

2023 Fast Feedback Survey End of Year Report

*Prepared for:
Energy Trust of Oregon*

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Executive Summary

ADM Associates (“ADM”) conducted the Energy Trust of Oregon 2023 Fast Feedback program participant survey from March 2023 to the end of January 2024, which included program participants from January through December 2023. This report summarizes the analysis conducted by ADM and the results of the survey. The purpose of the analyses was to summarize Fast Feedback survey findings by program and quota group.

Residential Survey Summary

Results show very high overall satisfaction ratings for all measures. However, overall satisfaction showed a slight downward trend for all measures except smart thermostats and duct sealing. Customer satisfaction significantly decreased for the central air conditioners, and advanced heat pump controls measures in 2023. *Table ES-1* shows mean overall program satisfaction for each of two types of quota groups.¹ “Exclusive” quota groups are based on state (Oregon or Washington), and, within Oregon, type of measure installed; each respondent appears in only one of these quota groups. “Cross-cutting” quota groups are based on features that are independent of the exclusive quota group; a respondent may appear in more than one of these quota groups.

The overall program influence on purchase decisions was high for all quota groups except for the smart thermostats and gas fireplaces measures.² Factors influencing the purchase decision varied somewhat by measure type, but energy efficiency rating was the most commonly identified influencer (6 out of 16 quota groups; six out of seven measures for which energy efficiency rating of the equipment was an applicable factor). For these measures, contractor was the second most influential factor. For measures for which energy efficiency rating was not relevant, contractor remained the most influential factor in customers’ decision making in 2023 similar to 2022.

Among participants who used a contractor, by far the most consistently identified way participants found that contractor was by word of mouth followed by web searches.

¹ For both residential and nonresidential surveys, satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied). “Don’t know” and “no response” were excluded from the denominators for all analyses to be consistent with previous years.

² Influence was defined as a rating of 4 or 5 on a scale from 1 (did not have any influence) to 5 (had a great influence). “Don’t know” and “no response” were excluded from the denominators for all analyses. For each respondent, “overall influence” rating was equal to the highest influence rating that respondent provided for all factors reflecting Energy Trust influence. See Section 1.1 for more details.

Table ES-1: Summary of Residential Overall Satisfaction and Program Influence

Quota Group	Number of Survey Respondents	Overall Satisfaction	Overall Influence
Exclusive Quota Groups			
Residential - Oregon	680	93%	89%
Smart Thermostats	64	96%	71%
Heat Pump Advanced Controls	60	88%	80%
Ceiling Insulation	60	94%	95%
Other Insulation	61	90%	85%
Ducted Heat Pumps	66	92%	97%
Ductless Heat Pumps	61	96%	98%
Central Air Conditioner	57	88%	92%
Windows	61	90%	80%
Gas Fireplaces	65	91%	78%
Gas Furnaces	68	96%	99%
Duct Sealing	57	100%	91%
Residential - Washington	176	94%	82%
Cross-Cutting Quota Groups			
Moderate Income Track	63	99%	99%
Rental Properties	59	95%	100%
Manufactured Home Promotions	18	95%	95%

Nonresidential Survey Summary

Results generally show high satisfaction ratings across all facets of program experience for all quota groups. A few groups (e.g., Existing Buildings-Healthcare and Production Efficiency-Agriculture) had somewhat lower mean ratings than others, but the group counts were too low to draw conclusions about such differences: none of the differences were statistically significant. Results were generally similar to 2022 categorically. But satisfaction with overall program experience and program representative significantly went down for Existing Buildings - Healthcare compared to 2022, from 100% and 100% in 2022 to 78% and 86% in 2023 respectively.

The overall program influence was high to very high for all quota groups except for Lighting (Non-DI) quota group which was slightly lower (78%). The small sample sizes argue for using caution in interpreting findings at the individual quota group level for the Production Efficiency program.

For the Existing Building program, services provided at no/low cost appeared to have the highest influence closely followed by Energy Trust-funded technical services. For the Production Efficiency program, Energy Trust-funded technical services had the highest influence followed by the vendor or installation contractor and Energy Trust incentive. Some other influencers stood out somewhat in particular tracks within particular programs but did not appear to have consistently high influence across programs and tracks.

Table ES-2 and Table ES-3 show mean overall program influence and satisfaction for each program and quota group. Again, each respondent appears in only one “exclusive” quota group but may appear in multiple cross-cutting quota groups.

Table ES-2: Summary of Nonresidential Overall Program Influence and Satisfaction: Existing Buildings

Quota Group	Number of Survey Respondents	Satisfaction		Overall Influence
		Overall Program Experience	Program Representative	
Exclusive Quota Groups				
Existing Buildings - Oregon Incentives	403	94%	94%	98%
Existing Buildings - Assembly/Religious	42	93%	90%	95%
Existing Buildings - Education	27	93%	96%	85%
Existing Buildings - Healthcare	23	78%	86%	91%
Existing Buildings - Office	34	97%	93%	97%
Existing Buildings - Other Commercial	56	98%	98%	96%
Existing Buildings - Restaurant	33	97%	100%	97%
Existing Buildings - Retail	64	95%	95%	97%
Existing Buildings - Warehouse	25	96%	90%	92%
Multifamily	99	94%	93%	85%
Commercial Solar	36	91%	87%	94%
Cross-Cutting Quota Groups				
Direct Install (DI)	180	94%	95%	98%
Lighting (Non-DI)	63	95%	93%	78%
Small and Medium Business	99	94%	93%	85%
Small Multifamily	57	92%	91%	86%

Table ES-3: Summary of Nonresidential Overall Program Influence and Satisfaction: Production Efficiency

Quota Group	Number of Survey Respondents	Satisfaction		Overall Influence
		Overall Program Experience	Program Representative	
Exclusive Quota Groups				
Production Efficiency	76	95%	89%	95%
Production Efficiency - Agriculture	6	83%	67%	80%
Production Efficiency - Compressed air	2	100%	100%	100%
Production Efficiency - HVAC and controls	4	100%	100%	100%
Production Efficiency - Lighting	47	94%	90%	96%
Production Efficiency - Other industrial me	6	100%	83%	100%
Production Efficiency - Pumps and Motors	11	100%	100%	82%
Production Efficiency - Refrigeration	0	n/a	n/a	n/a
Cross-Cutting Quota Groups				
Custom Projects	11	100%	87%	100%
Standard Projects	18	92%	89%	85%
Agriculture Sector	40	94%	97%	94%
Food & Beverage Sector	12	93%	85%	86%
High Tech Sector	4	100%	100%	100%
Metals Sector	0	n/a	n/a	n/a
Wood & Paper Sector	4	100%	100%	100%

1 Introduction

Energy Trust has been using a monthly Fast Feedback survey since 2010 to assess free-ridership, satisfaction, and selected other aspects of program experiences in samples of customers who participated in Energy Trust residential and nonresidential programs in the prior month.

ADM Associates (“ADM”) conducted the 2023 Energy Trust Energy Trust Fast Feedback program participant satisfaction survey from March 2023 through January 2024, covering customers who participated in Energy Trust programs from January through December 2023. In 2023, Energy Trust set a goal of achieving 10% relative precision at 90% confidence (90/10 precision) for satisfaction and influence results at the program level on a quarterly basis and for individual quota groups on an annual basis.

Quota groups are defined somewhat differently for the residential and nonresidential surveys. The residential survey has two types of quota groups. The first is based primarily on the type of measure the participant installed, but also includes a quota group for all residential participants from Washington. We refer to these as the “exclusive” quota groups. For the first time in 2023, Residential Solar information is collected by a different survey instrument called Guild Quality that is administered by the Renewables program and hence it is no longer included in the Fast Feedback survey.

The second type of residential quota group is based on characteristics that may or may not apply to a project that are independent of the type of measure or location of the participant. We refer to these as “cross-cutting” quota groups. Thus, for example, someone may have received incentives for a variety of measures through the program’s “Moderate Income” track or the “Manufactured Home Promotions” track. Table 1 shows the quota groups and indicates which cross-cutting quota groups apply to which exclusive quota groups.

Table 1: Residential Survey Quota Groups

Exclusive Quota Groups	Cross-Cutting Quota Groups		
	Moderate Income Track	Rental Properties	Manufactured Home Promotions
Smart Thermostats	✓		
Heat Pump Advanced Controls			
Ceiling Insulation	✓	✓	
Other Insulation	✓	✓	
Ducted Heat Pumps	✓	✓	✓
Ductless Heat Pumps	✓	✓	✓
Central Air Conditioner	✓		
Windows			
Gas Fireplaces			
Gas Furnaces	✓	✓	
Duct Sealing			
Residential Washington		✓	

The nonresidential survey also has separate sets of quota groups for each of the two programs (Existing Buildings and Production Efficiency). Existing Buildings and Production Efficiency have both exclusive quota groups and cross-cutting quota groups.

For Existing Buildings, the exclusive quota groups are based primarily on building end-use or business type but also include quota for participants with commercial solar projects. The four Existing Buildings cross-cutting quota groups are related to measure implementation, a combination of measure type (lighting) and implementation or building type. For Production Efficiency, the exclusive quota groups are based primarily on application end-use or measure type. The seven Production Efficiency cross-cutting quotas are related to project track or market sub-sector. Table 2 shows the nonresidential survey quota groups.

Table 2: Nonresidential Survey Quota Groups

Existing Buildings Program	Production Efficiency Program
Exclusive Quota Groups	
Assembly/Religious Education Healthcare Office Other Commercial Restaurant Retail Warehouse Multifamily Commercial Solar	Agriculture Compressed air HVAC and controls Lighting Other industrial measures Pumps and Motors Refrigeration
Cross-Cutting Quota Groups	
Direct Install (DI) Lighting (Non-DI) Small and Medium Business Small Multifamily	Custom Projects Standard Projects Agriculture Sector Food & Beverage Sector High Tech Sector Metals Sector Wood & Paper Sector

This report describes the Fast Feedback survey methods and the results for each quota group. The remainder of this report is divided into the following sections.

Section Two provides a brief explanation of the survey’s implementation, information on contact information availability, a summary of survey responses by sector and group, and a description of how ADM weighted the combined data to control for possible mode and sampling effects.

Sections Three and Four present the Fast Feedback summary findings for the residential and nonresidential sectors. They are subdivided by survey topic and include assessment of satisfaction and influence ratings by time (program year) by quota groups.

Finally, Section Five presents our conclusions from the Fast Feedback data collection.

2 Methods and Survey Response

This section describes the survey modes and experimental conditions, the availability of contact information and the number of survey responses by sector and group, and the method for weighting the combined data to control for possible mode effects.

2.1 Sample Development

Each month, Energy Trust Evaluation staff provided ADM with a dataset of recent survey-eligible residential and non-residential participants. ADM carried out similar data cleaning and sampling procedures for both the residential and nonresidential data sets. ADM used an Excel workbook tool that cleaned and deduplicated data sets and then used a weighted randomization process to select participants for the sample. The workbook tool accomplished this while keeping the original data set received from Energy Trust intact, rather than deleting records or splitting files, which may introduce error.

The tool first flagged as ineligible for selection any records identified as “do not contact” or as having been surveyed recently (defined as in the past year for residential records and in the past six months for nonresidential records).

The tool then identified each unique participant, where “unique participant” is any participant that does not match another record on the unique Contact ID or Project ID fields or on any combination of name and any phone number or email address. The tool used a combination of name, phone number, and email to identify a unique participant, as any given field may have different information in two or more records, but the totality of information given indicates a common participant – e.g., two records may give different names but the same mobile phone number or email address. On the other hand, two individuals may have the same name or even the same email address.³ The tool created a new ID number for each unique participant and applied that ID number to all instances of that participant.

If a given unique participant had multiple records, the tool selected one record for inclusion in the sample frame using a weighted random number. The weight was based on each quota group’s frequency relative to the target number of completions needed for that group. Those that appeared with the least relative frequency relative had the highest weights. Adding the random element prevented a less-frequent quota group from always having a higher weight – and, therefore, always being selected – than one with greater frequency.

Once a record was selected for each unique, eligible participant, the tool used a separate random number to order all records selected into the sample frame. Finally, the tool selected records until there were at least five records for each quota group (including cross-cutting quota groups) for each targeted completion, or a census of records in cases with fewer than five records.

³ Some email addresses are not unique to an individual. For example, some companies may have an “info” or “sales” email address that may be accessed or used by multiple individuals.

2.2 Survey Fielding

ADM administered the residential survey first on the web, with follow-up phone calls to non-respondents. At the beginning of the monthly survey, ADM sent a recruitment email to all sampled residential participants with a valid email address. The email included a short recruitment message with a survey web link. The recruitment email offered all residential participants a \$10 gift card for completing the survey. ADM sent reminder emails to non-respondents approximately one week after the initial contact. Residential participants that did not respond to the survey within approximately one week after the reminder were then queued for phone follow-up. Customers who did not have a valid email address on file were immediately advanced to the phone survey.

ADM administered the nonresidential survey somewhat differently from the residential survey. In previous years, the nonresidential survey had been administered as a phone-only survey. However, when contacted for the survey, some nonresidential participants asked to be sent a link to the survey to complete it online. In the end, relatively few participants completed the survey online, but to accommodate those who preferred taking the survey online, we changed the survey to include email recruitment with online completion. Unlike the residential survey, however, we launched the email recruitment only a few days before starting the phone survey. The email recruitment indicated that we would follow up by phone within the next few days. We tracked online completions and updated the call lists regularly to minimize phone contacts to those who completed the survey online.

2.3 Availability of Contact Information

Table 3 shows the percentages of all residential and nonresidential program participants with phone and email contact information. In the residential and nonresidential sectors, participants were somewhat more likely to have phone than email information. But in the nonresidential sector there was less difference in the availability of phone versus email information. All participants had at least some type of contact information.

Table 3. Availability of Contact Information by Sector and Type

Type of Information	Residential Sector (n =11,531)	Nonresidential Sector (n = 2,596)
Phone	96%	99%
Email	78%	96%
Both	75%	95%
Either	100%	100%

2.4 Number of Respondents

Table 4 shows the total number of residential survey responses by quota group. ADM completed 856 residential surveys in 2023. Residential responses met or exceeded 12-month quotas for six of the 11 measure groups. They fell short of the three cross-cutting goals, particularly for Manufactured Home

Promotions for which only 18 survey response is completed compared to the goal of 62. Overall, the survey fell short of about half quotas (8 out of 15).

ADM made multiple contact attempts with all available participants in these quota groups.

The overall residential survey response rate was 30%. The response rate for those contacted by email with phone follow up (the large majority of respondents) was 30%, and the response rate for those contacted only by phone was 24%. The overall and phone-only response rates represented increases compared to the 2022 percentages of 28% and 16%, respectively. Seventy percent of surveys were completed online and 30% by phone. The comparable split in 2022 was 81% online and 19% by phone.

Table 4. Number of Residential Responses by Mode and Quota Group

Measure Group	Web	Phone	Total	12-Month Quota
Oregon Incentives (Exclusive Quotas)				
Smart Thermostats	46	18	64	66
Heat Pump Advanced Controls	33	27	60	60
Ceiling Insulation	50	10	60	66
Other Insulation	52	9	61	60
Ducted Heat Pumps	53	13	66	66
Ductless Heat Pumps	43	18	61	64
Central Air Conditioner	32	25	57	62
Windows	49	12	61	68
Gas Fireplaces	53	12	65	64
Gas Furnaces	38	30	68	64
Duct Sealing	23	34	57	56
Subtotal: Oregon Incentives	472	208	680	696
Residential WA (Exclusive Quota)				
Residential - Washington	129	47	176	176
Cross-Cutting Quotas				
Moderate Income Track	43	20	63	64
Rental Properties	26	33	59	62
Manufactured Home Promotions	14	4	18	62
Program Total¹	601	255	856	872
¹ The Program Total includes both Oregon and Washington. The Moderate Income Track applies to both Oregon and Washington projects, while the other cross-cutting quotas apply only to Oregon projects.				

Table 5 shows the number of nonresidential survey responses by quota group. As with the previous year, low participation made the nonresidential survey a challenge. Despite ADM’s having made multiple contact attempts with all available participants in these quota groups and achieving an overall nonresidential survey response rate of 32% (significantly decreased compared to 41% in 2022 and 55% in 2021). The survey fell short in 4 out of 10 quota groups for Existing Buildings and 12 out of 14 quota groups

for Production Efficiency.⁴ Overall, Existing Buildings exceeded the total 12-month quota (437 vs. 356) and Production Efficiency only met about 50% of the 12-month quota (76 vs 152) as industrial customers are historically and commonly harder to reach.

Table 5. Number of Nonresidential Responses by Quota Group

Measure Group	Web	Phone	Total	12-Month Quota
Existing Buildings				
Oregon Incentives (Exclusive Quotas)				
Assembly/Religious	32	10	42	26
Education	14	13	27	28
Healthcare	15	7	22	20
Office	20	14	34	32
Other Commercial	35	21	56	44
Restaurant	15	17	32	42
Retail	31	33	64	40
Warehouse	11	14	25	28
Multifamily	42	57	99	50
Subtotal: Building Type Quotas	215	186	401	310
Commercial Solar (Exclusive Quota)				
Commercial Solar	21	15	36	42
Cross-Cutting Quotas				
Direct Install (DI)	117	62	179	48
Lighting (Non-DI)	25	38	63	60
Small and Medium Business	42	57	99	42
Small MF	18	39	57	46
Total: Existing Buildings	236	201	437	356
Production Efficiency				
Agriculture	3	3	6	26
Compressed air	2	0	2	14
HVAC and controls	1	3	4	20
Lighting	22	25	47	32
Other industrial measures	3	3	6	28
Pumps and Motors	1	10	11	22
Refrigeration	0	0	0	10

⁴ Production Efficiency quotas were especially difficult to reach, as changes made in Energy Trust’s internal data systems resulted in samples that were limited for much of the year.

Measure Group	Web	Phone	Total	12-Month Quota
Cross-Cutting Quotas				
Custom projects	6	5	11	22
Standard projects	4	14	18	36
Agriculture sector	13	27	40	34
Food & beverage sector	4	8	12	20
High tech sector	1	3	4	12
Metals sector	0	0	0	8
Wood & paper sector	4	0	4	18
Total: Production Efficiency	32	44	76	152

2.5 Language of Survey and Language Barriers

All surveys were offered in English and Spanish. All completed residential surveys and all but one completed nonresidential survey (Existing Buildings-Retail) were done in English. We encountered no instances of language barriers in either sector.

2.6 Creation and Application of Data Weights

ADM applied three types of weights to survey data:

- For both the residential and nonresidential surveys, in any analyses performed across quota groups, we applied quota group weights to ensure that program-level results are representative of the respective participant populations. This is necessary because – in both the residential and nonresidential sectors – attaining the completion quotas for the various quota groups results in overall samples that are not representative of the project population as a whole.
- For just the residential survey, we applied survey mode weights to control for any possible survey mode effects that might arise from differences in the likelihood that a residential participant would complete the phone or web survey as a result of the different recruitment methods.
- For each quota group, ADM created a Quota Group weight that was equal to that group’s share of the program population divided by that group’s share of the survey completions for that program, or:

(Equation 1)

$$\frac{\text{Quota group \% of population}}{\text{Quota group \% of survey completions}}$$

This assigns greater weight to observations for which the completions under-represent the population, and less weight to observations for which the completions over-represent the population.

Some analyses were performed just on respondents within a given cross-cutting quota group. Such participants were not distributed uniformly across the various measure-level, or exclusive, quota groups.

Therefore, for those analyses, we calculated and applied a separate set of Quota Group weights for each cross-cutting quota group.

Survey results are reported separately for each program. Therefore, we calculated Quota Group weights separately for each program in both the residential and nonresidential sectors. In the residential sector, Residential – Oregon and Residential – Washington are considered separate programs for the purpose of creating weights. Thus, the weights for the various quota groups within Residential - Oregon are based on the distribution of the sample and the population across just those groups. Since Residential – Washington has only one quota group, its Quota Group weight is by definition 1.0.

In the nonresidential sector, we calculated Quota Group weights separately for Existing Buildings - Oregon, Commercial Solar, and Production Efficiency. Again, as Commercial Solar is considered to be one quota group, its Quota Group weight is by definition 1.0.

For the residential survey, ADM created Mode weights based on both the mode of recruitment and the mode of survey completion. Recall that participants with available email contact information were in an email-first-then-phone (“email-phone”) recruitment condition. Participants with no available email information were in a phone-only recruitment condition. The two recruitment modes did not correspond to two separate modes of survey completion: someone in the phone-only recruitment condition could complete the survey only by phone, but someone in the email-phone condition could complete the survey by phone or email.

The above arrangement complicates the creation of the weights. If it were simply a matter of weighting by recruitment mode, then the weight would be equal to the overall survey response rate divided by the response rate for that recruitment mode, or:

(Equation 2)

$$\frac{\text{Overall response rate}}{\text{Recruitment mode response rate}}$$

This assigns greater weight to observations recruited through the mode with the lower response rate (in this case, phone-only), and less weight to those recruited through the mode with the greater response rate (in this case, email-phone).

This, however, does not completely control for mode differences, as it would assign the same weight to all individuals in the email-phone recruitment condition regardless of whether they completed the survey by phone or web. We therefore calculated a second weight to adjust for the respective probabilities of completing the phone or web survey, given the email-phone recruitment. For each survey completion mode, we calculated the weight as:

(Equation 3)

$$\frac{\text{Overall email-phone response rate} / 2}{\text{Percentage of completions from email-phone recruitment}}$$

The overall response rate divided by two represents the mean response rate for each mode, where the denominator is all completions from the email-phone recruitment condition. We then multiplied this second weight by the overall recruitment mode weight (Equation 2) to generate a final Mode weight for

each survey completion mode in the email-phone recruitment condition. For respondents in the phone-only recruitment condition, the Mode weight was equal to the recruitment mode weight (Equation 2).

ADM weighted each residential survey response with the product of the Quota Group weight and the Mode weight. ADM weighted nonresidential survey responses only by the Quota Group weight.

Unless otherwise specified, all residential and nonresidential results reported below are based on analyses with weighted data.

3 Residential Survey Results

The following subsections provide information on the demographics and program experience of residential survey participants.

3.1 Residential Demographics

We excluded “don’t know” and “refused” from the denominator for all percentages for residential demographic characteristics to facilitate comparison with Census data.

Due to an undetected programming error the ownership condition of the respondent (rent/own) was not recorded in the survey for January through June participants. Residential respondents were largely the occupants of the property where the participation occurred, nearly all of whom were the owners.⁵ The majority of those who were not occupants were the landlord (Table 6).

Table 6: Occupancy of Home Where Participation Occurred, Residential Respondents

Response	Residential Oregon	Residential Washington	Oregon (US Census)	2022 Customer Awareness and Participation Study ¹
Occupancy²				
	(n = 678)	(n = 175)	n/a ²	(n = 1,641)
Occupant	87%	98%	n/a	100%
Not occupant	13%	2%		0%
Ownership (Occupants)				
	(n = 610)	(n = 172)	n/a ³	(n = 1,635)
Own	99%	98%	64%	67%
Rent, other	1%	2%	36%	31%
Relationship to Premise (Non-Occupants)				
	(n = 55)	(n = 2)	n/a ²	n/a ²
Landlord	96%	100%	n/a	n/a
Property manager	4%	0%		

¹ https://www.energytrust.org/wp-content/uploads/2023/04/Energy-Trust-of-Oregon_CAP-Study-Report-2022_Final-wSR.pdf.

² No comparable data are available. The Census data on occupancy status of dwellings are not an appropriate comparison for survey occupancy status. The former is based on whether or not a dwelling is occupied. The latter is based on whether respondents occupy or do not occupy a specific dwelling that was treated through Energy Trust programs. The "not occupant" percentage is *not* the percentage of dwellings that are not occupied but the percentage of survey respondents that do not occupy the treated dwelling. The latter includes owners who rent to someone else, and so it includes occupied dwellings.

³ Ownership percentages are based on US Census Table DP04, 2021 5-year (most recent) estimates.

⁵ We exclude “don’t know” and “refused” from the denominator for all residential characteristics percentages to facilitate comparison with Census data.

The distribution of self-identified race and ethnicity was similar across Oregon and Washington and the various quota groups, with majority (>86%) of respondents reporting White race (Table 7 through Table 11). Reported income level was skewed toward higher incomes. The most commonly reported age bracket was 65 and older and the most commonly reported size of household was three individuals.

Table 7: Demographics of Residential Respondents¹

Demographic Characteristic	Residential Oregon	Residential Washington	Oregon (US Census) ²
Race/Ethnicity³			
	(n = 612)	(n = 159)	n/a
Asian only	3%	4%	4%
Black only	2%	0%	2%
Hispanic/Latino, any race	2%	1%	14%
Native American only	1%	0%	1%
Other only	1%	1%	<1%
Two or more	5%	5%	5%
Persons of color – total	14%	11%	14%
White only	86%	89%	86%
Income			
	(n = 427)	(n = 114)	n/a
Under \$30k	7%	0%	18%
\$30k to under \$50k	12%	12%	14%
\$50k to under \$70k	17%	12%	13%
\$70k to under \$100k	21%	23%	17%
\$100k to under \$200k	32%	36%	8%
\$200k+	11%	17%	10%
Age (Years)			
	(n = 679)	(n = 175)	n/a
Less than 18	0%	0%	19%
18 to 24	0%	0%	
25 to 34	7%	5%	
35 to 44	17%	14%	18%
45 to 54	14%	14%	17%
55 to 64	17%	25%	18%
65 or older	45%	41%	28%
Household Size (Number of People in Household)			
	(n = 666)	(n = 171)	n/a
One	3%	1%	27%
Two	20%	14%	37%
Three	47%	47%	15%
Four	15%	16%	12%
Five	11%	16%	5%
Six or more	5%	5%	3%

¹Denominators for percentages exclude nonrespondents. ²We used the 2022 American Community Survey tables DP05 (race/ethnicity), S1901 (Income), S2502 (Age), and B25009 (Household Size). For Census brackets that overlap the Fast Feedback brackets, we allocated the percentages within those brackets proportionally to the Fast Feedback brackets. ³Native American includes Alaska Native; Asian includes Asian Indian, Hawaiian, and Other Pacific Islanders.

Table 8: Race or Ethnicity by Residential Quota Group

Quota Group	Asian or Asian Indian Only	Black or African American Only	Hispanic, Latino, or Spanish Only	Native American or Alaska Native Only	Other Only	Two or more	White or European Only	Persons of Color - Total
Oregon Incentives (Exclusive Quotas)								
Overall (n = 562)	2%	2%	3%	1%	1%	4%	88%	12%
Smart Thermostats (n = 58)	6%	0%	7%	4%	0%	5%	78%	22%
Heat Pump Advanced Controls (n = 52)	0%	0%	6%	0%	0%	0%	94%	6%
Ceiling Insulation (n = 54)	0%	4%	0%	1%	1%	9%	84%	16%
Other Insulation (n = 55)	2%	0%	2%	0%	2%	8%	87%	13%
Ducted Heat Pumps (n = 60)	1%	1%	4%	0%	0%	5%	88%	12%
Ductless Heat Pumps (n = 55)	3%	5%	4%	0%	0%	1%	87%	13%
Central Air Conditioner (n = 49)	1%	4%	1%	0%	0%	1%	93%	7%
Windows (n = 58)	6%	0%	0%	4%	4%	4%	82%	18%
Gas Fireplaces (n = 61)	0%	0%	0%	0%	0%	2%	98%	2%
Gas Furnaces (n = 61)	1%	3%	3%	0%	0%	4%	89%	11%
Residential WA (Exclusive Quota)								
Residential - Washington (n = 159)	4%	0%	1%	0%	1%	5%	89%	11%
Cross-Cutting Quotas								
Moderate Income Track (n = 57)	1%	0%	3%	0%	0%	6%	90%	10%
Rental Properties (n = 51)	1%	5%	1%	1%	0%	2%	89%	11%
Manufactured Home Promotions (n = 16)	0%	0%	18%	0%	0%	5%	76%	24%
Oregon Population								
US Census	4%	2%	14%	1%	<1%	5%	86%	14%

Table 9: Income by Residential Quota Group

Quota Group	Under \$30k	\$30k to <\$50k	\$50k to <\$70k	\$70k to <\$100k	\$100k to <\$200k	At Least \$200k
Oregon Incentives (Exclusive Quotas)						
Oregon Overall (n = 397)	5%	12%	16%	23%	32%	12%
Smart Thermostats (n = 42)	2%	15%	7%	27%	33%	17%
Heat Pump Advanced Controls (n = 28)	5%	30%	8%	25%	27%	5%
Ceiling Insulation (n = 42)	2%	4%	23%	27%	35%	8%
Other Insulation (n = 42)	0%	2%	19%	21%	40%	19%
Ducted Heat Pumps (n = 50)	12%	18%	17%	28%	18%	7%
Ductless Heat Pumps (n = 37)	9%	20%	14%	11%	45%	0%
Central Air Conditioner (n = 22)	0%	4%	11%	36%	29%	21%
Windows (n = 46)	4%	11%	11%	13%	47%	13%
Gas Fireplaces (n = 46)	2%	7%	16%	16%	41%	18%
Gas Furnaces (n = 42)	13%	10%	28%	28%	5%	16%
Residential WA (Exclusive Quota)						
Residential - Washington (n = 114)	0%	12%	12%	23%	36%	17%
Cross-Cutting Quotas						
Moderate Income Track (n = 43)	22%	16%	45%	23%	13%	0%
Rental Properties (n = 31)	5%	3%	28%	40%	21%	32%
Manufactured Home Promotions (n = 13)	61%	33%	11%	11%	43%	0%
US Census						
US Census	18%	14%	13%	17%	8%	10%

Table 10: Age (Years) by Residential Quota Group

Quota Group	Less than 18	18 to 24	25 to 34	35 to 44	45 to 54	55 to 64	At Least 65
Oregon Incentives (Exclusive Quotas)							
Oregon Overall (n = 622)	0%	0%	8%	14%	15%	19%	44%
Smart Thermostats (n = 64)	0%	0%	18%	21%	16%	25%	19%
Heat Pump Advanced Controls (n = 60)	0%	0%	13%	4%	14%	6%	62%
Ceiling Insulation (n = 60)	0%	0%	12%	23%	16%	11%	39%
Other Insulation (n = 61)	0%	0%	10%	22%	14%	22%	31%
Ducted Heat Pumps (n = 65)	0%	0%	1%	12%	15%	20%	53%
Ductless Heat Pumps (n = 61)	0%	0%	9%	13%	10%	25%	43%
Central Air Conditioner (n = 57)	0%	0%	7%	9%	14%	21%	49%
Windows (n = 61)	0%	0%	9%	28%	12%	6%	45%
Gas Fireplaces (n = 65)	0%	0%	1%	14%	17%	22%	47%
Gas Furnaces (n = 68)	0%	0%	1%	7%	17%	27%	49%
Residential WA (Exclusive Quota)							
Residential - Washington (n = 175)	0%	0%	5%	14%	14%	25%	41%
Cross-Cutting Quotas							
Moderate Income Track (n = 63)	0%	0%	1%	6%	9%	23%	61%
Rental Properties (n = 59)	0%	0%	4%	9%	20%	25%	42%
Manufactured Home Promotions (n = 18)	0%	0%	0%	4%	27%	25%	44%
Oregon Population							
US Census		19%		18%	17%	18%	28%

Table 11: Household Size (Number of Members) by Residential Quota Group

Quota Group	One	Two	Three	Four	Five	At Least Six
Oregon Overall (n = 598)	2%	17%	39%	11%	8%	3%
Smart Thermostats (n = 62)	0%	0%	0%	0%	0%	0%
Heat Pump Advanced Controls (n = 58)	0%	0%	0%	0%	0%	0%
Ceiling Insulation (n = 58)	4%	20%	43%	20%	14%	1%
Other Insulation (n = 60)	7%	18%	53%	12%	9%	1%
Ducted Heat Pumps (n = 64)	1%	19%	47%	16%	13%	4%
Ductless Heat Pumps (n = 60)	9%	37%	37%	14%	1%	1%
Central Air Conditioner (n = 53)	1%	16%	58%	10%	14%	3%
Windows (n = 57)	0%	16%	55%	15%	13%	9%
Gas Fireplaces (n = 62)	0%	22%	66%	8%	4%	1%
Gas Furnaces (n = 64)	3%	23%	45%	14%	13%	9%
Residential WA (Exclusive Quota)						
Residential - Washington (n = 170)	1%	14%	47%	16%	16%	5%
Cross-Cutting Quotas						
Moderate Income Track (n = 60)	0%	0%	0%	0%	0%	0%
Rental Properties (n = 56)	15%	27%	41%	22%	16%	7%
Manufactured Home Promotions (n = 18)	6%	59%	23%	47%	6%	0%
Oregon Population						
US Census	27%	37%	15%	12%	5%	3%

3.2 Residential Program Experience by Quota Group

We excluded “don’t know” and “refused” responses from the calculation of all satisfaction and influence percentages. Results show high overall program satisfaction and moderately high to high program influence for all measures (Table 12).^{6,7}

Table 12: Residential Program Overall Satisfaction and Influence, by Quota Group

Quota Group	Satisfaction with Overall Experience		Overall Program Influence	
	<i>n</i>	%	<i>n</i>	%
Oregon Incentives (Exclusive Quotas)				
Smart Thermostats	62	96%	63	71%
Heat Pump Advanced Controls	49	88%	59	80%
Ceiling Insulation	58	94%	60	95%
Other Insulation	54	90%	60	85%
Ducted Heat Pumps	60	92%	66	97%
Ductless Heat Pumps	52	96%	59	98%
Central Air Conditioner	51	88%	57	92%
Windows	56	90%	61	80%
Gas Fireplaces	63	91%	65	78%
Gas Furnaces	60	96%	68	99%
Duct Sealing	49	100%	57	91%
Residential Oregon & Residential Washington (Exclusive Quotas)				
Residential - Oregon	614	93%	675	89%
Residential - Washington	147	94%	175	82%
Cross-Cutting Quotas				
Moderate Income Track	54	99%	62	99%
Rental Properties	52	95%	58	100%
Manufactured Home Promotions	16	95%	17	95%

The following subsections show results for key survey variables, separately for each quota group as well as for the participants comprising the cross-cutting quotas (moderate income track, rental properties, and manufactured home promotions). For the various subgroups, the sample counts for both satisfaction and

⁶ Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied). “Don’t know” and “no response” were excluded from the denominators for all analyses to be consistent with previous years.

⁷ Influence was defined as a rating of 4 or 5 on a scale from 1 (did not have any influence) to 5 (had a great influence). “High” influence = a rating of 4 or 5; “Medium” influence = a rating of 3; “Low” influence = a rating of 1 or 2. For each respondent, we calculated an “overall influence” rating that was equal to the highest influence rating that respondent provided for any of the following rated influence factors: the Energy Trust incentive, information and materials received from Energy Trust, the salesperson or retailer, the respondent’s contractor, information received from a solar workshop. It did not include the influence of the equipment’s efficiency rating.

influence ratings may vary from the total count of participants in those subgroups and may vary among the satisfaction or influence indices for a given subgroup. This is for two reasons: 1) some satisfaction and influence indices did not apply to some groups and so were not assessed; and 2) we excluded “don’t know” and “refused” responses from the percentages, and some respondents gave such responses to some items and not others.

Results show high satisfaction ratings across all facets of program experience for all measures. However, overall satisfaction showed a slight downward trend over time for all measures except smart thermostats and duct sealing that showed a minor increase in overall satisfaction.

The level of influence of various factors on the purchase decision varied somewhat by measure type. As Table 13 shows, contractors tended to have a large amount of influence across all applicable measures, with about two-thirds or more of applicable respondents indicating high influence. The energy efficiency rating was applicable to fewer measures, but more than two-thirds of applicable respondents indicated it had high influence. Energy Trust information or materials appeared to be most influential for heat pump advanced controls, duct sealing, ceiling insulation, and ducted heat pumps, while the Energy Trust incentive appeared to have the greatest influence for insulation, duct sealing, and ducted heat pumps.

Table 13: Residential Measure Influencers: Percentage of Applicable Respondents Indicating High Influence Rating (4 or 5 on 5-Point Scale)¹

	Energy Trust Incentive	Energy Trust Information or Materials	Salesperson or Retailer	Contractor	Energy Efficiency Rating
Smart Thermostats	53%	62%	51%	n/a	n/a
Heat Pump Adv. Controls	46%	92%	n/a	81%	n/a
Ceiling Insulation	88%	77%	n/a	86%	n/a
Other Insulation	75%	56%	n/a	76%	n/a
Ducted Heat Pumps	71%	69%	n/a	84%	n/a
Ductless Heat Pumps	60%	52%	n/a	77%	90%
Central Air Conditioner	46%	41%	n/a	71%	80%
Windows	41%	44%	n/a	73%	n/a
Gas Fireplaces	47%	58%	n/a	63%	70%
Gas Furnaces	55%	49%	n/a	68%	91%
Duct Sealing	78%	85%	n/a	n/a	n/a

¹Darker cell shadings indicate higher percentages.

Word of mouth was by far the most consistently identified way of finding a contractor (Table 14). Web searches, Energy Trust website, contractor advertisements, and use of an online referral or rating service (e.g., Yelp or Angi), were also frequently identified for most quota groups.

Table 14: Most Common Sources for Finding Contractors, by Quota Group

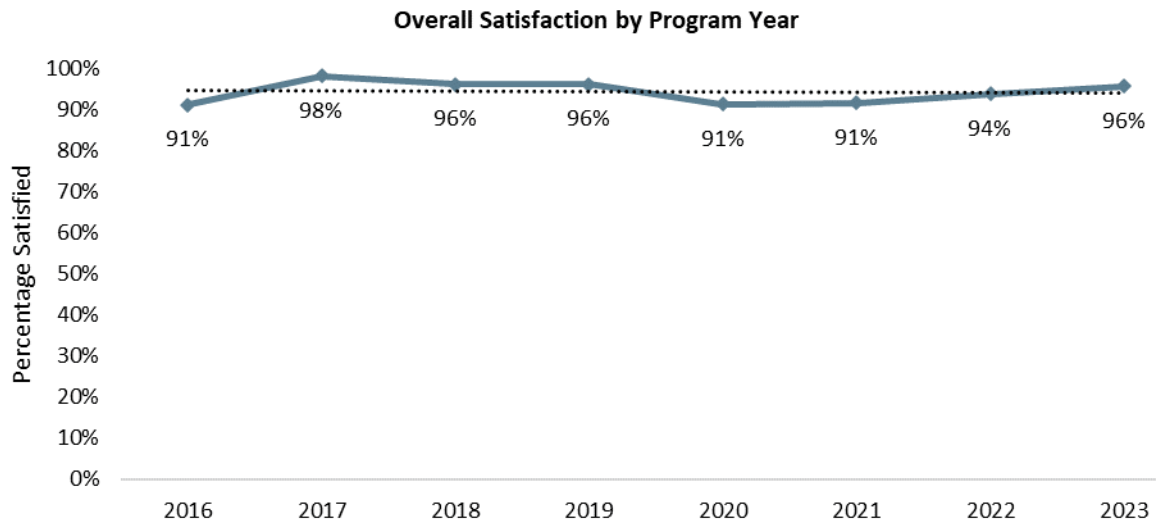
Quota Group	Most Common	Second Most Common	Third Most Common
Heat Pump Advanced Controls	Word of mouth	Web search	Online service
Ceiling Insulation	Web search	Word of mouth	Energy Trust website
Other Insulation	Word of mouth	Web search	Energy Trust website
Ducted Heat Pumps	Word of mouth	Web search	Energy Trust website
Ductless Heat Pumps	Word of mouth	Web search	Advertisement
Central Air Conditioner	Word of mouth	Web search	Online service, Energy Trust website
Windows	Advertisement	Word of mouth	Web search
Gas Fireplaces	Word of mouth	Web search	Online service
Gas Furnaces	Word of mouth	Web search	Advertisement
Residential - Washington	Word of mouth	Web search	Advertisement

3.2.1 Smart Thermostats

Smart thermostat participants ($n = 62$) showed very high levels of satisfaction with all facets of the experience; overall satisfaction is consistent with that in previous years though has gone slightly up since 2021 (Table 15 and accompanying chart).

Table 15: Satisfaction Ratings: Smart Thermostat

Satisfaction	Percent
Overall experience (n = 62)	96%
Performance of new measure (n = 61)	93%
Comfort of home after new measure (n = 61)	91%
Incentive application form (n = 53)	92%
Time it took to receive incentive (n = 54)	89%



The overall program influence on participant purchase decisions was moderate (71%). The Energy Trust information or materials was the most influential factor and salesperson, or retailer had the least influence (51%) as shown in Table 16.

Table 16: Influence Ratings: Smart Thermostats

Influence Level	Overall Influence (n = 63)	Energy Trust Incentive (n = 58)	Energy Trust Information or Materials (n = 24)	Salesperson or Retailer (n = 60)
High	71%	53%	62%	51%
Medium	14%	13%	19%	11%
Low	14%	35%	19%	37%

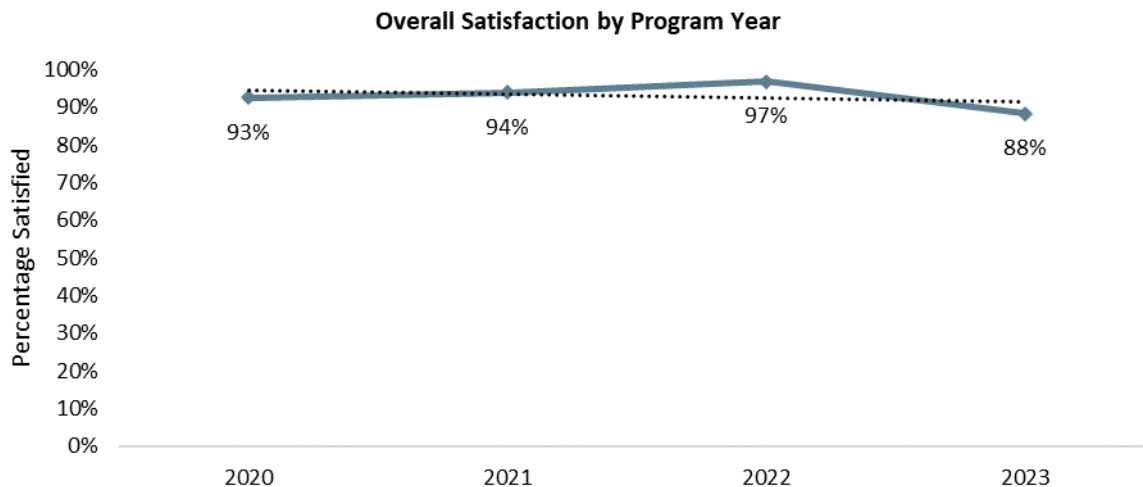
None of the smart thermostat participants used a contractor to install their thermostat.

3.2.2 Heat Pump Advanced Controls

Participants ($n = 49$) showed very high satisfaction with all facets of the experience except for the information about incentives provided by the contractor (Table 17 and accompanying graphic). Overall satisfaction is somewhat down from last year.

Table 17: Satisfaction Ratings: Heat Pump Advanced Controls

Satisfaction	Percent
Measure Satisfaction	
Overall experience ($n = 49$)	88%
Performance of new measure ($n = 57$)	93%
Comfort of home after new measure ($n = 57$)	93%
Incentive application form ($n = 22$)	97%
Time it took to receive incentive ($n = 28$)	95%
Contractor Satisfaction	
Overall experience ($n = 58$)	93%
Quality of installation work ($n = 58$)	92%
Information about incentives ($n = 41$)	75%
Communication ($n = 58$)	88%
Assistance with application ($n = 27$)	97%



Some open-ended comments may shed some light on the satisfaction levels.

One customer who indicated low satisfaction with the incentive information provided by the contractor indicated a desire for “[b]etter language to explain the qualifications on the website for customers, the website is a little confusing and not that easy to find information. They need to explain how the communication with the contractor and the process is going to go for the incentive and the project overall on the website.”

Other customers mentioned that they could be educated more in terms of how the controls work:

- “It would've been good if they had more training on how the equipment worked so that they wouldn't have had to come back and fix the settings.”
- “There was no instruction manual provided with the thermostat [heat pump advanced controls], so I don't feel competent in making future temperature adjustments. The contractor very kindly set up the system for winter weather and it seems to be working fine this winter, but it will be necessary for me to change to cooling mode for summer. I will probably be able to make the necessary changes, but I have some anxiety about doing this, and I think a user-friendly instruction manual would be helpful... especially in lessening my anxiety about making any necessary future adjustments to the system. The contractor said that no manual was available either in-hand or on-line, indicating that the system was designed to be used in office settings, so a customer-friendly user manual was not available for homeowners.”

The overall program influence on participant purchase decisions was high (80%). Energy Trust information or materials was the most influential factor although respondents are relatively few (n = 11). In contrast and on average, respondents rated Energy Trust incentive as having low influence (46%) for this measure (Table 18). This could also be related to the previously mentioned issue regarding some of the customers' lack of knowledge about the provided incentives.

Table 18: Influence Ratings: Heat Pump Advanced Controls

Influence Level	Overall Influence (n = 59)	Energy Trust Incentive (n = 45)	Energy Trust Information or Materials (n = 11)	Contractor (n = 56)
High	80%	46%	92%	81%
Medium	9%	11%	0%	10%
Low	11%	43%	8%	9%

Respondents most commonly found their contractor through word of mouth (Table 19).

Table 19: Where Respondent Found the Contractor: Heat Pump Advanced Controls

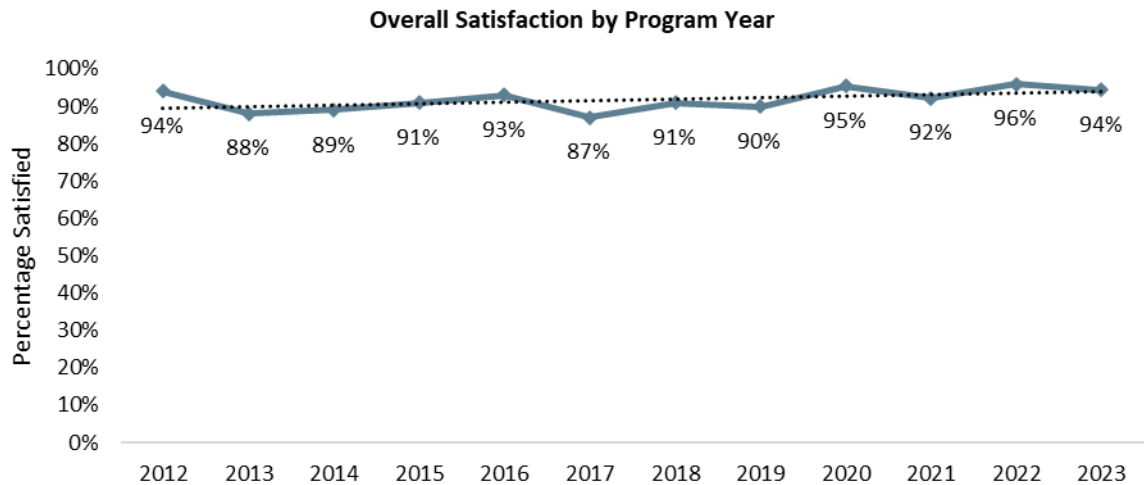
Contractor Source (n = 60)	Percent
Word of mouth	61%
Online service	5%
Web search	20%
Advertisement	5%
Energy Trust website	4%
Energy Trust referral	1%
Not applicable	4%
Don't know	6%
Prefer not to answer	2%

3.2.3 Ceiling Insulation

Ceiling insulation participants ($n = 58$) showed very high levels of satisfaction with all facets of the experience; overall satisfaction is consistent with that in previous years (Table 20 and accompanying chart).

Table 20: Satisfaction Ratings: Ceiling Insulation

Satisfaction	Percent
Measure Satisfaction	
Overall experience ($n = 58$)	94%
Performance of new measure ($n = 53$)	92%
Comfort of home after new measure ($n = 53$)	95%
Incentive application form ($n = 43$)	98%
Time it took to receive incentive ($n = 42$)	85%
Contractor Satisfaction	
Overall experience ($n = 57$)	99%
Quality of installation work ($n = 58$)	96%
Information about incentives ($n = 54$)	90%
Communication ($n = 57$)	95%
Assistance with application ($n = 42$)	85%



The overall program influence on participant purchase decisions was high (95%). The most influential factor was Energy Trust incentive, closely followed by contractors (Table 21).

Table 21: Influence Ratings: Ceiling Insulation

Influence Level	Overall Influence (n = 60)	Energy Trust Incentive (n = 56)	Energy Trust Information or Materials (n = 37)	Contractor (n = 59)
High	95%	88%	77%	86%
Medium	3%	10%	15%	4%
Low	3%	1%	8%	10%

The most commonly reported way that these respondents found their contractor was web search (Table 22).

Table 22: Where Respondent Found the Contractor: Ceiling Insulation

Contractor Source (n = 60)	Percent
Word of mouth	27%
Online service	9%
Web search	37%
Advertisement	5%
Energy Trust website	21%
Energy Trust referral	0%
Not applicable	5%
Don't know	0%
Prefer not to answer	0%

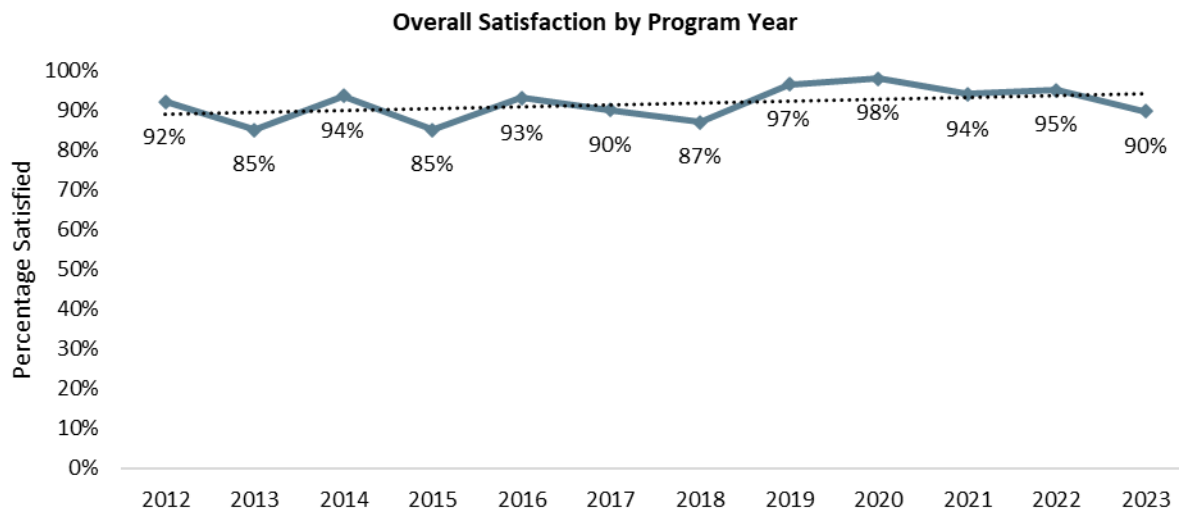
3.2.4 Other Insulation

Other insulation participants ($n = 54$) showed very high levels of satisfaction with all facets of the experience; overall satisfaction while still high went slightly down compared to the last few years (Table 23 and accompanying chart).⁸

⁸ "Other insulation" consists of wall insulation and floor insulation. Before 2020, the survey assessed satisfaction for each of these separately. To provide a point of comparison for 2020 and this year, we took the mean of the overall satisfaction ratings for wall insulation and floor insulation for the previous years.

Table 23: Satisfaction Ratings: Other Insulation

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 54)	90%
Performance of new measure (n = 56)	93%
Comfort of home after new measure (n = 55)	97%
Incentive application form (n = 45)	88%
Time it took to receive incentive (n = 47)	81%
Contractor Satisfaction	
Overall experience (n = 55)	91%
Quality of installation work (n = 54)	94%
Information about incentives (n = 53)	89%
Communication (n = 55)	90%
Assistance with application (n = 43)	91%



The overall program influence on participant purchase decisions was high (85%). Contractors and the Energy Trust incentive had the greatest influence (Table 24).

Table 24: Influence Ratings: Other Insulation

Influence Level	Overall Influence (n = 60)	Energy Trust Incentive (n = 58)	Energy Trust Information or Materials (n = 41)	Contractor (n = 65)
High	85%	75%	56%	76%
Medium	13%	23%	26%	17%
Low	1%	3%	18%	7%

Respondents most commonly reported finding their contractor through word of mouth, followed by web search (Table 25).

Table 25: Where Respondent Found the Contractor: Other Insulation

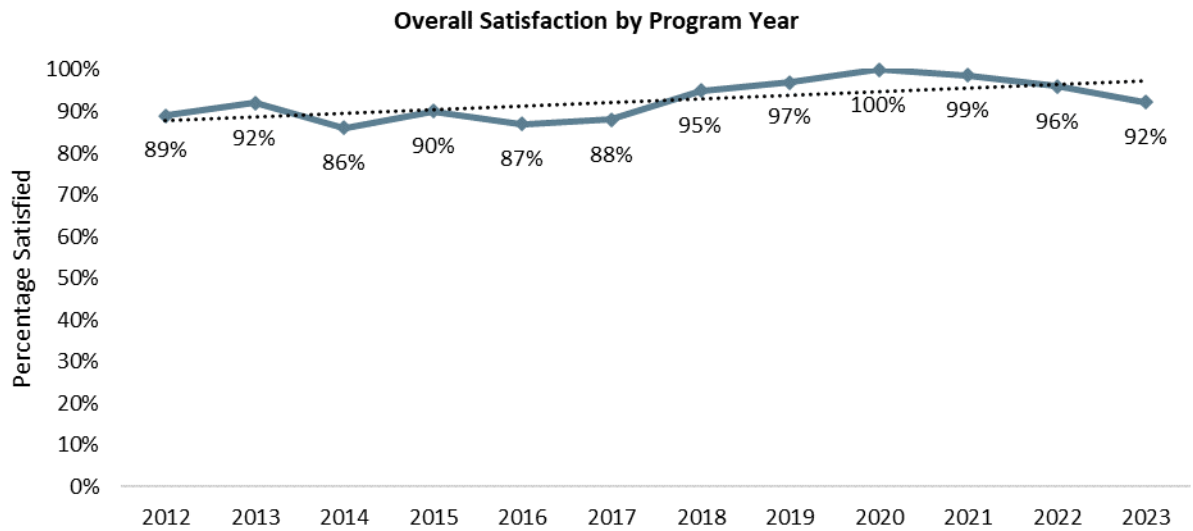
Contractor Source (n = 61)	Percent
Word of mouth	34%
Online service	15%
Web search	29%
Advertisement	4%
Energy Trust website	20%
Energy Trust referral	3%
Not applicable	12%
Don't know	0%
Prefer not to answer	0%

3.2.5 Ducted Heat Pump

Ducted heat pump participants ($n = 60$) showed very high levels of satisfaction with all facets of the experience; overall satisfaction while still high has been going slightly down for a few consecutive years (Table 26 and accompanying chart).

Table 26: Satisfaction Ratings: Ducted Heat Pump

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 60)	92%
Performance of new measure (n = 65)	99%
Comfort of home after new measure (n = 65)	99%
Incentive application form (n = 23)	93%
Time it took to receive incentive (n = 24)	90%
Contractor Satisfaction	
Overall experience (n = 66)	97%
Quality of installation work (n = 66)	97%
Information about incentives (n = 57)	92%
Communication (n = 66)	99%
Assistance with application (n = 24)	97%



The overall program influence on participant purchase decisions was exceptionally high (97%). Contractor showed the greatest influence (Table 27).

Table 27: Influence Ratings: Ducted Heat Pump

Influence Level	Overall Influence (n = 66)	Energy Trust Incentive (n = 58)	Energy Trust Information or Materials (n = 41)	Contractor (n = 65)
High	97%	71%	69%	84%
Medium	1%	14%	12%	6%
Low	2%	14%	19%	10%

Word of mouth was the most commonly reported contractor source (Table 28).

Table 28: Where Respondent Found the Contractor: Ducted Heat Pump

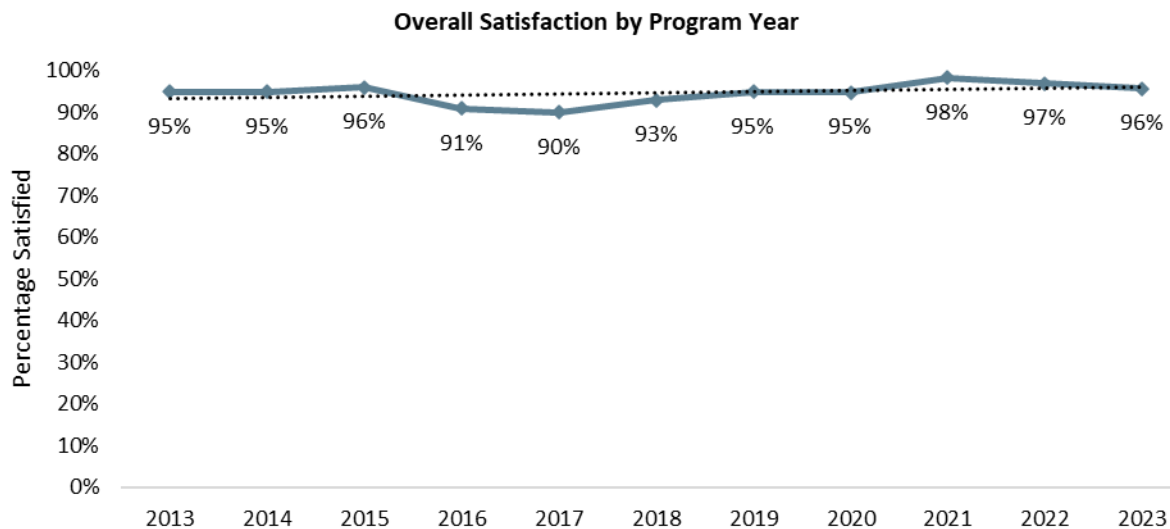
Contractor Source (n = 66)	Percent
Word of mouth	39%
Online service	8%
Web search	23%
Advertisement	14%
Energy Trust website	19%
Energy Trust referral	7%
Not applicable	3%
Don't know	0%
Prefer not to answer	0%

3.2.6 Ductless Heat Pump

Ductless heat pump participants ($n = 52$) showed very high levels of satisfaction with all facets of the experience expect time it took to receive the incentive; overall satisfaction was consistent with previous years (Table 29 and accompanying chart).

Table 29: Satisfaction Ratings: Ductless Heat Pump

Satisfaction	Percent
Measure Satisfaction	
Overall experience ($n = 52$)	96%
Performance of new measure ($n = 57$)	99%
Comfort of home after new measure ($n = 58$)	96%
Incentive application form ($n = 23$)	85%
Time it took to receive incentive ($n = 24$)	78%
Contractor Satisfaction	
Overall experience ($n = 58$)	99%
Quality of installation work ($n = 59$)	98%
Information about incentives ($n = 52$)	89%
Communication ($n = 58$)	99%
Assistance with application ($n = 28$)	91%



The overall program influence on participant purchase decisions was exceptionally high (98%). Ductless heat pump’s energy efficiency rating had the greatest influence (Table 30).

Table 30: Influence Ratings: Ductless Heat Pump

Influence Level	Overall Influence (n = 59)	Energy Trust Incentive (n = 54)	Energy Trust Information or Materials (n = 30)	Contractor (n = 59)	Energy Efficiency Rating (n = 58)
High	98%	60%	52%	77%	90%
Medium	0%	19%	24%	11%	7%
Low	2%	21%	24%	12%	3%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by web search (Table 31).

Table 31: Where Respondent Found the Contractor: Ductless Heat Pump

Contractor Source (n = 61)	Percent
Word of mouth	37%
Online service	10%
Web search	26%
Advertisement	11%
Energy Trust website	10%
Energy Trust referral	11%
Not applicable	3%
Don't know	0%
Prefer not to answer	0%

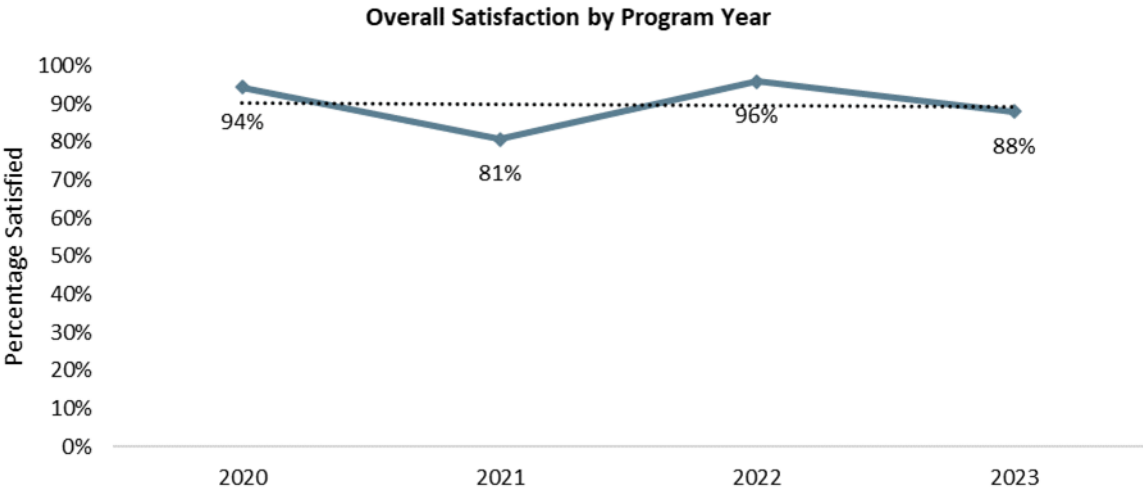
3.2.7 Central Air Conditioner

Participants with this measure (n = 51) showed moderately high to high levels of satisfaction with all facets of the experience except time it took to receive the incentive, information about incentives, and assistance with completing the application (Table 32 and accompanying chart). While overall satisfaction was high (88%) in 2023, it has been volatile over the course of this measure making it hard to discern any real trends from the spike and fall pattern. However, the variance ranges from high to very high satisfaction levels as opposed to high and low satisfaction.

Table 32: Satisfaction Ratings: Central Air Conditioner

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 51)	88%
Performance of new measure (n = 47)	99%
Comfort of home after new measure (n = 48)	99%
Incentive application form (n = 31)	79%
Time it took to receive incentive (n = 37)	68%

Satisfaction	Percent
Contractor Satisfaction	
Overall experience (n = 57)	90%
Quality of installation work (n = 57)	88%
Information about incentives (n = 51)	77%
Communication (n = 57)	90%
Assistance with application (n = 36)	79%



The overall program influence on participant purchase decisions was very high (92%). The air conditioner’s energy efficiency rating had the greatest influence (Table 33).

Table 33: Influence Ratings: Central Air Conditioner

Influence Level	Overall Influence (n = 57)	Energy Trust Incentive (n = 52)	Energy Trust Information or Materials (n = 18)	Contractor (n = 57)	Energy Efficiency Rating (n = 54)
High	92%	46%	41%	71%	80%
Medium	4%	15%	16%	12%	10%
Low	5%	40%	44%	17%	10%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by web search (Table 34).

Table 34: Where Respondent Found the Contractor: Central Air Conditioner

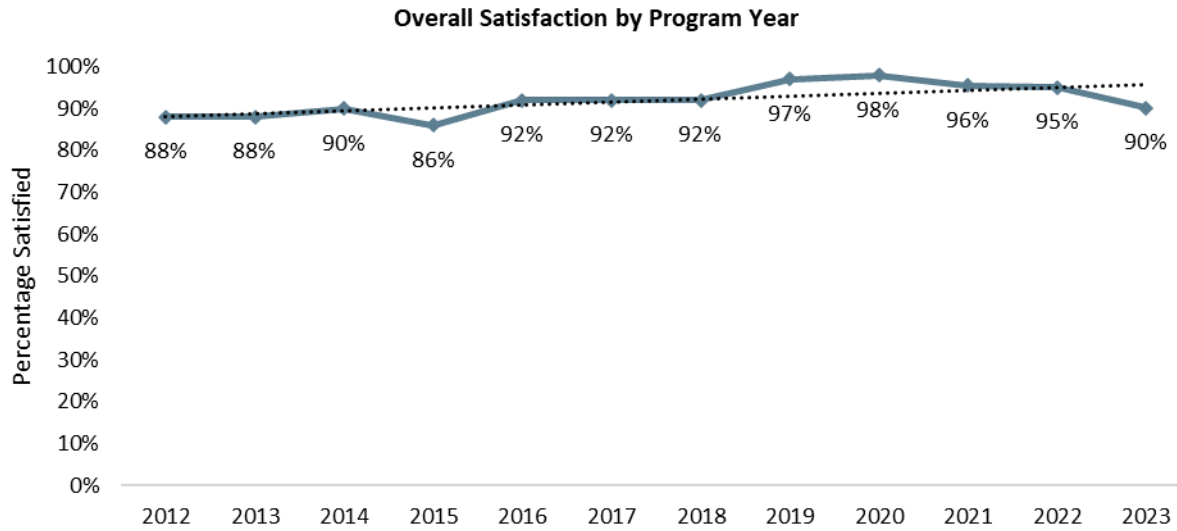
Contractor Source (n = 57)	Percent
Word of mouth	44%
Online service	10%
Web search	30%
Advertisement	5%
Energy Trust website	10%
Energy Trust referral	0%
Not applicable	8%
Don't know	9%
Prefer not to answer	0%

3.2.8 Windows

Windows participants ($n = 56$) showed high levels of satisfaction with all facets of the experience except information about incentives; and assistance with application provided by the contractor. Overall satisfaction while still very high (90%) is lower than that for 2022 (95%) and lower than the general trend since 2012 (Table 35 and accompanying chart).

Table 35: Satisfaction Ratings: Windows

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 56)	90%
Performance of new measure (n = 58)	100%
Comfort of home after new measure (n = 60)	99%
Incentive application form (n = 47)	90%
Time it took to receive incentive (n = 51)	82%
Contractor Satisfaction	
Overall experience (n = 61)	82%
Quality of installation work (n = 61)	85%
Information about incentives (n = 55)	74%
Communication (n = 60)	84%
Assistance with application (n = 52)	78%



The overall program influence on participant purchase decisions was high (80%) with contractors having the greatest influence (Table 36).

Table 36: Influence Ratings: Windows

Influence Level	Overall Influence (n = 61)	Energy Trust Incentive (n = 57)	Energy Trust Information or Materials (n = 21)	Contractor (n = 61)
High	80%	41%	44%	73%
Medium	11%	18%	34%	12%
Low	9%	40%	23%	15%

The contractor’s advertising was most commonly reported as where the respondent found the contractor, closely followed by word of mouth (Table 37).

Table 37: Where Respondent Found the Contractor: Windows

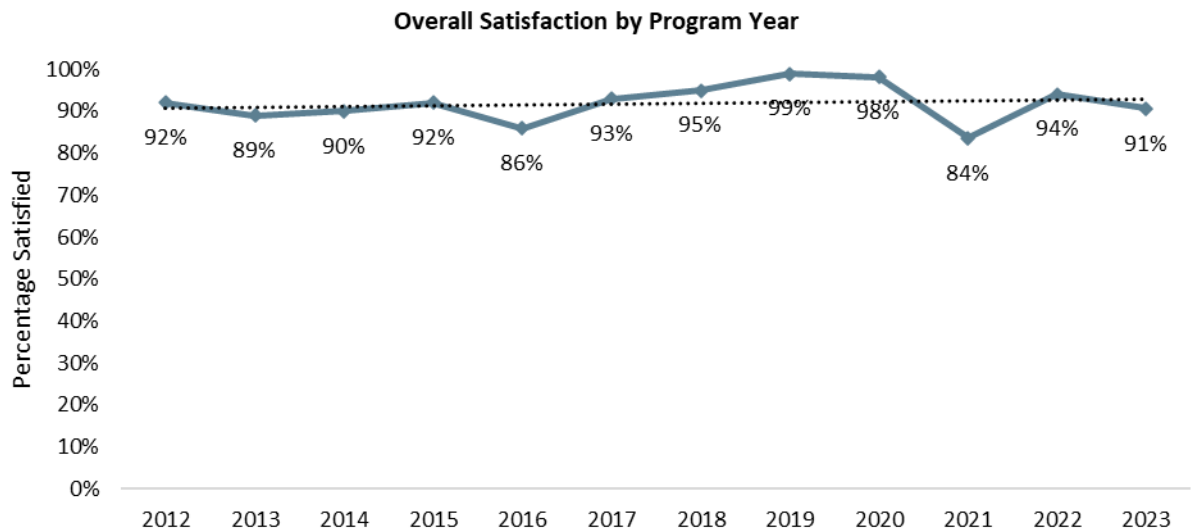
Contractor Source (n = 61)	Percent
Word of mouth	31%
Online service	9%
Web search	28%
Advertisement	32%
Energy Trust website	4%
Energy Trust referral	2%
Not applicable	5%
Don't know	4%
Prefer not to answer	0%

3.2.9 Gas Fireplaces

Gas fireplace participants ($n = 63$) showed high levels of satisfaction with all facets of the experience; overall satisfaction (91%) is slightly lower than that for 2022 (94%) but it is still aligned with the historical trend (Table 38 and accompanying chart).

Table 38: Satisfaction Ratings: Gas Fireplaces

Satisfaction	Percent
Measure Satisfaction	
Overall experience ($n = 63$)	91%
Performance of new measure ($n = 64$)	100%
Comfort of home after new measure ($n = 63$)	98%
Incentive application form ($n = 58$)	87%
Time it took to receive incentive ($n = 62$)	84%
Contractor Satisfaction	
Overall experience ($n = 65$)	94%
Quality of installation work ($n = 65$)	97%
Information about incentives ($n = 64$)	87%
Communication ($n = 65$)	94%
Assistance with application ($n = 59$)	88%



The overall program influence on participant purchase decisions was moderate (78%). Energy efficiency rating of the fireplace showed the greatest influence (Table 39).

Table 39: Influence Ratings: Gas Fireplaces

Influence Level	Overall Influence (n = 65)	Energy Trust Incentive (n = 65)	Energy Trust Information or Materials (n = 28)	Contractor (n = 64)	Energy Efficiency Rating (n = 62)
High	78%	47%	58%	63%	70%
Medium	13%	15%	8%	7%	19%
Low	9%	38%	34%	30%	11%

Word of mouth was by far most commonly reported as where the respondent found the contractor (Table 40).

Table 40: Where Respondent Found the Contractor: Gas Fireplaces

Contractor Source (n = 65)	Percent
Word of mouth	40%
Online service	11%
Web search	25%
Advertisement	5%
Energy Trust website	6%
Energy Trust referral	6%
Not applicable	9%
Don't know	1%
Prefer not to answer	0%

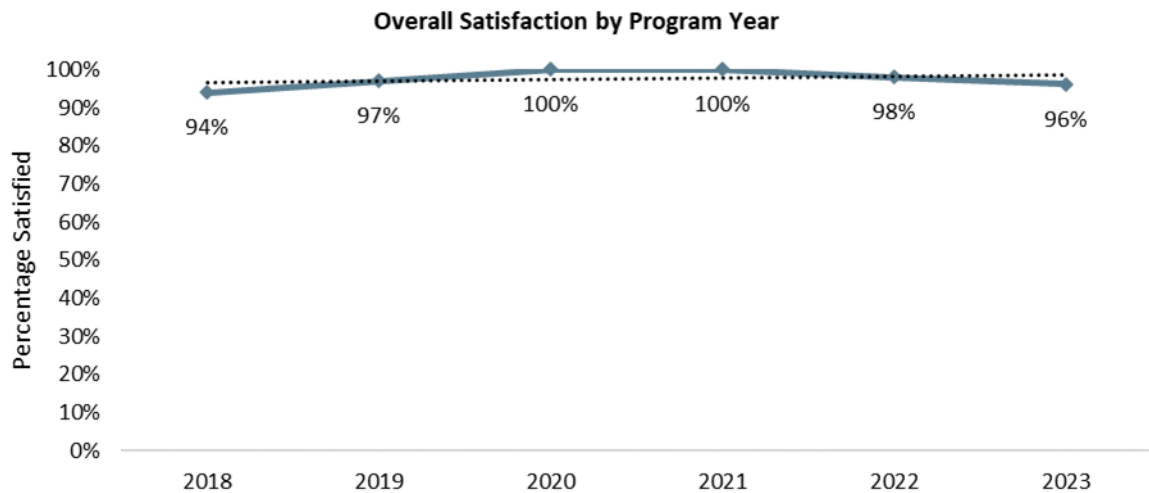
3.2.10 Gas Furnaces

Gas furnace participants (n = 60) showed very high levels of satisfaction with all facets of the experience, creating a consistently high satisfaction over time (Table 41 and accompanying chart).

Table 41: Satisfaction Ratings: Gas Furnaces

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 60)	96%
Performance of new measure (n = 64)	99%
Comfort of home after new measure (n = 64)	99%
Incentive application form (n = 33)	98%
Time it took to receive incentive (n = 30)	91%

Satisfaction	Percent
Contractor Satisfaction	
Overall experience (n = 68)	97%
Quality of installation work (n = 68)	93%
Information about incentives (n = 62)	94%
Communication (n = 68)	94%
Assistance with application (n = 36)	96%



The overall program influence on participant purchase decisions was exceptionally high (99%). Furnaces' energy efficiency rating had by far the greatest influence (Table 42).

Table 42: Influence Ratings: Gas Furnaces

Influence Level	Overall Influence (n = 68)	Energy Trust Incentive (n = 63)	Energy Trust Information or Materials (n = 27)	Contractor (n = 68)	Energy Efficiency Rating (n = 65)
High	99%	55%	49%	68%	91%
Medium	1%	16%	31%	17%	2%
Low	0%	28%	20%	15%	7%

Word of mouth was by far most commonly reported as where the respondent found the contractor (Table 43).

Table 43: Where Respondent Found the Contractor: Gas Furnaces

Contractor Source (n = 68)	Percent
Word of mouth	65%
Online service	2%
Web search	13%
Advertisement	11%
Energy Trust website	7%
Energy Trust referral	1%
Not applicable	3%
Don't know	0%
Prefer not to answer	0%

3.2.11 Duct Sealing

Duct sealing participants ($n = 49$) showed exceptionally high levels of satisfaction with all facets of the experience (Table 44). Overall satisfaction (100%) was consistent with 2022 (99%), when the measure was reintroduced into the program after previously having been discontinued.⁹

Table 44: Satisfaction Ratings: Duct Sealing

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 49)	100%
Performance of new measure (n = 56)	93%
Comfort of home after new measure (n = 55)	92%
Contractor Satisfaction	
Overall experience (n = 57)	95%
Quality of installation work (n = 57)	98%
Information about incentives (n = 45)	97%
Communication (n = 57)	97%

The overall program influence on the installation decision was very high (91%). Energy Trust information and material showed the greatest influence (Table 45).

⁹ This is the second year satisfaction is reported for this measure which is not enough to identify a trend over time.

Table 45: Influence Ratings: Duct Sealing

Influence Level	Overall Influence (n = 57)	Energy Trust Incentive (n = 56)	Energy Trust Information or Materials (n = 33)
High	91%	78%	85%
Medium	2%	3%	8%
Low	7%	19%	7%

3.2.12 Residential - Washington

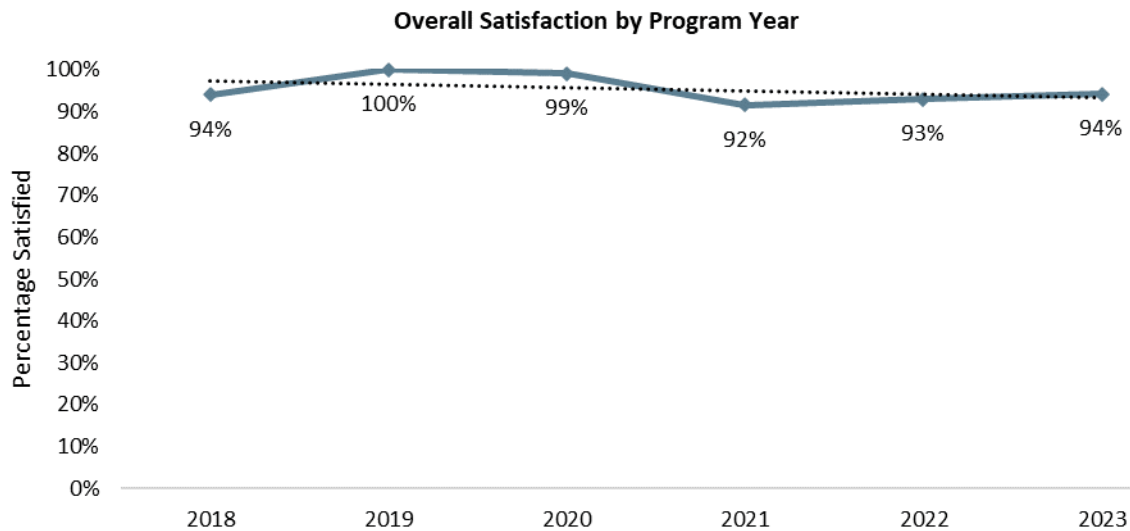
Residential Washington participants ($n = 176$) installed six types of measures: gas furnaces ($n = 71$), windows ($n = 52$), thermostats¹⁰ ($n = 33$), ceiling insulation ($n = 10$), floor insulation ($n = 5$), and gas fireplaces ($n = 5$).

These participants showed moderately high to very high levels of satisfaction with all facets of the experience; overall satisfaction remained very close to last year's aligning with the leveled off trend over time (Table 46 and accompanying chart).

¹⁰ Either smart thermostats or heat pump advanced controls.

Table 46: Satisfaction Ratings: Residential - Washington

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 147)	94%
Performance of new measure (n = 169)	99%
Comfort of home after new measure (n = 163)	98%
Incentive application form (n = 108)	94%
Time it took to receive incentive (n = 107)	83%
Contractor Satisfaction	
Overall experience (n = 141)	92%
Quality of installation work (n = 141)	90%
Information about incentives (n = 120)	85%
Communication (n = 141)	91%
Assistance with application (n = 83)	92%



The overall program influence on participant purchase decisions was high (82%). The measure’s energy efficiency rating showed the greatest influence, followed by contractors (Table 47).

Table 47: Influence Ratings: Residential - Washington

Influence Level	Overall Influence (n = 175)	Energy Trust Incentive (n = 162)	Energy Trust Information or Materials (n = 66)	Salesperson or Retailer (n = 30)	Contractor (n = 139)	Energy Efficiency Rating (n = 72)
High	82%	53%	56%	41%	72%	89%
Medium	5%	18%	16%	3%	11%	6%
Low	13%	29%	28%	57%	17%	5%

Word of mouth was most commonly reported as where the respondent found the contractor, closely followed by a web search (Table 48).

Table 48: Where Respondent Found the Contractor: Residential - Washington

Contractor Source (n = 176)	Percent
Word of mouth	39%
Online service	9%
Web search	38%
Advertisement	15%
Energy Trust website	7%
Energy Trust referral	2%
Not applicable	3%
Don't know	0%
Prefer not to answer	0%

3.2.13 Moderate Income Track

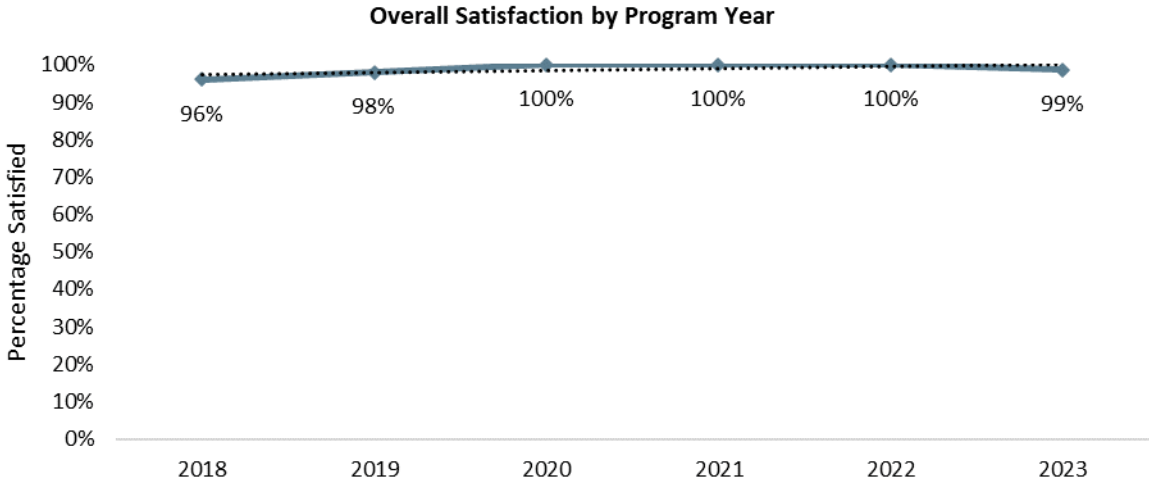
Moderate Income Track participants ($n = 63$) installed seven types of measures: gas furnaces ($n = 37$), ductless heat pumps ($n = 12$), ducted heat pumps ($n = 5$), thermostats ($n = 3$), other insulation ($n = 3$), ceiling insulation ($n = 2$), and central air conditioners ($n = 1$).

These participants showed very high levels of satisfaction with all facets of the experience; overall satisfaction is consistently very high over time (Table 49 and accompanying chart).

Table 49: Satisfaction Ratings: Moderate Income Track

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 54)	99%
Performance of new measure (n = 60)	99%
Comfort of home after new measure (n = 61)	99%
Incentive application form (n = 54)	98%
Time it took to receive incentive (n = 47)	94%

Satisfaction	Percent
Contractor Satisfaction	
Overall experience (n = 60)	96%
Quality of installation work (n = 59)	95%
Information about incentives (n = 58)	94%
Communication (n = 60)	97%
Assistance with application (n = 57)	98%



The overall program influence on participant purchase decisions was exceptionally high (99%). Reflecting the high proportion of gas furnaces in this group, the equipment’s energy efficiency rating showed the greatest influence, followed by contractor and Energy Trust information or materials (Table 50).

Table 50: Influence Ratings: Moderate Income Track

Influence Level	Overall Influence (n = 62)	Energy Trust Incentive (n = 60)	Energy Trust Information or Materials (n = 28)	Contractor (n = 60)	Energy Efficiency Rating (n = 52)
High	99%	72%	78%	79%	85%
Medium	1%	13%	12%	16%	8%
Low	0%	14%	9%	6%	6%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 51).

Table 51: Where Respondent Found the Contractor: Moderate Income Track

Contractor Source (n = 63)	Percent
Word of mouth	55%
Online service	1%
Web search	12%
Advertisement	20%
Energy Trust website	12%
Energy Trust referral	2%
Not applicable	5%
Don't know	0%
Prefer not to answer	0%

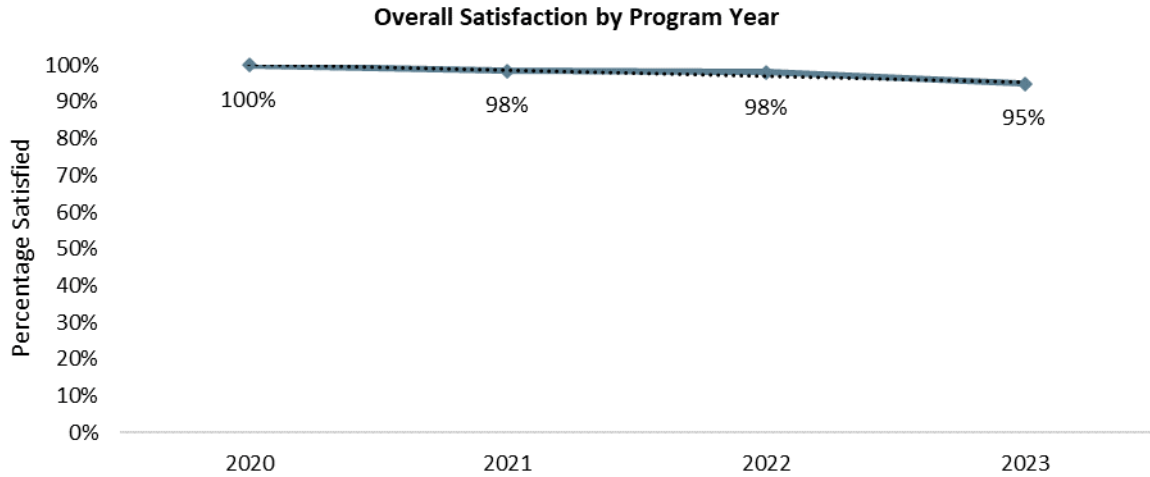
3.2.14 Rental Properties

Rental Properties participants ($n = 59$) installed six measure types: gas furnaces ($n = 32$), ductless heat pumps ($n = 10$), ceiling insulation ($n = 9$), floor insulation ($n = 6$), wall insulation ($n = 1$), and ducted heat pumps ($n = 1$).

These participants showed very high levels of satisfaction with all facets of the experience; the overall satisfaction trend is consistently very high, although the five-percentage-point drop over the four years of measurement may warrant attention (Table 52 and accompanying chart).

Table 52: Satisfaction Ratings: Rental Properties

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 52)	95%
Performance of new measure (n = 54)	100%
Comfort of home after new measure (n = 53)	100%
Incentive application form (n = 10)	89%
Time it took to receive incentive (n = 10)	89%
Contractor Satisfaction	
Overall experience (n = 56)	99%
Quality of installation work (n = 57)	96%
Information about incentives (n = 48)	94%
Communication (n = 56)	94%
Assistance with application (n = 9)	87%



The overall program influence on participant purchase decisions was exceptionally high (100%). The measure’s energy efficiency rating showed the greatest influence (Table 53).

Table 53: Influence Ratings: Rental Properties

Influence Level	Overall Influence (n = 58)	Energy Trust Incentive (n = 49)	Energy Trust Information or Materials (n = 26)	Contractor (n = 57)	Energy Efficiency Rating (n = 42)
High	100%	60%	50%	78%	96%
Medium	0%	16%	34%	11%	0%
Low	0%	24%	17%	12%	4%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 54).

Table 54: Where Respondent Found the Contractor: Rental Properties

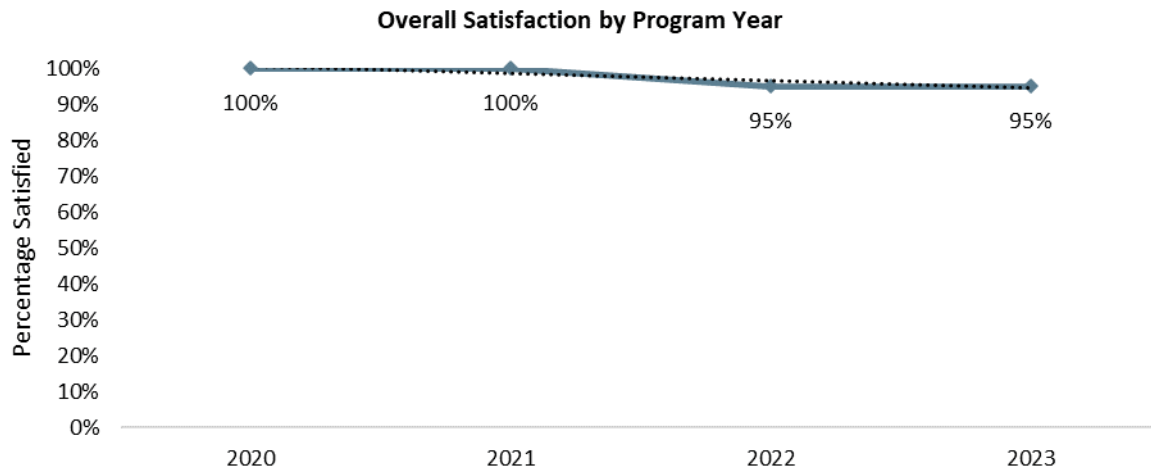
Contractor Source (n = 59)	Percent
Word of mouth	53%
Online service	4%
Web search	22%
Advertisement	9%
Energy Trust website	5%
Energy Trust referral	3%
Not applicable	4%
Don't know	0%
Prefer not to answer	0%

3.2.15 Manufactured Home Promotions

This group was previously called “Fixed Price Promotions.” Manufactured Home Promotions participants ($n = 16$) installed two measure types: ducted heat pumps ($n = 14$) and ductless heat pumps ($n = 4$). These participants showed very high levels of satisfaction with all facets of the experience (Table 55 and accompanying chart), although satisfaction levels in the past two years are slightly below those for the first two years.

Table 55: Satisfaction Ratings: Manufactured Home Promotions

Satisfaction	Percent
Measure Satisfaction	
Overall experience ($n = 16$)	95%
Performance of new measure ($n = 17$)	100%
Comfort of home after new measure ($n = 17$)	100%
Incentive application form ($n = 0$)	n/a
Time it took to receive incentive ($n = 0$)	n/a
Contractor Satisfaction	
Overall experience ($n = 17$)	95%
Quality of installation work ($n = 17$)	100%
Information about incentives ($n = 13$)	93%
Communication ($n = 17$)	95%
Assistance with application ($n = 0$)	n/a



The overall program influence on participant purchase decisions was very high (95%). Energy Trust information or materials showed the greatest influence (Table 56).

Table 56: Influence Ratings: Manufactured Home Promotions

Influence Level	Overall Influence (n = 17)	Energy Trust Information or Materials (n = 11)	Contractor (n = 27)	Energy Efficiency Rating (n = 15)
High	95%	90%	84%	56%
Medium	5%	10%	11%	28%
Low	0%	0%	5%	16%

Word of mouth was by far most commonly reported as where the respondent found the contractor (Table 57).

Table 57: Where Respondent Found the Contractor: Manufactured Home Promotions

Contractor Source (n = 18)	Percent
Word of mouth	48%
Online service	0%
Web search	0%
Advertisement	13%
Energy Trust website	27%
Energy Trust referral	13%
Not applicable	3%
Don't know	0%
Prefer not to answer	0%

4 Nonresidential Survey Results

The following subsections provide information on the firmographics, demographics, and program experience of nonresidential survey participants. All results are shown separately for Existing Buildings - Oregon, Commercial Solar, and Production Efficiency participants.

4.1 Nonresidential Firmographics and Demographics

In reporting firmographic and demographic responses, we excluded “no response” from the denominator of percentages. The tables show the percentages and counts of all respondents that answered the various questions and the percentage that each answer makes up of all answers given.

Respondents most commonly reported that their firm or organization owns the property or properties that participated in the respective program (Table 58), followed by businesses leasing their property.

Table 58: Participating Firm or Organization’s Ownership of Participating Property or Properties (Existing Buildings, Commercial Solar, and Production Efficiency)

Ownership	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	99.7%	97.1%	98.7%
Responding n	(n = 320)	(n = 34)	(n = 74)
Own	69%	97%	53%
Lease	28%	0%	47%
Other	3%	3%	0%

More than half of Existing Buildings participants and two-thirds of Production Efficiency participants who reported leasing the participating property said their firm or organization had authority to make any type of upgrade decision (Table 59).

*Table 59: Participating Firm or Organization's Authority for Upgrade Decisions
(Existing Buildings, Commercial Solar, and Production Efficiency Participants Who Reported Leasing Building Only)*

Level of Authority for Upgrades	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	100%	n/a	100%
Responding n	(n = 108)	(n = 0)	(n = 32)
Yes, any type of upgrade	57%	n/a	66%
Yes, but only some types of upgrades	38%	n/a	28%
No	5%	n/a	6%

Participants in all programs reported a range of company sizes, in terms of number of employees, but skewed somewhat toward fewer employees, with one to five employees being by far most common (Table 60).

Table 60: Number of Oregon Employees

Number of Employees	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	97.1%	100%	100%
Responding n	(n = 332)	(n = 34)	(n = 72)
1 to 5	55%	65%	34%
6 to 9	8%	9%	8%
10 to 19	9%	0%	17%
20 to 99	11%	12%	20%
100 to 499	7%	9%	16%
500 or more	10%	6%	6%

More than half (60%) of the respondents were an owner or someone in an executive or decision-making role and about one in five were a manager of some sort (Table 61).

Table 61: Respondent's Position in Firm or Organization

Title or Role	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	98.6%	100%	100%
Responding n	(n = 360)	(n = 35)	(n = 76)
Owner	54%	71%	38%
Executive or decision-maker	8%	17%	4%
Manager	17%	11%	33%
Employee	4%	0%	1%
Other	17%	0%	24%

Respondents' businesses represented a range of ownership structures, with close to one-half being individual or sole proprietorships, including LLCs, and the next most common being C or S corporations (Table 62).

Table 62: Business Ownership Structure

Title or Role	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	96%	100%	100%
Responding n	(n = 337)	(n = 35)	(n = 74)
Individual/sole proprietor/LLC	25%	23%	19%
C Corporation	6%	6%	24%
S Corporation	8%	20%	10%
Partnership	5%	6%	3%
Trust/estate	4%	3%	1%
Limited liability company	15%	23%	25%
Government	4%	0%	3%
Education	4%	9%	0%
Nonprofit	5%	6%	0%
Religious	2%	0%	0%
Not specified ¹	17%	0%	12%
Residence	2%	6%	0%

¹For example, "Corporation," "Publicly traded entity," "Investment group."

Nearly all respondents reported that English was the primary language spoken in their business (Table 63). Spanish and Korean were the only other languages identified, both representing fewer than 1% of the respondents.

Table 63: Primary Language of Business

Title or Role	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	95.3%	96.8%	100%
Responding n	(n = 225)	(n =30)	(n = 35)
English	99%	100%	100%
Spanish	<1%	0%	0%
French	0%	0%	0%
Mandarin	0%	0%	0%
Vietnamese	0%	0%	0%
Tagalog	0%	0%	0%
Armenian	0%	0%	0%
Korean	<1%	0%	0%
Russian	0%	0%	0%
Persian	0%	0%	0%
Other	0%	0%	0%

Finally, respondents were somewhat more likely to identify as male than female, with about 1% reporting another gender identity (Table 64). In addition, 1% of respondents reported they were transgender.

Table 64: Respondent’s Gender Identity

Title or Role	Existing Buildings - Oregon	Commercial Solar	Production Efficiency
Responding %	94.5%	96.8%	97.1%
Responding n	(n = 223)	(n = 30)	(n = 34)
Female	44%	23%	23%
Male	55%	77%	77%
Non-binary/third gender	1%	0%	0%
Transgender	1%	0%	4%

4.2 Nonresidential Program Experience by Program Track and Quota Group

The following subsections show results for key survey variables by program track and quota group. Results mostly show high satisfaction ratings across all facets of program experience for all quota groups, with a few moderate satisfaction ratings. In most cases, satisfaction with the overall program experience and with interactions with program representatives significantly improved since 2022, especially for the commercial solar quota group.

Respondents across all quota groups reported influence from multiple factors, with no single factor showing consistently greater influence than any other.

4.2.1 Existing Buildings - Oregon

Existing Buildings - Oregon participants ($n = 403$) generally showed high levels of satisfaction and reported high overall program influence across quota groups consistently (Table 65). Relatively, Lighting (Non-DI) group showed lower program influence (78%) and Healthcare showed lower satisfaction with overall program experience (78%).

Table 65: Key Satisfaction and Influence Metrics by Quota Group: Existing Buildings - Oregon

Existing Buildings - Oregon Incentives Quota Group	Satisfaction		Overall Influence
	Overall Program Experience	Interaction with Program Representative	
Existing Buildings - Oregon Incentives ($n = 403$)	94%	94%	98%
Building Type Quotas (Exclusive Quotas)			
Assembly/Religious ($n = 42$)	93%	90%	95%
Education ($n = 27$)	93%	96%	85%
Healthcare ($n = 23$)	78%	86%	91%
Multifamily ($n = 99$)	94%	93%	85%
Office ($n = 34$)	97%	93%	97%
Other Commercial ($n = 56$)	98%	98%	96%
Restaurant ($n = 33$)	97%	100%	97%
Retail ($n = 64$)	95%	95%	97%
Warehouse ($n = 25$)	96%	90%	92%
Commercial Solar ($n = 36$)	91%	87%	94%
Cross-Cutting Quota Groups			
Direct Install (DI) ($n = 180$)	94%	95%	98%
Lighting (Non-DI) ($n = 63$)	95%	93%	78%
Small and Medium Business ($n = 99$)	94%	93%	85%
Small Multifamily ($n = 57$)	92%	91%	86%

Looking at Existing Buildings - Oregon as a group, participants showed high levels of satisfaction with all facets of the experience (Table 66).

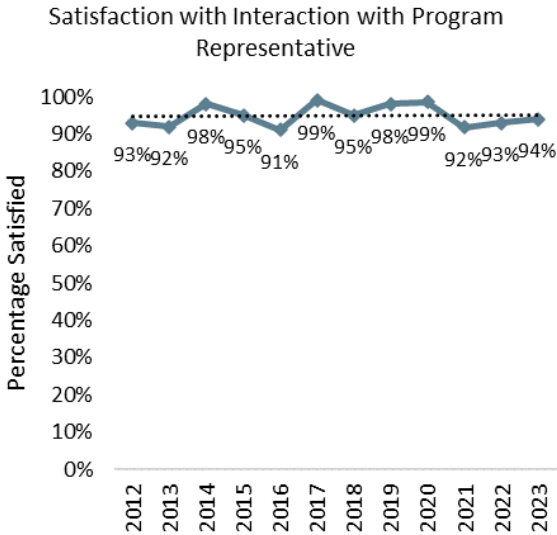
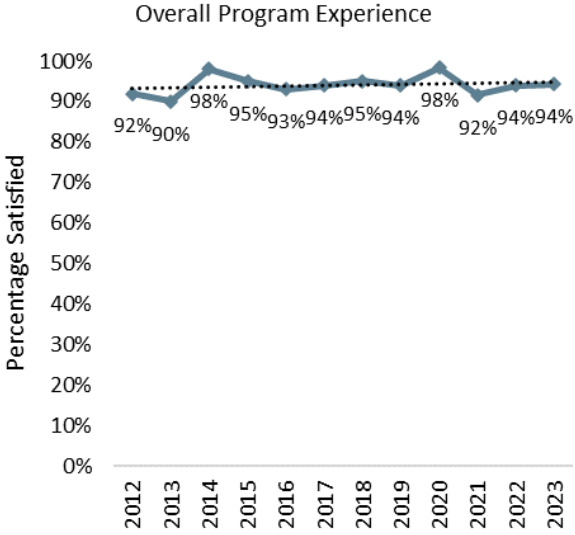
Table 66: Satisfaction by Program Element: Existing Buildings – Oregon

Program Element	Percent
Program-Level Satisfaction by Program Element	
Overall experience with Energy Trust ($n = 390$)	94%
Interaction with Energy Trust representative ($n = 353$)	94%
Incentive application process ($n = 381$)	90%
Information and materials from Energy Trust ($n = 356$)	89%
Site assessment or walk-through survey ($n = 178$)	94%

Program Element	Percent
Energy Trust-funded technical services (n = 60)	99%
The scheduling process to receive services (n = 178)	82%
Turnaround time to receive your incentive (n = 197)	87%
Performance of the measure (n = 361)	97%
The vendor or installation contractor, if applicable (n = 369)	95%
Overall Experience by Program Track	
Custom (n = 0)	n/a
Lighting (n = 237)	95%
Standard (n = 153)	94%
Direct Install (n = 176)	94%
Interaction with Program Representative by Program Track	
Custom (n = 0)	n/a
Lighting (n = 227)	94%
Standard (n = 126)	94%
Direct Install (n = 177)	95%

Satisfaction with the overall program experience and interactions with program representatives were similar to those of 2022 creating a consistently high satisfaction trend.

Time Trend in Key Satisfaction Indicators: Existing Buildings - Oregon



Respondents across all program tracks reported influence from multiple factors (Table 67).¹¹ As shown in Table 65, above, the overall program influence was high to very high for all quota groups, ranging from 85% to 98% except for Lighting (Non-DI) quota group (slightly lower at 78%). No single item was consistently more influential than any other across the quota groups. But on average, services provided at no/low cost (99%), Energy Trust-funded technical services (93%), and site assessment or walk-through survey (87%), closely followed by Energy Trust program representative (85%) had the greatest influence.

¹¹ Influence was defined as a rating of 4 or 5 on a scale from 1 (did not have any influence) to 5 (had a great influence). “Don’t know” and “no response” were excluded from the denominators for all analyses to be consistent with previous years. As with the residential survey, we calculated an “overall influence” rating for each respondent that was equal to the highest influence rating that respondent provided for any rated influence factor.

Table 67: Influencers by Quota Group: Existing Buildings – Oregon

Quota Group	Energy Trust Incentive		Information and materials		Services provided at no/low cost		Energy Trust program representative		Site assessment or walk-through survey		Energy Trust-funded technical services		Vendor or installation contractor	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Assembly/Religious	42	73%	42	71%	42	97%	42	78%	42	79%	42	100%	42	74%
Education	27	67%	27	71%	27	100%	27	84%	27	100%	27	92%	27	50%
Healthcare	23	50%	23	71%	23	100%	23	82%	23	81%	23	75%	23	70%
Office	34	73%	34	73%	34	100%	34	90%	34	90%	34	100%	34	73%
Other Commercial	55	68%	56	73%	56	97%	56	84%	56	79%	56	75%	56	77%
Restaurant	33	83%	33	91%	33	100%	33	97%	32	100%	33	100%	32	93%
Retail	64	71%	63	84%	63	98%	63	90%	64	93%	64	100%	63	83%
Warehouse	25	85%	25	70%	25	100%	25	68%	25	75%	25	100%	25	73%
Multifamily	99	64%	99	63%	99	100%	99	68%	98	79%	99	100%	98	72%
Commercial Solar	36	71%	36	54%	36	n/a	36	65%	36	n/a	36	n/a	36	80%
Total/Wtd Mean	303	72%	303	76%	303	99%	303	85%	303	87%	304	93%	302	76%
Direct Install (DI)	180	n/a	179	81%	179	98%	179	88%	179	87%	180	n/a	178	80%
Lighting (non-DI)	62	73%	63	71%	63	n/a	63	78%	63	n/a	63	86%	63	74%
Small-Medium Business	99	64%	99	63%	99	100%	99	68%	98	79%	99	100%	98	72%
Small Multifamily	57	68%	57	67%	57	n/a	57	65%	57	67%	57	100%	57	71%

4.2.2 Commercial Solar

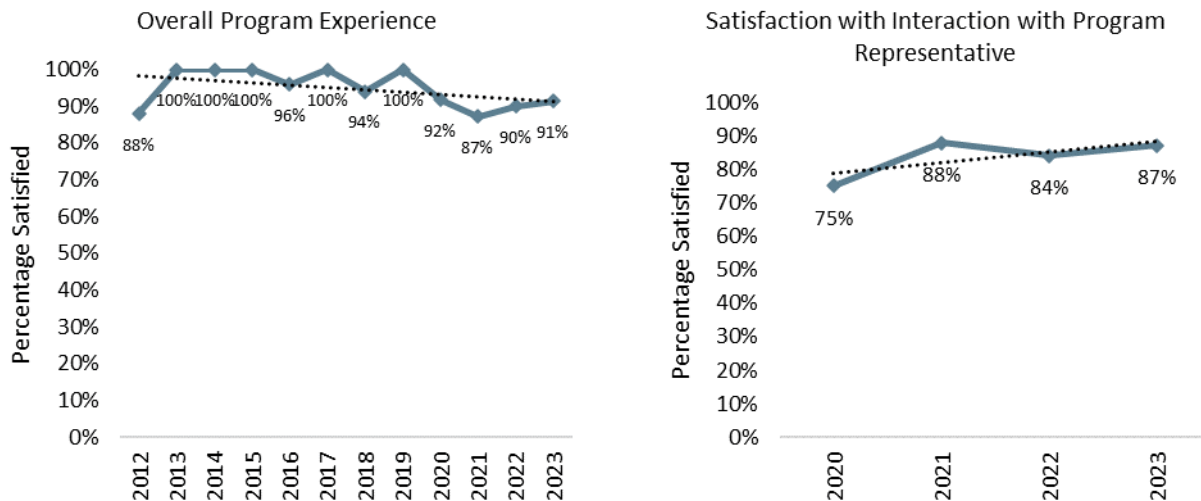
Commercial Solar participants ($n = 36$) showed high satisfaction with key program elements and reported high overall program influence which was a significant improvement since 2022 (Table 68 and accompanying chart).

Table 68: Key Satisfaction and Influence Metrics by Quota Group: Commercial Solar

Quota Group	Satisfaction		Overall Influence
	Overall Experience with Energy Trust	Interaction with Energy Trust Representative	
Commercial Solar ($n = 36$)	91%	87%	94%

Satisfaction with the overall program experience and interactions with program representatives slightly improved since 2022 aligning with an upward trend since 2021.

Time Trend in Key Satisfaction Indicators: Commercial Solar PV



Satisfaction across various program elements was rated high consistently with the lowest satisfaction level (79%) being related to site assessment or walk-through survey (Table 69)

Table 69: Satisfaction by Program Element: Commercial Solar

Program Element	Percent
Overall experience with Energy Trust ($n = 35$)	91%
Interaction with Energy Trust representative ($n = 35$)	87%
Incentive application process ($n = 31$)	87%
Information and materials from Energy Trust ($n = 34$)	91%

Program Element	Percent
Site assessment or walk-through survey (n = 34)	79%
Energy Trust-funded technical services (n = 0)	n/a
The scheduling process to receive services (n = 0)	n/a
Turnaround time to receive your incentive (n = 0)	n/a
Performance of the measure (n = 0)	n/a
The vendor or installation contractor, if applicable (n = 34)	85%

Respondents reported influence from multiple factors (Table 70) but were least influenced by the information and materials from Energy Trust and Energy-Trust-funded technical services which was consistent with 2022.

Table 70: Influencers: Commercial Solar

Influencer	Percent
Overall influence (n = 35)	94%
The Energy Trust Incentive (n = 35)	91%
Information and materials from Energy Trust (n = 35)	54%
The Energy Trust program representative (n = 0)	n/a
Energy Trust-funded technical services (n = 31)	65%
The vendor or installation contractor, if applicable (n = 0)	n/a

4.2.3 Production Efficiency

Production Efficiency participants (n = 76) showed high satisfaction with key program elements and reported high overall program influence across quota groups except Agriculture (n = 6) at 67%; small sample sizes argue for caution in comparing across groups or with previous years (Table 71 and accompanying charts).

Table 71: Key Satisfaction and Influence Metrics by Quota Group: Production Efficiency

Quota Group	Satisfaction		Overall Influence
	Overall Program Experience	Interaction with Program Representative	
Production Efficiency (n = 76)	95%	89%	95%
End-Use Quotas (Exclusive Quotas)			
Agriculture (n = 6)	83%	67%	80%
Compressed air (n = 2)	100%	100%	100%
HVAC and controls (n = 4)	100%	100%	100%
Lighting (n = 47)	94%	90%	96%
Other industrial measures (n = 6)	100%	83%	100%
Pumps and Motors (n = 11)	100%	100%	82%
Refrigeration (n = 0)	n/a	n/a	n/a

Quota Group	Satisfaction		Overall Influence
	Overall Program Experience	Interaction with Program Representative	
Cross-Cutting Quota Groups			
Custom Projects (n = 11)	100%	87%	100%
Standard Projects (n = 18)	92%	89%	85%
Agriculture Sector (n = 40)	94%	97%	94%
Food & Beverage Sector (n = 12)	93%	85%	86%
High Tech Sector (n = 4)	100%	100%	100%
Metals Sector (n = 0)	n/a	n/a	n/a
Wood & Paper Sector (n = 4)	100%	100%	100%

Satisfaction with the overall program experience aligns with the consistently high satisfaction rate over time. However, satisfaction with interactions with program representatives is somewhat lower than previously.

Time Trend in Key Satisfaction Indicators: Production Efficiency



Looking at Production Efficiency participants as a group, they showed very high levels of satisfaction with all facets of the experience (Table 72).

Table 72: Satisfaction by Program Element: Production Efficiency

Program Element	Percent
Overall experience with Energy Trust (n = 76)	95%
Interaction with Energy Trust representative (n = 67)	89%
Incentive application process (n = 0)	n/a
Information and materials from Energy Trust (n = 69)	91%
Site assessment or walk-through survey (n = 0)	n/a
Energy Trust-funded technical services (n = 35)	89%
The scheduling process to receive services (n = 0)	n/a
Turnaround time to receive your incentive (n = 73)	81%
Performance of the measure (n = 71)	99%
The vendor or installation contractor, if applicable (n = 63)	90%

Respondents across all program tracks reported influence from multiple factors (Table 73). No single item was consistently more influential than any other across quota groups.

Table 73: Influencers by Quota Group: Production Efficiency

Quota Group	Energy Trust Incentive		Information and materials		Energy Trust program representative		Energy Trust-funded technical services		Vendor or installation contractor	
	n	%	n	%	n	%	n	%	n	%
Agriculture	6	80%	6	50%	6	33%	6	100%	6	100%
Compressed Air	2	100%	2	100%	2	100%	2	100%	2	100%
HVAC and Controls	4	75%	4	75%	4	100%	4	100%	4	100%
Lighting	46	84%	47	77%	46	80%	46	82%	47	79%
Other Industrial Measures	6	67%	6	60%	6	67%	6	60%	6	80%
Pumps and Motors	11	73%	11	82%	11	64%	11	100%	11	78%
Refrigeration	0	n/a	0	n/a	0	n/a	0	n/a	0	n/a
Total/Wtd Mean	75	81%	76	75%	75	75%	75	86%	76	82%
Custom Projects	11	73%	11	70%	11	82%	11	78%	11	89%
Standard Projects	18	76%	18	75%	18	60%	18	100%	18	85%
Agriculture Sector	39	84%	40	86%	39	82%	39	100%	40	87%
Food & Beverage Sector	12	75%	12	64%	12	64%	12	67%	12	73%
High Tech Sector	4	100%	4	100%	4	50%	4	100%	4	50%
Metals Sector	0	n/a	0	n/a	0	n/a	0	n/a	0	n/a
Wood & Paper Sector	4	100%	4	75%	4	100%	4	100%	4	100%

5 Summary and Conclusions

Both residential and nonresidential participants generally showed high satisfaction with their program experience. These findings indicate that Energy Trust continues to do a good job administering and managing its programs.

In the residential survey, the overall program influence on purchase decisions was high for all quota groups except for the smart thermostats and gas fireplaces measures. Factors influencing the purchase decision varied somewhat by measure type, but contractors and the energy efficiency rating appeared to have the most consistently high influence across measure quota groups. The consistent importance of efficiency ratings confirms that more customers pay attention to those ratings and points to the value of continuing to push for clear efficiency labeling on products. It also indicates that trade allies should market products using those ratings. The influence of contractors points to the importance of contractors and the value of maintaining strong and consistent outreach to contractors, including through the trade ally network as well as other means.

Compared to contractors and the energy efficiency rating, Energy Trust information or materials and the Energy Trust incentive had less consistently high influence across groups. However, one or both of these appeared to have nearly as much influence as contractors or the energy efficiency rating (or, in some cases, more influence) for heat pump advanced controls, ceiling insulation, other insulation, and ducted heat pumps.

Among participants who used a contractor, by far the most consistently identified way participants found that contractor was by word of mouth. Web search was also frequently identified for most quota groups. The problem with “word of mouth” is that it does not tell us how the respondent’s source originally learned about the contractor. Most likely, it was from one of the other common sources. However, it might be valuable to investigate whether certain sources are more likely than others to generate word of mouth.

Residential customer survey respondents revealed a good amount of information in their responses to open-ended questions. Based on the analysis of responses to identify themes and patterns, they collectively expressed a complex landscape of experiences and perceptions regarding Energy Trust programs, with a consistent call for clearer communication, more streamlined processes, and increased awareness. Some encountered issues like difficulty finding information or dissatisfaction with incentive amounts. Suggestions for improvement included simpler processes and better access to information online and the ability to track the incentive status online. Several respondents appreciated the assistance from Energy Trust representatives in navigating applications or resolving issues.

Contractor Experience. Many respondents expressed satisfaction with contractors, praising their quality of work and professionalism. Some homeowners received assistance from contractors with paperwork, highlighting their integral role in the process. There were a few concerns related to issues with installations, confusion about eligibility, unauthorized charges, lack of transparency, and poor workmanship. Although these were relatively infrequent, they do warrant attention.

Desire for Simplification and Transparency. There is a recurring desire for simpler processes, clearer communication, and more transparency regarding incentive status (such as adding an online incentive tracker) and application procedures. Suggestions included making forms available online, providing confirmations, and improving the status portal.

Regarding the application process, suggestions for improvement included clearer wording, estimated rebate amounts, and ensuring accurate contractor listings.

Positive Impact of Upgrades. Satisfaction with improvements like increased comfort and reduced bills is common among respondents. There is a sense of gratitude for the incentives and services provided, particularly when tangible benefits are realized. Gratitude for programs aimed at improving efficiency and combating climate change reflects a broader awareness of environmental issues.

Desire for More Information. Some express a desire for more information about incentives and energy-saving options. Anxiety about using products effectively due to the lack of product information or instruction manuals is highlighted.

Desire for More Incentives. Some respondents mention that incentives influenced their decisions, while others express disappointment with amounts or eligibility criteria. Many desire expanding incentives or higher amounts to further motivate energy-efficient upgrades.

Awareness and Communication. Some respondents lack awareness about Energy Trust programs, suggesting better communication and advertising. Increasing awareness and education about the program are suggested to reach more homeowners. A few respondents suggested enhancing communication, improving website clarity, and better contractor training. Some respondents faced delays and unclear information, indicating challenges in communication with Energy Trust.

Technical Issues. Some encounter technical issues with the website or forms, suggesting the need for updates.

The nonresidential results generally show very high satisfaction ratings across all facets of program experience for all quota groups except Existing Buildings - Healthcare with the lowest satisfaction with overall program experience (78%) and Production Efficiency – Agriculture with the lowest satisfaction with program representative (67%). In most cases, satisfaction with the overall program experience and interactions with program representatives did not significantly vary from those of 2022 except Existing Buildings - Healthcare which went down from 100% and 100% in 2022 to 78% and 86% in 2023 respectively.

The overall program influence was high to very high for all quota groups except for Lighting (Non-DI) quota group which was relatively lower (78%). The small sample sizes argue for using caution in interpreting findings at the individual quota group level for the Production Efficiency program.

For the Existing Building program, services provided at no/low cost appeared to have the highest influence (99%) closely followed by Energy Trust-funded technical services (93%). For the Production Efficiency program, Energy Trust-funded technical services had the highest influence followed by the vendor or installation contractor and Energy Trust incentive. Some other influencers stood out somewhat in particular tracks within particular programs but did not appear to have consistently high influence across programs and tracks. These results were similar to survey findings in 2022.

Finally, contractor miscommunication and the process taking longer than the customer expected either related to application, assessment and installation or receiving the incentive was the common theme in terms of customers' descriptive complaints. Among all the quota groups, Existing Buildings – Multifamily and Retail and Production Efficiency – Lighting appeared to have the highest number of complaints. This issue can be addressed through contractor education and training. Additionally, several open-ended comments suggested that Energy Trust's website is somewhat hard to navigate. It may be valuable to add a question to the surveys about how user friendly the website is. This poses as an opportunity for improvement as more people rely on online resources for information on energy efficiency.

The continuing importance of technical services and information by Energy Trust is emerging in both residential and nonresidential participant surveys. It seems that customers are putting a lot of weight on the education and technical services that enable them to navigate their energy efficiency decisions, even more than incentives. This is a takeaway that should inform future program designs.