact evaluation has not been conducted on these homes so the actual per therm savings has not been verified. The therm estimates are based on modeling software estimates which convert financial savings to therm savings.

⁹ Savings are estimated based on Washington Department of Commerce program tools.

Washington Pilots & Trials

2019 Results

Pilots & Trial Programs		Budget	Actual
	Low Income Furnace Tune Ups	\$15,000	\$1,726
	Low Income Program Adjustment	\$100,000	\$84,247
	School New Construction	\$100,000	N/A
	Low Income Thermostat Direct Install	\$100,000	\$7,029
	Pilot Total	\$315,000	\$93,002

Low Income Furnace Tune-ups

The program began January 1st which falls in the middle of the heating season. Clark County Weatherization had one client in the spring and two more in the fall. The offering, while reaching a small number of customers, met its objective of quickly serving those customers and helping them stay safe and warm. Customers avoided the use of temporary space heaters, may have non-energy health benefits and the furnaces may be working more efficiently. There have been no therm savings claimed.

Low Income Program Adjustment

In 2019 the Company adopted a program model utilized by other gas utilities through this temporary program. In addition to the existing WALIEE offering, partner agencies were eligible for an additional indirect administration assistance plus an increase weatherization project cap up to the State’s Matchmaker grant cap. The program helped cover more of the weatherization cost on the original target of 18 homes plus an additional 4 projects over the program’s 2019 goal. All metrics are reported in the WALIEE section.

New School Construction

There was no additional school modeling that utilized this temporary offering in 2019.

Low Income Thermostat

The Company partnered with the local Consumer Owned Utility, Clark Public Utilities (CPU), in a direct to consumer thermostat program. The Company leveraged those efforts to enable gas customers to participate. The costs were estimated to be approximately \$300 per home for installation. Actual costs were \$306. The program had a slow roll out by CPU in Q2 of 2019 with momentum in the 2nd half of the year. There were 23 reported installs. Savings from these thermostats are included in the “Energy Efficiency measure counts and savings” table under “Smart Thermostats.”