

2021 Annual Report

NW Natural Washington

ENERGY TRUST OF OREGON

JUNE 1, 2022

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I. Introduction, background, oversight and goals

A. Introduction

This annual report covers 2021, the 12th 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 and following approval granted by the Washington Utilities and Transportation Commission (WUTC), Energy Trust began implementing NW Natural's demand-side management programs in Southwest Washington on October 1, 2009. The first year was viewed as a pilot. In 2011, the WUTC approved NW Natural's use of Energy Trust as implementer of Commercial and Residential conservation programs for NW Natural in Washington.

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, Public Counsel Unit of the Washington Attorney General's Office, Energy Project, Alliance of Western Energy Consumers and the NW Energy Coalition.

D. Goals

NW Natural, in collaboration with the EEAG, established performance metrics for 2021. This report presents Energy Trust's performance against those goals. The total savings goal for the portfolio was 399,957 therms. The goal for the Energy Trust programs was 386,680 therms and is comprised of 148,573 therms for residential and 238,107 therms for commercial.

II. Annual report highlights

A. General

- In 2021, Energy Trust achieved 89% of the annual portfolio goal.
- Gas efficiency projects installed in 2021 by NW Natural's Washington customers saved 345,322 annual therms of natural gas—128,309 therms in the commercial sector and 217,013 in the residential sector.
- Shortfalls in the overall goal and sector goals are largely due to construction delays in the commercial sector as a result of supply chain issues and construction cost increases, both of which were market impacts of the COVID-19 pandemic.

B. Commercial sector highlights

- **The commercial sector achieved 54% of its annual goal.**
- The largest drivers of savings were control upgrade projects located in schools and large office facilities. These projects realized approximately 65,000 therms. The prevalence of controls projects is expected to continue into 2022.
- Roof and wall insulation incentives were also large drivers of savings in 2021, accounting for approximately 30,000 therms. By comparison, these insulation measures contributed less than 1,000 therms in 2020 and 2019.
- COVID-19 continued to impact the market and customers in challenging ways.
 - During Q4, several large projects were delayed into 2022 due to supply chain issues, materials cost increases and labor shortages. Energy Trust expects to realize approximately 120,000 therms from projects postponed to 2022.
 - Equipment and raw materials costs increased in 2021 by 10-20%. In addition, delivery schedules have lengthened by two-to-four months. These delays impacted the completion of building controls upgrades and boiler replacements.
- The program managed the largest projects in the program's history. The program expects to see the prevalence of large projects in the coming years as well. Due to the complexity of these large projects, forecasting can be challenging.
- Bonus incentives were offered for condensing boilers from April 1 to December 31. The boiler incentive motivated customers to install qualifying boilers, despite the decline of boiler savings since 2019.

C. Residential sector highlights

- **The residential sector achieved 146% of its annual goal**, whereas in 2020 the residential sector achieved 94% of the annual savings goal.
- Savings were driven by strong participation in EPS™ new construction, heating system upgrades including gas furnaces and gas fireplaces, windows and thermostat offers including smart thermostats and thermostat optimization.
- Strong participation in EPS new construction contributed a higher portion of residential savings in 2021 compared to 2020, reflecting a construction backlog from 2020 being built in a compressed timeframe. Approximately 30% of residential savings came from EPS new construction in 2021, compared to 25% in 2020.

- Only 20 showerheads were recognized in 2021, compared to the goal of 417. This variance occurred in part due to the delayed launch of the Energy Saver Kits to 2022.
- **Smart thermostat marketing campaigns were highly effective** and brought in 66% more smart thermostat savings than in 2020, with the promotion of direct ship incentives generating the greatest thermostat activity seen to date in Washington. As a result of collaborative messaging with NW Natural, 299 thermostat transactions were recognized over the course of several days.
- Thermostats and thermostat optimization contributed approximately 20% of all residential savings in 2021 due to the continued promotion of direct ship and the introduction of incentives for a new low-cost thermostat model by Google that made smart thermostats more affordable than previous years.
- **Bonus incentives for gas furnaces in Q1 were highly effective**, bolstering savings from heating system upgrades by 19% compared to 2020. Regional trade allies promoted the incentives leading to a sharp increase in projects between February and April. The gas furnace bonus incentive also had a lasting impact on gas furnace activity for the remainder of 2021, despite the bonus ending in March.
- 2021 saw the highest number of project submissions compared to the last four years with virtually no cooling season slowdown typically seen in July, August and September.
- Incentives for rental properties were used more in 2021 than any year prior, with three times the number of gas furnace projects in rentals than in 2020 (8 in 2020, 24 in 2021). The \$1,000 incentive for gas furnaces in rentals drove a measurable increase in participation among rental properties, as did incentives for smart thermostats. Targeted outreach to rental organizations such as the Clark County Rental Association and Vancouver's Green Apartment Living helped promote these incentives to new property owners and management companies. Gas furnace projects in rentals saw a 300% increase in quantity, with 8 occurring in 2020, and 24 occurring in 2021.
- **One new savings source and one new market channel were introduced in 2021.**
 - The New Manufactured Homes offer, which incentivizes the sale of ENERGY STAR® certified manufactured homes, was launched through a series of outreach initiatives but did not produce any gas-heated new homes in 2021.
 - The Community Partner Funding offer was introduced to a number of nonprofit and service-oriented organizations in Clark County. Early discussions for Community Partner Funding laid groundwork for conversations to continue in 2022, but no related savings were claimed in 2021.
- The program worked with builders, verifiers and trades people to assist the market in transitioning to residential building code changes in early 2021. The program launched new incentive offerings in Q4 to provide opportunities for all builders of gas homes to participate.

D. Trade Ally Network highlights

- By the end of 2021, **370 trade allies served Washington**, up from 345 in 2020. This includes 121 trade allies based in Washington.

E. Program evaluations

- **Energy Trust finalized the 2018-19 New Buildings Impact evaluation**
This report can be found online at https://energytrust.org/wp-content/uploads/2021/10/2018-19-New-Buildings-Program-Evaluation_Final_wSR.pdf
- **Energy Trust finalized the Existing Buildings 2019 Impact Evaluation**
This report can be found online at <https://energytrust.org/wp-content/uploads/2021/09/Existing-Buildings-PY2019-Impact-Evaluation-Report-wSR.pdf>
- **2020 Fast Feedback Annual Report**
This report can be found online at <https://www.energytrust.org/wp-content/uploads/2021/05/Energy-Trust-2020-Fast-Feedback-End-of-Year-Report-FINAL.pdf>
- **Oregon Commercial and Industrial Boiler Market Characterization Memo**
This report can be found online at https://www.energytrust.org/wp-content/uploads/2021/05/EnergyTrust_CIGasBoilerMarketResearch-Memo_FINAL.pdf
- **Energy Trust finalized the Oregon Commercial and Industrial Boiler Market Characterization report**
This report can be found online at https://energytrust.org/wp-content/uploads/2021/05/EnergyTrust_CIGasBoilerMarketResearch-Memo_FINAL.pdf
- **Energy Trust finalized the Low Flow Gas Showerhead Analysis**
This report can be found online at <https://www.energytrust.org/wp-content/uploads/2021/01/ShowerheadAnalysisFinalwSR.pdf>

F. Washington Utilities and Transportation Commission performance metrics

The tables below compare results to 2021 goals, as established in NW Natural's Energy Efficiency Plan for Washington.

2021 Summary compared to goals

Program	2021 Therm Goal	2021 Actual Therm Savings
Residential Incentive Program	148,573	217,013
Commercial Incentive Program	238,107	128,309
Low-Income Energy Efficiency	3,410	3,568
NEEA Market Transformation	9,867	11,423
Total	399,957	360,313

2021 Energy Trust results compared to goals

Metric	Goal	2021 Total Annual	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	386,680	345,322	52,172	122,960	62,964	107,227
Total Program Expenditures	\$3,322,803	\$ 3,069,312	\$682,019	\$941,612	\$606,543	\$839,138
Average Levelized Cost Per Therm	Less than \$0.65	\$ 0.63	\$ 0.86	\$ 0.61	\$ 0.65	\$ 0.53
Utility Cost at Portfolio Level	Greater than 1.00	\$ 2.31	Reported annually	Reported annually	Reported annually	Reported annually

2020 Energy Trust results compared to goals (for reference)

Metric	Goal	2020 Total Annual	Q1 results	Q2 results	Q3 results	Q4 results
Therms Saved	339,331	320,170	25,412	48,450	44,658	201,651
Total Program Costs	\$2,579,667	\$ 2,363,539	\$ 360,998	\$ 533,823	\$ 446,759	\$ 1,021,960
Average Levelized Cost Per Therm	Less than \$0.65	\$ 0.59	\$ 0.92	\$ 0.69	\$ 0.76	\$ 0.47
Utility Cost at Portfolio Level	Greater than 1.00	\$ 2.31	Reported annually	Reported annually	Reported annually	Reported annually

2021 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 Programs	2.96	2.71
Residential Programs	2.78	1.59
Total NW Natural Washington Energy Trust Programs*	2.84	1.85
NW Natural Low Income Program (only)	1.88	1.72
Total NW Natural Washington Programs	2.82	1.85
Total Washington Portfolio**	2.88	1.90

* Does not include NEEA or WALIEE expenses.

** Includes costs associated with NEEA's gas market transformation efforts. NEEA results reflect one-year savings and costs only.

2020 Utility Cost Test and Total Resource Cost Test benefit/cost ratios by program (for reference)

Program	Utility Cost Test Benefit/Cost Ratio	Total Resource Cost Test Benefit/Cost Ratio
Commercial Programs	2.44	2.40
Residential Programs	2.72	1.40
Total NW Natural Washington Energy Trust Programs*	2.63	1.61
NW Natural Low Income Program (only)	1.69	1.43
Total NW Natural Washington Programs	2.62	1.61
Total Washington Portfolio**	2.57	1.60

III. Annual results

A. Activity highlights—sites served

	Q1	Q2	Q3	Q4	Total
Commercial					
Food Service	4	5	10	8	27
HVAC	2	4	2	8	16
Study	4	7	2	6	19
Water Heating	1	2	2	2	7
Weatherization	-	2	3	-	5

	Q1	Q2	Q3	Q4	Total
Residential					
EPS new construction	180	104	97	184	565
HVAC	156	193	161	308	818
HVAC Controls	245	537	94	69	945
Water Heating	11	7	7	13	38
Weatherization	55	60	88	104	307

B. Revenue

Source	Annual actual revenue	Annual budgeted revenue
NW Natural \$	3,000,874 \$	3,000,874

C. Expenditures

		Annual actual expenditures	Annual budgeted expenditures	Budget variance
Commercial	Commercial	\$ 900,456	\$ 1,457,759	\$ 557,302
	Commercial administration	\$ 47,370	\$ 73,513	\$ 26,143
	Commercial Total	\$ 947,826	\$ 1,531,271	\$ 583,445
Residential	Residential	\$ 2,015,459	\$ 1,705,525	\$ -309,934
	Residential administration	\$ 106,027	\$ 86,007	\$ -20,019
	Residential Total	\$ 2,121,485	\$ 1,791,532	\$ -329,953
Total expenditures		\$ 3,069,312	\$ 3,322,803	\$ 253,492

D. Incentives paid

	Annual actual incentives	Annual actual expenditures	Percent incentives/ expenditures
Commercial	\$ 420,820	\$ 947,826	44%
Residential	\$ 1,398,609	\$ 2,121,485	66%
Total Incentives	\$ 1,819,429	\$ 3,069,312	59%

- Incentives paid account for approximately 70% of annual program expenses when total program expenses are adjusted down by 15% to account for costs that a utility-delivered program would recover through rates.

E. Savings

	Annual savings therms	Annual goal therms	Percent achieved	Levelized cost/therm	
Commercial	Existing Buildings - custom	64,908	164,843	39%	
	Existing Buildings - standard	57,224	48,782	117%	
	New Buildings - custom	-	4,703	-	
	New Buildings - standard	6,178	19,778	31%	
Commercial total		128,309	238,107	54%	\$ 0.60
Residential	Home retrofit	133,250	86,957	153%	
	Midstream and retail	14,544	9,957	146%	
	Small multifamily	2,811	1,666	169%	
	EPS new construction	66,408	49,993	133%	
Residential total		217,013	148,573	146%	\$ 0.65
Total		345,322	386,680	89%	\$ 0.63

Appendix 1: Energy efficiency measure counts and savings

Table 1: Residential sector measures³

Category	Measure	Measures installed	Total therms saved
EPS new construction		564	66,408
	EPS new construction total	564	66,408
HVAC	Furnace	762	69,963
	Gas fireplace	2,146	17,495
	HVAC total	2,908	87,458
HVAC controls	Thermostat	945	35,938
	Thermostat Optimization	10	6,370
	HVAC controls total	955	42,308
Water heating	Tank water heater	2	51
	Tankless water heater	39	2,964
	Other total	41	3,015
Weatherization	Ceiling insulation	30	2,934
	Floor Insulation	8	369
	Wall insulation	3	61
	Windows	433	9,522
	Weatherization total	474	12,887
Other	Energy Saver Kit	12	248
	Other	1	4,689
	Other total	13	4,937
Grand total		4,955	217,013

³ Totals may not match Table E due to rounding.

Table 2: Commercial sector measures⁴

Category	Measure	Measures installed	Total therms saved
Foodservice	Fryer	43	16,494
	Oven	2	190
Foodservice total		45	16,685
HVAC	Boiler	11	10,732
	Building controls	5	64,908
HVAC total		16	75,639
Study	Study	19	-
Study total		19	-
Water heating	Aerator	97	190
	Tank water heater	6	6,080
Water heating total		103	6,270
Weatherization	Ceiling insulation	5	29,639
	Wall insulation	1	76
Weatherization total		6	29,715
Grand Total		189	128,309

⁴ Totals may not match Table E due to rounding.

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 2021 to determine their satisfaction with Energy Trust. Results from 184 residential customers and four 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 2021

Residential (n=184)	Dissatisfied	Neutral	Satisfied
Overall experience	3%	5%	92%
Incentive application form	3%	2%	94%
Turnaround time to receive incentive	10%	14%	76%

Energy Trust surveyed four commercial customers in Washington who participated in 2021. All respondents were satisfied with their overall program experience, incentive amount, ease of applying for the incentive, performance of their project, interaction with program representatives and turnaround time to receive the incentive.

Table 2: NW Natural Washington commercial customer satisfaction 2021

Commercial (n=13)	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%	0%	100%

NW Natural Internal Audit Summary

NW Natural's Internal Audit performed a review of the program costs relating to Energy Trust's administration of the Company's Washington energy efficiency programs. This annual review is performed at the request of the Washington Utilities and Transportation Commission.

Specifically, Internal Audit reviewed a sampling of transactions (including accruals) to:

- Determine if the program expenses (including allocations) were in accordance with the Energy Trust's policy and current Energy Efficiency agreement.
- Assess if the transactions were supported, recorded in the correct program period, correctly classified, and related to NW Natural territories and NW Natural non-industrial customers.
- Ensure that incentive details were properly accounted for.

There were no exceptions noted during this review. As such, it appears that accumulated cost activity billed to the NW Natural Washington EE Program is being properly administered and accounted for.

Washington Market Transformation

2021 Program Results

In 2021 NW Natural participated in the Northwest Energy Efficiency Alliance's (NEEA) Gas Collaborative to support regional Market Transformation. Funding is on a regional basis and invoiced based on actuals spent for work on the 5-year plan. There were no activities specific to NW Natural in 2021. A summary of the NEEA funder memo can be found on the following pages.

Market Transformation		Budget	Actual
NEEA	Total	\$ 88,148	\$88,148

Market Transformation	Reported Therm Savings
Program Measures	-
Codes & Standards Measures	11,423
Total Savings	11,423

2021 Savings Estimate Summary

NEEA estimates NW Natural's 2021 annual natural gas energy savings associated with its initiatives is 11,423 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 for voluntary programs and an estimate of service area shares for codes and state standards.

Table 1: 2021 Annual Report Net Market Effects Savings Estimates (Annual Therms)

Program	Gas Program Measures (Net Market Effects)
Residential Codes	11,087
Commercial Codes	336
Total Savings	11,423

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

Regional Gas Savings Portfolio

NEEA is in its third year of reporting natural gas savings. Annual gas savings will increase over time as programs in the portfolio advance into full-scale market development and as new programs are added.

Commercial Codes:

NEEA provides technical expertise and data to support adoption of codes. The 2021 savings come from work on Washington State Energy Code - Commercial (WESC-C) 2018, which went into effect in February 2021. The savings analysis comes from NORESKO. The final report should be published in Q2 2022.

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.

Residential New Construction Codes:

WSEC 2018 code went into effect in February 2021 and saves on average 16% more energy than WSEC 2015. NEEA started counting savings in August 2021 to allow time to build under the new code. One barrier to the savings analysis is the lack of information on how the code will change building practices with regard to fuel selection. NEEA is collecting permit data as part of the ongoing Washington Residential Post Code Adoption Market Research study and results from the study will be available by June. Early results from the study indicate that the share of gas-fueled homes permitted under the WSEC 2018 could be as low as 12% and the 2021 savings have been adjusted downward to reflect this change.

Allocation Methodology

NEEA allocates code savings for gas measures using a service area approach. The approach uses EIA residential consumer sales for Residential Codes and nonresidential volume for Commercial Codes (Table 2). For voluntary programs, 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 3 shows the funder shares.

Table 2: State Code Savings Allocation Share

Sector	WA	OR	ID
Residential	6.62%	0.00%	0.00%
Commercial	4.15%	0.00%	0.00%

Table 3: NW Natural Funder Share

Business Plan	Gas Funding Share
2019	2.73%
2020-2024	3.11%

Gas Measure Analysis

2021 Regional Engagement

The Regional Technical Forum (RTF) is an advisory committee to the Northwest Power and Conservation Council that meets monthly to review analysis and make decisions on methodologies for estimating energy efficiency savings. With funding and support from gas utilities, including NW Natural, the RTF began considering gas measures in 2020. 2021 marks the second year that the RTF has been adding gas measures to their portfolio. New additions in 2021 include commercial cooking measure applications, residential gas water heaters, and residential gas furnaces. NW Natural participated in subcommittee meetings to provide relevant input for the development of the RTF's gas measures. The list of active measures and analysis can be found on the RTF website: <https://rtf.nwcouncil.org/measures/>

Regional Technical Forum		Budget	Actual
RFT	Total	\$ 10,300	\$10,300

Washington Low Income Energy Efficiency Program

2021 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 2021. Results below are specific to Clark County’s Department of Community Services.

Program year 2021 saw recovery from COVID-19 related impacts to operations. While homes served was still down from pre-shutdown numbers, the number of homes served met the goal outlined in the 2021 EE Plan.

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 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 2021 averaged \$6,575 per home.

Measure Analysis

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

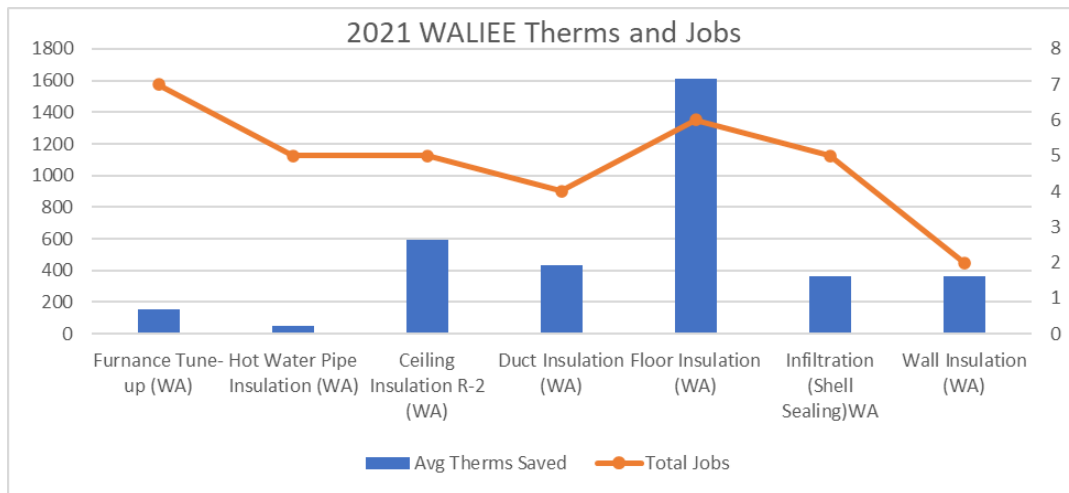


Figure 1: Measure Occurrence and Savings

2016-2021 Efficiency Results

Efficiency Metric	2021	2020	2019	2018	2017	2016
Homes served	11	3	22	16	13	16
Average Reimbursement per home ⁷	\$4,996	\$4,436	\$8,657	\$5,739	\$5,305	\$4,807
Total Reimbursed	\$54,960	\$13,308	\$190,457	\$91,828	\$68,965	\$76,918
Average estimated therms saved per home ⁸	324	377	918	474	472	378
Total estimated therms saved	3,568	1,132	20,170	7,578	6,132	6,048
Estimated Cost per therm	\$15.40	\$11.76	\$9.44	\$12.12	\$11.25	\$12.72

Performance Metrics

2021 Performance Metric	Goal	Actual
Homes served	10	11
Max reimbursement per home (Actual figure = avg per home)	\$7,992	\$4,996
Adjustment Program Max (Actual figure =avg per home)	\$5,508	\$0
Average estimated therms saved per home ⁹	341	324
Total estimated therms saved	3,410	3,568
Total Expenditure	\$157,624	\$72,326

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.

Low Income Furnace Tune-ups

The program began in January of 2020, and after its pilot year was moved to be included in the WALIEE program in 2021. The offering, while reaching a small number of customers, met its objective of quickly serving those customers and helping them stay safe and warm. NW Natural did not conduct any pilots or trial programs in 2021.

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 See footnote 2.