2022 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 2022 Fast Feedback program participant survey from March 2022 to the end of January 2023, which included program participants from January through December 2022. 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 high satisfaction ratings across all facets of program experience for all measures. Overall satisfaction showed very little change over time for most measures. Customer satisfaction increased for most measures including a significant increase for the central air conditioner, gas fireplaces, and spa cover measures in 2022. *Table ES-1* shows mean overall program satisfaction for each of two types of quota groups. "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. Factors influencing the purchase decision varied somewhat by measure type, but commonly the Energy Trust incentive and/or information or materials received from Energy Trust had the most significant influence on customers' decisions closely followed by the contractor and the measure's efficiency rating.

Among participants who used a contractor, by far the most consistently identified way participants found that contractor was by word of mouth. Web searches and contractor advertisements also were frequently identified for most quota groups; Energy Trust website and/or referrals were fairly common for the Gas Fireplace, Gas Furnace, Ducted Heat Pump, and Other Insulation groups.

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

Quota Group	Overall Satisfaction		Overall Program Influence	
	No. of Survey Respondents	Percent	No. of Survey Respondents	Percent
Exclusive Quota Groups				
Residential - Oregon	924	95%	982	92%
Smart Thermostats	61	94%	64	88%
Heat Pump Advanced Control	56	93%	63	85%
Ceiling Insulation	70	96%	75	91%
Other Insulation	55	95%	58	86%
Ducted Heat Pumps	85	96%	93	99%
Ductless Heat Pumps	77	97%	82	96%
Central Air Conditioner	55	96%	61	94%
Windows	86	95%	90	87%
Gas Fireplaces	66	94%	69	73%
Gas Furnaces	72	98%	79	100%
Spa Covers	61	95%	64	82%
Duct Sealing	57	95%	58	100%
Residential - Washington	163	93%	186	90%
Residential Solar PV	123	94%	137	95%
Cross-Cutting Quota Groups				
Moderate Income Track	65	100%	71	99%
Rental Properties	58	97%	61	100%
Fixed-Price Promotions	65	95%	68	100%
Instant Incentives	258	96%	298	96%

[1] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied). 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). In both cases, "don't know" and "no response" were excluded from the denominators.

Nonresidential Survey Summary

Results generally show high satisfaction ratings across all facets of program experience for most quota groups. In most cases, satisfaction with the overall program experience and with interactions with program representatives remained consistent or increased over time.

The overall program influence on purchase decisions was high for most quota groups. Table ES-2 shows overall program influence and satisfaction for each Existing Buildings program and quota group. Again,

each respondent appears in only one "exclusive" quota group but may appear in multiple cross-cutting quota groups. The survey fell short of achieving the target number of completions for most quota groups – those achieving the targets are shown in ***bold, italicized*** font in the table. The small sample sizes argue for using caution in interpreting findings at the individual quota group level.

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

Quota Group	Number of Survey Respondents	Satisfaction		Overall Program Influence
		Overall Program Experience	Program Representative	
Exclusive Quota Groups				
Oregon Incentives	398	94%	93%	93%
Affordable MF	7	100%	86%	100%
Assembly/Religious	27	100%	100%	100%
Assisted Living MF	5	100%	100%	100%
Auto Services	13	77%	83%	83%
Education	30	97%	90%	83%
Government	16	100%	100%	100%
Grocery	15	93%	92%	93%
Healthcare	22	100%	100%	95%
Higher Education	4	100%	100%	100%
Hospitality	12	83%	89%	92%
Individually Owned MF	3	67%	50%	67%
Market Rate MF	13	100%	100%	100%
Office	59	95%	100%	96%
Other Commercial	3	100%	100%	100%
Recreation	15	93%	93%	100%
Restaurant	79	95%	92%	91%
Retail	67	91%	95%	98%
Warehouse	31	93%	92%	93%
Commercial Solar	60	90%	84%	98%
Washington	17	94%	100%	93%
Cross-Cutting Quota Groups				
Direct Install (DI)	151	92%	95%	96%
Lighting (Non-DI)	132	96%	96%	93%
Small MF	8	74%	62%	75%

[1]Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied). 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). In both cases, "don't know" and "no response" were excluded from the denominators.

Table ES-3 shows overall program influence and satisfaction for each Production Efficiency program and quota group. Again, each respondent appears in only one "exclusive" quota group but may appear in multiple cross-cutting quota groups. ***Bold, italicized*** font shows groups that achieved the target number

of completions. The small sample sizes for other groups argue for using caution in interpreting findings at the individual quota group level.

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

Quota Group	Number of Survey Respondents	Satisfaction		
		Overall Program Experience	Program Representative	Overall Program Influence
Exclusive Quota Groups				
Production Efficiency	240	95%	94%	92%
Agriculture	48	94%	92%	81%
Compressed air	9	100%	100%	100%
HVAC and controls	29	100%	100%	97%
Lighting	63	90%	87%	92%
Other industrial measures	49	98%	100%	94%
Pumps and Motors	36	97%	94%	94%
Refrigeration	6	100%	100%	100%
Cross-Cutting Quota Groups				
Custom Projects	28	100%	100%	96%
Standard Projects	149	97%	96%	91%
Agriculture Sector	133	96%	96%	90%
Food & Beverage Sector	24	96%	96%	96%
High Tech Sector	10	78%	78%	57%
Metals Sector	7	100%	100%	100%
Wood & Paper Sector	16	93%	100%	100%

Among specific influence factors, services provided at low/no cost appeared to have the highest influence closely followed by Energy Trust's technical services, program representative and incentives. 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.

1 Introduction

Energy Trust has been using a monthly Fast Feedback survey since 2010 to assess 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 2022 Energy Trust Energy Trust Fast Feedback program participant satisfaction survey from March through January 2023, covering customers who participating in Energy Trust programs from January through December 2022. In 2022, 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.

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 have received an instant incentive for many of the measure types. 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	Fixed-Price Promotions	Instant Incentives
Smart Thermostats	✓			✓
Heat Pump Advanced Controls	✓			✓
Ceiling Insulation	✓	✓		✓
Other Insulation	✓	✓		✓
Ducted Heat Pumps	✓	✓	✓	✓
Ductless Heat Pumps	✓	✓	✓	✓
Central Air Conditioner	✓			✓
Windows	✓			✓
Gas Fireplaces				✓
Gas Furnaces	✓	✓		✓
Spa Covers				
Duct Sealing				✓
Residential Solar PV				
Residential Washington		✓		✓

The nonresidential survey also has separate sets of quota groups for each of the two programs (Existing Buildings and Production Efficiency). As of PY2022, there is not a separate multifamily program; instead, multifamily properties are served through the Existing Buildings program. 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 quotas for participants from Washington and those with commercial solar projects. The three Existing Buildings cross-cutting quota groups are related to measure implementation or a combination of measure type (lighting) and implementation. For Production Efficiency, the exclusive quota groups are based primarily on application end-use or measure type. The seven Production Efficiency cross-cutting quota are related to project track, market sub-sector, or a combination of measure type (lighting) and implementation. Table 2 shows the nonresidential survey quota groups.

Table 2: Nonresidential Survey Quota Groups

Existing Buildings Program	Production Efficiency Program
Exclusive Quota Groups	
Affordable MF Assembly/Religious Assisted Living MF Auto Services Education Government Grocery Healthcare Higher Education Hospitality Individually Owned MF Market Rate MF Office Other Commercial Recreation Restaurant Retail Warehouse Commercial Solar Washington	Agriculture Compressed air HVAC and controls Lighting Other industrial measures Pumps and Motors Refrigeration
Cross-Cutting Quota Groups	
Direct Install (DI) Non-DI Lighting Small MF	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 ratings overtime (program year) by quota groups.

Finally, Section Four 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.[1] 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.

[1] 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.

One exception to the above process occurred in December 2022. In that month, the list of May 2022 residential program participants was accidentally labeled as November 2022 participants and resent to ADM. ADM drew a sample and fielded the survey in December with this list of participants, which included some that already had been surveyed in June of 2022. When ADM recognized this error, Energy Trust sent the correct list of November 2022 participants, and ADM drew a new sample and fielded the survey with that list. ADM deleted December survey completions for projects for which a survey was completed in June. However, this report includes data for 76 of the May projects that were not surveyed in June but were surveyed in December.

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. Before 2021, the nonresidential survey had been administered as a phone-only survey. However, some 2021 nonresidential participants asked, when contacted for the survey, 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 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. We continued this procedure in the 2022 survey.

2.3 Availability of Contact Information

Table 3 shows the percentages of all residential and nonresidential program participants with phone and email contact information. It was more likely for the nonresidential sector program participants to have both email and phone information, compared to residential program participants.

Table 3. Availability of Contact Information by Sector and Type

Type of Information	Residential Sector (*n* =19,518)	Nonresidential Sector (*n* = 3,640)
Phone	92%	98%
Email	84%	96%
Both	76%	95%
Either	100%	100%

2.4 Number of Respondents

Table 4 shows response rate information for the residential survey. Recall that the recruitment approach was: 1) send email recruitments to all sampled customers with available email addresses; 2) make phone calls to all email nonresponders with available phone numbers; and 3) make phone calls to all sampled customers with available phone numbers but no available email addresses. For the participants with available email addresses, the combined email-phone recruitment produced an overall response rate of 22.4%. When phone-only respondents are included, the overall residential survey response rate was 21.9%. Of the 1,105 survey completions with respondents with available email addresses, 80% were completed by web and 20% by phone.

Table 4. Residential Survey Response Rate by Recruitment Mode

Recruitment Mode	Number Attempted	Number of Responses	Response Rate
Email	4,942	884	17.9%
Phone, after email nonresponse[1]	3,349	221	6.6%
Email or Email + Phone	4,942	1,105	22.4%
Phone only[2]	141	10	7.1%
All phone recruitment[3]	3,490	231	6.6%
Overall[4]	5,083	1,115	21.9%

[1]In email recruitment, with no response, then placed in phone list and at least one call was made (i.e., excludes individuals not called because the quota was filled before the caller got to them).
[2]No email address available.
[3]"Phone, after email nonresponse" plus "Phone only."
[4]"Email" plus "Phone only."

For the 2021 survey, both the email-phone and overall response rates were 23.5%, and the completions for respondents with available email addresses were split 87% web and 13% phone.[2]

The differences in response rate by recruitment and completion mode underscores the value of weighting survey results by mode (see Section 2.6).

[2] An error in Table 4 of the 2021 End of Year Report resulted in incorrect response rates for "Email and phone" and "Overall" response rates. The "Number Attempted" for "Email and Phone" was incorrectly identified as the sum of that for "Email" and "Phone, after email nonresponse." Since the latter is a subset of the former, those should not have been summed, and the total for "Email and phone" should have been the same as for "Email."

Table 5 shows the total number of residential survey responses by quota group. ADM completed the survey with 1,218 residential respondents. Residential responses exceeded all quotas except for Other Insulation (equal to quota).

Table 5. Number of Residential Responses by Mode and Quota Group

Measure Group	Web	Phone	Total	12-Month Quota
Oregon Incentives (Exclusive Quotas)				
Smart Thermostats	51	15	66	60
Heat Pump Advanced Controls	39	26	65	60
Ceiling Insulation	70	5	75	60
Other Insulation	50	10	60	60
Ducted Heat Pumps	80	14	94	60
Ductless Heat Pumps	59	24	83	60
Central Air Conditioner	57	5	62	60
Windows	80	10	90	60
Gas Fireplaces	69	1	70	60
Gas Furnaces	46	36	82	60
Spa Covers	62	6	68	60
Duct Sealing	34	28	62	60
Subtotal: Oregon Incentives	697	180	877	720
Residential WA & Solar PV (Exclusive Quotas)				
Residential - Washington	148	47	195	180
Residential Solar PV	146	0	146	90
Cross-Cutting Quotas				
Moderate Income Track	49	23	72	60
Rental Properties	26	38	64	60
Fixed-Price Promotions	57	12	69	60
Instant Incentives	208	101	309	60
Oregon Total	843	180	1,023	800
Program Total[1]	991	227	1,218	1,200

[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 6 shows the number of nonresidential survey responses by quota group. As with the previous two years, 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 39% (compared to 41% in 2021), the survey fell short of most quotas. For Existing Buildings, it fell short of all exclusive quotas except for Office, Restaurants and Retail and Commercial Solar and all cross-cutting quotas except for Direct Install and Lighting. For Production Efficiency, the survey fared better and achieved all quotas except for Compressed Air and Refrigeration

measure groups and all cross-cutting quotas except for Food & Beverage Sector, High Tech Sector, Metals Sector, and Wood & Paper sector.

Table 6. Number of Nonresidential Responses by Quota Group

Measure Group	Web	Phone	Total	12-Month Quota
Existing Buildings				
Oregon Incentives (Exclusive Quotas)				
Affordable MF	5	2	7	51
Assembly/Religious	19	8	27	43
Assisted Living MF	2	3	5	50
Auto Services	9	4	13	44
Education	18	12	30	53
Government	8	8	16	42
Grocery	5	10	15	47
Healthcare	18	4	22	47
Higher Education	4	0	4	25
Hospitality	5	7	12	47
Individually Owned MF	2	1	3	64
Market Rate MF	7	6	13	63
Office	35	24	59	57
Other Commercial	1	2	3	11
Recreation	8	7	15	43
Restaurant	36	43	79	61
Retail	47	20	67	58
Warehouse	18	13	31	52
Subtotal: End-Use Quotas	**247**	**174**	**421**	**861**
Residential WA & Solar PV (Exclusive Quotas)				
Commercial Solar	38	22	60	51
Existing Buildings - Washington	7	10	17	52
Cross-Cutting Quotas				
Direct Install (DI)	110	41	151	64
Lighting (Non-DI)	67	65	132	64
Small MF	6	2	8	64
Total: Existing Buildings	**292**	**206**	**919**	**964**

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Table 6. Number of Nonresidential Responses by Quota Group (Continued)

Measure Group	Web	Phone	Total	12-Month Quota
Production Efficiency				
Agriculture	29	19	48	44
Compressed air	6	3	9	15
HVAC and controls	14	15	29	36
Lighting	43	20	63	57
Other industrial measures	26	23	49	52
Pumps and Motors	27	9	36	42
Refrigeration	3	3	6	30
Cross-Cutting Quotas				
Custom projects	22	6	28	46
Standard projects	83	66	149	61
Agriculture sector	80	53	133	57
Food & beverage sector	16	8	24	45
High tech sector	7	3	10	27
Metals sector	4	3	7	19
Wood & paper sector	8	8	16	42
Total: Production Efficiency	**148**	**92**	**240**	**278**

2.5 Language of Survey and Language Barriers

All surveys were offered in English and Spanish. All but three completed residential surveys and all but one completed nonresidential survey 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 is 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)

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

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, Oregon Incentives, Residential - Washington, and Residential Solar PV are considered separate programs for the purpose of creating weights. Thus, the weights for the various quota groups within Oregon Incentives are based on the distribution of the sample and the population across just those groups. Since Residential - Washington and Residential Solar PV each have only one quota group, the Quota Group weight for each of those is by definition 1.0.

In the nonresidential sector, we calculated Quota Group weights separately for Existing Buildings - Oregon, Existing Buildings - Washington, Commercial Solar, and Production Efficiency. Again, as Existing Buildings – Washington and Commercial Solar each have only one quota group, the Quota Group weight for each of those 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)

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

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)

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

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 occupancy condition of the respondent (occupant versus not occupant; rent/own/other; landlord/property manager/other) were not recorded in the survey for January through July participants. Table 7 shows results for July through December. Residential respondents were largely the occupants of the property where the participation occurred, nearly all of whom were the owners.[3] The majority of those who were not occupants were the landlord.

Table 7: Occupancy of Home Where Participation Occurred, Residential Respondents

Response	Residential Oregon	Residential Washington	Residential Solar	Oregon (US Census)[1]	Customer Insights Survey[2]
Occupancy					
	(n = 418)	(n = 87)	(n = 21)	n/a	(n = 3,707)
Occupant	84%	99%	100%	93%	98%
Not occupant	16%	1%	0%	7%	2%
Ownership (Occupants)					
	(n = 372)	(n = 86)	(n = 20)	n/a	(n = 3,640)
Rent	1%	1%	0%	36%	10%
Own	99%	99%	100%	64%	90%
Relationship to Premise (Non-Occupants)					
	(n = 43)	(n = 1)	(n = 0)	n/a[3]	n/a[3]
Landlord	93%	100%	0%	n/a	n/a
Property manager	7%	0%	0%		

[1] Percentages based on US Census Tables DP04 (Occupancy) and B25003 (Ownership). For Occupancy, we divided the number of occupied housing units by the total number of housing units in Energy Trust's Oregon territory.
[2] Counts of respondents are unweighted, but percentages are based on weighted data. Excludes "indirect participants" – i.e., renters who indirectly benefited from improvements to their buildings not tied directly to their units (e.g., insulation and central hot water or heating), as a result of their landlords' program participation, as they are not represented in the Fast Feedback survey.
[3] No comparable data are available.

[3] 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 the three programs and the various quota groups, with majority (>85%) of respondents reporting White race (Table 8 through Table 12). 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 8: Demographics of Residential Respondents[1]

Demographic Characteristic	Residential Oregon	Residential Washington	Residential Solar	Oregon (US Census)[2]
Race/Ethnicity[3]				
Number Providing Response	(n = 795)	(n = 184)	(n = 144)	n/a
Asian only	5%	5%	10%	4%
Black only	1%	2%	0%	2%
Hispanic/Latino, any race	3%	0%	3%	14%
Native American only	0%	1%	1%	1%
Other only	2%	2%	0%	0%
Two or more	3%	2%	3%	4%
Persons of color – total	15%	10%	17%	26%
White only	85%	90%	83%	74%
Income				
Number Providing Response	(n = 605)	(n = 136)	(n = 130)	n/a
Under $30k	10%	3%	3%	20%
$30k to under $50k	13%	15%	13%	16%
$50k to under $70k	14%	20%	13%	14%
$70k to under $100k	26%	26%	18%	17%
$100k to under $200k	27%	26%	39%	25%
$200k+	9%	10%	13%	8%
Age (Years)				
Number Providing Response	(n = 872)	(n = 195)	(n = 146)	n/a
Less than 18	0%	0%	0%	19%
18 to 24	0%	0%	0%	
25 to 34	5%	2%	5%	
35 to 44	19%	6%	15%	18%
45 to 54	11%	16%	15%	17%
55 to 64	17%	23%	17%	19%
65 or older	49%	52%	47%	27%
Household Size (Number of People in Household)				
Number Providing Response	(n = 852)	(n = 190)	(n = 144)	n/a
One	1%	2%	0%	27%
Two	17%	16%	10%	37%
Three	44%	60%	51%	15%
Four	16%	8%	19%	12%
Five	12%	12%	14%	5%
Six or more	10%	3%	6%	3%

[1] The denominators of all percentages exclude survey respondents who refused to answer that question.

[2] We used ACS tables B03002 (Race and 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.

[3] Native American includes Alaska Native; Asian includes Asian Indian, Hawaiian, and Other Pacific Islanders.

Table 9: 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)								
Smart Thermostats (n = 62)	3%	9%	2%	0%	3%	2%	82%	18%
Heat Pump Advanced Controls (n = 57)	5%	0%	4%	1%	3%	1%	87%	13%
Ceiling Insulation (n = 66)	4%	0%	2%	0%	1%	6%	87%	13%
Other Insulation (n = 55)	0%	0%	7%	0%	3%	3%	87%	13%
Ducted Heat Pumps (n = 89)	0%	0%	7%	1%	2%	2%	88%	12%
Ductless Heat Pumps (n = 78)	0%	0%	4%	1%	0%	3%	92%	8%
Central Air Conditioner (n = 56)	4%	0%	3%	0%	4%	1%	87%	13%
Windows (n = 81)	13%	0%	2%	0%	2%	5%	78%	22%
Gas Fireplaces (n = 66)	3%	0%	3%	1%	1%	3%	89%	11%
Gas Furnaces (n = 66)	0%	3%	0%	0%	0%	1%	97%	3%
Spa Covers (n = 64)	1%	0%	7%	3%	1%	0%	87%	13%
Residential WA & Solar PV (Exclusive Quotas)								
Residential - Washington (n = 184)	5%	2%	0%	1%	2%	2%	90%	10%
Residential Solar PV (n = 144)	10%	0%	3%	1%	0%	3%	83%	17%
Cross-Cutting Quotas								
Moderate Income Track (n = 61)	0%	4%	0%	1%	0%	1%	95%	5%
Rental Properties (n = 55)	1%	0%	2%	0%	0%	1%	97%	3%
Fixed-Price Promotions (n = 65)	0%	0%	9%	1%	2%	3%	85%	15%
Instant Incentives (n = 279)	1%	3%	3%	0%	1%	1%	90%	10%
Oregon Population								
US Census	4%	2%	14%	1%	0%	4%	74%	26%

Table 10: 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)						
Smart Thermostats (n = 45)	7%	6%	6%	12%	52%	17%
Heat Pump Advanced Controls (n = 35)	5%	16%	16%	19%	32%	11%
Ceiling Insulation (n = 58)	4%	7%	10%	25%	25%	22%
Other Insulation (n = 43)	13%	6%	25%	13%	22%	20%
Ducted Heat Pumps (n = 73)	15%	13%	24%	25%	14%	5%
Ductless Heat Pumps (n = 60)	4%	12%	17%	30%	30%	7%
Central Air Conditioner (n = 44)	4%	4%	30%	27%	23%	8%
Windows (n = 69)	10%	14%	12%	33%	25%	5%
Gas Fireplaces (n = 55)	5%	5%	13%	22%	51%	4%
Gas Furnaces (n = 45)	13%	25%	14%	23%	13%	8%
Spa Covers (n = 45)	0%	5%	14%	21%	40%	19%
Residential WA & Solar PV (Exclusive Quotas)						
Residential - Washington (n = 136)	3%	15%	20%	26%	26%	10%
Residential Solar PV (n = 132)	3%	13%	13%	18%	39%	13%
Cross-Cutting Quotas						
Moderate Income Track (n = 49)	16%	31%	11%	24%	1%	0%
Rental Properties (n = 28)	7%	1%	17%	23%	16%	14%
Fixed-Price Promotions (n = 52)	19%	23%	33%	16%	8%	2%
Instant Incentives (n = 201)	5%	8%	22%	21%	22%	12%
Oregon Population						
US Census	20%	16%	14%	17%	25%	8%
Customer Insights Study (*n* = 4,297)	12%	14%	13%	19%	26%	7%

Table 11: 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)							
Smart Thermostats (n = 66)	0%	0%	1%	31%	22%	13%	32%
Heat Pump Advanced Controls (n = 64)	0%	0%	7%	12%	7%	15%	59%
Ceiling Insulation (n = 72)	0%	0%	5%	26%	17%	8%	44%
Other Insulation (n = 60)	1%	0%	9%	21%	11%	18%	40%
Ducted Heat Pumps (n = 94)	0%	0%	7%	17%	14%	11%	52%
Ductless Heat Pumps (n = 83)	0%	0%	8%	25%	11%	11%	44%
Central Air Conditioner (n = 61)	0%	0%	2%	20%	21%	11%	46%
Windows (n = 90)	0%	0%	6%	13%	6%	26%	49%
Gas Fireplaces (n = 70)	0%	0%	1%	7%	12%	19%	61%
Gas Furnaces (n = 82)	0%	2%	2%	21%	8%	12%	55%
Spa Covers (n = 68)	0%	0%	1%	13%	19%	15%	51%
Residential WA & Solar PV (Exclusive Quotas)							
Residential - Washington (n = 195)	0%	0%	2%	6%	16%	23%	52%
Residential Solar PV (n = 146)	0%	0%	5%	15%	15%	17%	47%
Cross-Cutting Quotas							
Moderate Income Track (n = 72)	0%	3%	4%	21%	9%	8%	55%
Rental Properties (n = 64)	0%	0%	5%	19%	8%	12%	57%
Fixed-Price Promotions (n = 69)	0%	0%	8%	17%	14%	20%	41%
Instant Incentives (n = 309)	0%	0%	3%	19%	12%	17%	48%
Oregon Population							
US Census	19%			18%	17%	19%	27%
Customer Insights Study (*n* = 4,297)	n/a – not asked						

Table 12: Household Size (Number of Members) by Residential Quota Group

Quota Group	One	Two	Three	Four	Five	At Least Six
Oregon Incentives (Exclusive Quotas)						
Smart Thermostats (n = 66)	0%	0%	0%	0%	0%	0%
Heat Pump Advanced Controls (n = 63)	0%	0%	0%	0%	0%	0%
Ceiling Insulation (n = 75)	1%	9%	40%	20%	5%	21%
Other Insulation (n = 59)	3%	19%	22%	25%	18%	12%
Ducted Heat Pumps (n = 93)	1%	23%	29%	18%	17%	11%
Ductless Heat Pumps (n = 81)	1%	10%	38%	21%	13%	18%
Central Air Conditioner (n = 62)	0%	11%	35%	19%	25%	7%
Windows (n = 90)	1%	20%	59%	12%	3%	4%
Gas Fireplaces (n = 70)	0%	17%	61%	18%	4%	0%
Gas Furnaces (n = 80)	2%	17%	32%	15%	17%	15%
Spa Covers (n = 68)	1%	15%	56%	6%	12%	11%
Residential WA & Solar PV (Exclusive Quotas)						
Residential - Washington (n = 190)	2%	16%	60%	8%	12%	3%
Residential Solar PV (n = 146)	0%	10%	51%	19%	14%	5%
Cross-Cutting Quotas						
Moderate Income Track (n = 70)	0%	0%	0%	0%	0%	0%
Rental Properties (n = 62)	0%	0%	0%	0%	0%	0%
Fixed-Price Promotions (n = 68)	1%	16%	29%	20%	19%	15%
Instant Incentives (n = 303)	1%	14%	37%	19%	17%	11%
Oregon Population						
US Census	27%	37%	15%	12%	5%	3%
Customer Insights Study (*n* = 4,297)	19%	42%	16%	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 moderate to high overall program satisfaction and high program influence except for the gas fireplaces measure (Table 13).[4]

Table 13: Residential Program Overall Satisfaction and Influence, by Quota Group

Quota Group	Satisfied with Overall Experience		Overall Program Influence	
	n	%	*n*	%
Oregon Incentives (Exclusive Quotas)				
Smart Thermostats	62	94%	63	85%
Heat Pump Advanced Controls	58	94%	64	85%
Ceiling Insulation	70	96%	71	91%
Other Insulation	57	95%	59	86%
Ducted Heat Pumps	86	96%	94	99%
Ductless Heat Pumps	78	97%	83	96%
Central Air Conditioner	56	96%	62	94%
Windows	86	95%	90	87%
Gas Fireplaces	67	94%	70	73%
Gas Furnaces	74	98%	82	100%
Spa Covers	65	94%	68	83%
Duct Sealing	61	95%	61	99%
Residential Solar PV & Residential WA (Exclusive Quotas)				
Residential Solar PV	132	95%	145	94%
Residential - Oregon	952	95%	1012	91%
Residential - Washington	172	93%	192	89%
Cross-Cutting Quotas				
Moderate Income Track	66	100%	72	99%
Rental Properties	60	98%	64	100%
Fixed-Price Promotions	66	95%	69	100%
Instant Incentives	267	96%	307	96%

[4] Satisfaction was defined as a rating of 4 or 5 on a scale from 1 (not at all satisfied) to 5 (very satisfied). 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) on any of several influence factors: Energy Trust incentive, information and materials received from Energy Trust, the salesperson or retailer, the respondent's contractor, or information received from a solar workshop. It did not include the influence of the equipment's efficiency rating. "Don't know" and "no response" were excluded from the denominators for all analyses to be consistent with previous years.

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, fixed-price promotions, and instant incentives). For the various subgroups, the sample counts for both satisfaction and 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 or moderately high satisfaction ratings across all facets of program experience for all measures showing only a slight downward or upward trend over time for most measures. But customer satisfaction significantly increased for the central air conditioner, gas fireplaces and spa covers measures in 2022.

The factor having the greatest influence on the purchase decision varied somewhat by measure type, but the Energy Trust incentive and information or material provided by Energy Trust were commonly identified influencers, followed by a contractor and the measure's efficiency rating (where applicable). Table 14 summarizes the common influencers for each measure type.

Table 14: Summary of Common Influencers by Measure Type

	Energy Trust[1]	Contractor	Salesperson or Retailer	Efficiency Rating
Smart Thermostat	✓			
Heat Pump Advanced Controls		✓		
Insulation (Ceiling or Other)	✓	✓		
Heat Pump (Ducted or Ductless)	✓	✓		✓
Central Air Conditioner	✓	✓		✓
Windows	✓			
Gas Fireplace				✓
Gas Furnace	✓	✓		✓
Spa Cover	✓		✓	
Solar PV	✓	✓		

[1]The Energy Trust incentive and/or information or materials received from Energy Trust.

Word of mouth was by far the most consistently identified way of finding a contractor (Table 15). It was the most commonly mentioned item for every quota group except for windows. Web searches was the second most frequent source mentioned for finding contractors followed by Energy Trust website and referral and use of an online referral or rating service (e.g., Yelp or Angie's List) and contractor advertisements.

Table 15: Most Common Sources for Finding Contractors, by Quota Group

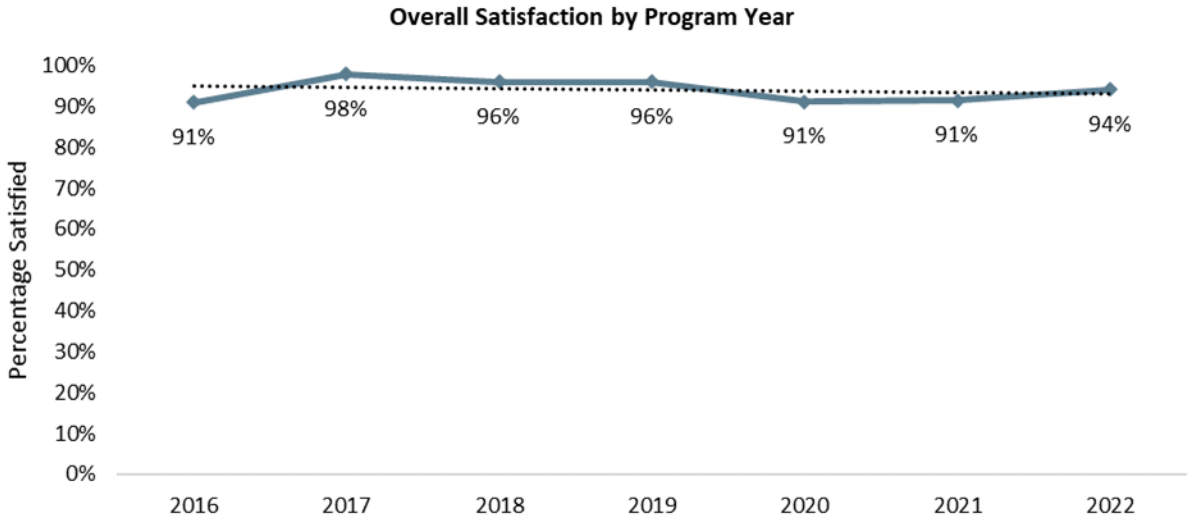
Quota Group	Most Common	Second Most Common	Third Most Common
Heat Pump Advanced Controls	Word of mouth	Online service	Advertisement
Ceiling Insulation	Word of mouth	Web search	Online service
Other Insulation	Word of mouth	Web search	Energy Trust website
Ducted Heat Pumps	Word of mouth	Web search	Energy Trust website
Ductless Heat Pumps	Word of mouth	Advertisement	Web search
Central Air Conditioner	Word of mouth	Web search	Online service
Windows	Advertisement	Word of mouth	Web search
Gas Fireplaces	Word of mouth	Web search	Energy Trust referral
Gas Furnaces	Word of mouth	Web search	Energy Trust website
Residential - Washington	Word of mouth	Web search	Advertisement
Moderate Income Track	Word of mouth	Web search	Online service
Fixed-Price Promotions	Word of mouth	Web search	Advertisement
Instant Incentives	Word of mouth	Web search	Energy Trust website
Rental Properties	Word of mouth	Energy Trust website	Online service

3.2.1 Smart Thermostats

Smart thermostat participants (*n* = 62) showed high levels of satisfaction with all facets of the experience; overall satisfaction is consistent with previous years (Table 16 and accompanying chart).

Table 16: Satisfaction Ratings: Smart Thermostat

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 62)	94%
Performance of new measure (n = 60)	92%
Comfort of home after new measure (n = 60)	93%
Incentive application form (n = 54)	96%
Time it took to receive incentive (n = 53)	94%



The overall program influence on participant purchase decisions was moderately high (85%). The Energy Trust incentive was the most influential factor (Table 17).[5]

Table 17: Influence Ratings: Smart Thermostats

Influence Level	Overall Influence (n = 63)	Energy Trust Incentive (n = 60)	Energy Trust Information or Materials (n = 39)	Salesperson or Retailer (n = 62)
High	85%	85%	78%	68%
Medium	12%	8%	12%	13%
Low	3%	7%	10%	19%

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

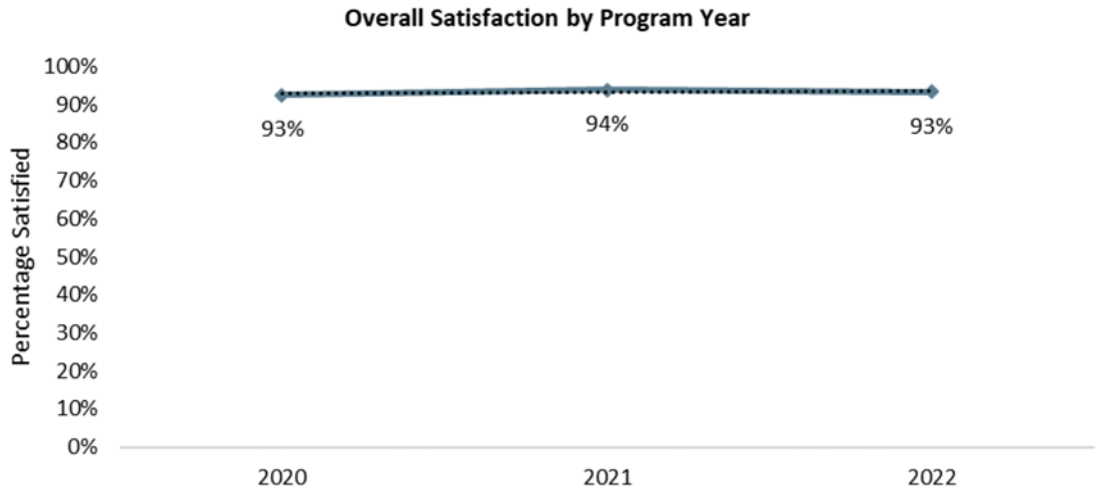
3.2.2 Heat Pump Advanced Controls

This is the third year in which this measure has been included in the Fast Feedback survey. Participants (*n* = 58) showed high satisfaction with all facets of the experience; overall satisfaction is consistent with that in previous years (Table 18 and accompanying chart).

[5] Influence rated 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.

Table 18: Satisfaction Ratings: Heat Pump Advanced Controls

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 58)	94%
Performance of new measure (n = 62)	96%
Comfort of home after new measure (n = 62)	96%
Incentive application form (n = 31)	96%
Time it took to receive incentive (n = 31)	98%
Contractor Satisfaction	
Overall experience (n = 64)	96%
Quality of installation work (n = 64)	93%
Information about incentives (n = 50)	90%
Communication (n = 64)	93%
Assistance with application (n = 33)	100%



The overall program influence on participant purchase decisions was moderately high (85%). Energy Trust incentive and the contractor were the most influential factors (Table 19), although relatively few respondents reported receiving information or materials through the Energy Trust website or by speaking with an Energy Trust representative.

Table 19: Influence Ratings: Heat Pump Advanced Controls

Influence Level	Overall Influence (n = 64)	Energy Trust Incentive (n = 51)	Energy Trust Information or Materials (n = 13)	Salesperson or Retailer (n = 0)	Contractor (n = 64)
High	85%	55%	44%	NA	84%
Medium	4%	11%	23%	NA	1%
Low	11%	34%	33%	NA	15%

Respondents most commonly found their contractor through word of mouth, followed by online service, an advertisement, and web search (Table 20).

Table 20: Where Respondent Found the Contractor: Heat Pump Advanced Controls

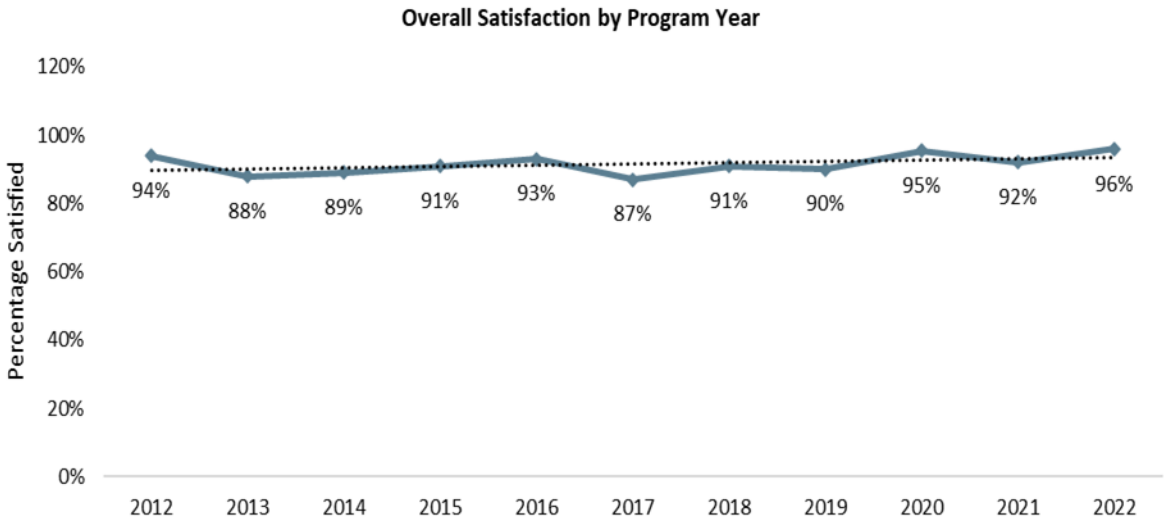
Contractor Source (n = 65)	Percent
Word of mouth	42%
Online service	22%
Web search	19%
Advertisement	20%
Energy Trust website	7%
Energy Trust referral	0%
Not applicable	6%
Don't know	3%
Prefer not to answer	0%

3.2.3 Ceiling Insulation

Ceiling insulation participants (*n* = 70) showed high levels of satisfaction with all facets of the experience with the comfort of their home after new measure was installed being slightly lower; overall satisfaction has shown a steady increase since 2017 (Table 21 and accompanying chart).

Table 21: Satisfaction Ratings: Ceiling Insulation

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 70)	96%
Performance of new measure (n = 60)	97%
Comfort of home after new measure (n = 68)	88%
Incentive application form (n = 39)	96%
Time it took to receive incentive (n = 42)	91%
Contractor Satisfaction	
Overall experience (n = 71)	97%
Quality of installation work (n = 70)	99%
Information about incentives (n = 64)	91%
Communication (n = 71)	93%
Assistance with application (n = 42)	98%



The overall program influence on participant purchase decisions was high (91%). The most influential factor was contractors (Table 22).

Table 22: Influence Ratings: Ceiling Insulation

Influence Level	Overall Influence (n = 71)	Energy Trust Incentive (n = 66)	Energy Trust Information or Materials (n = 48)	Contractor (n = 71)
High	91%	70%	42%	84%
Medium	5%	8%	26%	10%
Low	4%	21%	33%	6%

The most commonly reported way that these respondents found their contractor was via word of mouth, followed by web search, use of an online referral or rating service like Yelp, and Energy Trust website (Table 23).

Table 23: Where Respondent Found the Contractor: Ceiling Insulation

Contractor Source (n = 75)	Percent
Word of mouth	52%
Online service	16%
Web search	16%
Advertisement	3%
Energy Trust website	15%
Energy Trust referral	1%
Not applicable	1%
Don't know	0%
Prefer not to answer	0%

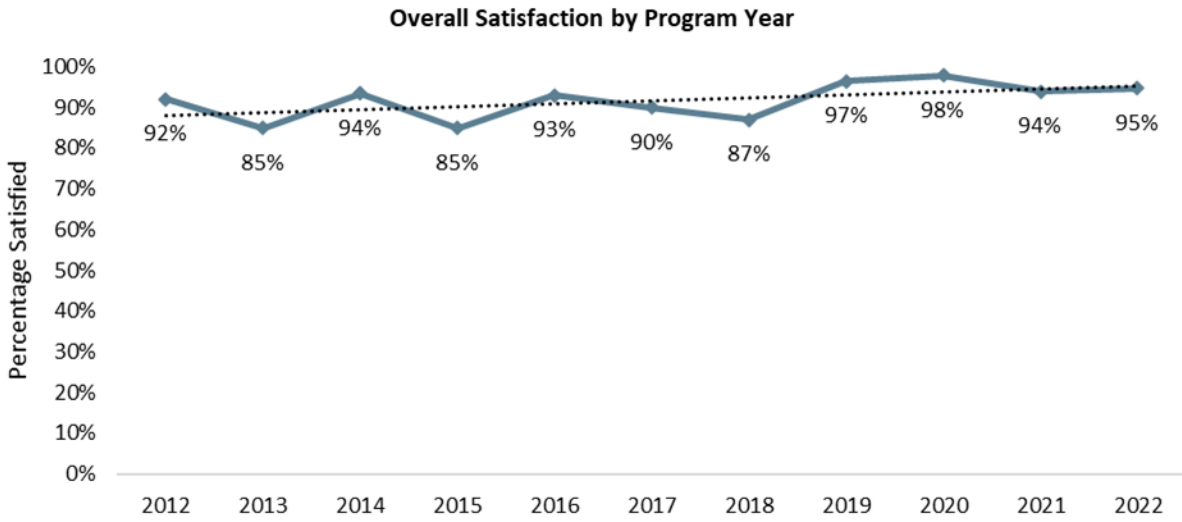
3.2.4 Other Insulation

Other insulation participants (*n* = 57) showed high levels of satisfaction with all facets of the experience except for information about the incentives relayed by the contractor; overall satisfaction has shown a slight increase over time (Table 24 and accompanying chart).[6]

[6] "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 24: Satisfaction Ratings: Other Insulation

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 57)	95%
Performance of new measure (n = 51)	95%
Comfort of home after new measure (n = 51)	95%
Incentive application form (n = 50)	94%
Time it took to receive incentive (n = 52)	95%
Contractor Satisfaction	
Overall experience (n = 58)	95%
Quality of installation work (n = 57)	95%
Information about incentives (n = 57)	81%
Communication (n = 58)	91%
Assistance with application (n = 53)	84%



The overall program influence on participant purchase decisions was high (86%). The Energy Trust incentive and contractors had the greatest influence (Table 25).

Table 25: Influence Ratings: Other Insulation

Influence Level	Overall Influence (n = 59)	Energy Trust Incentive (n = 58)	Energy Trust Information or Materials (n = 31)	Contractor (n = 58)
High	86%	77%	37%	76%
Medium	10%	14%	44%	17%
Low	3%	9%	19%	7%

Respondents most commonly reported finding their contractor through word of mouth, followed by a web search (Table 26).

Table 26: Where Respondent Found the Contractor: Other Insulation

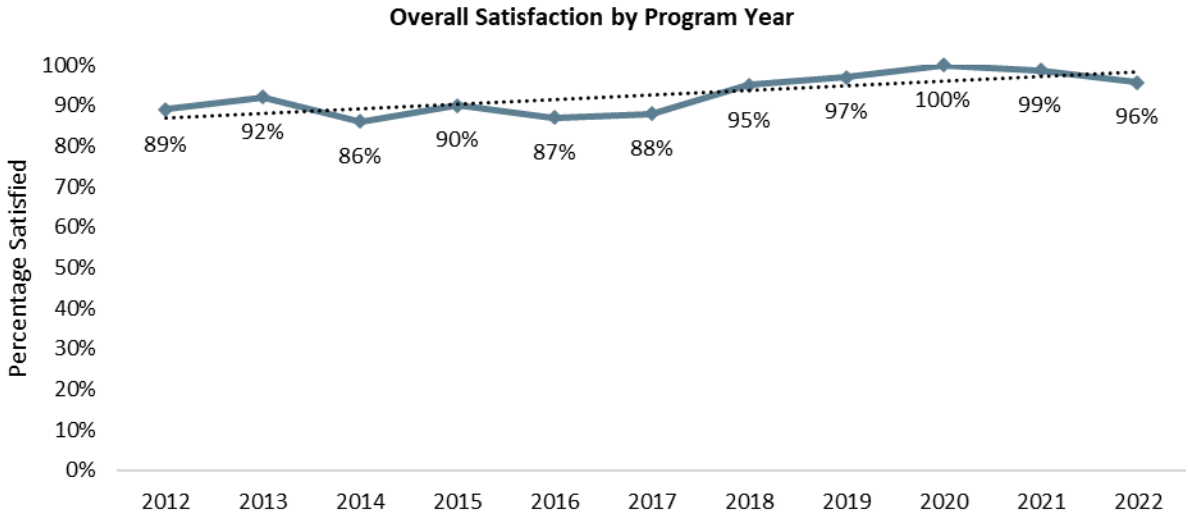
Contractor Source (n = 60)	Percent
Word of mouth	38%
Online service	14%
Web search	29%
Advertisement	2%
Energy Trust website	19%
Energy Trust referral	7%
Not applicable	3%
Don't know	7%
Prefer not to answer	0%

3.2.5 Ducted Heat Pump

Ducted heat pump participants (*n* = 86) showed very high levels of satisfaction with all facets of the experience; overall satisfaction was generally consistent with the historically slight upward trend over time (Table 27 and accompanying chart).

Table 27: Satisfaction Ratings: Ducted Heat Pump

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 86)	96%
Performance of new measure (n = 91)	94%
Comfort of home after new measure (n = 93)	94%
Incentive application form (n = 22)	97%
Time it took to receive incentive (n = 22)	97%
Contractor Satisfaction	
Overall experience (n = 94)	94%
Quality of installation work (n = 94)	94%
Information about incentives (n = 88)	95%
Communication (n = 94)	89%
Assistance with application (n = 23)	91%



The overall program influence on participant purchase decisions was exceptionally high (99%). The Energy Trust incentive, followed by the Energy Trust information and materials and contractors showed the greatest influence (Table 28).

Table 28: Influence Ratings: Ducted Heat Pump

Influence Level	Overall Influence (n = 94)	Energy Trust Incentive (n = 90)	Energy Trust Information or Materials (n = 52)	Contractor (n = 93)
High	99%	85%	81%	81%
Medium	1%	7%	10%	14%
Low	0%	8%	10%	5%

Word of mouth the most commonly reported contractor source, followed by a web search (Table 29).

Table 29: Where Respondent Found the Contractor: Ducted Heat Pump

Contractor Source (n = 94)	Percent
Word of mouth	48%
Online service	6%
Web search	26%
Advertisement	7%
Energy Trust website	11%
Energy Trust referral	4%
Not applicable	3%
Don't know	4%
Prefer not to answer	0%

3.2.6 Ductless Heat Pump

Ductless heat pump participants (*n* = 78) showed high levels of satisfaction with all facets of the experience except time it took to receive the incentive; overall satisfaction was consistent with previous years (Table 30 and accompanying chart).

Table 30: Satisfaction Ratings: Ductless Heat Pump

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 78)	97%
Performance of new measure (n = 82)	99%
Comfort of home after new measure (n = 81)	97%
Incentive application form (n = 34)	96%
Time it took to receive incentive (n = 34)	83%
Contractor Satisfaction	
Overall experience (n = 83)	96%
Quality of installation work (n = 83)	95%
Information about incentives (n = 71)	95%
Communication (n = 83)	94%
Assistance with application (n = 34)	96%

The overall program influence on participant purchase decisions was very high (96%). Ductless heat pump's energy efficiency rating had the greatest influence (Table 31).

Table 31: Influence Ratings: Ductless Heat Pump

Influence Level	Overall Influence (n = 83)	Energy Trust Incentive (n = 77)	Energy Trust Information or Materials (n = 52)	Contractor (n = 83)	Energy Efficiency Rating (n = 80)
High	96%	71%	68%	79%	94%
Medium	0%	11%	8%	8%	5%
Low	3%	18%	24%	13%	2%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 32).

Table 32: Where Respondent Found the Contractor: Ductless Heat Pump

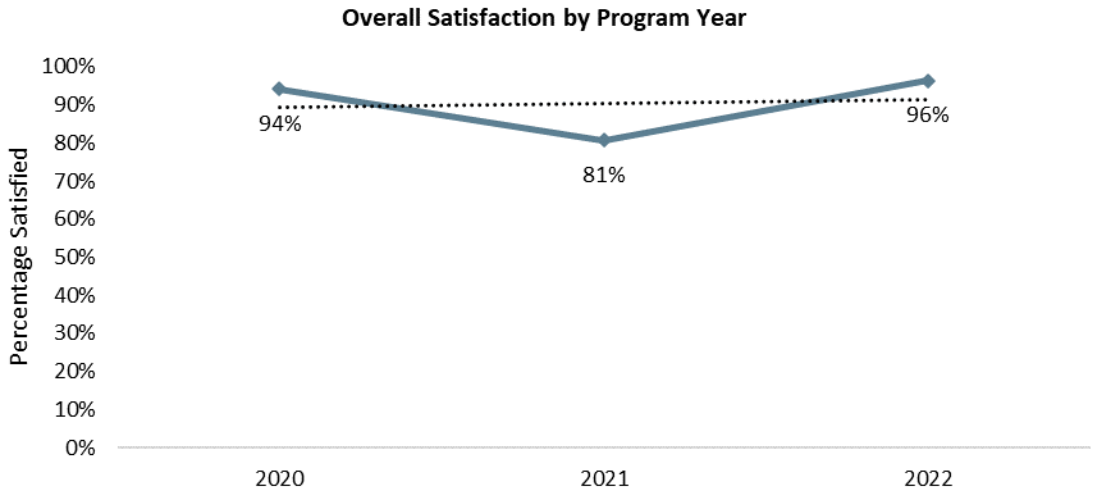
Contractor Source (n = 83)	Percent
Word of mouth	46%
Online service	6%
Web search	12%
Advertisement	14%
Energy Trust website	11%
Energy Trust referral	2%
Not applicable	0%
Don't know	10%
Prefer not to answer	0%

3.2.7 Central Air Conditioner

This was the third program year for central air conditioners. Participants with this measure (*n* = 56) showed moderately high to high levels of satisfaction with all facets of the experience except for information about incentives, incentive application form, and contractor's assistance with application form; overall satisfaction (96%) is significantly higher than that for 2021 but consistent with 2020 (Table 33 and accompanying chart).

Table 33: Satisfaction Ratings: Central Air Conditioner

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 56)	96%
Performance of new measure (n = 43)	98%
Comfort of home after new measure (n = 49)	98%
Incentive application form (n = 35)	78%
Time it took to receive incentive (n = 35)	91%
Contractor Satisfaction	
Overall experience (n = 60)	88%
Quality of installation work (n = 61)	89%
Information about incentives (n = 57)	72%
Communication (n = 61)	86%
Assistance with application (n = 35)	71%



The overall program influence on participant purchase decisions was high (94%). The air conditioner's energy efficiency rating had the greatest influence (Table 34).

Table 34: Influence Ratings: Central Air Conditioner

Influence Level	Overall Influence (n =620)	Energy Trust Incentive (n = 61)	Energy Trust Information or Materials (n = 26)	Contractor (n = 59)	Energy Efficiency Rating (n = 59)
High	94%	55%	73%	80%	94%
Medium	6%	23%	17%	7%	6%
Low	0%	22%	10%	13%	0%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by a web search (Table 35).

Table 35: Where Respondent Found the Contractor: Central Air Conditioner

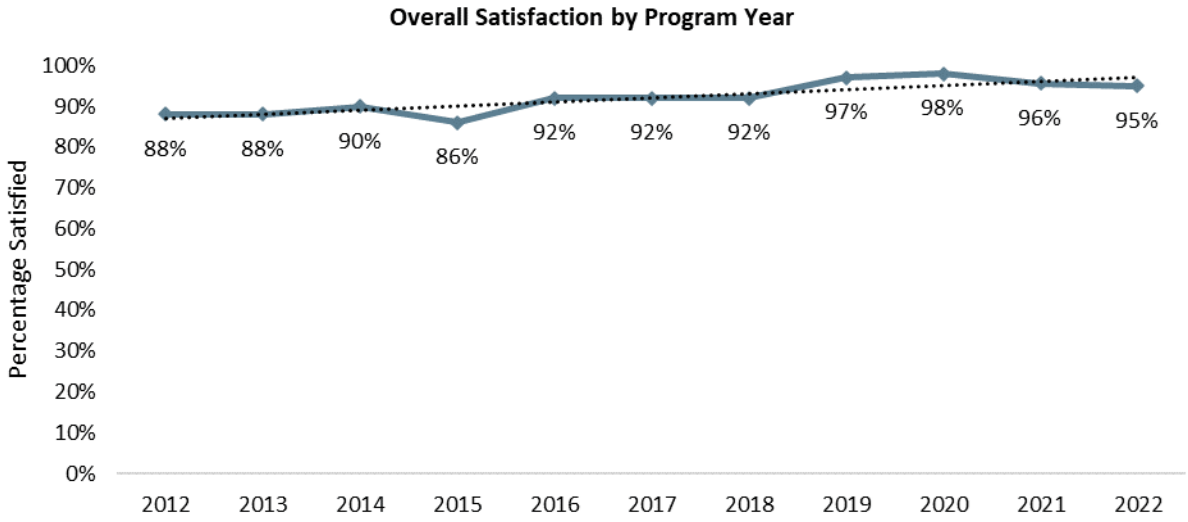
Contractor Source (n = 62)	Percent
Word of mouth	42%
Online service	14%
Web search	27%
Advertisement	9%
Energy Trust website	6%
Energy Trust referral	7%
Not applicable	6%
Don't know	1%
Prefer not to answer	0%

3.2.8 Windows

Windows participants (*n* = 86) showed high levels of satisfaction with all facets of the experience except for the time it took to receive the incentive; overall satisfaction aligned with the slight upward trend over time (Table 36 and accompanying chart).

Table 36: Satisfaction Ratings: Windows

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 86)	95%
Performance of new measure (n = 87)	99%
Comfort of home after new measure (n = 88)	100%
Incentive application form (n = 77)	93%
Time it took to receive incentive (n = 78)	81%
Contractor Satisfaction	
Overall experience (n = 89)	89%
Quality of installation work (n = 90)	92%
Information about incentives (n = 86)	85%
Communication (n = 90)	87%
Assistance with application (n = 80)	89%



The overall program influence on participant purchase decisions was moderately high (87%). Contractors had the greatest influence, with the Energy Trust incentive and the Energy Trust information or materials showing moderate influence levels (Table 37).

Table 37: Influence Ratings: Windows

Influence Level	Overall Influence (n = 90)	Energy Trust Incentive (n = 90)	Energy Trust Information or Materials (n = 45)	Contractor (n = 90)
High	87%	52%	51%	85%
Medium	3%	18%	19%	3%
Low	10%	30%	30%	11%

The contractor's advertising was most commonly reported as where the respondent found the contractor, followed by word of mouth (Table 38).

Table 38: Where Respondent Found the Contractor: Windows

Contractor Source (n = 90)	Percent
Word of mouth	30%
Online service	11%
Web search	21%
Advertisement	35%
Energy Trust website	4%
Energy Trust referral	1%
Not applicable	4%
Don't know	6%
Prefer not to answer	0%

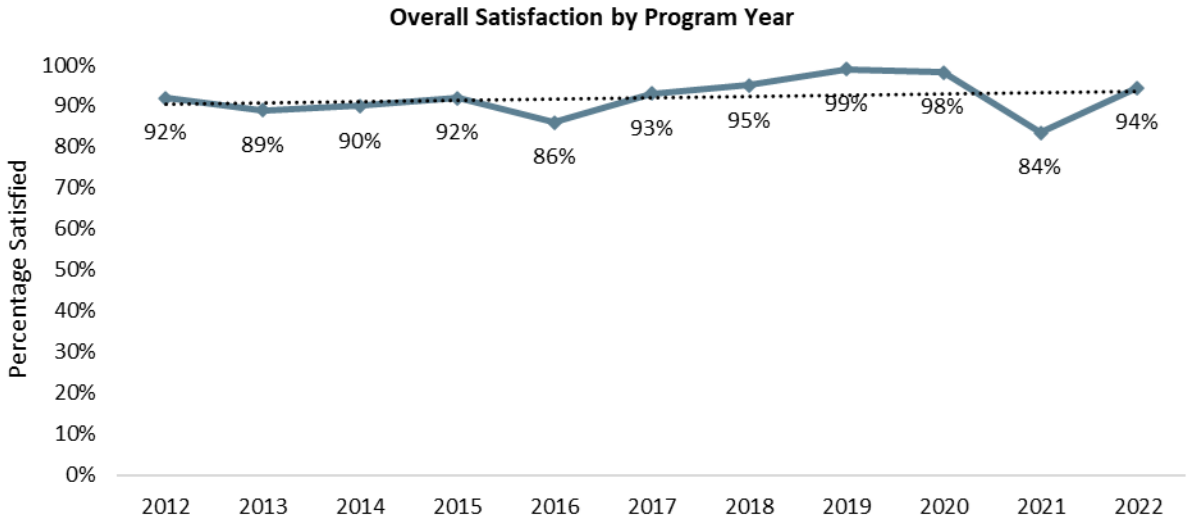
3.2.9 Gas Fireplaces

Gas fireplace participants (*n* = 67) showed moderately high to high levels of satisfaction with all facets of the experience; overall satisfaction is consistent with a slight upward trend over time, despite downturns in 2016 and 2021 (Table 39 and accompanying chart).

Table 39: Satisfaction Ratings: Gas Fireplaces

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 67)	94%
Performance of new measure (n = 62)	100%
Comfort of home after new measure (n = 61)	98%
Incentive application form (n = 65)	92%
Time it took to receive incentive (n = 59)	88%

Satisfaction	Percent
Contractor Satisfaction	
Overall experience (n = 68)	96%
Quality of installation work (n = 68)	96%
Information about incentives (n = 65)	82%
Communication (n = 68)	96%
Assistance with application (n = 60)	88%



The overall program influence on participant purchase decisions was moderately low (73%). Energy efficiency rating showed the greatest influence (Table 40).

Table 40: Influence Ratings: Gas Fireplaces

Influence Level	Overall Influence (n = 70)	Energy Trust Incentive (n = 69)	Energy Trust Information or Materials (n = 33)	Contractor (n = 69)	Energy Efficiency Rating (n = 65)
High	73%	32%	48%	50%	71%
Medium	12%	22%	18%	19%	10%
Low	15%	46%	33%	31%	19%

Word of mouth was by far most commonly reported as where the respondent found the contractor (Table 41).

Table 41: Where Respondent Found the Contractor: Gas Fireplaces

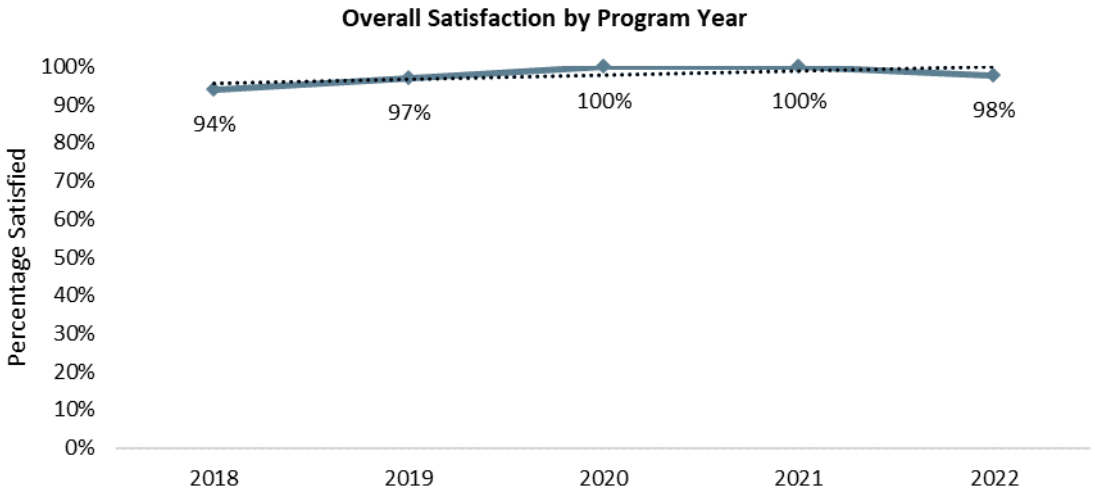
Contractor Source (n = 70)	Percent
Word of mouth	49%
Online service	5%
Web search	11%
Advertisement	7%
Energy Trust website	4%
Energy Trust referral	8%
Not applicable	15%
Don't know	5%
Prefer not to answer	0%

3.2.10 Gas Furnaces

Gas furnace participants (*n* = 74) showed exceptionally high levels of satisfaction with all facets of the experience, creating a consistently high satisfaction over time (Table 42 and accompanying chart).

Table 42: Satisfaction Ratings: Gas Furnaces

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 74)	98%
Performance of new measure (n = 75)	98%
Comfort of home after new measure (n = 77)	98%
Incentive application form (n = 42)	99%
Time it took to receive incentive (n = 42)	100%
Contractor Satisfaction	
Overall experience (n = 80)	97%
Quality of installation work (n = 80)	95%
Information about incentives (n = 75)	91%
Communication (n = 80)	92%
Assistance with application (n = 43)	97%



The overall program influence on participant purchase decisions was exceptionally high (100%). Contractors and furnaces' energy efficiency rating had the greatest influence, followed by Energy Trust incentive (Table 43).

Table 43: Influence Ratings: Gas Furnaces

Influence Level	Overall Influence (n = 82)	Energy Trust Incentive (n = 76)	Energy Trust Information or Materials (n = 22)	Contractor (n = 79)	Energy Efficiency Rating (n = 79)
High	100%	84%	58%	93%	92%
Medium	0%	7%	17%	3%	5%
Low	0%	9%	25%	3%	3%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 44).

Table 44: Where Respondent Found the Contractor: Gas Furnaces

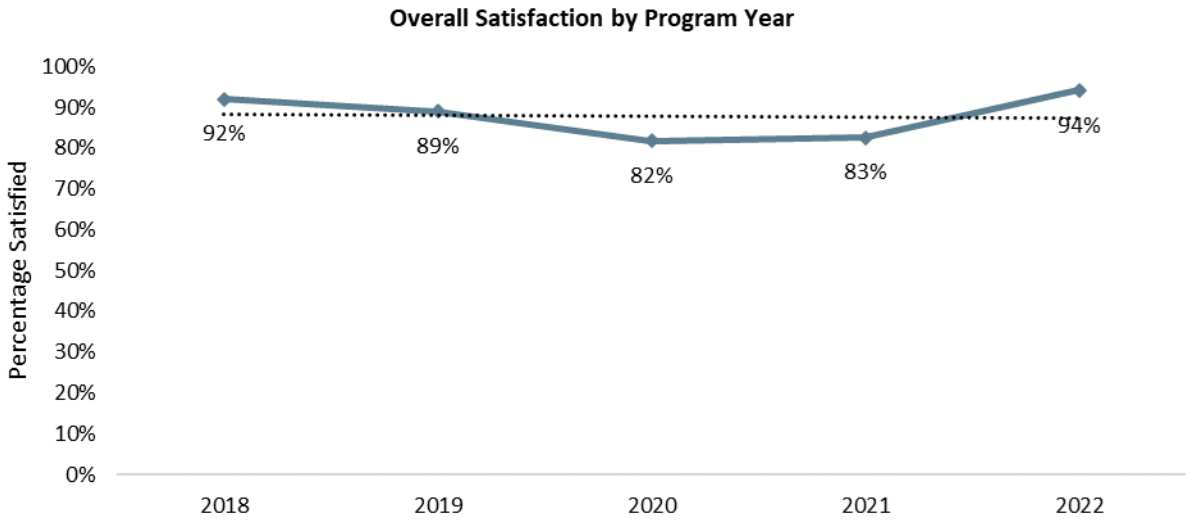
Contractor Source (n = 82)	Percent
Word of mouth	42%
Online service	13%
Web search	19%
Advertisement	4%
Energy Trust website	17%
Energy Trust referral	5%
Not applicable	3%
Don't know	6%
Prefer not to answer	0%

3.2.11 Spa Covers

Spa cover participants (*n* = 65) showed high levels of satisfaction with all facets of the experience; the overall satisfaction showed a reversal of the slight declining trend for previous years (Table 45 and accompanying chart).

Table 45: Satisfaction Ratings: Spa Covers

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 65)	94%
Performance of new measure (n = 64)	97%
Incentive application form (n = 67)	95%
Time it took to receive incentive (n = 63)	92%



The overall program influence on participant purchase decisions was moderately high (83%). Salesperson or retailer followed by the Energy Trust incentive showed the greatest influence (Table 46).

Table 46: Influence Ratings: Spa Covers

Influence Level	Overall Influence (n = 68)	Energy Trust Incentive (n = 68)	Energy Trust Information or Materials (n = 36)	Salesperson or Retailer (n = 67)
High	83%	71%	57%	75%
Medium	14%	17%	19%	17%
Low	3%	11%	24%	8%

None of these participants used a contractor to install their spa cover.

3.2.12 Duct Sealing

This is the first year in which this measure has been included in the Fast Feedback survey. Duct sealing participants (*n* = 61) showed very high levels of satisfaction with all facets of the experience (Table 45).[7]

Table 47: Satisfaction Ratings: Duct Sealing

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 61)	95%
Performance of new measure (n = 60)	92%
Comfort of home after new measure (n = 59)	94%
Contractor Satisfaction	
Overall experience (n = 61)	95%
Quality of installation work (n = 61)	96%
Information about incentives (n = 53)	92%
Communication (n = 62)	93%

The overall program influence on the installation decision was exceptionally high (99%), likely reflecting the fact that it is a free measure. Energy Trust incentive and information and material showed the greatest influence (Table 46).

[7] Satisfaction was not previously reported for this measure; therefore, we cannot show a trend over time.

Table 48: Influence Ratings: Duct Sealing

Influence Level	Overall Influence (n = 61)	Energy Trust Incentive (n = 55)	Energy Trust Information or Materials (n = 41)	Salesperson or Retailer (n = 0)
High	99%	96%	91%	
Medium	1%	1%	5%	
Low	0%	3%	3%	

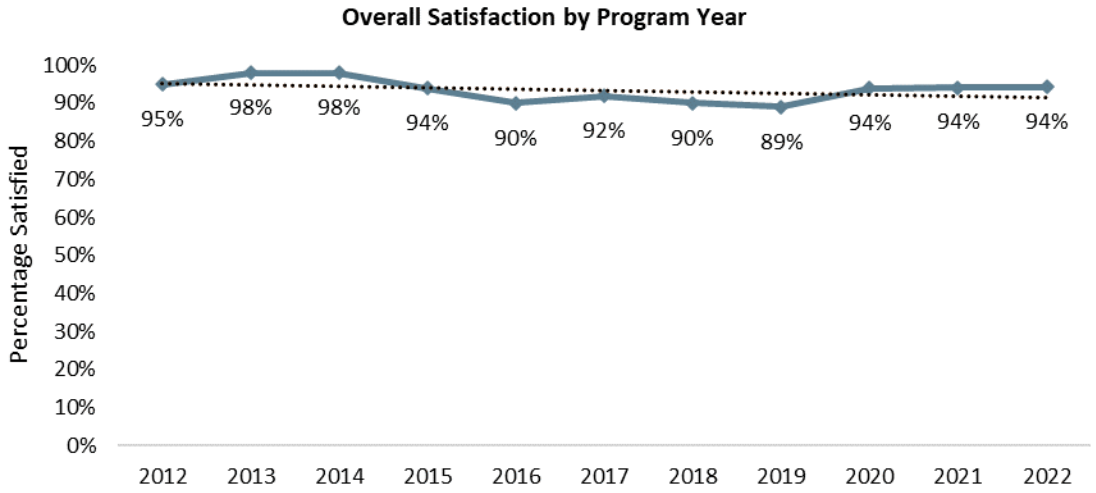
3.2.13 Residential Solar PV

Around the middle of 2022, Energy Trust revised the plan for the residential solar offering to incorporate a survey during project implementation. So as not to survey those participants twice about the same project, Energy Trust removed the residential solar PV quota group from the Fast Feedback survey. Thus, the results in this subsection represent only participants through the first half of the year.

Residential solar PV participants (*n* = 132) showed moderately high to high levels of satisfaction with all facets of the experience, although satisfaction regarding the information about incentives and contractor communication could improve relative to other aspects of the program (installation quality and the performance of the new measure); overall satisfaction is consistent with that in previous years (Table 49 and accompanying chart).

Table 49: Satisfaction Ratings: Residential Solar PV

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 132)	95%
Performance of new measure (n = 131)	93%
Contractor Satisfaction	
Overall experience (n = 142)	88%
Quality of installation work (n = 139)	92%
Information about incentives (n = 140)	83%
Communication (n = 143)	83%



The overall program influence on participant purchase decisions was high (94%). Contractors showed the greatest influence, followed by the Energy Trust incentive (Table 50).

Table 50: Influence Ratings: Residential Solar PV

Influence Level	Overall Influence (n = 145)	Energy Trust Incentive (n = 144)	Energy Trust Information or Materials (n = 92)	Contractor (n = 144)	Solar Workshop (n = 113)
High	94%	76%	60%	85%	12%
Medium	3%	12%	23%	8%	6%
Low	2%	12%	17%	8%	81%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by a web search (Table 51).

Table 51: Where Respondent Found the Contractor: Residential Solar PV

Contractor Source (n = 94)	Percent
Word of mouth	44%
Online service	7%
Web search	26%
Advertisement	15%
Energy Trust website	6%
Energy Trust referral	7%
Not applicable	2%
Don't know	7%
Prefer not to answer	0%

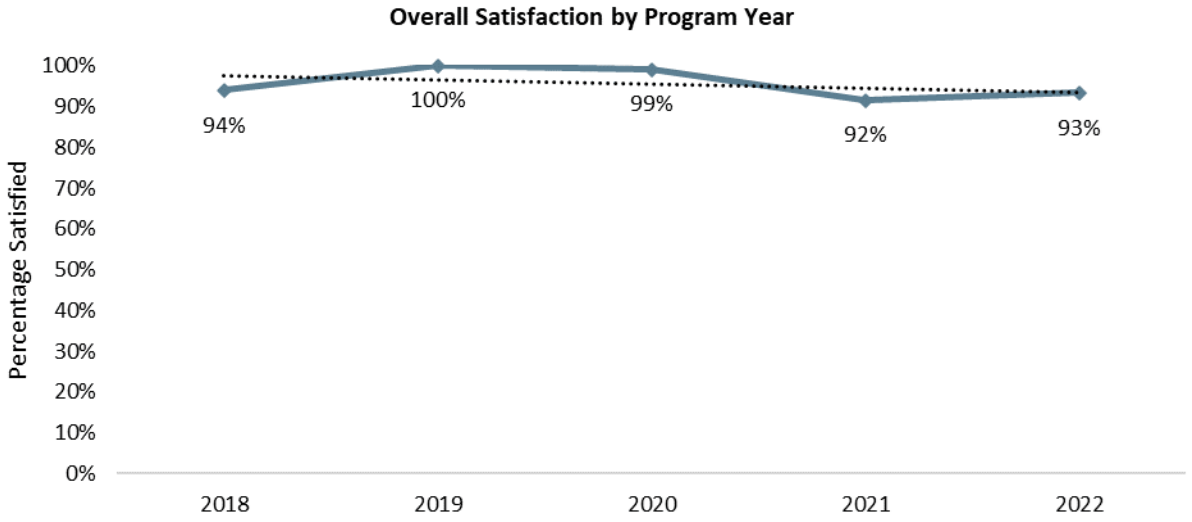
3.2.14 Residential - Washington

Residential Washington participants (*n* = 172) installed seven types of measures, the most common of which were gas furnace (*n* = 87), windows (*n* =51), and smart thermostat (*n* = 34). Fewer installed gas fireplaces (*n* = 15), ceiling insulation (*n* =4), floor insulation (*n* =3), and wall insulation (*n* = 1).

These participants showed moderately high to high levels of satisfaction with all facets of the experience except for time it took to receive incentive; overall satisfaction is consistent with the 2021 level, slightly below the high points of 2019 and 2020 (Table 52 and accompanying chart).

Table 52: Satisfaction Ratings: Residential - Washington

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 172)	93%
Performance of new measure (n = 186)	98%
Comfort of home after new measure (n = 184)	97%
Incentive application form (n = 127)	93%
Time it took to receive incentive (n = 131)	79%
Contractor Satisfaction	
Overall experience (n = 160)	91%
Quality of installation work (n = 160)	91%
Information about incentives (n = 135)	86%
Communication (n = 159)	93%
Assistance with application (n = 96)	87%



The overall program influence on participant purchase decisions was high (89%). The measure's energy efficiency rating showed the greatest influence, followed by a contractor (Table 53).

Table 53: Influence Ratings: Residential - Washington

Influence Level	Overall Influence (n = 192)	Energy Trust Incentive (n = 177)	Energy Trust Information or Materials (n = 89)	Salesperson or Retailer (n = 29)	Contractor (n = 156)	Energy Efficiency Rating (n = 100)
High	89%	58%	67%	31%	74%	95%
Medium	4%	15%	17%	3%	9%	3%
Low	6%	27%	16%	66%	17%	3%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by a web search (Table 54).

Table 54: Where Respondent Found the Contractor: Residential - Washington

Contractor Source (n = 195)	Percent
Word of mouth	38%
Online service	7%
Web search	28%
Advertisement	13%
Energy Trust website	9%
Energy Trust referral	5%
Not applicable	4%
Don't know	4%
Prefer not to answer	0%

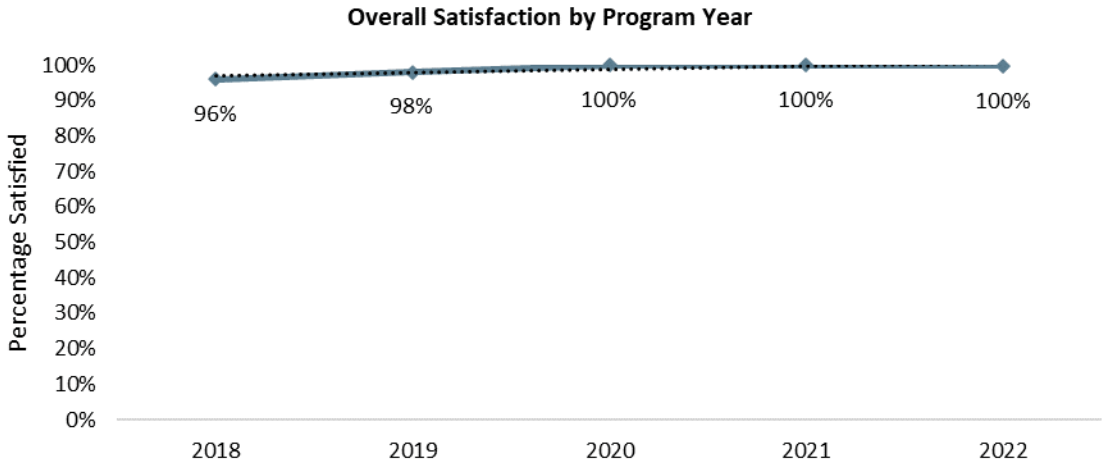
3.2.15 Moderate Income Track

Moderate Income Track participants (*n* = 66) installed eight types of measures, the most common of which was gas furnaces (*n* = 47). Fewer installed ductless heat pumps (*n* = 9), floor insulation (*n* = 5), heat pump (*n* = 3), wall insulation (*n* = 3), ceiling insulation (*n* = 3), central air conditioner (*n* = 1), and windows (*n* = 1).

These participants showed exceptionally high levels of satisfaction with all facets of the experience; overall satisfaction had shown a slight upward trend over time that has leveled off at 100% in the last three years (Table 55 and accompanying chart).

Table 55: Satisfaction Ratings: Moderate Income Track

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 66)	100%
Performance of new measure (n = 67)	99%
Comfort of home after new measure (n = 70)	99%
Incentive application form (n = 65)	99%
Time it took to receive incentive (n = 64)	100%
Contractor Satisfaction	
Overall experience (n = 71)	98%
Quality of installation work (n = 71)	94%
Information about incentives (n = 70)	96%
Communication (n = 71)	95%
Assistance with application (n = 67)	96%



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 and a contractor showed the greatest influence, closely followed by the Energy Trust incentive (Table 56).

Table 56: Influence Ratings: Moderate Income Track

Influence Level	Overall Influence (n = 72)	Energy Trust Incentive (n = 69)	Energy Trust Information or Materials (n = 28)	Contractor (n = 70)	Energy Efficiency Rating (n = 59)
High	99%	92%	78%	93%	99%
Medium	0%	2%	15%	4%	0%
Low	1%	6%	7%	3%	1%

Word of mouth was most commonly reported as where the respondent found the contractor, followed by a web search (Table 57).

Table 57: Where Respondent Found the Contractor: Moderate Income Track

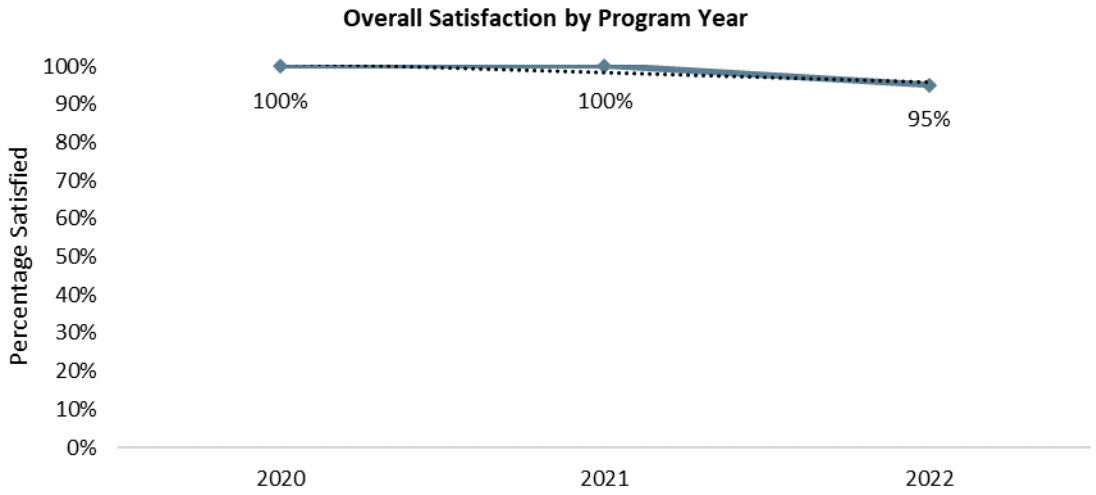
Contractor Source (n = 72)	Percent
Word of mouth	37%
Online service	14%
Web search	30%
Advertisement	3%
Energy Trust website	14%
Energy Trust referral	4%
Not applicable	3%
Don't know	8%
Prefer not to answer	0%

3.2.16 Fixed-Price Promotions

Fixed Price Promotions participants (*n* = 66) installed heat pumps (*n* = 55) or ductless heat pumps (*n* = 14). These participants showed very high levels of satisfaction with all facets of the experience except the relatively lower satisfaction regarding contractor's communication; the overall satisfaction level is slightly lower than in previous years (Table 58).

Table 58: Satisfaction Ratings: Fixed Price Promotions

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 66)	95%
Performance of new measure (n = 68)	93%
Comfort of home after new measure (n = 68)	93%
Contractor Satisfaction	
Overall experience (n = 69)	93%
Quality of installation work (n = 69)	94%
Information about incentives (n = 63)	97%
Communication (n = 69)	87%



The overall program influence on participant purchase decisions was exceptionally high (100%). The energy efficiency rating of the heat pump and the Energy Trust information or materials showed the greatest influence on participant purchase decisions (Table 59).

Table 59: Influence Ratings: Fixed Price Promotions

Influence Level	Overall Influence (n = 69)	Energy Trust Information or Materials (n = 41)	Contractor (n = 69)	Energy Efficiency Rating (n = 66)
High	100%	87%	80%	90%
Medium	0%	7%	16%	3%
Low	0%	6%	4%	7%

By far, respondents most commonly reported finding the contractor through word of mouth (Table 60).

Table 60: Where Respondent Found the Contractor: Fixed Price Promotions

Contractor Source (n = 69)	Percent
Word of mouth	45%
Online service	6%
Web search	19%
Advertisement	14%
Energy Trust website	7%
Energy Trust referral	6%
Not applicable	1%
Don't know	10%
Prefer not to answer	0%

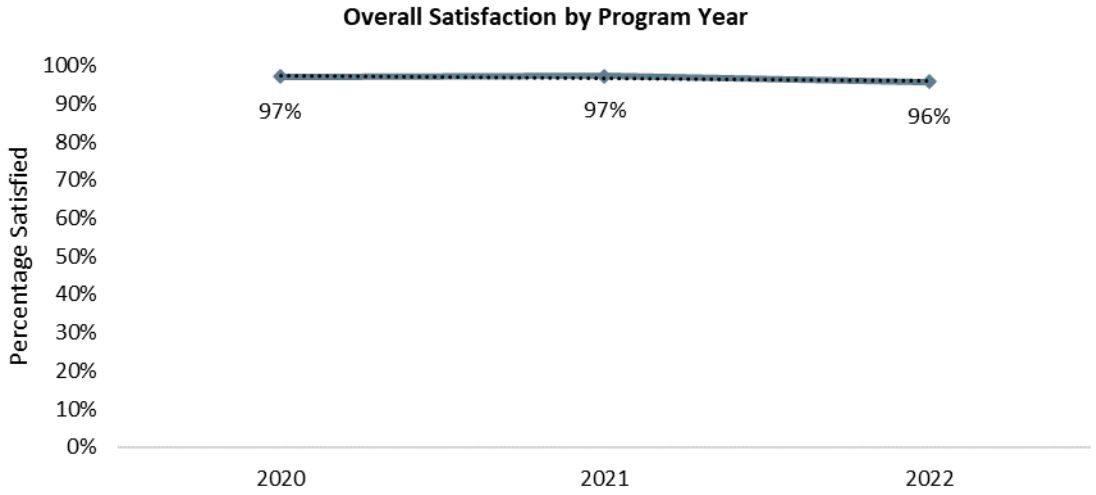
3.2.17 Instant Incentives

Instant Incentives participants (*n* = 267) installed 11 measure types, the most common of which were gas furnaces (*n* = 87), heat pumps (*n* = 70), ductless heat pumps (*n* = 48), smart thermostats (*n* = 42), ceiling insulation (*n* = 27), and central air conditioners (*n* = 21). Fewer installed windows (*n* = 5), duct sealing (*n* = 4), and gas fireplace (*n* = 2), wall insulation (*n* = 2), and floor insulation (*n* = 1).

These participants showed very high levels of satisfaction with all facets of the experience; the overall satisfaction trend has been level over the last three years (Table 61).

Table 61: Satisfaction Ratings: Instant Incentives

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 267)	96%
Performance of new measure (n = 279)	96%
Comfort of home after new measure (n = 286)	96%
Contractor Satisfaction	
Overall experience (n = 296)	96%
Quality of installation work (n = 295)	96%
Information about incentives (n = 239)	93%
Communication (n = 296)	93%



The overall program influence on participant purchase decisions was very high (96%). The equipment efficiency ratings showed the greatest influence, followed by a contractor, and the Energy Trust incentive (Table 62).

Table 62: Influence Ratings: Instant Incentives

Influence Level	Overall Influence (n = 307)	Energy Trust Incentive (n = 253)	Energy Trust Information or Materials (n = 134)	Salesperson or Retailer (n = 30)	Contractor (n = 296)	Energy Efficiency Rating (n = 219)
High	96%	79%	70%	76%	86%	91%
Medium	2%	11%	13%	24%	8%	5%
Low	2%	10%	17%	0%	6%	4%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 63).

Table 63: Where Respondent Found the Contractor: Instant Incentives

Contractor Source (n = 309)	Percent
Word of mouth	49%
Online service	9%
Web search	14%
Advertisement	13%
Energy Trust website	13%
Energy Trust referral	4%
Not applicable	2%
Don't know	5%
Prefer not to answer	0%

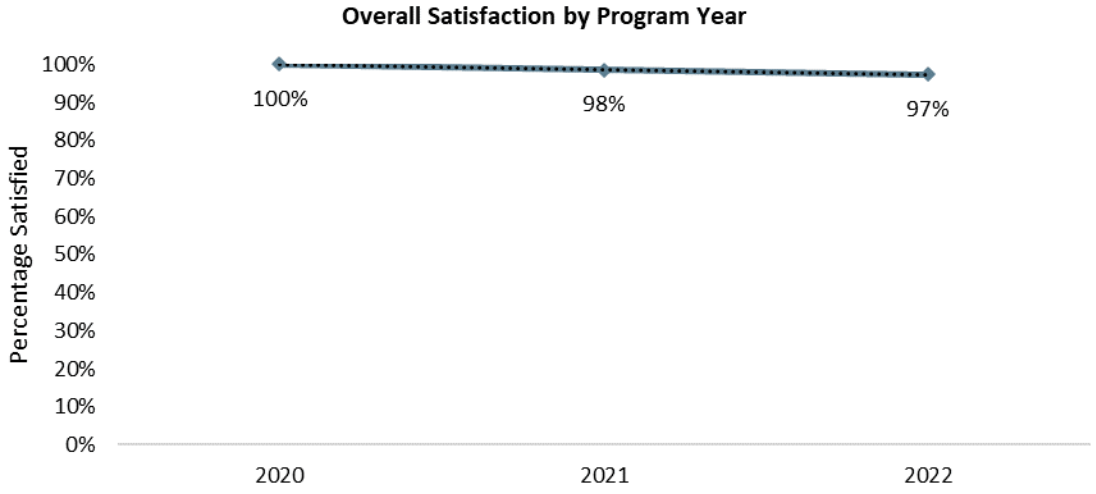
3.2.18 Rental Properties

Rental Properties participants (*n* = 60) installed six measure types, the most common of which were gas furnaces (*n* = 36) and ductless heat pumps (*n* = 15). Fewer respondents installed ceiling insulation (*n* = 7), wall insulation (*n* = 3), floor insulation (*n* = 2), and heat pump (*n* = 1).

These participants showed very high levels of satisfaction with all facets of the experience except for assistance with application being relatively lower; the overall satisfaction trend has been level over the last three years (Table 64).

Table 64: Satisfaction Ratings: Rental Properties

Satisfaction	Percent
Measure Satisfaction	
Overall experience (n = 60)	98%
Performance of new measure (n = 59)	98%
Comfort of home after new measure (n = 59)	97%
Incentive application form (n = 11)	100%
Time it took to receive incentive (n = 11)	92%
Contractor Satisfaction	
Overall experience (n = 64)	97%
Quality of installation work (n = 64)	98%
Information about incentives (n = 54)	90%
Communication (n = 64)	95%
Assistance with application (n = 10)	85%



The overall program influence on participant purchase decisions was exceptionally high (100%). Contractors showed the greatest influence, followed by the measure's energy efficiency rating and the Energy Trust incentive (Table 65).

Table 65: Influence Ratings: Rental Properties

Influence Level	Overall Influence (n = 64)	Energy Trust Incentive (n = 56)	Energy Trust Information or Materials (n = 26)	Contractor (n = 64)	Energy Efficiency Rating (n = 52)
High	100%	88%	72%	94%	91%
Medium	0%	6%	15%	4%	6%
Low	0%	6%	13%	3%	3%

Word of mouth was most commonly reported as where the respondent found the contractor (Table 66).

Table 66: Where Respondent Found the Contractor: Rental Properties

Contractor Source (n = 64)	Percent
Word of mouth	52%
Online service	11%
Web search	9%
Advertisement	6%
Energy Trust website	17%
Energy Trust referral	4%
Not applicable	1%
Don't know	5%
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, Existing Buildings - Multifamily, Existing Buildings - Washington, 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 67), closely followed by businesses leasing their property.

Table 67: Participating Firm or Organization's Ownership of Participating Property or Properties (Existing Buildings, Commercial Solar, and Production Efficiency)

Ownership	Existing Buildings - Oregon	Existing Buildings - Washington	Commercial Solar	Production Efficiency
Responding n	(n = 390)	(n = 17)	(n = 58)	(n = 235)
Responding %	56%	29%	88%	71%
Owns	57%	29%	90%	72%
Leases	42%	59%	7%	27%
Other	2%	12%	3%	1%

About half of those who reported leasing the participating property said their firm or organization had authority to make any type of upgrade decision (Table 68).

Table 68: Participating Firm or Organization's Authority for Upgrade Decisions (Participants Who Reported Leasing Building)

Level of Authority for Upgrades	Existing Buildings - Oregon	Existing Buildings - Washington	Commercial Solar	Production Efficiency
Responding %	70%	65%	82%	86%
Responding n	(n = 149)	(n = 10)	(n = 4)	(n = 63)
Any type of upgrade	53%	60%	50%	65%
Only some types of upgrades	41%	40%	50%	32%
No authority	6%	0%	0%	3%

Participants in all programs reported a range of company sizes, in terms of number of employees, but skewed somewhat toward fewer employees (Table 69).

Table 69: Number of Oregon Employees

Number of Employees	Existing Buildings - Oregon	Existing Buildings - Washington	Commercial Solar	Production Efficiency
Responding %	32%	29%	67%	27%
Responding n	(n = 371)	(n = 14)	(n = 58)	(n = 229)
1 to 5	33%	36%	67%	28%
6 to 9	11%	14%	12%	7%
10 to 19	12%	14%	2%	12%
20 to 99	23%	29%	12%	28%
100 to 499	11%	7%	5%	20%
500 or more	9%	0%	2%	5%

Nearly half to three quarters of the respondents were an owner or someone in an executive or decision-making role (Table 70). About one quarter were a manager of some sort.

Table 70: Respondent's Position in Firm or Organization

Title or Role[1]	Existing Buildings - Oregon	Existing Buildings - Washington	Commercial Solar	Production Efficiency
Responding %	44%	53%	70%	45%
Responding n	(n = 393)	(n = 17)	(n = 58)	(n = 238)
Owner	43%	53%	71%	44%
Executive or decision-maker	10%	12%	7%	12%
Manager	24%	18%	7%	22%
Employee	3%	6%	2%	5%
Other	19%	12%	14%	16%

[1] This table shows the response options provided in the survey. About one in a dozen of respondents selected "Other" and provided some description. We recoded most of those into one of the other categories. We coded any response with *owner* (e.g., owner/manager) as *Owner*; any with *officer*, *director*, or similar indication, as *Executive or decision-maker*, any response with *manager* (including *property manager*), *lead*, *chief*, or *supervisor* as *Manager*; and any job title that did not indicate any of these as *employee*. The few remaining "other" responses either were unclear or did not have enough detail to re-categorize.

The survey asked respondents who were the owner of the participating firm or a resident of a participating multifamily property to identify their race or ethnicity. A large majority (96%) of respondents declined to provide this information. Therefore, the responses of the small minority that did provide the information would not be reliable and so we do not report that information.

Most respondents reported on their minority business characteristics status (Table 71). Given the small samples for half of the groups, group differences are not highly reliable. Generally speaking, small or emerging small business enterprise was the most commonly reported status, followed by women and minority business enterprise. Very few reported being service disabled/veteran business enterprises.

Respondents who reported a given characteristic were asked whether their firm or organization had any state certifications pertaining to that characteristic. As Table 71 shows, most respondents reporting a given disadvantaged business characteristics *did not* report having a pertinent certification. Again, small sample sizes in general argue against making comparisons. Given the somewhat larger sample size for Existing Buildings – Oregon, it may be worth noting that about one in ten of those respondents reported being certified as a small or emerging small business enterprise – about one-fourth of all those who reported being that type of business.

Table 71: Disadvantaged Business Characteristics and Certifications[1]

Certification	Existing Buildings - Oregon	Existing Buildings - Washington	Commercial Solar	Production Efficiency
Responding %	(n = 385)	(n = 17)	(n = 60)	(n = 235)
Responding n	96%	100%	100%	98%
All Respondents Reporting Disadvantaged Business Characteristics				
Minority Business Enterprise	10%	12%	2%	7%
Women Business Enterprise	18%	12%	15%	9%
Small Bus./Emerging Small Bus.	39%	24%	57%	44%
Service Disabled/Veteran Bus. Enter.	2%	0%	2%	4%
Any of these	35%	47%	25%	39%
All Respondents Reporting Disadvantaged Business Certification				
Minority Business Enterprise	2%	6%	2%	0%
Women Business Enterprise	2%	0%	2%	1%
Small Bus. Enter./Emerging Small Bus.	10%	12%	22%	5%
Service Disabled/Veteran Bus. Enter.	0%	0%	0%	0%
Any of these	12%	18%	25%	5%

[1] For each characteristic identified, the survey asked: Does your firm or organization have any state certifications for being a [characteristic]?

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 generally show high satisfaction ratings across all facets of program experience for most quota groups. In most cases, satisfaction with the overall program experience and with interactions with program representatives remained consistent or increased over time.

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* = 398) generally showed high levels of satisfaction and reported high overall program influence across quota groups (Table 72). Small multifamily[8], and individually owned multifamily[9] participants showed lower levels of overall satisfaction and program influence. However, the survey fell short of achieving the target number of completions for most quota groups – those achieving the targets are shown in ***bold, italicized*** font in the table. The small sample sizes argue for using caution in interpreting findings at the individual quota group level.

Table 72: Key Satisfaction and Influence Metrics by Quota Group: Existing Buildings - Oregon

Quota Group	Number of Survey Respondents	Satisfaction		Overall Program Influence
		Overall Program Experience	Interaction with Program Representative	
Exclusive Quota Groups for Existing Buildings - Oregon				
Oregon Incentives	398	94%	93%	93%
Affordable MF	7	100%	86%	100%
Assembly/Religious	27	100%	100%	100%
Assisted Living MF	13	77%	83%	83%
Auto Services	30	97%	90%	83%
Education	16	100%	100%	100%
Government	15	93%	92%	93%
Grocery	22	100%	100%	95%
Healthcare	4	100%	100%	100%
Higher Education	12	83%	89%	92%
Hospitality	3	67%	50%	67%
Individually Owned MF	13	100%	100%	100%
Market Rate MF	59	95%	100%	96%
Office	3	100%	100%	100%
Other Commercial	15	93%	93%	100%
Recreation	79	95%	92%	91%
Restaurant	67	91%	95%	98%
Retail	31	93%	92%	93%
Warehouse	60	90%	84%	98%

Continued on next page

[8] Which had only eight respondents.

[9] With only three respondent.

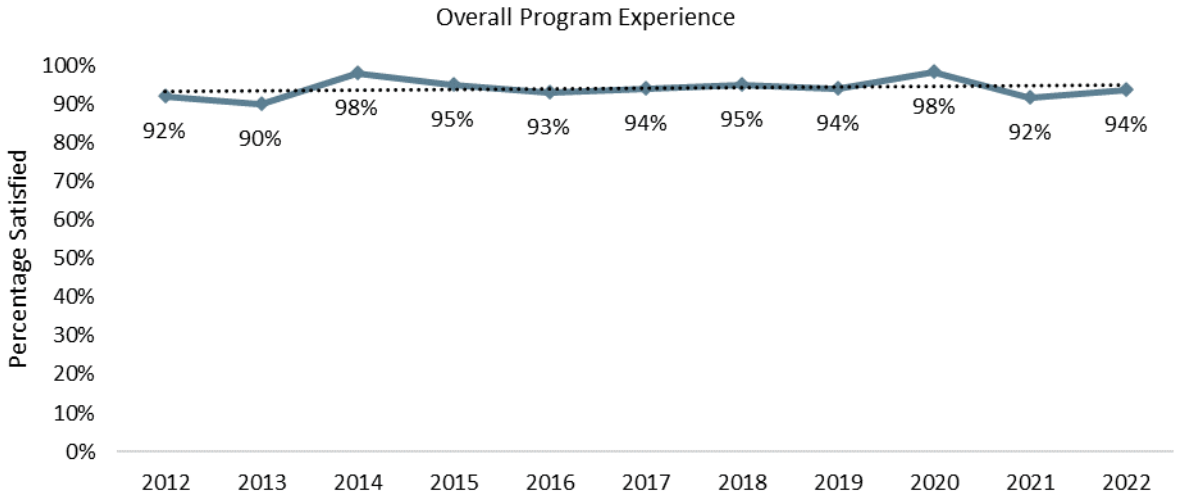
Quota Group	Number of Survey Respondents	Satisfaction		Overall Program Influence
		Overall Program Experience	Interaction with Program Representative	
Cross-Cutting Quota Groups				
Direct Install (DI)	151	92%	94%	96%
Lighting (Non-DI)	132	96%	96%	94%
Multifamily	28	96%	92%	96%
Small MF	8	86%	80%	88%

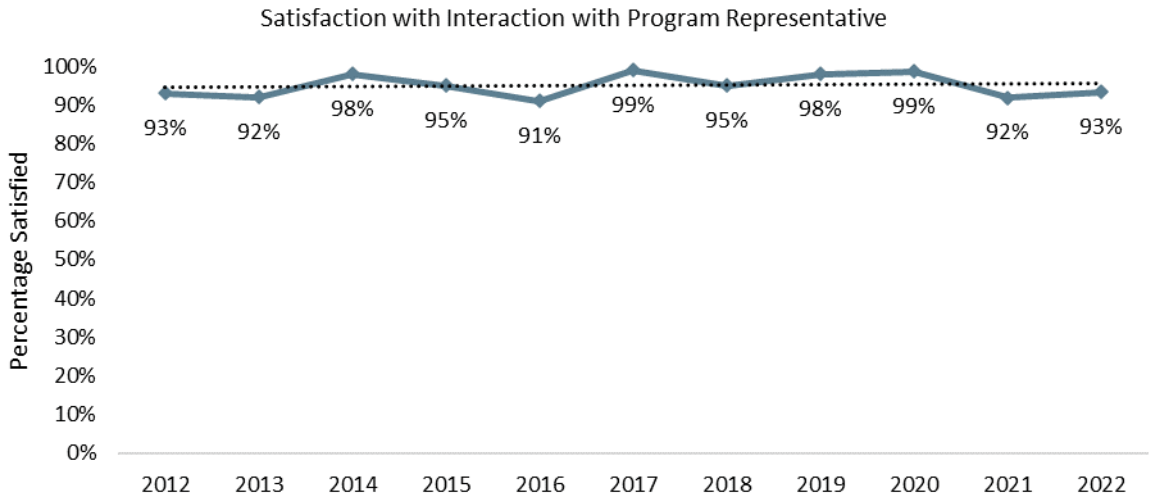
Looking at Existing Buildings - Oregon as a group, participants showed high levels of satisfaction with all facets of the experience (Table 74).

Table 73: Satisfaction by Program Element: Existing Buildings – Oregon

Program Element	Percent
Program-Level Satisfaction by Program Element	
Overall experience with Energy Trust (n = 397)	94%
Interaction with Energy Trust representative (n = 364)	93%
Incentive application process (n = 385)	93%
Information and materials from Energy Trust (n = 373)	92%
Site assessment or walk-through survey (n = 128)	96%
Energy Trust-funded technical services (n = 104)	97%
The scheduling process to receive services (n = 135)	87%
Turnaround time to receive your incentive (n = 246)	88%
Performance of the measure (n = 373)	95%
The vendor or installation contractor, if applicable (n = 362)	94%

As seen in the accompanying charts, satisfaction with the overall program experience and interactions with program representatives shows a slight upward trend since 2021 and aligns with the leveled off trend over time.





Respondents across all program tracks reported influence from multiple factors (Table 75).[10] As shown in Table 73, above, the overall program influence was moderately high to high for all quota groups, ranging from 83% to 100% except two multifamily groups with too small sample sizes. No single item was consistently more influential than any other across the quota groups.

[10] 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 74: 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	Mean %	n	Mean %	n	Mean %	n	Mean %	n	Mean %	n	Mean %	n	Mean %
Affordable MF	7	100%	7	86%	7	100%	7	100%	7	67%	7	50%	7	86%
Assembly/Religious	26	80%	26	71%	26	100%	26	96%	26	90%	26	100%	26	88%
Assisted Living MF	5	100%	5	100%	5	n/a	5	100%	5	n/a	5	100%	5	100%
Auto Services	11	60%	11	73%	11	100%	11	73%	11	100%	11	33%	11	80%
Education	28	65%	28	62%	28	100%	28	79%	28	75%	28	100%	28	68%
Government	15	82%	15	93%	15	100%	15	92%	15	100%	15	100%	15	100%
Grocery	15	79%	15	86%	15	100%	15	83%	15	100%	15	86%	15	87%
Healthcare	21	78%	21	79%	21	91%	21	84%	21	50%	21	100%	21	78%
Higher Education	4	75%	4	75%	4	n/a	4	100%	4	n/a	4	100%	4	67%
Hospitality	12	100%	12	80%	12	50%	12	89%	12	50%	12	100%	12	75%
Ind. Owned MF	3	67%	3	50%	3	n/a	3	50%	3	n/a	3	n/a	3	67%
Office	57	93%	57	81%	57	100%	57	88%	57	91%	57	85%	57	83%
Other Commercial	3	n/a	3	100%	3	100%	3	100%	3	100%	3	n/a	3	67%
Recreation	14	100%	14	100%	14	100%	14	86%	14	100%	14	100%	14	92%
Restaurant	78	87%	78	82%	79	82%	78	86%	79	75%	79	100%	78	83%
Retail	63	78%	62	70%	61	100%	62	90%	61	82%	63	100%	62	71%
Warehouse	29	92%	29	75%	30	67%	29	81%	30	50%	30	100%	29	81%
Total/Wtd Mean	391	83%	390	78%	391	89%	390	87%	391	77%	393	93%	390	80%
Direct Install (DI)	140	n/a	139	81%	138	96%	139	92%	138	82%	140	n/a	139	75%
Lighting (non-DI)	129	87%	129	79%	130	n/a	129	84%	130	100%	130	91%	129	87%
Small MF	8	75%	8	80%	8	n/a	8	60%	8	n/a	8	100%	8	88%

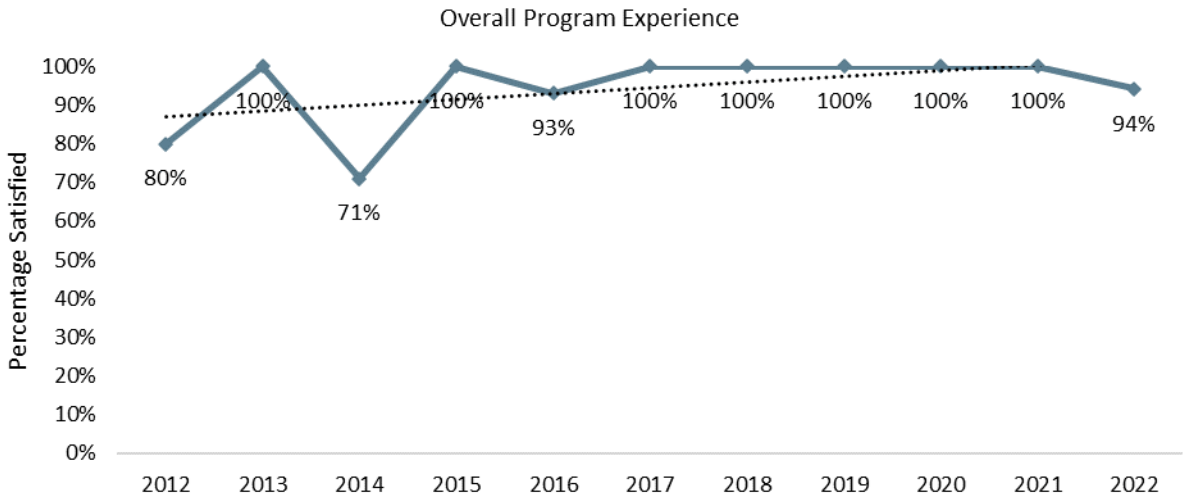
4.2.2 Existing Buildings – Washington

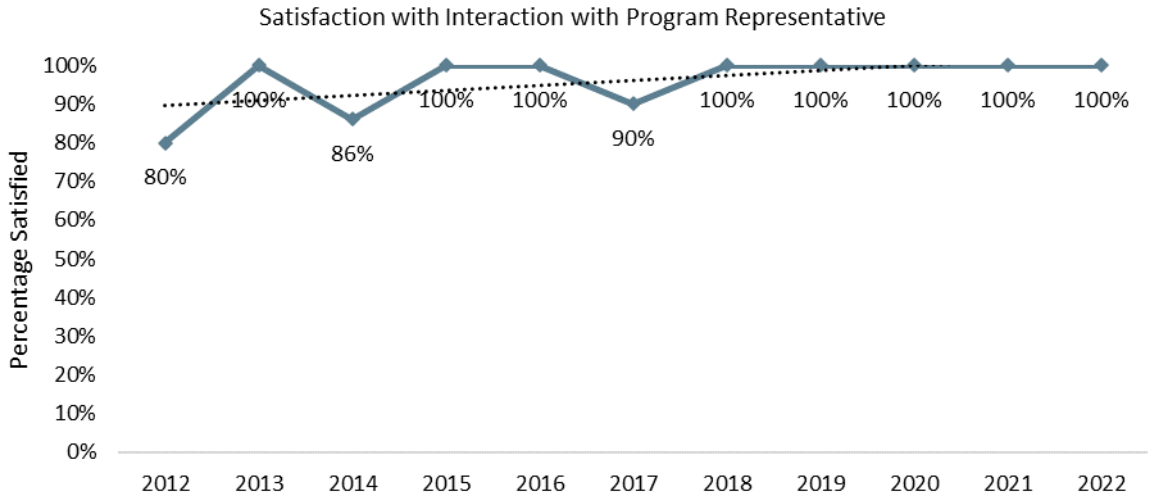
Existing Buildings – Washington participants (n = 17) showed very high satisfaction with key program elements and reported very high overall program influence (Table 76).

Table 75: Key Satisfaction and Influence Metrics by Quota Group: Existing Buildings - Washington

Quota Group	Satisfaction		Overall Influence
	Overall Experience with Energy Trust	Interaction with Energy Trust Representative	
Existing Buildings - Washington (n = 17)	94%	100%	93%

As the accompanying charts show, satisfaction with the overall program experience shows a slight downward relative to 2021 but satisfaction with interactions with program representatives stayed consistently high).





These participants showed moderately high to high levels of satisfaction with all facets of the experience (Table 77).

Table 76: Satisfaction by Program Element: Existing Buildings – Washington

Program Element	Percent
Overall experience with Energy Trust (n = 17)	94%
Interaction with Energy Trust representative (n = 17)	94%
Incentive application process (n = 16)	100%
Information and materials from Energy Trust (n = 17)	94%
Site assessment or walk-through survey (n = 17)	88%
Energy Trust-funded technical services (n = 0)	n/a
The scheduling process to receive services (n = 4)	100%
Turnaround time to receive your incentive (n = 0)	n/a
Performance of the measure (n = 16)	100%
The vendor or installation contractor, if applicable (n = 16)	94%

Respondents reported influence from multiple factors (Table 78).

Table 77: Influencers: Existing Buildings - Washington

Influencer	Percent
Combined influence metric (n = 15)	93%
The Energy Trust Incentive (n = 15)	87%
Information and materials from Energy Trust (n = 14)	86%
The Energy Trust program representative (n = 0)	n/a
Energy Trust-funded technical services (n = 14)	86%
The vendor or installation contractor, if applicable (n = 0)	n/a

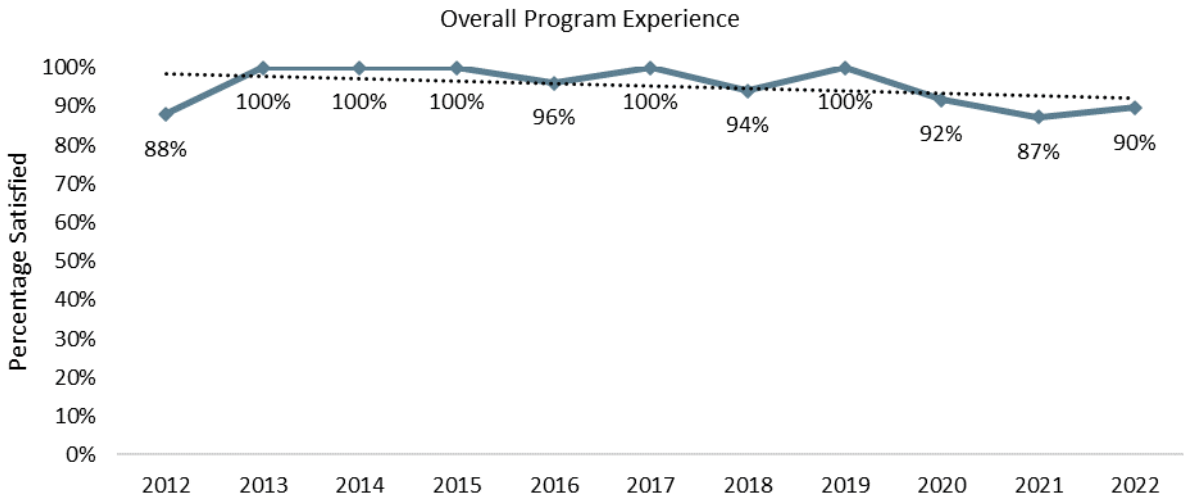
4.2.3 Commercial Solar

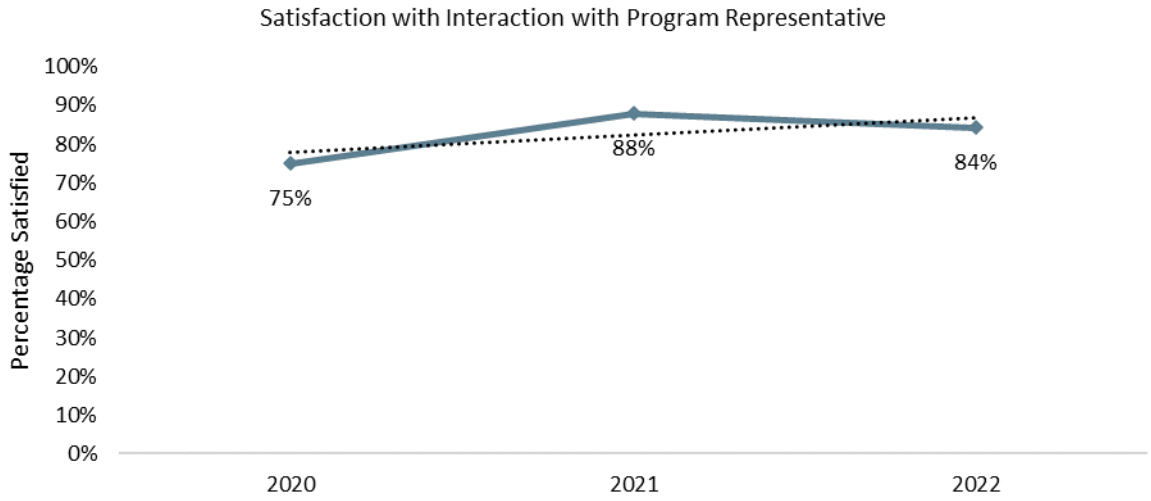
Commercial Solar participants (*n* = 60) showed high satisfaction with key program elements and reported high overall program influence (Table 79).

Table 78: 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 PV (n = 60)	90%	84%	98%

As the and accompanying charts show, satisfaction with the overall program experience increased since 2021 but satisfaction with interactions with program representatives slightly decreased compared to 2021.





These participants showed moderately high to very high levels of satisfaction with most facets of the experience (Table 80).

Six of the seven respondents who indicated dissatisfaction provided an explanation. Two reported poor communication with the Energy Trust representative:

- *The solar [Energy Trust] rep was often non-responsive to emails requesting updates or when I was wishing to update the project. Emails would go unreturned for weeks.*
- *They had less than good communication with us.*

One each indicated the paperwork was complicated or the incentive was not what was expected or had not yet arrived after three months. The one who commented on the paperwork said it "is not well understood, biggest problem is USDA." Finally, one complained about the installer, who "was kind of taking too long and they seemed lost in what they were doing." That respondent further said the cost doubled because the installer had to return "a lot" to "fix it."

Table 79: Satisfaction by Program Element: Commercial Solar

Program Element	Percent
Overall experience with Energy Trust (n = 58)	90%
Interaction with Energy Trust representative (n = 58)	90%
Incentive application process (n = 38)	84%
Information and materials from Energy Trust (n = 52)	87%
Site assessment or walk-through survey (n = 53)	89%
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 = 53)	96%

Respondents reported influence from multiple factors (Table 81) but most influenced by Energy Trust incentive, Energy-Trust-funded technical services or the information and materials from Energy Trust.

Table 80: Influencers: Commercial Solar

Influencer	Percent
Combined influence metric (n = 59)	98%
The Energy Trust Incentive (n = 59)	81%
Information and materials from Energy Trust (n = 56)	48%
The Energy Trust program representative (n = 0)	n/a
Energy Trust-funded technical services (n = 37)	51%
The vendor or installation contractor, if applicable (n = 0)	n/a

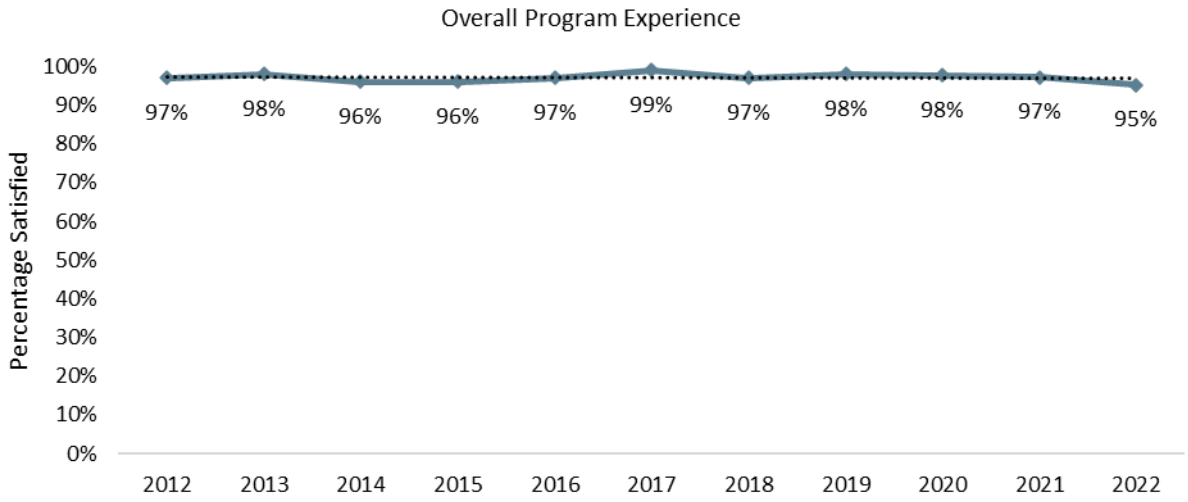
4.2.4 Production Efficiency

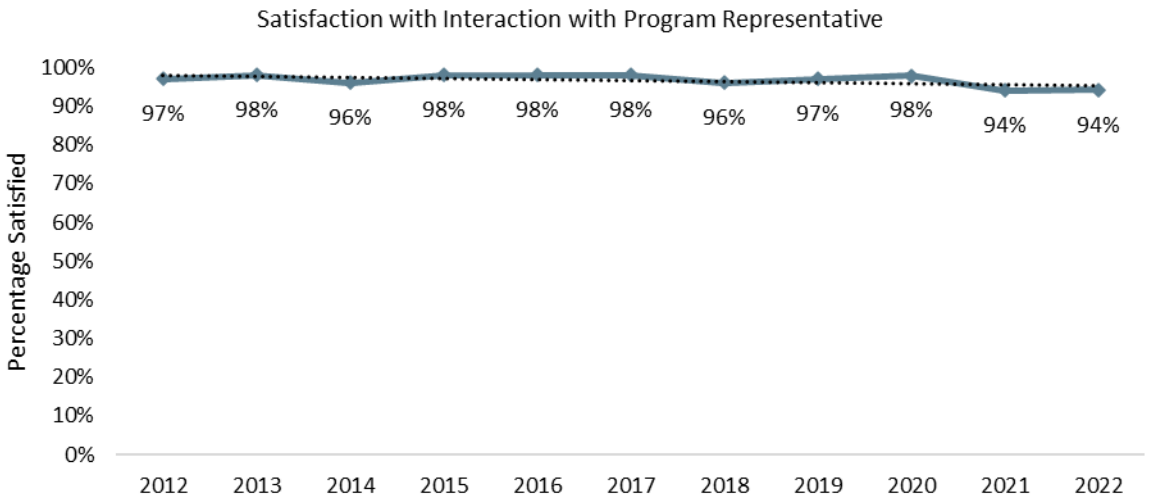
Production Efficiency participants (*n* = 240) showed high satisfaction with key program elements and reported moderately high to high overall program influence across quota groups except high tech sector (*n* = 10); the small sample sizes argue for caution in comparing across groups or with previous years (Table 82).

Table 81: Key Satisfaction and Influence Metrics by Quota Group: Production Efficiency

Quota Group	Satisfaction		Overall Program Influence
	Overall Program Experience	Interaction with Program Representative	
Exclusive Quota Groups			
Production Efficiency (n = 240)	95%	94%	92%
Production Efficiency – Agriculture (n = 48)	94%	92%	81%
Production Efficiency - Compressed air (n = 9)	100%	100%	100%
Production Efficiency - HVAC and controls (n = 29)	100%	100%	97%
Production Efficiency – Lighting (n = 63)	90%	87%	92%
Production Efficiency - Other industrial measures (n = 49)	98%	100%	94%
Production Efficiency - Pumps and Motors (n = 36)	97%	94%	94%
Production Efficiency – Refrigeration (n = 6)	100%	100%	100%
Cross-Cutting Quota Groups			
Custom Projects (n = 28)	100%	100%	96%
Standard Projects (n = 149)	97%	96%	90%
Agriculture Sector (n = 133)	96%	96%	90%
Food & Beverage Sector (n = 24)	96%	96%	96%
High Tech Sector (n = 10)	80%	80%	60%
Metals Sector (n = 7)	100%	100%	100%
Wood & Paper Sector (n = 16)	94%	100%	100%

As seen in and the accompanying charts Satisfaction with the overall program experience and interactions with program representatives show a slight downward trend since 2020.





Looking at Production Efficiency participants as a group, they showed moderately high to high levels of satisfaction with all facets of the experience (Table 83).

Table 82: Satisfaction by Program Element: Production Efficiency

Program Element	Percent
Program-Level Satisfaction by Program Element	
Overall experience with Energy Trust (n = 236)	95%
Interaction with Energy Trust representative (n = 211)	94%
Incentive application process (n = 0)	n/a
Information and materials from Energy Trust (n = 220)	93%
Site assessment or walk-through survey (n = 0)	n/a
Energy Trust-funded technical services (n = 104)	97%
The scheduling process to receive services (n = 0)	n/a
Turnaround time to receive your incentive (n = 218)	89%
Performance of the measure (n = 229)	94%
The vendor or installation contractor, if applicable (n = 206)	93%
Overall Experience by Program Track	
Custom (n = 28)	100%
Lighting (n = 61)	90%
Standard (n = 0)	n/a
Small Industrial (n = 19)	97%
Interaction with Program Representative by Program Track	
Custom (n = 28)	100%
Lighting (n = 52)	87%
Standard (n = 0)	n/a
Small Industrial (n = 18)	96%

Respondents across all program tracks reported influence from multiple factors (Table 84). No single item was consistently more influential than any other across quota groups.

Table 83: 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	Mean %	n	Mean %	n	Mean %	n	Mean %	n	Mean %
Agriculture	48	72%	48	69%	48	82%	48	100%	48	83%
Compressed Air	9	100%	9	100%	9	100%	9	100%	9	100%
HVAC and Controls	29	90%	29	82%	29	83%	29	100%	29	78%
Lighting	62	87%	62	71%	62	69%	62	80%	62	68%
Other Industrial Measures	49	84%	49	80%	49	84%	49	92%	49	81%
Pumps and Motors	36	80%	36	76%	36	83%	36	70%	36	88%
Refrigeration	6	100%	6	83%	6	100%	6	100%	6	83%
Total/Wtd Mean	**239**	**83%**	**239**	**76%**	**239**	**81%**	**239**	**89%**	**239**	**79%**
Custom Projects	28	93%	28	85%	28	93%	28	96%	28	91%
Standard Projects	149	80%	149	77%	149	83%	149	84%	149	82%
Agriculture Sector	133	82%	133	76%	133	82%	133	80%	133	83%
Food & Beverage Sector	23	91%	23	77%	23	78%	23	86%	23	73%
High Tech Sector	10	60%	10	60%	10	60%	10	86%	10	60%
Metals Sector	7	71%	7	86%	7	100%	7	100%	7	71%
Wood & Paper Sector	16	100%	16	85%	16	92%	16	91%	16	75%

5 Summary and Conclusions

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

Factors influencing the purchase decisions in the residential sector varied somewhat by measure type. In general, contractors (or, for retail products, salespersons) and efficiency ratings stayed as important influencers across measure types. The importance of contractors is well known from multiple years of evaluation, and it points to the value of maintaining strong and consistent outreach to contractors, including through the trade ally network as well as other means. The consistent importance of efficiency ratings confirms that at least some 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.

In the residential sector, contractors were most commonly identified as the top influencer – in six of 18 quota groups (including cross-cutting quota groups). The second-most commonly identified influencer was the Energy Trust incentive, which achieved the top level of influence in four groups.

Among participants who used a contractor, by far the most consistently identified way participants found that contractor was by word of mouth. Web searches and contractor advertisements were also frequently identified for most quota groups. Some groups also frequently mentioned Energy Trust website/referrals.

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.

The nonresidential results generally show high satisfaction ratings across all facets of program experience for most quota groups. However, in some cases, satisfaction with the overall program experience and with interactions with program representatives showed a slight decrease compared to 2021.

Respondents across all quota groups reported influence from multiple factors. The Energy Trust-funded technical services were the most commonly identified influencer, with 93% of respondents identifying it as having high influence (per the weighted means shown on Table 75), closely followed by services provided at no/low cost, the Energy Trust program representative, and the Energy Trust incentive.