Process Evaluation of Energy Trust 2022 Business Lighting Program

Prepared for:
Energy Trust of Oregon

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Prepared by:

ADM Associates, Inc.
3239 Ramos Circle
Sacramento, CA95827
916.363.8383

With:

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MEMO

Date: 7/25/2023
To: Energy Trust Board of Directors
From: Dan Rubado, Sr. Project Manager – Evaluation
Amanda Potter, Sector Lead – Industry and Agriculture
Lindsey Diercksen, President – LD Consulting (Contractor, Interim Program Manager)
Subject: Staff Response to the 2022 Business Lighting Process Evaluation

This process evaluation documents many of the known challenges Energy Trust encountered in launching and operating its Business Lighting program in 2021 and 2022. The program transition coincided with the COVID-19 pandemic, a flood of in-process, carryover lighting projects from the prior implementation contractor, and budget limitations that emerged related to oversubscribed bonuses from the prior year. These factors significantly delayed efforts to get the new Business Lighting program launch to market. As a result, there was a gap in services, a decrease in available incentive funding, project volumes, and energy savings, and many trade allies and customers lost trust in Energy Trust. The organization learned a lot about managing large program changes during unanticipated, disruptive events. The primary lessons are summarized in the conclusions and recommendations of this process evaluation.

Program transitions can be highly disruptive, and Energy Trust will focus on how to limit those disruptions in the future, as recommended by the evaluator. Staff agree with the evaluator that transitions require a longer overlap period between implementers and more time and resources to bring new contractors, staff and systems up to speed so they can effectively take over program processes. For future program changes, Energy Trust will focus on making the transition as smooth as possible for customers, contractors, staff and stakeholders. This includes laying the groundwork for a transition through early and clear communications with trade allies, customers and market actors about what changes will be occurring, their timing and leaving plenty of time to sort out unforeseen issues.

The stringent incentive caps enacted in response to the budget difficulties in 2021 through early 2022 caused a substantial and lasting setback to the lighting market in Oregon. To avoid these types of issues in the future, Energy Trust has instituted larger reserves so programs can absorb unforeseen fluctuations in incentive uptake without having to dramatically change program requirements or incentive amounts. Energy Trust has also moved to monthly project forecasting to better understand the pipeline of projects so the organization can quickly adapt to changes in the market and uptake of incentives. As noted in the evaluator's recommendations, bonus incentives for lighting and other measures should be ramped down slowly, so as not to disrupt markets. Now that incentive caps have been raised, the program is rebuilding relationships and trust with trade allies and creating a pipeline of new downstream lighting projects.

The program is currently planning large, sustained increases to incentive levels as part of an organization-wide initiative to accelerate energy savings to help Energy Trust's funding utilities address decarbonization

goals and increased demands on the utility system in advance of 2030. This will include increases to the midstream and direct install initiatives as well as increased incentives levels for downstream, trade ally driven rebates. The program will explore including big box retailers in its expansion of midstream lighting offers, especially TLEDs. It is anticipated TLEDs sold through these venues would allow Energy Trust to better serve many small businesses. Staff also agree with the evaluator that they need to ramp up efforts to promote and install lighting control retrofits, which have had low uptake due to lack of training and understanding among contractors and customers, as well as their cost and complexity. These efforts must include developing new measures and incentives, reducing the complexity of installing and commissioning controls, simplifying participation, doing more contractor and customer training, and transitioning to controls-only lighting offers as the lighting market transforms and savings from LED lamp and fixture measures dwindle. Controls-only services may be delivered along with other efficiency incentives by the Existing Buildings and Production Efficiency programs.

While Business Lighting will be ramping up lighting efforts in the short term, the program is beginning to plan how to adapt to changing state policy. After this evaluation was completed, the Oregon legislature passed a fluorescent lighting ban in Oregon (HB 2531). This ban will impact several lighting measures and incentives by removing fluorescents from the baseline. Lighting controls will be an important aspect of future program services. The program will also be developing different strategies for certain niche markets. For instance, cannabis grow lights, where the baseline is not affected by HB 2531, may still need downstream incentives and an account management approach to appropriately serve the market.

The evaluation report notes that the small business direct install initiative is serving its target demographic well, with many women- and BIPOC-owned and rural businesses using the services. Most participants had not been served by Energy Trust in the past. However, there are still pain points the program is working to iron out, such as investing in improved systems to make participation more seamless and ensure interested customers are not accidentally dropped. The direct install initiative will continue to serve areas with large numbers of small businesses that Energy Trust has not yet served well.

As recommended by the evaluator, Business Lighting will work with Existing Buildings and other Energy Trust programs to develop an effective engagement strategy for working with community-based organizations (CBOs) involved with small businesses. The strategy must provide an improved experience for CBO staff and allow the program to better reach CBO members. The current approach needs to evolve from presenting program offers to CBOs, to managing relationships and providing follow-up to encourage CBOs to get their members to participate. CBOs require a more hands-on, relationship-based approach and a single point of contact. Ideally, Energy Trust will build partnerships with key CBOs so they can help present offers across programs to their small business members.

The evaluator recommended Energy Trust conduct a baseline study of small businesses to better understand the population and characteristics of small businesses in Oregon. This would help the organization to understand which types of businesses have not been served well and allow us to track progress towards diversity, equity, and inclusion goals for small business. This type of study would be logistically challenging and expensive to field and could easily be rife with selection bias if not carefully designed. Energy Trust is currently considering whether to pursue this and how we might conduct a study that would provide meaningful results.

1 Executive Summary

Energy Trust of Oregon selected ADM Associates to conduct the first process evaluation of the new Business Lighting (BL) program, which began operations in 2021. The BL program offers incentives to commercial and industrial (C&I) customers of Portland General Electric (PGE) and Pacific Power in Oregon for energy efficient lighting installations.

Energy Trust created the BL program to consolidate the management and delivery of efficient lighting incentives to C&I customers and to standardize program processes and services. Lighting incentives and services were previously offered through Energy Trust's Existing Buildings, Existing Multifamily, and Production Efficiency programs. Energy Trust hired CLEAResult as the implementation contractor for the BL program.

The BL program consists of three components:

- **Downstream.** C&I customers receive Energy Trust support for installing prescriptive or custom lighting or control measures at their organizations.
- **Small Business Direct Install (SBDI).** This was created to increase participation among small businesses. Outreach staff schedule and conduct lighting assessments with small businesses and schedule a no cost installation of new lighting.
- **Midstream.** This track provides a streamlined process for receiving point-of-sale discounts from participating distributors for commonly installed lighting measures.

This evaluation addressed the transition from the old to the new implementer, program operations, the effect of incentive changes on the market, overlap with other Energy Trust programs, and accomplishments pertaining to Energy Trust's diversity, equity, and inclusion (DEI) goals. The ADM team reviewed program documents, analyzed program and secondary market data, interviewed program and implementer staff, market experts, manufacturers, community-based organizations, and trade allies, and both interviewed and surveyed recent program participants, near-participants, and nonparticipants.

1.1 Lighting Market Trends

Lighting savings attributable to Energy Trust programs have declined by about 60% since 2018 while non-lighting savings have been relatively flat. These trends are consistent with other programs in the region. Information from interviews and analyses of program penetration and other data suggested where remaining opportunities for savings from LEDs might exist. However, interviewed market experts and market actors suggested that the primary opportunities for capturing lighting savings are in promoting controls but that programs need to help the market overcome a lack of awareness and skepticism directed towards lighting controls.

1.2 Program Transition

The creation of the BL program and the award of the implementation contract happened during the height of worldwide Covid-19 disruptions. The transition process was made more difficult because of a delay in Energy Trust board approval of the contract, combined with communication challenges that resulted from staff turnover at CLEAResult shortly after the contract started. Additionally, all parties had to adapt to working fully remotely as a result of the Covid-19 pandemic.

The move to a three-track BL program, with SBDI, Midstream, and Downstream tracks, was compromised by the glut of old Downstream projects the new implementer inherited from the previous implementer.

The Midstream track started at least six months later than anticipated, with only a few distributors on board. Delays resulted from the need to orient distributors to the online system they use to look up customer and measure eligibility as well as hesitancy by distributors to fully use the program before they had evidence they would be reimbursed for their sales.

The SBDI program track started later than originally proposed in 2021. However, as of Summer 2022, the program was starting to reach its participation goals and was projected to have a good pipeline of projects throughout 2022 and into 2023.

1.3 Program Operations

Interviews and surveys of participants – those that received incentives or services from Energy Trust – and trade allies revealed generally high levels of program satisfaction, with some minor exceptions. Existing relationships between contractors and customers are critical to lighting projects. Some key track-specific findings were:

- Prior awareness of and participation in Energy Trust programs was high among Downstream participants.
- The SBDI track largely attracts new participants, who would not have carried out lighting upgrades without the program recommendations and incentives.
- There was no evidence of programmatic or systematic barriers to participation in the SBDI track, but participation may have been somewhat hampered by inadequate tracking of outreach.
- The Midstream track had a slow start but appeared to be running smoothly by summer 2022.

Staff understand the importance of re-engaging with trade allies after the tumultuous pandemic years. One way staff have considered engaging with trade allies is providing an online gateway where allies can upload project information and see the status of their projects. Developing this online gateway was put on hold in the latter half of 2022 with the possibility of revisiting developing this tool in 2023.

1.4 Effects of the 2020-2021 Incentive Changes

Program staff reported that the incentive caps that went into effect in 2021 decreased program uptake, may have put some trade allies out of business, caused some large trade allies to relocate their sales representatives to Washington, and led some customers to prioritize energy saving projects below other types of capital projects.

The ADM team's analysis of trends in lighting activity suggested that the incentive bonuses implemented in 2020 as a response to the Covid pandemic increased projects and savings relative to the level they would have attained if 2016-2019 trends had continued. The same analyses also confirmed the staff's perception that the caps had a negative effect on projects and savings, particularly for standard measures.

Trade allies reported initial enthusiasm for the bonus incentives and the additional work they created, which gave way to dismay over the incentive caps in 2021. In this context, several trade allies specified that building relationships between Energy Trust implementers and the trade allies is critical to maintaining satisfaction with the program and knowledge of program processes and changes.

1.5 Overlap Between BL and Other Programs

There was good coordination between the BL program tracks and other Energy Trust programs. BL staff reported they receive referrals from other program staff and they coordinate with other program staff on outreach to community-based organizations (CBOs) to share information about program offerings.

Analysis of program data revealed that the implementation of the BL program did not change the amount of overlap between lighting and non-lighting projects.

1.6 Diversity, Equity, and Inclusion Goals and Accomplishments

Evaluation findings support the view that SBDI is an appropriate vehicle for addressing DEI goals. SBDI participants are more likely to be female- and BIPOC-owned companies, are more likely to rent their business space, and generally have not previously used Energy Trust services.

Energy Trust also is working with CBOs to reach out to traditionally underserved communities such as small, women-owned, minority-owned, rural, and veteran owned businesses. Interviews with CBO contacts revealed that there is general familiarity and positive reaction towards Energy Trust's energy efficiency mission but that Energy Trust has not spurred efficiency actions among CBOs and their members. These contacts offered suggestions and provided support in reaching their memberships and increasing awareness of Energy Trust products and services.

1.7 Conclusions and Recommendations

Our evaluation produced several conclusions and recommendations, which we provide in condensed form here and in detail in Section 10.

Conclusion #1: Multiple market conditions and program reasons explain why lighting savings have declined over time and reached their lowest value seen in the last six years in 2021. These include market saturation of LEDs, Covid-19 disruptions of the market, transition and early implementation challenges facing the new program, and the restrictive incentive cap on Downstream projects for much of 2021. Several of these factors adversely affected the relationship with trade allies.

> **Recommendation #1a:** When transforming long-standing programs, Energy Trust should alert all stakeholders of changes well ahead of time to get stakeholders accustomed to the changes and should get trade allies' feedback about program changes before implementation, which is key to fostering trust between Energy Trust and the trade allies.
>
> **Recommendation #1b:** When making changes to long-standing programs, Energy Trust should build in extended overlap times from the old approach to the new approach to provide for a smooth transition.
>
> **Recommendation #1c:** When considering adjusting incentive levels in response to unanticipated events, Energy Trust should seek relevant information and input from other sources, such as other program administrators and from major trade allies. Other program administrators may have pertinent experience, and major trade allies may be able to provide insights on the relative value of increasing incentives in the short-term versus capping them later.
>
> **Recommendation #1d:** When considering adjusting incentive levels even in response to unanticipated events like a pandemic, Energy Trust should take great care in making large changes to incentives that can have unintended consequences. Consistent and gradual changes to incentives are more palatable to the market and result in far less disruption to trade allies, participants, and program implementers.

Conclusion #2: The Energy Trust team is making efforts to address the myriad of challenges the program faces and is largely doing what market experts suggest is the right approach to gather lighting savings in the future.

> **Recommendation #2:** Continue to build upon the successes of 2022 by reengaging with trade allies such as by supporting events like trade ally breakfast meetings around the state and facilitating communication between account managers and allies.
>
> **Recommendation #2b:** Continue to build upon ways to ensure potential SBDI participants receive free lighting measures by reviewing past contact lists and following up with customers that have not scheduled an installation, sometimes several months after their first contact with the program.
>
> **Recommendation #2c:** Continue to build out the Midstream track by recruiting distributors and educating trade allies about the track, the equipment opportunities available through the track, and the ease of participation for trade allies, especially as it compares to the Downstream track.

Recommendation #2d: There is an opportunity to increase adoption of controls by continuing to expand efforts to educate trade allies about controls and their energy and non-energy benefits and by making controls easier to access by offering controls via the Midstream track. By having controls part of the Midstream track, a trade ally could order their lights and controls from a distributor and complete a controls project with minimal administrative work.

Recommendation #2e: Continuing and expanding outreach efforts to CBOs to promote Energy Trust programs, especially the SBDI program track, is a way to accomplish two goals. First, CBOs can help Energy Trust address their DEI goals by increasing participation among small businesses and organizations traditionally underserved by efficiency programs. Second, CBOs have the potential to lower outreach costs by delivering a cadre of small businesses/organizations to the program instead of relying solely on the site-by-site outreach model as the program is currently doing.

Conclusion #3: The goal of increasing participation among Oregon's diverse businesses is compromised by the unknown number of small businesses owned by minorities and women.

Recommendation #3: Consider conducting a baseline study to better understand the population of small businesses owned by women and minorities so Energy Trust can have a better understanding of how much their efforts are addressing their DEI objectives.

Conclusion #4: The best opportunities for achieving more savings from lighting (other than controls) is in small businesses. Based on analyses of secondary data, the most "target rich" areas for finding opportunities are more urban areas, especially of the Portland Metro/Hood River and East of the Cascades regions.

Recommendation #4a: Continue and expand efforts to reach small businesses, targeting those in the Portland Metro/Hood River and East of the Cascades regions.

Recommendation #4b: Consider tactics that encourage trade allies to work in underserved areas, such as providing additional incentive for serving such areas, helping promote trade allies located in those areas, and providing leads for trade allies interested in working in traditionally underserved communities.

2 Introduction

Energy Trust of Oregon selected ADM Associates to conduct the first process evaluation of the new Business Lighting (BL) program, which began operations in 2021. The BL program offers incentives to commercial and industrial (C&I) customers of Portland General Electric (PGE) and Pacific Power in Oregon for energy efficient lighting installations.

The BL program consolidated lighting incentives and services from three separate C&I programs – Energy Trust's Existing Buildings, Existing Multifamily, and Production Efficiency programs – each delivered by a different Program Management Contractor. The administration, management, and program requirements differed across the programs. However, they all used a single delivery vendor, which coordinated services across these programs.

The BL program was created to consolidate the management and delivery of efficient lighting incentives to C&I customers and to standardize program processes and services. The BL program is implemented by a single Program Delivery Contractor (PDC) on behalf of Energy Trust, with oversight by Energy Trust program management and marketing staff. CLEAResult was selected through a competitive process to implement the BL program, taking over operations from the previous implementation contractors in January 2021. The CLEAResult team is responsible for , design, planning, and deployment of program services, with support from customer service, incentive processing, finance, information technology (IT), and engineering staff. CLEAResult subcontracts with FCI Management to conduct outreach to small businesses as part of their Small Business Direct Install (SBDI) track and Backen Consulting to support the program's trade ally network. Additionally, the program contracts with lighting contractors to complete the lighting installations for the SBDI track. Initially, the program contracted with two firms and, as of Spring 2023, were contracting with eight firms.

This evaluation took place between August 2022 and February 2023 and included two phases of work.

- Phase 1, August, and September 2022: Get a preliminary understanding of the program via reviewing program data and interviews with staff and implementers. Additionally, to better understand the market for efficient lighting, the ADM team interviewed market experts. The results of this work were in an interim report that ADM provided to Energy Trust in October 2022. The results of that interim report are integrated into this phase 2 report described below.
- Phase 2, October 2022 to March 2023: Complete interviews with participants, near-participants, community-based organizations, and trade allies to better understand their experiences using the program. The ADM team combined results of phase 2 data collection efforts with those from phase 1 in this final report.

3 Methods

The ADM team used the following primary data sources to conduct the research discussed in this report:

- Review of program documentation.
- Analysis of program data.
- Interviews with program staff and implementers, including subcontractors.
- Interviews with market experts and manufacturers.
- Analysis of secondary market data, combined with program data.
- Interviews with recent program participants.
- Interviews with customers who did not complete projects.
- Interviews with trade ally contractors and distributors.

The team used these data sources to address the overall market and program related research themes Energy Trust identified for this project.

The next sections describe how we conducted each of these research tasks.

3.1 Document Review

The first task of this research project was to identify, obtain, and review a variety of reports and other documentation about the Business Lighting Program. We obtained the following documents:

- Staff organizational chart and contact information.
- List of community-based organizations.
- Program data since inception and lighting incentive data back to 2016.
- Program Implementation manuals.
- Action plans.
- Collaboration protocols.
- Forms and participations agreement documents.
- Internal memos documenting program changes.
- Program guidelines for trade allies.
- Lists of approved measures for direct install program.
- Distributor handbook and how-to materials for Midstream program.
- Program progress reports and annual reports.

- Small Business Direct Install (SBDI) site assessment reports.

These documents informed our development of the interview guides and provided the evaluation team with important background information throughout the course of the evaluation.

3.2 Program Staff Interviews

We completed nine interviews with four Energy Trust, six CLEAResult, and four subcontractor staff in August and September 2022.[1] Staff represented all areas of the program: technical, outreach, operations, and administration. These interviews informed our understanding of program history, design, operations, implementation, processes, goals and achievements, and plans. In addition to being a key source of information on program operations, these interviews were important in addressing research questions relating to the program transition, incentive caps, overlap with other programs, and diversity, equity, and inclusion (DEI) goals and achievements.

Each interview lasted about an hour. In two instances, we scheduled a follow-up interview with the respondents to further clarify our understanding of the program. Additionally, several times throughout the course of the evaluation period, we contacted staff to clarify program details and identify resources for customers that had program-related questions during our interactions with them.

We recruited these respondents via phone and email and, with the permission of all respondents, recorded all interviews via MS Teams. Appendix B in the accompanying appendix document contains the interview guide.

3.3 Analysis of Participation Trends

ADM analyzed project data from Energy Trust commercial and industrial programs from 2016 through the end of 2022, to identify participation trends, including trends related to the 2020 incentive bonus and the subsequent incentive caps and overlap at the site level between participation in lighting and non-lighting projects. Details of how we performed each analysis are provided with the results.

3.4 Analysis of Program LED Lighting Penetration

ADM conducted analyses to assess the penetration of Energy Trust lighting projects in the Energy Trust service territory – overall and for specific site and business types. These analyses had two initial objectives: 1) to assess the remaining opportunities for energy efficient lighting; and 2) to assess how well the BL program is serving small, rural, and women- and minority-owned businesses. We addressed the first objective by assessing the cumulative percentage of business sites that had received LED lighting through Energy Trust (LED penetration), by number of

[1] Three interviews were group interviews where ADM staff interviewed two or more staff during the same session.

employees, Energy Trust region, and urbanization level, as described below. We addressed the second objective by examining time trends in LED penetration by number of employees and urbanization level, compared to time trends in overall LED penetration. As explained below, ADM determined that sufficient data did not exist to assess BL program service to women- and minority-owned businesses.

ADM conducted these analyses by merging data from the 2016-2022 C&I project tracking data used for the analyses described in Section 3.3 with data on the greater nonresidential population. The population data came from two sources provided by Energy Trust.

The first source was a dataset of nonresidential customers of Energy Trust's partner utilities ("utility data") who receive electric service from one of those utilities (and so would be eligible for BL participation). This dataset incorporated information on business characteristics, obtained from InfoUSA.[2] We excluded records that did not have any electric usage from 2018 to 2022 (the years for which electric usage was provided) or were identified as single-family residential or multifamily with fewer than five units.[3] This left 179,225 records, each identified with a unique Energy Trust identifier known as SiteGUID and representing a unique *business site*.

The second source was an additional dataset of nonresidential businesses covering all of Oregon, separately compiled by InfoUSA, which included information on business size (number of employees) and whether the business had women owners or executives. Each record also was identified with an Energy Trust SiteGUID. The 98,580 records corresponded to 86,485 unique SiteGUIDs. All records with the same SiteGUID were indistinguishable based on address. We therefore deduplicated this source on SiteGUID. We then removed records that were located outside of Energy Trust's Oregon electric service territory, leaving 45,397 records.

The project tracking dataset had 114,208 records, each representing a unique nonresidential project site. Of those, the team identified 2,137 as being outside of Energy Trust's electric service territory, leaving 112,071.

ADM used the following process to merge the datasets:

- Of the 179,225 utility dataset records, 29,197 matched an InfoUSA dataset record on SiteGUID. We used the SiteGUID match to append data on number of employees from the InfoUSA dataset to those records.
- The 16,200 InfoUSA SiteGUIDs that *did not* match any SiteGUID in the utility dataset represented additional business sites. We appended those SiteGUIDs to the end of the utility dataset, together with data from fields that were common to the InfoUSA and utility datasets. We identified the Energy Trust service territory for these 16,200 records based on a combination of the Census tract, zip code, and longitude and latitude for each record. The

[2] InfoUSA is now Data Axle. However, we use the prior name as that is how the data source is identified in Energy Trust's system.

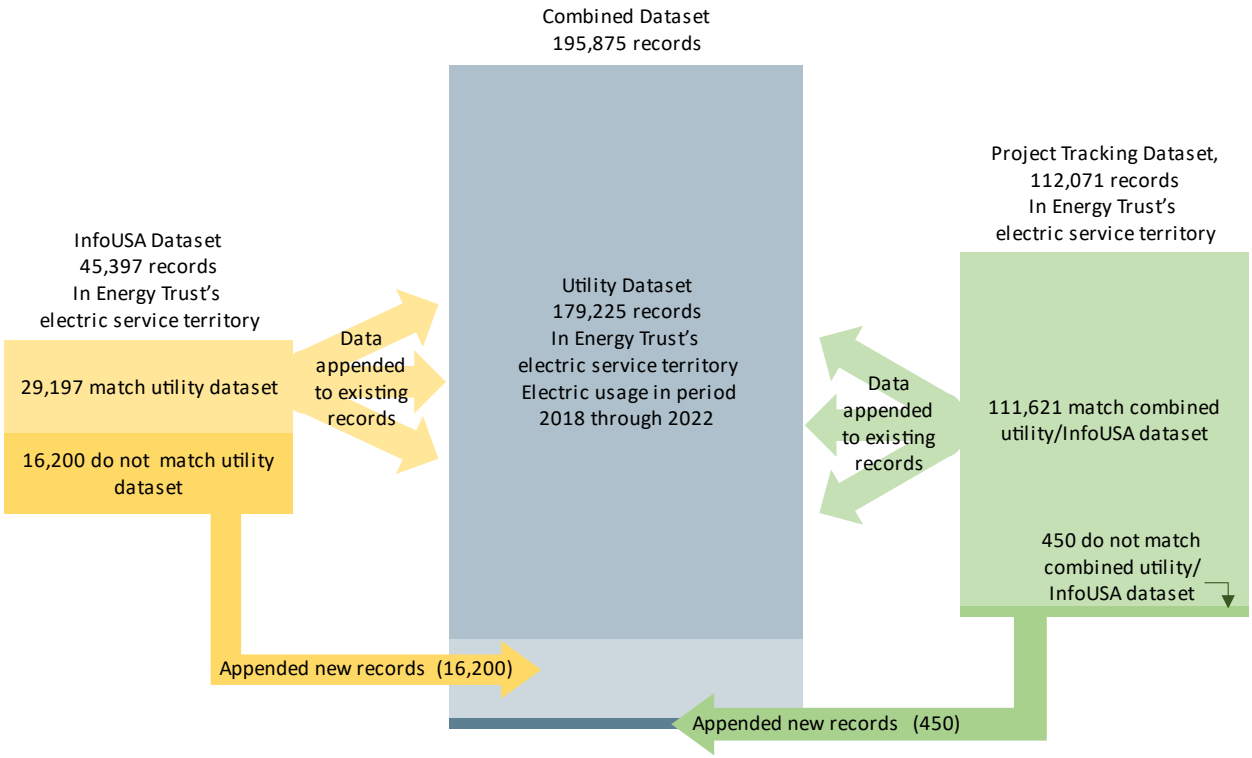
[3] Although this dataset primarily consisted of utility customers with nonresidential rates, some residential sites may have been included if they were part of an account that was primarily nonresidential (e.g., a place of worship with a residence for pastoral staff).

addition of the 16,200 records to the original 179,225 resulted in a combined utility/InfoUSA dataset with 195,425 records.

- Of the 112,071 records in the project tracking dataset, 111,621 matched a record in the combined utility/InfoUSA dataset on SiteGUID. We used the SiteGUID match to append project data (including data on LED installations) from the project tracking dataset to those utility/InfoUSA dataset records.
- We appended the remaining 450 SiteGUIDs to the end of the combined utility/InfoUSA dataset, together with data from fields that were common to the combined datasets.

The final combined dataset, thus, consisted of 195,875 records: 179,225 from the utility dataset (of which 29,197 also had data appended from the InfoUSA dataset); 16,200 from the InfoUSA dataset; and 450 from the project tracking data. Figure 3-1 graphically illustrates the above process. Appendix A provides additional details on the processes for cleaning and merging the data.

Figure 3-1: Construction of Combined Dataset



After assembling the combined dataset, we flagged all records that could be identified as "more rural," based on the definition Energy Trust used in its *2018 Diversity, Equity and Inclusion Data and Baseline Analysis*.[4]

[4] "More rural" is defined as a score of 3 or greater on the 5-point Urban-Rural Index, which Energy Trust created from the U.S. Department of Agriculture Rural Urban Commuting Area codes. Source: https://www.energytrust.org/wp-content/uploads/2018/12/2018_DEI_Data_Baseline_Analysis.pdf.

Finally, we identified all sites that we could confirm were currently active. These included all those from the InfoUSA dataset and those in the utility dataset flagged as active or as having a verified electric account or as having electric usage, and not flagged as a residential account or a residential sector site. There were 188,259 sites identified as currently active.

The following subsections provide information about how the combined dataset relates to the total population of Oregon businesses, identified from other sources, and regarding the representation of rural, small business, and women-led businesses.

3.4.1 Comparison to the Population of Oregon Businesses

ADM's combined dataset identifies 188,259 unique, currently active business sites that receive electric service from one of Energy Trust's partner utilities in Oregon. That is about 2% fewer than the average number of commercial & industrial customers (191,490) reported by the Oregon Public Utilities Commission in 2021 for Energy Trust's partner electric utilities.[5] Thus, our combined dataset appears to be largely accurate.

3.4.2 Representation of Rural Business Sites

Rural business sites appear to be well represented in our combined dataset: 18% of records are classified as rural with an index based on U.S. Census data, which is just slightly more than the 16% of Energy Trust customers identified as living in "more rural" areas.[6]

3.4.3 Representation of Small Business Sites

Our combined dataset contained four fields pertinent to identifying the number of employees at a business site. Two of these data fields came from the utility dataset and two came from the additional InfoUSA dataset that Energy Trust provided. We used the data from these four fields to classify the sites into the following categories: one to nine employees; 10 to 19 employees; 20 to 499 employees; 500 or more employees; and unknown.[7,8]

Table 3-1 compares the distribution of business sites across the above categories with what might be expected based on the Census data. The Census data (middle column) includes home-based

[5] *2021 Oregon Utility Statistics*. Oregon Public Utility Commission. https://www.oregon.gov/puc/forms/Forms%20and%20Reports/2021-Oregon-Utility-Statistics-Book.pdf.

[6] *2020 Customer Insights Study Final Report*. Prepared for Energy Trust of Oregon by ADM Associates, July 12, 2021. https://www.energytrust.org/documents/2020-customer-insights-study-final-report/.

[7] For nearly all the sites classified as "unknown" number of employees, one data field indicated the site was *not* a small business site by the InfoUSA criterion of having one to nine employees, but there was no other data to specify the number of employees. Thus, the site could have had zero employees or more than nine. There was no information on number of employees for the remaining <1% of such sites.

[8] We also examined the possibility of using building square footage as an indicator of size. The combined dataset had several fields that recorded square footage or some square footage range, but more than three-quarters of the site records had no content in those fields.

sites. To create an appropriate comparison to our data we adjusted the Census data to account for the fact that home-based businesses – which are smaller, on average, than those not based at home[9] – are included in the Census data but not in our dataset.[10] These adjusted data are shown in the final column.

Table 3-1: Distribution of Business Sites by Number of Employees – Combined Dataset Compared to U.S. Census Data for Oregon

Number of Employees	Combined Dataset	U.S. Census (Including Home-Based Businesses)	U.S. Census, Only Business Sites with Nonresidential Rates (Estimated)[1]
Zero	<1%	72%	36%
Unknown[2]	72%	n/a	n/a
One to nine	19%	20%	47%
10 to 19	4%	4%	8%
20 to 499	4%	4%	9%
500 or more	<1%	<1%	<1%
Total	100%	100%	100%

1 Using data from the 2018 and 2023 editions of the SBA *Frequently Asked Questions About Small Businesses*, we estimated that about 36% of business sites with nonresidential rates have zero employees. We assumed the remaining 64% of employer business sites were distributed the same as in the overall Census data. The third column shows the results of that adjustment – the estimated Census percentages for only nonresidential sites. (See Appendix A for details.)

2 For about half of these, our combined dataset indicates the site *does not* have one to nine employees, but it does not indicate whether the actual number is zero or more than nine. For about half, there is no information on number of employees.

As this shows, the share of our dataset identified as having one to nine employees is much smaller than expected from the adjusted Census percentages, while the share identified as having 10 to

[9] Home-based businesses make up about half of all businesses but about three-fifths of all those without paid employees. Thus, businesses with no employees are disproportionately concentrated in home-based businesses. Source: *Frequently Asked Questions About Small Business (August 2018).* U.S. Small Business Administration Office of Advocacy. https://advocacy.sba.gov/wp-content/uploads/2017/08/Frequently-Asked-Questions-Small-Business-2018.pdf.

[10] Data from the U.S. Census Economic Surveys indicate there are about 119,000 Oregon businesses and about 427,000 Oregon business *establishments* or *sites* (where a given business may have multiple sites). If half of businesses are home-based, and most of home-based businesses are single sites, then up to 14% of Oregon business *sites* (59,500 / 427,000) are home-based and, most likely, on residential rates. Sources:

American Community Survey Table CB2000CBP, "All Sectors: County Business Patterns, including ZIP Code Business Patterns, by Legal From of Organization and Employment Size Class for the U.S., States, and Selected Geographies: 2020," https://data.census.gov/table?q=CBP2020.CB2000CBP&g= 0400000US41_8610000US20746.

Economic Surveys Table NS1900NON-EMP, "All Sectors: Nonemployer Statistics by Legal Form of Organization and Receipts Size Class for the U.S., States, and Selected Geographies: 2019," https://data.census.gov/table?q= NONEMP2019.NS1900NONEMP& g=0100000 US$0500000_0400000US41.

499 employees is close to the expected share. If we assume all those identified as *not* having one to nine employees have zero employees and the relative proportions of the other employee size groups remain fixed, then the total percentages for the four groups would very closely approximate the percentages in the adjusted Census data: 41% no employees, 43% one to nine employees, 16% 10 to 499 employees, and <1% 500 or more employees.

We address the possible impact of the fact that we could not positively identify all small business sites in our dataset in the discussion of results.

3.4.4 Representation of Women-led Business Sites

The combined population dataset includes a flag identifying businesses with women owners or executives ("women-led businesses"). However, the 1% of records with this flag appears to drastically undercount such businesses. The SBA's 2021 Small Business Profile for Oregon states that women own 46.7% of small businesses. As SBA's definition of small business includes 94.4% of Oregon businesses, women-owned businesses make up at least 44% of all Oregon businesses. Thus, in communication with Energy Trust staff, we have decided not to attempt an analysis of how well the BL program serves women-led businesses.

3.4.5 Representation of Minority-owned Business Sites

None of the data sources we used to develop our combined dataset had information on minority ownership of business sites. Therefore, it was not possible to conduct an analysis of how well the BL program serves minority-owned businesses.

3.5 Analysis of LED Penetration from the Commercial Building Stock Assessment (CBSA)

The ADM team analyzed data on LED lighting penetration from the Northwest Energy Efficiency Alliance's (NEEA's) 2019 Commercial Building Stock Assessment (CBSA).[11] The report text did not identify the percentage of buildings or fixtures that had LED lamps. However, ADM used data from the CBSA lighting-fixture type data table to calculate the percentage of the surveyed facilities in Oregon that had at least some LEDs and the percentage of fixtures in any building that contained LEDs.

We calculated unweighted percentages: the first, by summing the number of surveyed Oregon facilities with LEDs (n = 203) and dividing by the total number of surveyed Oregon facilities (n = 258); and the second, calculated for each facility by summing the total number of surveyed fixtures with LEDs in that facility and dividing by the total number of surveyed fixtures in that facility. The first percentage was nearly identical to a weighted percentage where the facility weights were calculated based on the distribution of building types across the region (the distribution was not provided by state) and the distribution of sampled building types in Oregon. The description of the sampling within buildings, provided in the report's Database User Manual,

[11] Commercial Building Stock Assessment 4 (2019) Final Report. Prepared for NEEA by Cadmus Group, May 21, 2020. https://neea.org/resources/cbsa-4-2019-final-report.

suggested that the sampling of fixtures within buildings was not biased and so using unweighted data provides a reasonable approximation of the building-level LED penetration.

3.6 Market Expert and Manufacturer Interviews

The market expert interviews gathered feedback from a variety of experts about the current state of the C&I lighting market and existing opportunities to push the market to adopt more efficient lighting and lighting controls. Appendix C in the accompanying appendix document contains the interview guide.

Evaluators identified market experts through a combination of internet searches, referrals, and manufacturer's representative groups. Evaluators sought to recruit representatives from neighboring state's utilities, leading lighting and lighting control technology researchers, as well as local, regional, and national distributors and manufacturer's representatives.

We conducted 17 market expert and manufacturer interviews. In total, we attempted contact with 77 market experts and manufacturers across a diverse set of fields and backgrounds (Table 3-2). We made up to three phone or email contact attempts with each market expert and manufacturer; we determined that one contact was a bad fit (focused on residential lighting) and six were not interested in participating. About a third of the interviewees represented Pacific-Northwest-based utilities. The rest were manufacturers, lighting-focused non-profits, trade associations, and a research institution.

Table 3-2: Market Expert and Manufacturer Summary

Type	Total	Interviewed
Manufacturer's representatives	42	5
Utility	11	6
Trade associations	8	2
Utility associations	7	0
Distributors	4	0
Non-profit organizations	3	2
Energy data company	1	1
Research institutions	2	1
TOTAL	77	17

3.7 Community-Based Organizations

Community-Based Organizations (CBOs) are an important part of the Energy Trust's strategy to meaningfully engage with the community. The team conducted interviews with CBOs that have relationships with the Energy Trust staff. These interviews were intended to better understand how the CBOs are currently engaging with the Energy Trust, the best way to engage their membership and understand how they would like to engage with the Energy Trust moving forward.

Energy Trust staff managed the initial contact with each CBO, introducing the evaluation team to the key contact in each organization. We received introductions to five CBOs and then sent up to three emails to each one to request an interview. We completed interviews with four of the five CBOs, recording each one with the permission of the respondent.

Each interview lasted about 20 to 30 minutes and Appendix D in the accompanying appendix document contains the interview guide.

3.8 Participants

The team conducted phone interviews and an online survey of customers who received free or discounted lighting equipment through the BL program in 2022. The purpose of the phone interviews was to test questions to inform the development of the later survey.

Energy Trust provided the evaluation team with contact information for 495 customers. The interviewed respondents from the direct install and Downstream program tracks throughout November 2022, with a goal of completing 20 interviews. The team ultimately completed 21 interviews. The team then used the interview results to create the survey, converting the open-end questions into close-end questions. The online survey ran throughout December 2022 and generated 71 responses. For both the interviews and surveys, the team made up to three recruitment attempts to potential respondents. The team exceeded the goal of 90 completions, achieving a total of 92 completions. All interview responses were coded and added to the survey dataset. Table 3-3 shows the disposition summary of the interview and survey data collection efforts.

Table 3-3: Disposition Summary of Participant Data Collection

	SBDI			Downstream			Interv. Subtotal	Survey Subtotal	Total
	Interv.	Survey	Subtotal	Interv.	Survey	Subtotal			
Complete	6	39	45	15	32	47	21	71	92
Refused	0	0	0	3	0	3	3	0	3
Attempted	11	86	97	144	118	262	155	204	359
Bad contact	6	12	18	26	5	31	32	17	49
Total	23	137	160	188	155	343	211	292	503

Gathering a total of 92 completes from a sample of 503 yields a 18% response rate. The team collected data via the Qualtrics online platform and analyzed the data using the Qualtrics reporting function, SPSS, and MS Excel.

As seen in Table 3-4, the respondents generally represented the population when examined by region and building type.

Table 3-4: Participant Respondents and Population

	Population (*n*=503)		Respondents (*n*=92)	
	Count	Percent	Count	Percent
Region				
Willamette Valley	70	14%	11	12%
Other	31	6%	3	3%
Southern Oregon	136	27%	22	24%
Portland Metro & Hood River	266	53%	56	61%
Building Type				
Manufacturing/warehouse	101	20%	20	22%
Education	22	4%	3	3%
Health	26	5%	6	7%
Retail/grocery	121	24%	20	22%
Lodging/recreation	105	21%	18	20%
Office/bank/gov	72	14%	15	16%
Other	27	5%	5	5%
Agriculture/infrastructure/outdoor	21	4%	3	3%
Multifamily	8	2%	2	2%

Appendix E in the accompanying appendix document contains the data collection instrument.

3.9 Trade Allies

The evaluation team conducted interviews in late 2022 and early 2023 with contractors participating in the BL program. The interviews provided insights into the trade allies' experience with the program, their familiarity with Energy Trust's Diversity, Equity, and Inclusion (DEI) initiatives and their general thoughts on the lighting industry.

We attempted contact with the 302 individual allies identified in the program database and completed 30 interviews for a 10% response rate. We made up to two email contact attempts using the Calendly scheduling tool, which reduced the typical communication required to set or reschedule interviews. The trade allies were able to select their preferred times and could also reschedule without emailing the evaluation team. We recorded all interviews with the permission of respondents.

Each interview lasted about an hour. In one instance, we did not complete the interview by phone but sent a follow up email with the remaining questions. Appendix F in the accompanying appendix document contains the data collection instrument.

The interviewed trade allies and the projects they completed roughly reflected the population of trade allies and projects on program track experience and areas served (Table 3-5). For example, 98% of the trade ally population and 100% of the interviewed trade allies serve the Downstream

track, while that track makes up 92% of the project population and 80% of the projects done by interviewed allies. Similarly, 61% of the trade ally population and 73% of the interviewed trade allies serve the Portland Metro region, and that region makes up 53% of the project population and 44% of projects done by interviewees.

Table 3-5: Trade Ally Respondents and Population

	Trade Allies				Projects			
	Pop. (*n*=302)		Respondents (*n*=30)		Pop. (*n*=1,943)		Respondent Projects (*n=597)*	
	Count	Perc.	Count	Perc.	Count	Perc.	Count	Perc.
Program Track Experience								
Downstream	297	98%	30	100%	1,779	92%	479	80%
SBDI	3	1%	1	3%	161	8%	118	20%
Midstream	2	1%	0	0%	3	0%	0	0%
Areas Served								
Portland Metro	187	61%	22	73%	1,046	53%	264	44%
Non-Portland	204	66%	24	80%	1,020	52%	355	59%
Will. Valley	111	36%	16	53%	345	18%	86	14%
Southern OR	82	27%	13	43%	500	25%	246	41%
Central OR	45	15%	5	17%	112	6%	15	3%
North Coast	18	6%	1	7%	24	1%	4	1%
Eastern OR	17	6%	2	3%	39	2%	4	1%

In most categories, respondents represented fewer than half of the trade allies or projects in any track or region. The one exception was the one SBDI respondent, who represented 73% of the direct install projects (118 of the 161) completed as of the time of the data was pulled in Fall 2022.

3.10 Near-participants and Nonparticipants

The team's research plan included interviewing up to 30 near-participants of the SBDI program track. Near-participants are those small businesses that received a lighting assessment from the program but had not completed a project based on that assessment. The purpose of contacting near-participants was to determine whether there were any systematic reasons these businesses did not participate in the program. For example, were they businesses concerned about the difficulty of scheduling installations, business down-time, or some other barrier to participating?

The team identified near-participant contacts from a spreadsheet that the SBDI contractor provided in September 2022. The spreadsheet listed 59 small business sites for which the contractor had completed an assessment (i.e., an Energy Trust representative went to the site, identified lighting upgrades, and produced a document listing those upgrades) sometime from September 2021 through August 2022. The spreadsheet indicated that none of the businesses had signed an agreement to move forward with a project.

There were 54 unique contacts for those 59 sites. As detailed in Section 5.2.1.3, the team attempted to reach and conduct telephone interviews with all 54 unique contacts. Successful contact with 16 indicated that most all respondents either had received or expected to receive lighting through the program. The evaluation team contacted the implementation team to help clarify this finding and to see if there was a reason to further explore this line of inquiry. That conversation ultimately determined that there was not a reason to proceed with contacting nonparticipants because the program data did not reliably distinguish businesses that refused services from nonresponsive customers (those that had not returned the implementer's request for information).

The team then redirected some evaluation resources to interviewing nonparticipants – businesses that turned down the SBDI contractor's offer of an assessment. The team identified contacts from a second spreadsheet provided by the SBDI contractor in September 2022, which listed 193 business sites that had turned down an assessment. The team sent invitations to take an online survey to 95 of the businesses with an identified email address and received 10 completes for a response rate of 11%. Section 5.2.1.3 provides information on the response to that survey.

Appendix G and Appendix H in the accompanying appendix document contain the data collection instruments for near- and non-participants respectively.

4 Lighting Market Trends

A key aspect of this evaluation was to understand the trends and changes happening in lighting and how Energy Trust can adapt to those trends and changes. The evaluation team used two sources to address this topic: 1) interviews with market experts and trade allies that covered trends in the broader lighting market in North America as well as remaining opportunities for LED projects in Energy Trust territory; and 2) analysis of market data to provide additional information on remaining opportunities for LED projects.

4.1 Current State of the Lighting Market

Market experts provided the following feedback about the lighting market and how utilities design programs and incentives to serve the market.

4.1.1 Program Design

When asked about current trends in lighting program administration, market experts reported a wide range of opinions and experiences. Across the six utilities represented in interviews, two had a business lighting program that combined the small business program lighting offerings with larger C&I project lighting offerings, while four had their lighting offerings mixed in with the rest of their C&I offerings. One utility with a lighting-specific program indicated that the utility made the switch a few years ago to better accommodate customers and contractors and streamline participation. The representative noted that the switch was initially a success, as the lighting program was regularly "the cash cow" of the overall C&I portfolio and regularly exceeded goal; however, the representative noted that the program has struggled to acquire savings more recently.

Market experts expressed varying opinions regarding the proliferation of Midstream versus Downstream programs, as well as custom versus prescriptive measures. The manufacturers' representatives preferred the Midstream and prescriptive programs to custom and Downstream. They preferred Midstream programs as they minimize the number of people the utility needs to connect with, reduce paperwork for the end user, and capitalize on distributors as natural marketers of the program. Additionally, although manufacturers' representatives recognized the importance of custom programs for niche projects, they generally indicated that prescriptive programs are easier to administer and promote. One manufacturer's representative noted that direct-install programs are particularly successful in suburban and urban areas, as the measures are typically free to customers, and contractors can go from one business to another installing upgrades with minimal travel and paperwork.

> *Need direct installers to come out and just switch [the products]. [Small businesses] will be happy with getting anything; they're not going to say no to free. They're not adopting, because they don't know about it. They're too focused on just keeping business alive.*
>
> *-Manufacturer representative*

> *[Midstream is] just simpler. Volumes [are] easier to achieve. Less expensive to administer. Model has been proven.*
>
> *-Energy data company representative*

There was less agreement among utility representatives regarding Midstream versus Downstream programs and custom versus prescriptive. Although utility representatives recognized the benefits of a Midstream model, some noted that they have witnessed a move away from Midstream lighting programs, as LEDs have become less lucrative and there is a stronger focus on lighting controls and other measures that require a more hands-on and custom approach. Additionally, one utility representative noted that when you move towards Midstream "you have to be all in, otherwise…it feels disjointed for the customers, having Midstream for some things and Downstream for others."

Lastly, some utility representatives were in favor of strong prescriptive programs, as those are easier for customers to digest, while other utility representatives preferred custom projects, noting that many projects cannot fit in a prescriptive box.

4.1.2 Incentive Structure

Market expert respondents noted a variety of incentive models. Some utilities follow the structure set forth by the Bonneville Power Association (BPA), which is based on kWh, while others add additional or higher incentive amounts. While respondents agreed that "free is best," they acknowledged that is not always feasible and instead emphasized the importance of covering at least 60% to 70% of cost. One manufacturer's representative noted that incentives are not considered worthwhile to end users unless there's no more than a two-year return on investment period.

> *Some stuff is so expensive and savings not high enough to overcome that initial cost. There's got to be an incentive for initial cost hurdle. Facilities aren't burning as many hours per day, so much harder to reach savings.*
>
> *--Manufacturer representative*

Utility representatives noted that there is sometimes a disconnect between incentive amounts and the demand for the measure. One representative explained that there is low demand for some measures even though incentives cover a large share of their cost. Relatedly, one of the non-profit contacts, noted that it is important to distinguish between different types of controls and incent accordingly. Lastly, another recommendation from one of the manufacturers' representatives who notes greater success among programs that provided tiered incentive programs, explaining "people like choice, but limited choice."

> *We need a distinction between network lighting controls and LLLC (Luminaire Level Lighting Controls). A lot of people lump them together and give the same incentive for both. The savings for LLLC is much higher than other controls; we need to incentivize better to optimize savings.*
>
> *--Non-Profit representative*

One of the trade association representatives commented that the programs that are most successful in encouraging uptake of lighting controls are those that "really put the foot on the control scale" by not only increasing incentives for controls, but also decreasing incentives for non-control measures, thereby making controls even more enticing.

> *Why was [northeastern state program] so successful? Because the incentives are so big. People moved in and set up companies specifically, to target and address [incentives]. The big manufacturers set up warehouses just to service that incentive. So, if you can throw enough money at something, then yeah, at the spaghetti starts to stick to the wall, but if you're like most utilities and you can only step on the scale so much.*
>
> *-Trade Association representative*
>
> *We need a tiered incentive system. You're not always comparing apples to apples. Occupancy sensors shouldn't be compared to LLLC.*
>
> *-Manufacturer representative*

4.2 Saturation of LEDs and Remaining Opportunities

ADM obtained feedback on the saturation of LED lighting and the lighting savings opportunities still available to programs through interviews with utility staff, manufacturers' representatives, and trade allies as well as information obtained from analyses of data from the 2019 Commercial Building Stock Assessment (CBSA) and an analysis of Energy Trust program penetration.

4.2.1 Feedback from Market Experts and Trade Allies

Our interviews with market experts and trade allies yielded feedback on two topics: 1) the saturation of LEDs; and 2) the focus on lighting controls.

There was an overwhelming sentiment among market expert interviewees, regardless of background, that the commercial and industrial (C&I) retrofit lighting market is at an inflection point because of the saturation of the market with LEDs. Most interviewees stated that the market is rapidly nearing saturation for LED retrofits, and there was consensus that the "low hanging fruit is picked over and done." Interviewees across industry types agreed that most bigger businesses have already transitioned from incandescent to LEDs, and thus the remaining savings potential for LED retrofits is among smaller businesses, who are often slower to adopt new technologies and more wary of change.

Market expert respondents explained that although all business types were initially reluctant to adopt LEDs, as the technology advanced, demand for LEDs "exploded in 2016 and all the big projects happened." Then, by 2018 and 2019 momentum had waned, and lighting-related savings have been decreasing ever since. Among the utilities interviewed, only one Washington based organization did not express some degree of concern regarding the future of their C&I retrofit lighting programs, noting they still have a healthy pipeline of projects each year. This respondent did not noticeably differ from the other power suppliers in any obvious way such as region (rural

vs. urban) or customer types served so it is unclear what makes this one supplier have a different perspective than the other suppliers.

Trade allies agreed with the market experts reporting that most buildings have LEDs but also noted that there are still some opportunities to install LEDs. Nineteen respondents mentioned that LEDs are still a technology that can deliver savings and one trade ally noted that OLEDs may have promise in the future.

Trade allies reported there were a variety of customer types where there was still an opportunity to promote efficient lighting. Twenty-five respondents reported where they see efficient lighting opportunities in the market. Small businesses, rural businesses, and warehouse facilities were the most cited locations, but no customer type was cited by more than about one-third of respondents (Table 4-1). Note that the perception of greater opportunities for efficient lighting in rural businesses is not consistent with findings from our analysis of CBSA or program penetration data; see further discussion in the following sections.

Table 4-1: Lighting Opportunities According to Trade Allies

Customer Type	Count
Small business	8
Rural	4
Warehouse	4
Manufacturing	3
Retail	2
Restaurant	2
Religious	1
Multifamily	1
Organization with 24/7 operations	1
All customer types	3

4.2.2 Analysis of Commercial Building Stock Assessment (CBSA) Data

The 2019 CBSA found that the Northwest region saw "a significant transition to LED lighting power" from 2014 to 2019. The report noted that LEDs accounted for 16% of indoor lighting power (wattage) in 2019, up from 1% in 2014.[12]

The report text did not identify the percentage of buildings or fixtures that had LED lamps. However, ADM used data from the CBSA lighting-fixture type data table to determine that 79% of the surveyed facilities in Oregon had at least some LEDs and that, on average, 39% of fixtures in any building contained LEDs. Using CBSA data provides a rough estimate to compare to Energy Trust data because the CBSA includes all of Oregon and Energy Trust covers most of Oregon but does exclude some key electric service areas of the state including Eugene, Newport, and other

[12] Assuming an average of about 140 lumens per Watt for LED lighting and about 80 lumens per Watt for a blend of other lighting types, LEDs' 16% of 2019 wattage works out to about 25% of lumens.

areas. Both the percentage of buildings with LEDs and the LED share of fixtures undoubtedly have increased over the past four years, although we cannot say by how much. We know that the Covid-19 pandemic depressed Energy Trust program activity and so may have had a broader impact on building retrofits. Apart from that, the building penetration rate suggest the market may have been reaching the high end of the generally s-shaped adoption curve, and so the trajectory may have begun to slow in any case.

The overall program opportunity is limited by how much both have increased, which is unknown, but Table 4-2, which shows the percentages by building type and urbanization level, suggests that penetration levels are not uniform across building types. The fact that most sample sizes are small and most differences are not statistically significant[13] argues for caution in interpretation but this information may point to areas where the program may have relatively more opportunity. In particular, office buildings, warehouses, schools, and hospitals are the building types that may be most likely not to have LEDs or where LEDs account for the smallest percentage of fixtures.

Table 4-2: Estimated Penetration of LED Lighting in Oregon, from 2019 CBSA

Group	Number of Surveyed Facilities	Percentage of Surveyed Facilities with LEDs	LED Percentage of Fixtures
Building Type[1]			
Lodging	19	95%	44%
Restaurant	23	91%	47%
Residential care	11	91%	41%
Grocery	21	90%	47%
Other	8	88%	71%
Retail/Service	38	87%	42%
Mixed commercial	19	84%	40%
Assembly	12	83%	41%
Office	42	74%	37%
Warehouse	18	67%	38%
School	20	55%	19%
Hospital	15	53%	18%

[13] Some statistically significant differences do exist, particularly where one or more of the sample sizes are larger and/or the sample differences are greater. For example, with respect to the percentage of facilities with LEDs, School and Hospital both differ from Lodging, Restaurant, Residential Care, Grocery, Retail/Service, and Mixed Commercial. Warehouse also differs from Lodging but not the others.

Group	Number of Surveyed Facilities	Percentage of Surveyed Facilities with LEDs	LED Percentage of Fixtures
Urbanization[2]			
More rural	22	82%	45%
More urban	236	78%	39%
Facility Size[3]			
≤20,000 square feet	171	78%	42%
>20,000 square feet	87	80%	34%

[1] Building type was not identified for 12 facilities. Hence, the total number of sites is 12 fewer than the total for Urbanization.

[2] The percentage of facilities classified as rural (9%) is smaller than the percentage we identified as rural in our combined dataset of Oregon business sites (20%; see Table 4-3). The CBSA used the U.S. Department of Agriculture Rural Urban Commuting Area (RUCA) codes to classify facilities as rural or urban. This also was the basis for the Energy Trust classification, which we used to identify sites as more rural or more urban (see Section 3.4). However, the CBSA Final Report does not identify the cut-point on the 10-point RUCA scale to produce the binary classification. Therefore, we cannot determine how well the CBSA classification corresponds to the one we used.

[3] The CBSA data did not report number of employees but did report facility area. We binned all facilities into two groups based on a cut-off of 20,000 square feet, which is one of the BL program definitions of small business.

4.2.3 Analysis of Energy Trust Program Penetration

As described in Section 3.4, ADM developed a dataset of business sites within Energy Trust's Oregon territory and identified those sites that have had LEDs installed through the program from 2016 through 2022. Obviously, this does not identify all sites with LEDs, as many have installed LEDs without program assistance – this is clear from comparing the program-specific data, below, with the CBSA data, above. However, differences in program penetration by business size or location could indicate differences in LED penetration and greater opportunity for future program efforts. We could not reliably assess program penetration by building type (e.g., retail, office, school), as that information was not available for about two-thirds of the records in our dataset.

Table 4-3 shows the results for the 188,259 business sites that were identified as currently active in the dataset. Overall, we identified Energy Trust LED projects for 5.8% of those sites. In terms of the firmographic variables examined, penetration is lowest – and the remaining opportunity is greatest – in sites for which the number of employees is characterized as unspecified. As noted in Section 3.4.3, for about half these sites, all we know is that the site had some number of employees outside of the range of one to nine employees, but there was no other data to specify whether it had zero employees (i.e., represented a single individual) or had more than nine employees (see Section 3.4.3). For the other half, there was no information on number of employees.

Table 4-3: Current Penetration of Energy Trust LED Lighting Projects, 2016-2022

Grouping	Count of LED Project Sites	Percent of All Sites With LED Projects
All (n = 188,259)	11,011	5.8%
Urbanization		
More rural (n = 37,374)	2,420	6.5%
More urban (n = 150,885)	8,591	5.7%
Number of Employees		
Unspecified (n = 135,888)[1]	4,868	3.6%
One to nine (n = 36,563)	3,582	9.8%
10 to 19 (n = 7,525)	994	13.2%
20 to 499 (n = 7,672)	1,448	18.9%
500 or more (n = 82)	15	18.3%
Missing (n = 450)[2]	102	22.7%
Geographic Region		
Portland Metro & Hood River (n = 106,057)	5,671	5.3%
Willamette Valley & North Coast (n = 35,532)	2,575	7.2%
Southern Oregon (n = 29,596)	1,853	6.3%
East of the Cascades (n = 17,014)	911	5.4%

[1] One data field identified nearly all of these as *not* in the one-to-nine-employees range, but there was no other information to indicate whether there were zero or more than nine employees (see Section 3.4.3).

[2] There was no information on number of employees for these sites (see Section 3.4.3).

It is unclear what the above low penetration rate means in terms of identifying and targeting certain sites. It is possible that this group largely consists of sites with few or no employees. In all the other categories, the penetration rate is positively related to the number of employees, and so it would make sense that the penetration rate is lowest for sites with no employees. There may be some other reason that these are sites that are unlikely to receive LEDs through Energy Trust, although it is not known what this reason is or why it would be so strongly related to lack of information about the number of employees.

It is noteworthy that the large number of business sites with an unknown number of employees means the low penetration rate for that group has a disproportionate weight on the overall penetration rate. In any case, the very low penetration rates for this category is consistent with the idea that it represents businesses that may not be responsible for maintenance of lighting equipment and may not have landlords that are motivated to upgrade the lighting.

In addition to the above, the data suggest that the geographic regions with the greatest relative opportunity for additional LED installation are Portland Metro & Hood River and East of the Cascades. Consistent with the analysis of CBSA data, there appears to be somewhat more opportunity in areas that are more urban than those that are more rural. As noted above, the finding of greater LED penetration in rural areas, in general, is inconsistent with the perception of some trade allies that those are the areas with the greatest opportunity for efficient lighting.

Possibly, such trade allies were using “rural” to mean the least populated regions of the state. If so, that is consistent with the finding of low LED penetration in the East of the Cascades region.

4.3 Focus on Lighting Controls

According to all market experts interviewed, lighting controls are the “next big thing“ in lighting:

> *Lighting controls is the bleeding edge, where we need to be putting effort.*
>
> *--Utility representative*
>
> *The future is going to be around the controls aspects. We want to do more classes and demystify controls.*
>
> *--Utility representative*
>
> *Controls are baby stage, whatever is before infancy.*
>
> *--Manufacturer representative*
>
> *Lighting control has a bright future but unclear what the ceiling will be. All lighting should be controlled, but what degree of automation and advanced capabilities.*
>
> *--Trade association representative*
>
> *If we don’t get controls integrated in more projects in next 8 years, we’ll have stranded savings opportunities.*
>
> *--Utility representative*

Lighting controls include a wide range of measures that help end users modify the lighting in their facility. Controls range from measures as simple as occupancy sensors to advanced controls that rely on a network of sensors that communicate with each other and use artificial intelligence (AI) to optimize lighting usage. When discussing the potential for lighting controls, respondents were quick to emphasize the differences among the lighting control types.

There was general agreement across market expert interviewees that simple controls, like occupancy sensors and dimmers, are more palatable to end users than advanced controls due to their ease of use and minimal installation requirements, yet the energy savings and non-energy savings benefits are far more robust from advanced controls. Interviewees agreed that the industry is at a “critical point with anything going forward; if they don’t include controls, they’re limiting their savings” One non-profit representative emphasized that “nothing should be installed without controls.”

According to one of the non-profit representatives, although “less than 7% to 8% of lighting projects nationwide use controls, the number grows every year.” All the utility representatives echoed this notion that there is ample room for growth for lighting controls in their service territories, with one representative explaining that, although lighting controls have become standard in new construction and are increasingly common in residential programs, they are “almost non-existent in the retrofit market” despite utilities pushing controls and some customer interest in controls. According to this respondent, contractors are not interested in pushing

controls in retrofits because they are concerned about "call-backs" – customers requesting on-site support for controls issues that may arise. This respondent did not offer suggestions for additional ways to overcome this resistance to controls.

Market expert interviewees from all backgrounds cited cost, lack of awareness, and skepticism towards new technology as the primary barriers preventing lighting controls from penetrating the market. Many customers do not understand or appreciate the potential benefits of controls, but even among those who do, it is often difficult to justify the cost.

> *"They're controlling a smaller load, so there's less savings potential. Lighting controls only controlling 10-20% of your [total electric] load. So, even though percentage savings is very high, its very high on a lower number because LEDs are so efficient."*
>
> *-Trade Association representative*
>
> *"If you didn't include controls from the jump, it is difficult to add them on later."*
>
> *-Manufacturer representative*

Representatives from the two non-profits and the one research institution have been working collaboratively to reframe the narrative around lighting controls (particularly advanced lighting controls) and standardizing procedures, but they reported that confusion persists. All market expert interviewees admitted that lighting controls will not thrive unless contractors are engaged.

Although many market expert interviewees speculated that contractors would come more to accept lighting controls as the technology becomes more commonplace in new construction, all respondents recognized the need to convince contractors about the importance of controls. Utility representatives explained that, despite their efforts to promote controls, trade allies are still hesitant due to the time needed to install the controls (both simple and advanced) and the amount of time needed for various maintenance calls and response to customer complaints. Moreover, interviewees emphasized a generational divide, particularly when it comes to advanced controls:

> *"It's a generational thing. Older folks don't want to learn. Using phone to understand and demand response, its just too much. It needs to be done at a building approach and new construction. Its hard for retrofit to get past occupancy sensor."*
>
> *-Manufacturer representative*
>
> *"Some people are less familiar with app-based technology. Lot of things coming together, old guard ready to retire, new folks are more comfortable with app based tech."*
>
> *--Non-Profit representative*

Recognizing the return-on-investment argument is weak when relying on solely on energy savings, market expert interviewees emphasized the data gathering potential of advanced controls. Multiple interviewees provided anecdotal examples of how advanced lighting controls can help manufacturing facilities track productivity, increase flexibility in lighting design for offices, and improve safety and efficiency in healthcare settings. One non-profit representative

provided this summary: "[Advanced controls] gives you that granular info about occupancy in the buildings."

> *We need to drive up cost effectiveness by incorporating non-energy benefit[s]…you've got the bring a lot of ROI and value to the project that is over and beyond the energy savings*
>
> *-Trade Association representative*

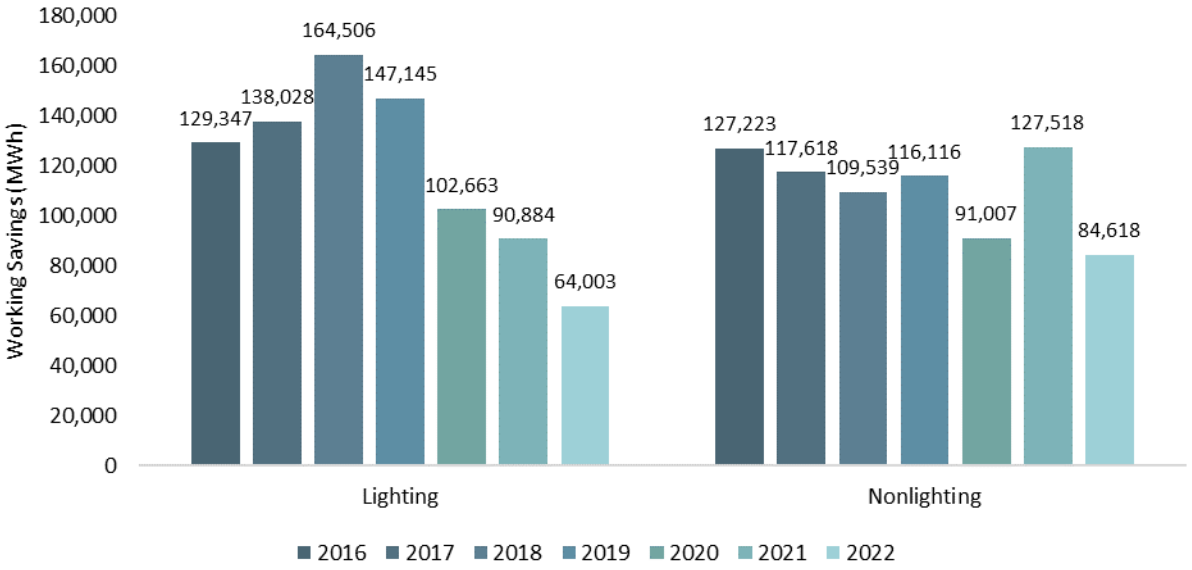
About half of the interviewed trade allies mentioned that controls are a key lighting technology that can capture energy savings in the future. Fourteen trade allies mentioned controls would deliver savings in the future, and seven allies specified which controls would deliver savings. The seven respondents reported that daylight harvesting controls (5 mentions), motion sensors (4 mentions), and controls integrated with building systems (3 mentions) were the technologies with the most promise.

5 Program Operation

Program documents show, and staff respondents noted, that Energy Trust's Business Lighting program provides incentives and support for C&I lighting installations via three program tracks: Downstream, Small Business SBDI (SBDI), and Midstream/Buydown.[14] We discuss the structure of each of these tracks, stakeholders' perspectives on the effectiveness of each track, and potential improvements for each track below.

Figure 5-1 shows that lighting savings have declined since 2018. The 2020, 2021, and 2022 lighting savings represent 62%, 55%, and 39%, respectively of the 2018 peak level and are lower than for any year since 2016. By contrast, the non-lighting savings show a longer, slower decline since 2016. While the 2020 and 2022 savings were lower than for 2018, the 2021 savings were higher.

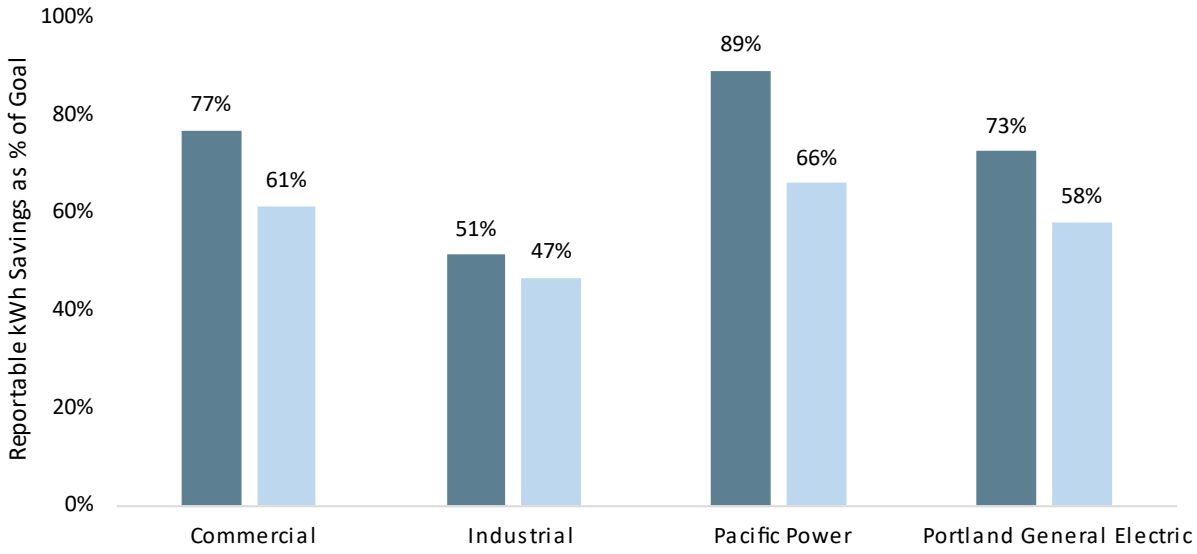
Figure 5-1: 2016-2021 Trends in Lighting and Non-lighting Savings



As seen in Figure 5-2, the BL Program came nearer to meeting 2021 and 2022 goals in the commercial sector than in the industrial sector and achieved a higher percentage of goal for Pacific Power than for Portland General Electric (PGE) territory.

[14] There was a fourth track related to street lighting, which was a carryover offering from the lighting offerings provided in 2020. There were no new streetlighting projects in 2021 or 2022.

Figure 5-2: 2021-2022 Lighting Savings as Percentage of Goal: By Sector and Utility Sponsor



5.1 Downstream Structure

In the downstream track, C&I customers receive Energy Trust support for installing prescriptive or custom lighting or control measures at their organizations. Trade allies typically install these measures but some larger customers, especially industrial or those with campus-type facilities, may have their own staff complete the installation. Implementation of this track began in January 2021, as soon as CLEAResult began its contract with Energy Trust.

Trade allies are the core of the Downstream program track as they are the ones that work with customers to design and install lighting projects. Backen Consulting leads outreach efforts with trade allies and works with them to answer program questions, teach allies about program changes, and be a resource for allies. This work involves responding to email and phone requests from trade allies as well as doing in-person visits with trade allies. In some limited instances, outreach staff will accompany trade allies to a customer site to explain program benefits and incentives and assure the customer about the savings estimates.

5.1.1 Effectiveness of Downstream Track

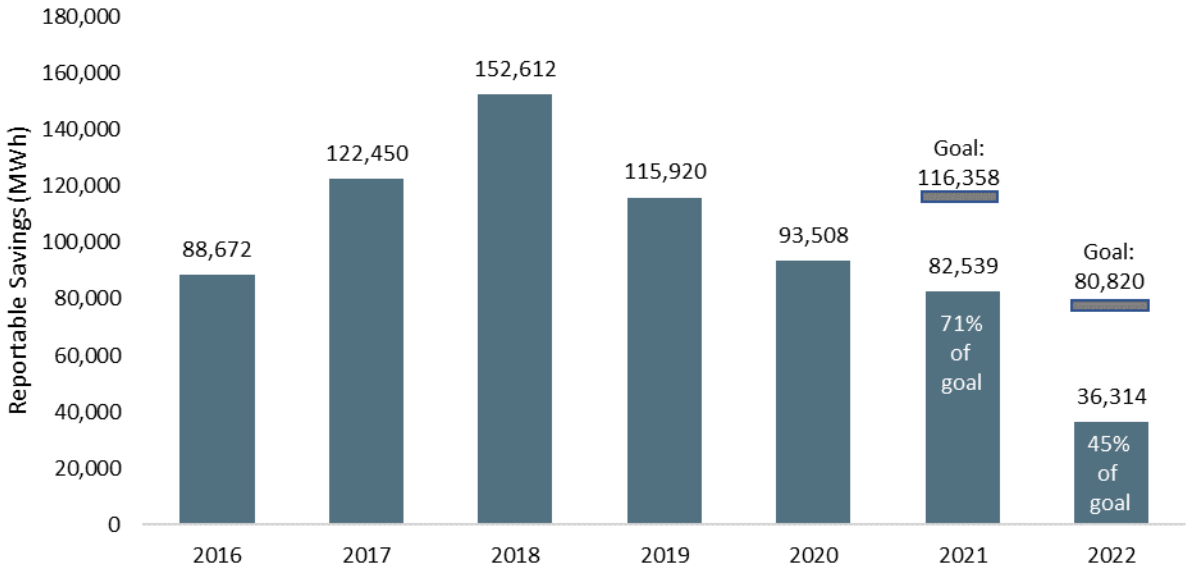
Program data, participants, and trade allies informed our understanding about the effectiveness of the Downstream program. The following subsections summarize those results.

5.1.1.1 Program Data

Savings from Downstream efforts have been on the decline since 2018. Figure 5-3 shows lighting savings trends for the Downstream track. Downstream lighting savings, which typically make up a large share of all lighting savings, have declined since 2018. The 2020, 2021, and 2022 lighting

savings represent 61%, 54%, and 24%, respectively, of the 2018 level, and all are lower than for any year since 2016. The reportable savings were well below the program goals for both 2021 and 2022.

Figure 5-3: 2016-2021 Trends in Downstream Lighting Savings



5.1.1.2 Participants

Prior to their most recent project, almost three-quarters of Downstream respondents were aware of Energy Trust, more than three-quarters of whom had used Energy Trust services, almost all having done so on multiple occasions, generally for other lighting projects. More specifically, 71% of participants (32 of 45) indicated they were aware of Energy Trust services, most commonly lighting services, HVAC, building shell improvements, solar, and water heating (Table 5-1). Of those familiar with Energy Trust services, 78% (25) reported using Energy Trust services in the past, with all but one indicating they used the program on two or more occasions. All but one had used lighting services, with smaller participation reported in other measure types. All but one of these respondents was satisfied with their past participation.

Table 5-1: Energy Trust Services – Respondents Aware of and Used

Response	Aware	Used
Lighting	≥24*	24
HVAC	11	6
Shell	9	3
Solar	7	1
Refrigeration	6	2
Water heating	6	1
Commercial kitchen	4	1
Strategic energy management	1	1

Response	Aware	Used
New construction	0	3
Irrigation	0	1
Nonspecific	1	0

*15 specifically said they had been aware of Energy Trust lighting services before their most recent project, but since 24 said they *had used* Energy Trust lighting services before, we can assume they had been aware of them. Possibly, they did not mention having been aware of lighting because they considered it assumed.

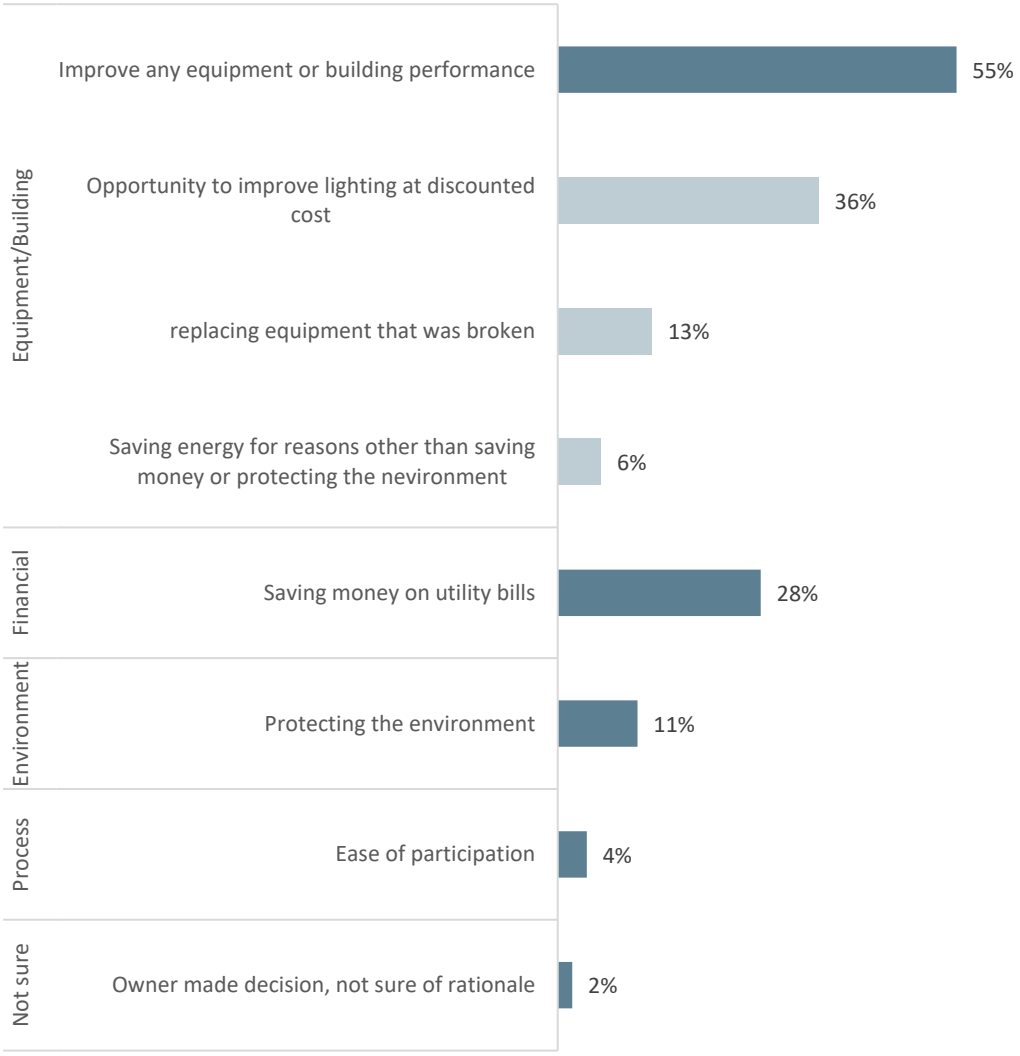
Participants reported differing opinions about how incentive amounts had changed over the last couple of years and how those changes affected their decision making. Of the 15 respondents that reported completing multiple lighting projects in the last couple of years, six reported that incentives had not changed noticeably. Of the nine remaining, four reported that incentives decreased, three reported that incentives increased, and two noted that incentives had fluctuated. Table 5-2 shows that these nine respondents varied in how changes in incentives led them to change their decisions to participate in Energy Trust programs.

Table 5-2: Effect of Incentive Changes on Decision Making

Changes Noticed	How Changes Affected Decisions to Use Energy Trust			Total
	More Inclined	No Change	Less Inclined	
Incentives have decreased	0	2	2	4
Incentives have increased	2	1	0	3
Incentives have varied	0	1	1	2
Total	2	4	3	9

Participants varied in their motivations for upgrading their lighting equipment. The survey data reveals that just over half of respondents were motivated to complete their project to make improvements to their buildings or lighting equipment and just over one-quarter cited other reasons (Figure 5-4).

Figure 5-4: Rationale for Upgrading Lighting Equipment (n=47)



Relationships between contractors and participants are a key way projects come to fruition. Almost three-quarters (34 of 47, 72%) of respondents reported that their project was either initiated by their contacting a contractor (38%) or a contractor reaching out to them (34%). The remaining respondents initiated their project by contacting Energy Trust (17%) or in some other way the respondents did not specify (11%). Additionally, of the 34 respondents that initiated a project through a contractor, more than three-quarters (26 of 34, 76%), identified their contractor via an existing relationship they had with the contractor or because a contractor reached out to them. The remaining respondents reported they found contractors through a variety of other sources (Figure 5-5).

Figure 5-5: How Participants Initiate Projects by How they Find Contractors

How contractor found?	Contractor relationship		Energy Trust rep.	Something else	Total
	Contractor reached out	Resp. reached out to contractor			
Existing contractor relationship	11	11	3	2	27
Contractor reached out to me/sales call	3	1	0	0	4
Friends or colleagues	1	3	0	1	5
From an Energy Trust representative	0	0	4	0	4
Through an internet search	1	2	0	0	3
Bid process	0	0	1	0	1
Employee at my company	0	0	0	1	1
From Energy Trust's website	0	1	0	0	1
Don't know	0	0	0	1	1
Total	16	18	8	5	47

Most respondents knew what lighting type they wanted installed before contacting a contractor and most wanted either office lights or exterior lights like safety or parking lot lighting. More than three-quarters of respondents (35 of 45, 78%) reported they knew what types of lighting they wanted, and of those:

- 54% (19) wanted office lights.
- 54% (19) wanted exterior lighting improvements.
- 37% (13) wanted high bay lighting.
- 6% (2) wanted low-bay lighting.
- 3% (1) Lighting controls.
- 3% (1) Retail space lighting.

A notable percentage of contractors used their connection to participants to identify lighting opportunities beyond what a customer initially wanted. Sixteen participant respondents (40%) reported their contractor recommended upgrades they had not thought about previously. Of those 16, 12 reported that their contractor recommended a lighting type beyond what they initially desired. For example, respondent number 43 (highlighted in yellow in Table 5-3) initially hired the contractor to upgrade their office and high-bay lighting. Their contractor suggested additional upgrades to their controls, something the participant had not considered before.

Table 5-3: Lighting upgrade suggestions by contractors

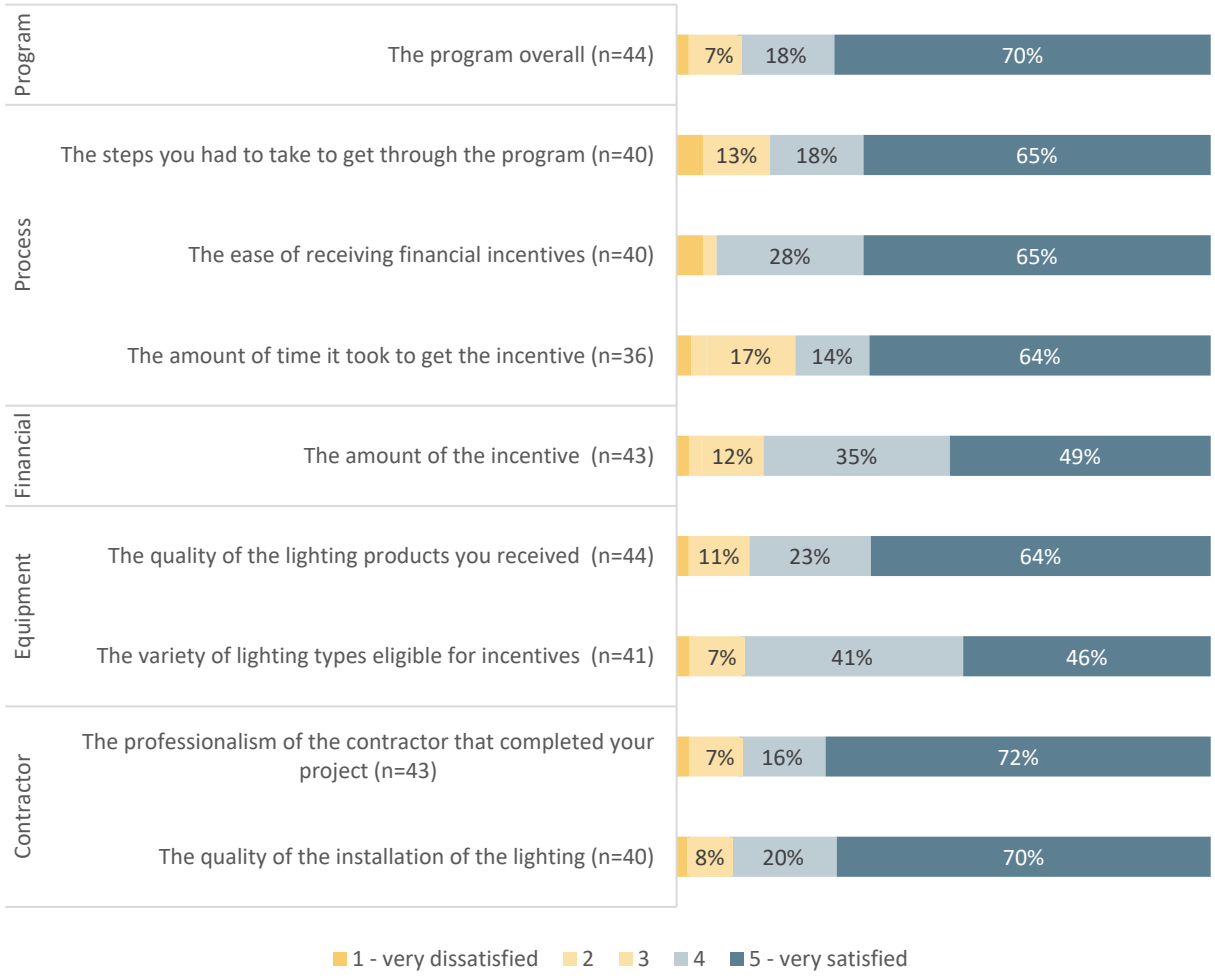
Resp. ID	Desired specific lighting at project outset						Contractor recommended lighting type beyond initial project scope (n=16)						Contractor recommended lighting type beyond what participant desired
	None reported	Office	Exterior	High-bay	Low-bay	Retail space	Office	Exterior	High-bay	Low-bay	Controls	Case Lighting	
7	✓							✓					✓
5	✓												
27	✓						✓				✓		✓
1	✓						✓		✓				✓
47	✓										✓		✓
32	✓						✓						✓
44	✓						✓						✓
35						✓		✓				✓	✓
24			✓	✓			✓	✓	✓				✓
23				✓			✓	✓	✓		✓		✓
16				✓							✓		
33			✓	✓				✓					✓
43		✓		✓							✓		✓
39				✓	✓			✓		✓			✓
34			✓					✓					
2		✓	✓	✓			✓	✓	✓				
TOTAL	7	2	4	7	1	1	7	8	4	1	5	1	12

Most respondents reported that they still would have installed their lighting upgrade, without contractor or financial support. Sixty-two percent of respondents reported they would have completed their project without the specific recommendations from their contractors and 60% reported they would have completed the project without Energy Trust financial support. It is unclear whether the timing of their project would have changed without contractor or financial support.

Downstream respondents were largely satisfied with their involvement in the program, with 88% reporting satisfaction with the program overall, and they were likely to recommend the lighting and non-lighting support Energy Trust offers to their colleagues. Specifically, they mostly gave ratings of four or five on a five-point satisfaction scale related to their contractor, the equipment they received, the amount of the incentive, and the process of participating. Of the four respondents that reported dissatisfaction (a rating of 1 or 2 on the scale), one specified what they were dissatisfied with. This respondent asked that Energy Trust pay the incentive to his

department but instead found the incentive went to the corporate office which meant he was unable to apply the incentive to additional capital projects (Figure 5-6). All respondents reported they were likely to recommend the lighting services Energy Trust offers to colleagues and almost all (40 of 45) were likely to recommend Energy Trust's non-lighting services. The remaining five respondents reported they were neither likely or unlikely to recommend the non-lighting services (4 mentions) or very unlikely (1 mention).

Figure 5-6: Program Satisfaction



5.1.1.3 Trade Allies

Trade allies reported that program changes from 2020 through 2022 resulted in varying experiences that in turn affected the effectiveness of the program. Of the 30 interviewed trade allies, nine reported the incentive caps implemented by the program in 2021 had chilling effects on their ability to sell efficiency projects, three of whom reported the changes made them emphasize efficiency work in other regions. Six allies spoke about the positive changes the program made in this timeframe, with two saying that the bonus incentives provided in 2020

increased their business and three saying that the removal of the incentive caps in 2022 had the same effect.

One trade ally had a unique perspective, saying they appreciated the incentive cap because it ensured there would be more money available for smaller projects. "*I think [the incentive cap] just spread out [the money] a little more so that the money could go further for a little bit of everybody* instead of just the largest projects." The remaining respondents reported that the series of program changes instituted from 2020 to 2022 had little to no impact on them.

One issue that two trade allies mentioned, which is not specific to Downstream but also affects SBDI and Midstream, is the general lack of electricians in the state and especially in rural Oregon. One distributor stated that Oregon needs at least 800 electricians to serve the needs of the state and that rural places are particularly lacking in electricians.

5.1.2 Improvements for Downstream

Staff and participants reported some possible ways to improve the Downstream program track. We summarize their suggestions here.

5.1.2.1 Staff

Staff suggested the program should re-engage with trade allies by providing them better insight into pending projects and having direct contact and relationships with them. Staff reported that the Downstream track struggled to acquire projects, in large part, because of the quantity of projects inherited from the previous implementer. The Downstream track struggled to book new projects in 2021 as staff reported that much of that year, especially the first half of the year, was devoted to processing leftover 2020 projects that had resulted from Covid-era bonuses.

Staff reported that much of 2022 was spent trying to rebuild trust with trade allies, a trust that was undermined by the "whiplash" of changing incentives and program rules from spring 2020 through early 2022. In 2022, outreach staff were working with trade allies to orient them to the new program and encouraging their participation with the Midstream track

In terms of providing allies with better insight into their pending projects, staff commented on the implementation of the online project gateway, scheduled for release in late 2022. According to interviewed staff, this will be an important tool for keeping allies informed about their project while also freeing up implementation staff to do work other than responding to trade ally information requests.

Finally, staff noted that having direct contact with trade allies is important. Specifically, being a presence in trade allies' business operations is an important way to keep allies informed and updated about projects and program operations.

5.1.2.2 Trade Allies

Trade allies made a few suggestions for ways the program could improve related to the incentives, application process, and communications.

Regarding incentives, trade allies suggested:

- Increasing the amount of incentives to overcome first cost concerns (9 mentions).
- Moving to performance-based incentives that would encourage energy efficient design, not just replacing existing equipment with a more energy efficient piece of equipment (2 mentions).

Trade allies suggested the following improvements to make the application process better:

- Making the application process as easy as possible (7 mentions). A few of these allies specified:
    - Limit the amount of specific data required, such as asking customers for a W-9 and for square footage data (3 mentions).
    - Offer trade allies incentives for doing the administrative paperwork required to apply for incentives (1 mention).
    - Offer an online portal to complete applications and review the status of projects (1 mention).
    - Do not require pre-approval of projects (2 mentions).
    - Speed up the approval process (1 mention).

Four trade allies reported that regular communications with Energy Trust staff is key to maintaining good relationships between allies and Energy Trust. One of these allies specified the importance of continuing to offer trade ally events like breakfast meetings and another would like to see Energy Trust offer tutorials on completing certain forms.

5.1.2.3 Participants

Of the 92 participants interviewed or surveyed, six provided a range of improvement suggestions for the program. No specific suggestion was mentioned by more than one respondent.

Two mentioned communication improvements, one of whom suggested providing more lead time about when incentives are changing to allow better project planning, while the other suggested providing a sole contact at Energy Trust to work with instead of asking one person about incentive processing and another about application issues.

Two mentioned process improvements, with one suggesting that Energy Trust remove project pre-approval requirements and the other suggesting reducing the incentive application to one page.

Finally, one each suggested conducting more targeted outreach to customers and increasing the number of trade allies involved in the program.

5.2 Small Business Direct Install (SBDI) Structure

FCI Management, a subcontractor of CLEAResult, conducts outreach to small businesses, completes lighting audits of their facilities, and then partners with local lighting contractors to install new efficient lighting all at no cost to the business owner. Implementation of this track began in June 2021.

5.2.1 Effectiveness of SBDI

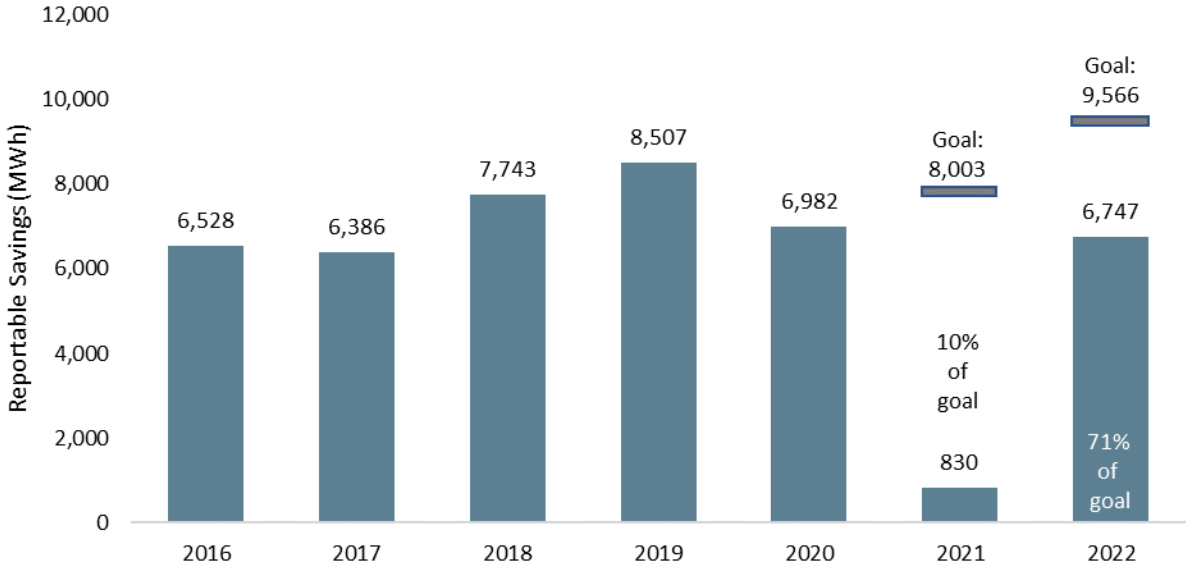
We assessed the effectiveness of the direct install track through our analysis of program data, the survey of participants, contact with near- and non-participants, and interviews with trade allies. The sections below summarize that work.

5.2.1.1 Program Data

Savings from direct install efforts fell sharply in 2021 but recovered in 2022. Figure 5-7 shows lighting direct install savings from 2016 through 2022. The totals for 2016 through 2020 primarily represent lighting savings from the direct install track of the Existing Buildings Program, with a very minor quantity coming from the Production Efficiency Program. The delivery of those direct install tracks differed from that for BL, and so the 2016-2020 savings values are not directly comparable to those for 2021 and 2022; they are shown only to provide context for the savings that occurred under BL.[15] As seen here, lighting direct install savings peaked in 2019 and declined in 2020. They dropped steeply in 2021 , as the program ramped up the new DI offering, achieving 10% of the goal, but then recovered to nearly 2020 levels in 2022, reaching nearly two-thirds of the goal for that year.

[15] The figure excludes lighting direct install savings from the Existing Buildings Multifamily Program, as multifamily properties are not targeted by BL.

Figure 5-7: 2016-2021 Trends in SBDI Lighting Savings



5.2.1.2 Participants

Of the 45 surveyed SBDI participants, most had not received Energy Trust services either before or after their involvement with the SBDI program. Eighty-two percent (37) reported not receiving assistance from Energy Trust prior to their involvement in the program. Of those 37, 27 were not familiar with the Energy Trust services prior to their participation and they did not report receiving any support from Energy Trust since their participation. The other 10 respondents had never received support but were familiar with a variety of measures supported by Energy Trust (Table 5-4).

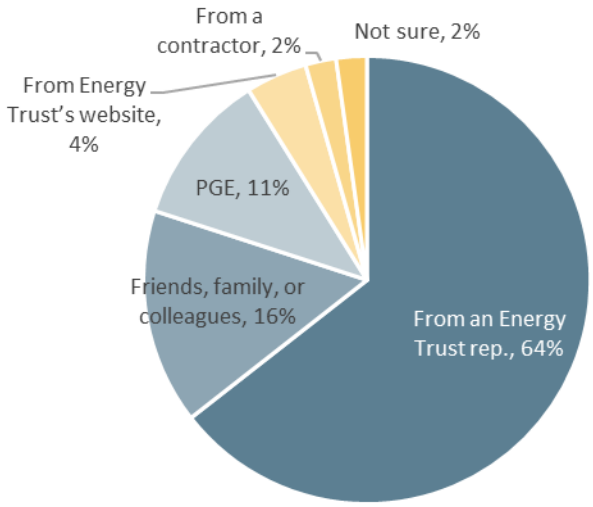
Table 5-4: Awareness of Measure Support by Those Familiar with Energy Trust

Measure	Count (n=10)
Water heaters	5
HVAC	4
Solar	3
Building shell	2
Refrigeration	2
Commercial kitchen	2
Steam traps	1
Residential	1

A minority of respondents reported receiving any other support from Energy Trust ever. Of the eight respondents that received support outside of the SBDI track, five reported receiving support prior to their involvement with SBDI. The remaining three respondents reported receiving additional support since participation in the SBDI track. One received a smart thermostat, one received shell improvements, and one received support for solar panels.

Respondents were familiar with the SBDI program track mostly because of the outreach efforts of Energy Trust and Portland General Electric (PGE). About four of five respondents reported being aware of the program because of outreach from an Energy Trust representative, PGE outreach, or the Energy Trust website (Figure 5-8). Friends, colleagues, and contractors made up the other sources of awareness.

Figure 5-8: Awareness of SBDI Track



Most respondents (32, 71%) reported the representative they met with did not mention other energy efficiency measures during their assessment of the property. The remaining 13 respondents reported the representative mentioned HVAC equipment (7), solar panels (3), shell improvements (3), water heating (2), and refrigeration (1) opportunities.

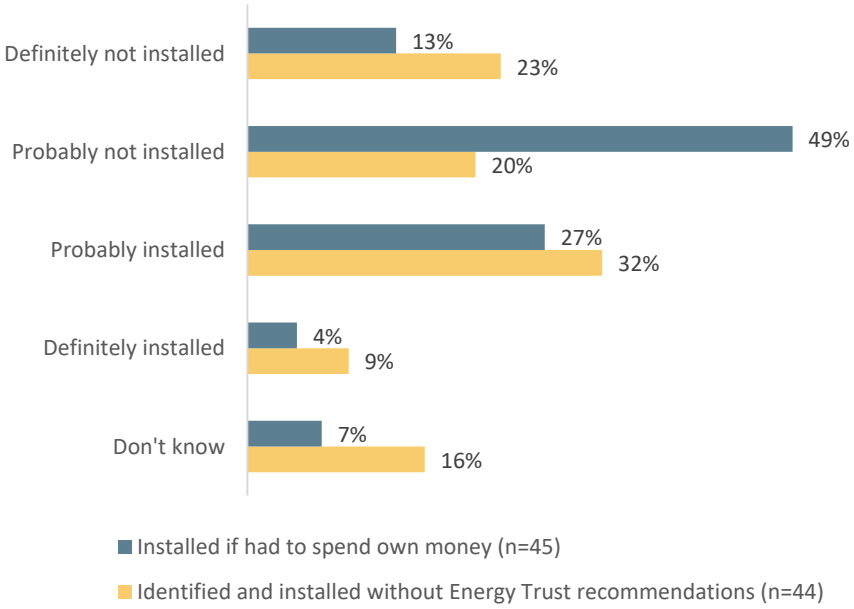
Respondents varied in how long they said it took to get their assessment report after the completed assessment, and they varied in what they appreciated about the report. Almost half (47%) of respondents reported receiving their assessment report within two weeks and more than one-quarter (29%) reported receiving the assessment after about two weeks. The remaining respondents could not recall when they received their report (18%) and a few (7%) did not recall receiving a report. Sixteen (36%) specified what they appreciated about the report:

- Eight appreciated the description of the proposed lighting changes.
- Seven appreciated seeing an estimate of the money savings that would come from the upgrade.
- One respondent appreciated seeing an estimated project timeline.

Many respondents reported that the fact that the equipment was free was the key reason they completed the lighting upgrade. Sixty-two percent of respondents reported they probably would not have installed (49%) or would definitely not have installed (13%) the lighting upgrade if Energy Trust had not paid for the upgrade. About equal numbers of respondents reported they were likely (41%) or unlikely (43%) to have installed the equipment without the Energy Trust

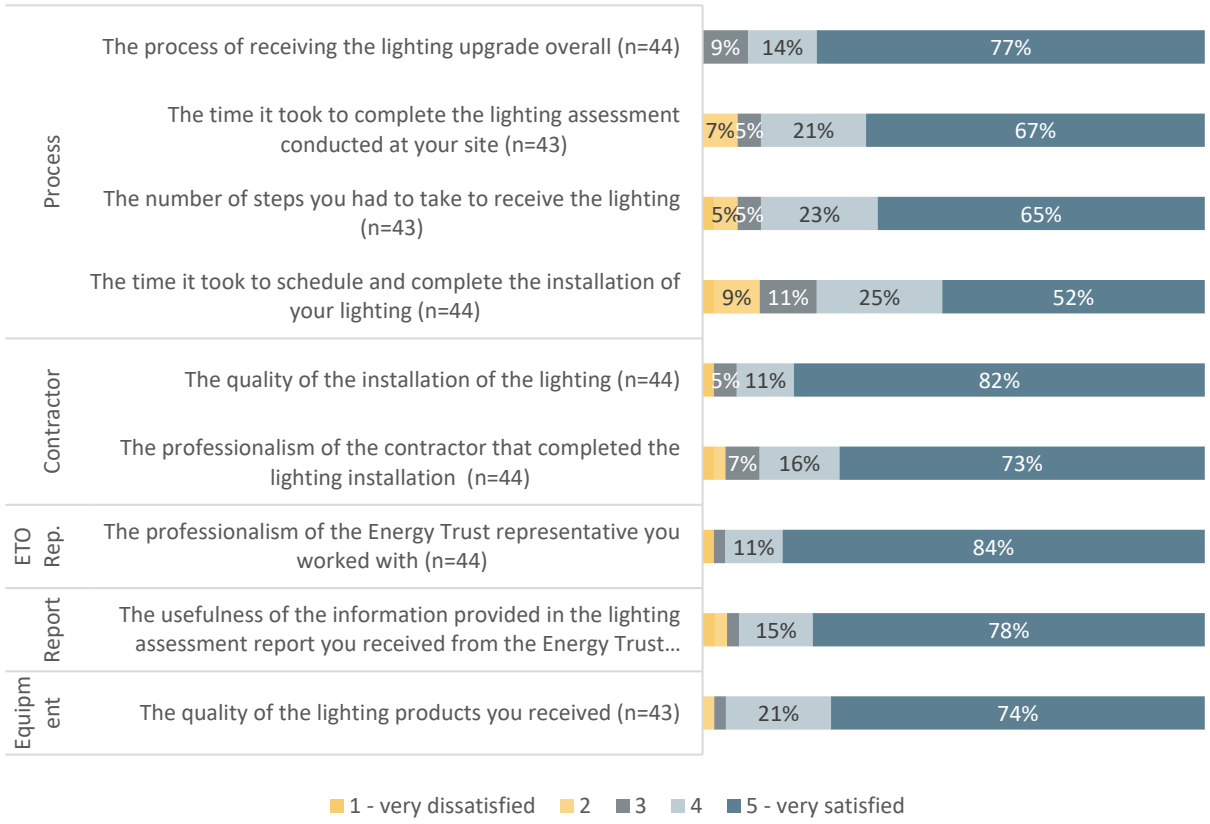
recommendations. Figure 5-9 shows the breakout of responses to the questions about whether the respondent would have installed the equipment if they had to spend their own money and would have identified and installed the equipment without Energy Trust recommendations. The responses did not provide specific information about what they would have done without the recommendation.

Figure 5-9: Likelihood of Installing Equipment without Energy Trust



Ninety-one percent of SBDI participants were generally satisfied with their participation in the program, reporting high levels of satisfaction with the process, the Energy Trust representative, the contractor, the assessment report, and the equipment (Figure 5-10). The one area that drew dissatisfaction from a few respondents was about the time to complete the project from initial contact to completion. Of the six respondents that commented about their dissatisfaction, four mentioned that the project timeframe was too long. For example, one respondent reported “It took months to get the installation to happen and [I had to] contact Energy Trust multiple times.” Another wrote that it took seven months to complete the project. Despite these complaints, all respondents reported they were extremely (93%) or somewhat likely (7%) to recommend the program to businesses like theirs.

Figure 5-10: Satisfaction with the Program



5.2.1.3 Near-Participants and Nonparticipants

As noted in Section 3.10, the team attempted to complete telephone interviews with 54 unique contacts for business sites that the SBDI contractor identified as having received a lighting assessment but that did not go forward with a project. The team also sent an online recruitment to 95 contacts for sites that the SBDI contractor identified as having turned down an offer of an assessment. We were able to reach and interview 16 contacts from the near-participant list, and 10 contacts from the nonparticipant list (Table 5-5).

Table 5-5: Interview and Survey Disposition Summary

Type	Count
Near-participant Telephone Interviews	
Completed interview	16
Attempted, no response	28
Bad contact information	9
Language barrier	1
Total	54
Nonparticipant Interviews	
Completed survey	10
Did not complete survey	85
Total	95

The efforts to reach near- and nonparticipants revealed two key findings.

The evaluation team did not find any evidence of programmatic or systematic barriers to participation in the SBDI program. Of the 16 interviewed contacts identified by the SBDI contractor as near-participants, none reported that a concern about or a perceived difficulty in participating prevented program participation. Rather, 15 reported either that they actually had participated and the program data was incorrect or they anticipated participating in the near future. The other respondent reported that a PGE representative told him about the direct install program and referred him to an Energy Trust representative from the *New Buildings* program. The respondent reported that the New Buildings representative told him, via a virtual visit, that his site did not have enough lighting to qualify for the program. It was unclear whether he was being told that he was ineligible for the SBDI program track or some other Energy Trust service.

Additionally, of the 10 respondents to the online survey, who were identified by the SBDI contractor as nonparticipants (i.e., had turned down the assessment), none confirmed that status. Instead, of those 10:

- Six reported they were expecting a follow-up from Energy Trust.
- One reported they received lighting from Energy Trust.
- One reported they were scheduled to receive lighting from Energy Trust.
- One reported hiring an electrician independent of Energy Trust because they were concerned about entering a contract with Energy Trust. According to this respondent, their facility was only eligible for some lighting replacements, not all, and it was unclear which lights Energy Trust would replace.
- One reported abandoning the project because it was unclear to them which lights would be replaced for free via Energy Trust support and which lights they would be responsible for. According to this respondent, their facility was only eligible for some lighting replacements, not all.

Results of this data collection effort indicated that the program data was insufficient to identify near or nonparticipants. The team identified purported near-participants and nonparticipants based on spreadsheets provided by the SBDI contractor. In both cases, the program data did not match what the evaluation team learned from respondents. All 10 of the nonparticipants we reached reported actually receiving a lighting assessment and of the near-participants we reached, most had either participated or were expecting to participate. We do not know what the nonrespondents had done but based on these results, and in consultation with Energy Trust and the implementer, the team decided to abandon the effort to try and reach other near and non-participants because it seemed as if the evaluation effort was confusing customers and not realizing its intended goal of understanding why customers would not pursue free lighting.

5.2.1.4 Trade Allies

The one trade ally that completed projects in the SBDI program track noted that its key success was the fact that there is no cost incurred by the small business customer. According to this ally, "green" energy and return on investment are not important to small businesses and they only care about upfront costs. So, keeping that element of the program is key to it continuing to be successful.

5.2.2 Improvements for SBDI

Participants and trade allies suggested ideas for ways to improve the SBDI effort. We summarize those suggestions here.

5.2.2.1 Participants

Respondents offered suggestions relating to the lighting measures that should be offered, the best way to conduct outreach to small businesses, and to the participation process.

Ten respondents offered suggestions relating to the available lighting measures. Five suggested adding exterior lighting and signage to the offers. One each suggested adding longer TLED replacements, replacing ballasts, adding track lighting, adding dimmers, and adding lighting that better matches the design of old buildings.

When asked the best way to conduct outreach to other small businesses, 20 respondents offered a variety of suggestions:

- Email (7 mentions)
- In-person outreach (6 mentions)
- Via partner organizations like Chambers of Commerce and trade associations (4 mentions)
- General suggestion to increase amount of outreach to small businesses (3 mentions)
- Phone calls (3 mentions)
- Mailers (2 mentions)

Seven respondents provided suggestions to improve the process of participation in the program.

- Improve communication between program contact and participant to make it easier to have questions answered (4 mentions)
- Reduce the timeframe between initial contact and installation (3 mentions)
- Provide more technical assistance and information about the lighting options available to customers (1 mention)

5.2.2.2 Trade Allies

The one trade ally that reported doing direct installation work suggested doing anything that is possible to reduce the time between a customer receiving their assessment and getting the lighting installed. This respondent noted that sometimes delays are inevitable, especially when ordering specialty equipment like certain wall packs but that customers can sometimes lose track of the project when months go by between initial contact and installation. While this is just one observation, it is interesting in light of our discovery that many of the small businesses the SBMDI implementer had classified as not interested were, in fact, expecting program services (see Section 5.2.1.3).

A distributor trade ally did not have a suggestion for ways to improve the current SBDI effort but did suggest a way to improve outreach to small businesses. This respondent stated that small businesses often buy lighting (and other energy-using equipment) at big box stores. This respondent suggested partnering with big box stores to promote efficiency at small businesses may be one way to encourage efficient actions at small businesses.

Two trade allies that did not do SBDI work indicated interest in doing this work in the future and expressed dissatisfaction with not being one of the chosen trade allies to supply this work. One respondent stated that having select installers for the SBDI track seemed “a bit exclusive and unfair.”

5.3 Midstream Structure

Midstream incentives are point-of-sale incentives to customers, typically contractors or large end-users, that purchase lighting from distributors. This program track provides a streamlined process for receiving discounts for commonly installed lighting measures. Measures available via the Midstream path include TLEDs, exterior fixtures, HID bulb replacements, and other items. Implementation of this track began in December 2021 with a few distributors and expanded to other distributors in 2022.

We relied on three data sources to inform us about the effectiveness of the Midstream program track. Staff provided their feedback about how the program is developing since its inception and program data show how much savings the track has delivered over time. Additionally, several trade allies provided comments about the Midstream track. The subsections below provide this detail.

5.3.1 Staff

Staff reported that the Midstream track started later than anticipated and that Midstream programs typically require a long lead-in time before the program sees notable participation and savings. The Midstream track started in December 2021, at least six months later than anticipated, and began with only a few distributors on-board. Program staff had to orient each distributor to Program Partner Platform Central (PPPC), the online system they use to look up customer and measure eligibility and ensure all staff were comfortable using the system. Additionally, according to staff, distributors were hesitant to enroll many or large projects using the program because they first wanted evidence that they would receive reimbursement for their sales.

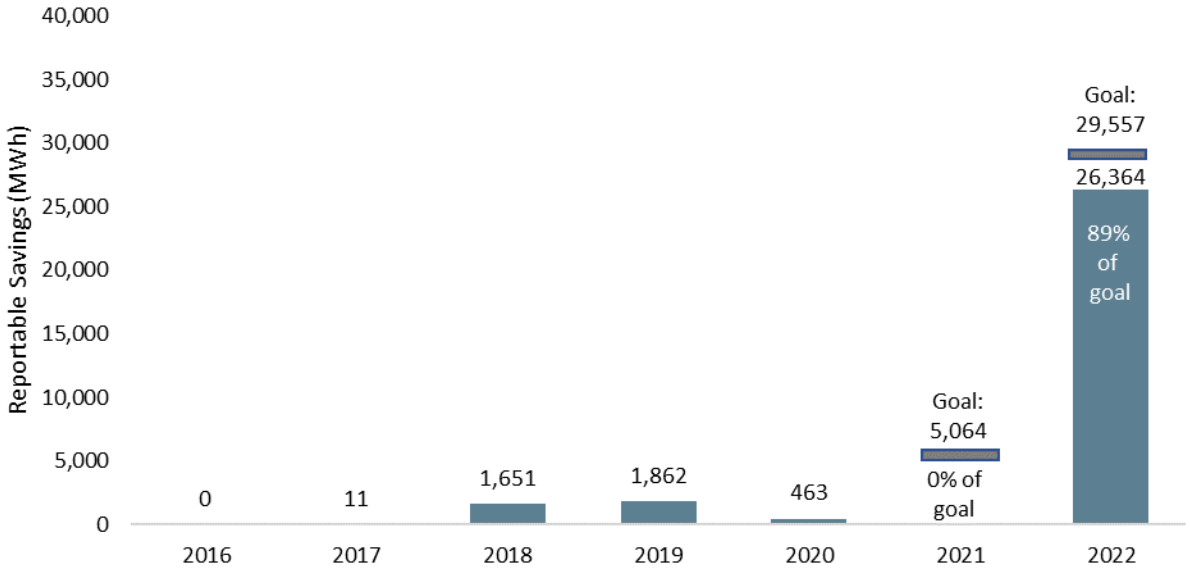
By summer 2022, the Midstream track appeared to be running smoothly and was experiencing some success that staff hoped would lead to greater future participation. The program had about 20 distributors enrolled in summer 2022 and program staff were starting to see large projects getting reserved by distributors, suggesting that distributors were increasingly getting comfortable using the system and that the program could count on additional savings soon. Additionally, staff noted that TLEDs, a common measure in the C&I market, were moving to the Midstream track from Downstream, and that change would likely encourage nonparticipating distributors to enroll.

Although, as noted in Section 4.1.1, some utilities appear to be shying away from midstream programs *specifically* because they believe they are not a good channel for lighting controls, BL staff reported that the program is examining adding controls to the Midstream track to further increase interest in the program. By making some controls part of the Midstream, adding controls to a project would be less cumbersome on the part of the trade ally completing the installation. Instead of purchasing lights via the Midstream track and the controls via the Downstream track, an ally could make one purchase at a distributor and save themselves the application process for a typical project.

5.3.2 Program data

Figure 5-11 shows lighting savings from Midstream/buydown tracks from 2016 through 2020. The totals for 2016 through 2020 primarily represent lighting savings from the lighting Midstream/buydown tracks of the Existing Buildings Program and the Production Efficiency Program. The delivery of those Midstream tracks differed from that for BL, and so the 2016-2020 savings values are not directly comparable to those for 2021 and 2022; they are shown only to provide context for the savings that occurred under BL. As this figure shows, lighting savings from the Midstream/buydown tracks before BL were much lower than those achieved after the BL Midstream/buydown track was implemented in 2022. The implementation of this track did not begin until December 2021, and so 0% of 2021 goals were achieved; the track achieved 89% of 2022 goals.

Figure 5-11: 2016-2021 Trends in Midstream/Buydown Lighting Savings



5.3.3 Trade Allies

Trade allies familiar with the Midstream program track were generally satisfied with their involvement reporting the implementer recruited them and that the process of participating has been relatively easy, with the occasional "hiccup" enrolling the first few projects. Several trade allies did comment about the overlap that can happen between the Downstream and Midstream tracks and how that overlap can sometimes be beneficial and other times be confusing.

One distributor respondent explained that he works with his contractor customers to identify which program track – Downstream or Midstream or a combination – a project should use to achieve the best cost for the customer. For this respondent, having two-track options allows him to provide a service to his customers. This same respondent also reported that some contractors who have projects that are eligible for incentives via both tracks will just opt for the Midstream incentives because they do not want to complete the Downstream paperwork.

Another respondent noted that explaining the two tracks to their customers can be cumbersome and confusing for customers. For example, this respondent must explain that a customer cannot purchase products via the Midstream program and then apply for Downstream incentives on that same product. Another trade ally reported liking the addition of the Midstream track but noted that they have had to educate their customers about this new service from Energy Trust to avoid customer confusion. According to this distributor ally, they explicitly tell customers and will go on site to explain that the customer should not expect to see an incentive when purchasing Midstream items. This ally implied that customers are very used to receiving incentives for projects so they want to manage those expectations upfront in the sales process.

Another trade ally appreciated the timeliness of Energy Trust staff's adjusting the Midstream program. According to this ally, occasionally they do not see products on the Midstream list that

they think should be. In at least one instance, this ally contacted Energy Trust about this issue and Energy Trust examined the product and was able to include it on the Midstream eligible list within two days.

5.4 BL Program Adaptation to the Market

The ADM team used our conversations with market experts to explore the more general topic of how the BL program as a whole can adapt to the larger market. Throughout conversations, interviewees talked about the "need to build demand, to build the market" and identified areas for growth within the lighting and lighting controls retrofit market. Their suggestions were to engage trade allies, work with slow-adopters, and work with those LED early adopters. The sections below provide further details.

5.4.1 Engaging Trade Allies

As mentioned previously, market expert respondents said the market cannot grow without buy-in and engagement from trade allies. In addition to increased training on different types of lighting control options, contractors need to better understand the benefits of lighting upgrades and lighting controls, so that they can better explain and promote options to their customers.

> *We need some good evidence of the benefits and have installers, distributors, and sales reps who really can explain to C&I base the benefits and really demonstrate the use of it. There's got to be an increase in confidence of commercial owners and operators that this is worthwhile and this can save us energy, streamline maintenance, and provide better data about how system is doing.*
>
> *--Research Institution representative*

A few market expert interviewees underscored the importance of workforce development and training trade allies in how to implement lighting controls.

> *We have to retrain an entire workforce. Take a lighting contractor into energy management consultant or SEM advisor. Modify skillset and shift business practices or they're going to go out of business…Need to transition them [to] energy consultants and providers. That's the future of the energy efficiency space. Period. There's no other place to go.*
>
> *-Trade Association representative*
>
> *Controls take a lot of education. Need education for it to work. Contractors need to know what they are doing. Better emphasis on education and process to help with implementation.*
>
> *-Manufacturer representative*

5.4.2 Late-Adopters

Market expert respondents also underscored the importance of better educating the public about the various lighting and controls technologies and the benefits (both energy- and non-energy related) of them, as contractors will be more inclined to get on board if customers are requesting the measures. Utility representatives and manufacturers' representatives talked about diversifying their marketing strategies, using a mix of social media, print ads, on-site visits, and community events.

Focusing specifically on untouched markets and saving opportunities from LED retrofits, interviewees from across industries noted late adopters remain. Multiple manufacturers commented that "there's a large chunk of the market that needs to adopt." In general, market expert interviewees identified smaller businesses and rural businesses as the most common non-adopters, citing skepticism of new technology, lack of knowledge, and lack of resources as the primary reasons for non-adoption. As noted in section 5.2.1.4, trade allies also noted that small businesses were the most likely places to find efficient lighting opportunities, suggesting these organization types are slow adopters.

Despite the challenges associated with engaging small and rural businesses, some of the market expert interviewees were hopeful that these customers could keep the lighting market and savings potential going for the next couple of years: "smaller buildings make up huge potential for savings. They're smaller, but there's so many of them that they add up. Similar to residential in that way." Interviewees emphasized the importance of educating customers. Suggestions of type of education opportunities varied from contractor training, attending community events, educational promotional materials, and engaging community leaders.

> *Need to convince people that the LED claims we make now are grounded in scientific fact and not extrapolations.*
>
> *-Manufacturer representative*

5.4.3 Upgrades for Early Adopters

In addition to targeting adopters, market expert interviewees noted potential savings can be accrued from upgrading early adopters to newer LED technologies. Respondents explained that many of the early adopters switched to LEDs around 10 years ago; in that time the technology has improved, and some savings can be garnered by upgrading old LEDs to newer LEDs. Respondents did note that the savings potential from and older LED to newer LED is not as robust as that from incandescent to LED. Additionally, interviewees recognize that upgrading first generation LEDs to second generation LEDs will not fully account for the savings lighting programs have reaped for the industry. Instead, there is growing recognition that lighting programs will need to adapt in the coming years.

> *Lighting program[s] …will continue to exist (first generation LED folks can be replaced), but it will become supplementary program instead of the primary program in C&I.*
>
> *-Utility Representative*

5.5 Program Improvements and Plans for the Future

When asked to speculate on where they see the C&I retrofit lighting market going in the next few years and what the industry needs to do to adapt, market expert interviewees reemphasized the need for the industry to focus on lighting controls as well as ultimately to shift to a non-lighting-centered portfolio. All interviewees agreed that educating customers is paramount to the broader acceptance of lighting controls.

> *Education, education! Talk [controls] up to large customers and key clients and accounts. They're the rock on top of the hill; we need to give it that push. If people install it, others will, and [the rock] will start to roll. We have a small roll but need more.*
>
> *-Non-Profit Representative*

Aside from promoting lighting controls, market expert interviewees were unsure how the retrofit lighting market should proceed. All utility representatives noted that this is a question that concerns them, and they expressed interest in hearing what other utilities are doing to tackle this problem. Interviewees across industry backgrounds agreed that without technological developments, programs will likely need to pivot away from lighting and towards other measures like HVAC.

> *When everyone has LED, then what? At that point…I don't know. This program is lighting. Once we've returned all LEDs to their lowest possible, and they're already so low, the lighting program goes away. You'll just be replacing 1-to-1. It's a little scary because it's the largest piece of C&I and a large piece of overall portfolio.*
>
> *¬-Utility Representative*

6 Program Transition

Energy Trust created the BL program to reduce duplication of effort internally, to create a simpler process for trade allies, and to improve outreach to Oregon's diverse communities. Prior to offering the program in January 2021, Energy Trust offered lighting incentives and services to commercial and industrial (C&I) customers via their Existing Buildings, Production Efficiency, and Multifamily programs. In 2020, Energy Trust decided to move all the C&I lighting services under one umbrella program to reduce the duplication of effort they saw happening under the three-program approach.

A key aspect of this evaluation was to address the effectiveness of the transition from one program design and implementer to a different design and implementer. This section describes what we learned from staff and trade allies about that transition process.

6.1 Program Launch and Transition to New Implementer

Staff reported that, under the three-program approach, trade allies would have to use different forms based on the customer they were working with. There were three Energy Trust managers and teams operating that all had essentially the same task: encourage the adoption of efficient lighting, often the same types of lighting measures, among C&I customers. Furthermore, Energy Trust had DEI goals to conduct more and better outreach to minority-owned, women-owned, and rural small businesses. To address that goal, Energy Trust looked for an implementer that had experience reaching diverse and traditionally underserved communities.

The creation of the BL program and the award of the implementation contract happened during the height of worldwide Covid-19 disruptions. Energy Trust released the RFP for a Business Lighting implementer in spring 2020, around the same time as the Covid-19 pandemic was disrupting society, and initially awarded CLEAResult with the contract in September 2020. However, staff reported issues arose soon after the award that led to a difficult transition process:

- CLEAResult and Energy Trust staff were not able to communicate and begin work on the program transition until November 2020 due to delayed Energy Trust board approval of the contract.
- CLEAResult had staff turnover soon after taking over the project resulting in Energy Trust staff not always knowing who to contact.
- Energy Trust and CLEAResult staff were still adapting to working fully remotely, resulting in communication problems.

As noted in section 5.1.2.1, the move to the three-track BL program, with SBDI, Midstream, and Downstream tracks, was compromised by the glut of old Downstream projects CLEAResult inherited from the previous implementer. The three-track approach was a purposeful move away from the historic three-program Downstream approach. However, the move to the new program design did not account for the quantity of projects originated under the old implementer that

CLEAResult ultimately had to pay and close. Under the old three-program design, Energy Trust offered a bonus incentive in spring 2020 to spur program activity after the pandemic initially chilled participation. According to staff, this bonus led to far greater participation than planned and resulted in Energy Trust ceasing lighting incentives in November 2020. The more than 1,000 Downstream projects in the 2020 pipeline were delayed payment until 2021 when CLEAResult began implementing Business Lighting. CLEAResult anticipated inheriting about 100 Downstream projects; having 10 times more than expected resulted in difficulties getting payments paid and significantly affected the 2021 program budget. Furthermore, dealing with the old projects took resources away from starting the Midstream and direct install program tracks in the timeframe initially proposed resulting in the direct install track not beginning until summer 2021 and Midstream not beginning until December 2021.

6.2 Main Challenges to Business Lighting Initiatives

Staff reported the following challenges to implementing the three tracks of the BL program: Downstream, Midstream, and SBDI.

6.2.1 Downstream

Trade allies are the core of the Downstream program track as they are the ones that work with customers to design and install lighting projects. Backen Consulting leads outreach efforts with trade allies and works with them to answer program questions, teach allies about program changes, and be a resource for allies. This work involves responding to email and phone requests from trade allies as well as doing in-person visits with trade allies. In some limited instances, outreach staff will accompany trade allies to a customer site to explain program benefits and incentives and assure the customer about the savings estimates.

Staff reported that the Downstream program track struggled to acquire projects after the transition, in large part, because of the quantity of projects they inherited from the previous implementer. As noted above (section 6.1), the Downstream track struggled to book new projects in 2021 as staff reported that much of that year, especially the first half of the year, was devoted to processing the leftover 2020 projects.

Staff reported that they spent much of 2022 trying to rebuild trust with trade allies, a trust that was undermined by the “whiplash” of changing incentives and program rules from spring 2020 through early 2022. In 2022, outreach staff worked with trade allies to orient them to the new program and encouraging their participation with the Midstream track. .

Having direct contact with trade allies is important. According to staff, being a presence in trade allies’ business operations is an important way to keep allies informed and updated about projects and program operations.

6.2.2 Midstream

Staff reported that the Midstream track started later than anticipated and that Midstream programs typically require a long lead-in time before the program sees notable participation and savings. The Midstream track started in December 2021, at least six months later than anticipated, and began with only a few distributors on-board. Program staff had to orient each distributor to Program Partner Platform Central (PPPC), the online system they use to look up customer and measure eligibility and ensure all staff were comfortable using the system. Additionally, distributors were hesitant to fully start using the program because they wanted evidence that they would receive reimbursement for their sales before enrolling many or large projects.

By summer 2022, the Midstream track appeared to be running smoothly and was experiencing some success that staff hoped would lead to greater future participation. The program had about 20 distributors enrolled in summer 2022 and program staff were starting to see distributors reserve large projects, suggesting that distributors were increasingly getting comfortable using the system and that the program could count on additional savings soon. Additionally, staff noted that TLEDs, a common measure in the C&I market, were moving to the Midstream track from Downstream, and that change would likely encourage nonparticipating distributors to enroll.

The program is examining adding controls to the Midstream track to further increase interest in the program. By making some controls part of the Midstream track, adding controls to a project would be less cumbersome on the part of the trade ally completing the installation. Instead of purchasing lights via the Midstream track and the controls via the Downstream track, an ally could make one purchase at a distributor and save themselves the application process for a typical project.

6.2.3 Small Business Direct Install (SBDI)

A key purpose of the SBDI program track is to address Energy Trust's DEI goals. Energy Trust was looking for a mechanism to serve small C&I organizations owned by minorities, women, or located in rural areas, all groups underserved by efficiency programs in the past. To do this, Energy Trust:

- Engaged CLEAResult and FCI Management to implement this program track because of their high proportion of diverse employees and leadership.
- Worked with CLEAResult and FCI to recruit diverse trade allies around the state to complete installations. Energy Trust issued an RFQ to solicit this group of trade allies in the spring of 2021 and they began installing projects in summer 2021.
- Directed CLEAResult and FCI to conduct outreach to community-based organizations (CBOs) with connections to diverse communities around the state. Implementation staff identified 88 organizations such as ethnically focused community groups and rural Chambers of Commerce. These outreach staff, in conjunction with staff from Energy Trust's Existing

Buildings program, completed presentations, attended community events, and looked for ways to inform the CBO's membership about the SBDI program track.

According to staff, the SBDI program track started later than originally proposed in 2021 and was not likely to achieve savings goals for 2022. Staff reported that the savings goals for the SBDI program were likely set too high and they were not based on experience because the program was new. However, as of Summer 2022, the program was starting to reach its participation goals and was projected to have a good pipeline of projects throughout 2022 and into 2023 leading some staff to be optimistic that the program would begin achieving savings goals in 2023. As seen in Figure 5-7 (Section 5.2.1.1) the program did not achieve goals in 2021 or 2022 but the increasing trend of savings and interviews with staff suggest that the program will be more likely to achieve goals in 2023.

A built-up pipeline of projects and recent program changes indicate the program will achieve savings goals in 2023. Some staff noted how recent program changes such as allowing the installers to purchase equipment directly from distributors and manufacturers and recently adding installers in southern and eastern parts of the state will lead to more projects getting completed faster. Additionally, the program staff has been coordinating with PGE's outreach teams that are conducting outreach to these same groups. When appropriate, they refer customers to one another in an attempt to best serve these customers with all the energy services best suited to that customer.

Several staff noted that one way to improve the program in the future would be to continue to strengthen and coordinate outreach efforts of the SBDI track with the Existing Buildings outreach efforts. Currently, the SMDI outreach staff coordinate with the Existing Buildings outreach staff that are promoting non-lighting measures to the same customer groups. Staff noted that enhancing the connection between these two programs, to make the lighting and non-lighting offers to customers as easy to understand as possible, is desired.

7 Effects of the 2021 Incentive Caps

This section describes what we learned from program data about how changing incentive amounts affected the market. The section concludes with a description of what we learned from staff and trade allies about how these changes affected participation.

7.1 Program Data Analyses

We assessed the impact of the incentive caps that went into effect in 2021 while accounting for the possible impact of the 2020 incentive bonus. We did this by examining the number of projects and the MWh savings from the lighting and non-lighting projects that occurred before the bonus went into effect in 2020, while it was in effect, and then in 2021 and 2022 after the bonus ended and the caps were in effect. We conducted the analyses separately for commercial and industrial sector program activity.

Two factors complicated this analysis: 1) the lighting bonus covered only a part of 2020 while the incentive caps covered longer periods of time; and 2) the incentive bonus and/or incentive cap timeline differed for industrial versus commercial projects and for standard versus custom measures (see separate Appendix document).

To provide the most direct comparisons across time, we assessed projects and savings from May 18 through November 30 (the date range of the 2020 incentive bonus) in each year of data. We used the project start dates to reflect the effects of changes to incentives on the decision to undertake a project.

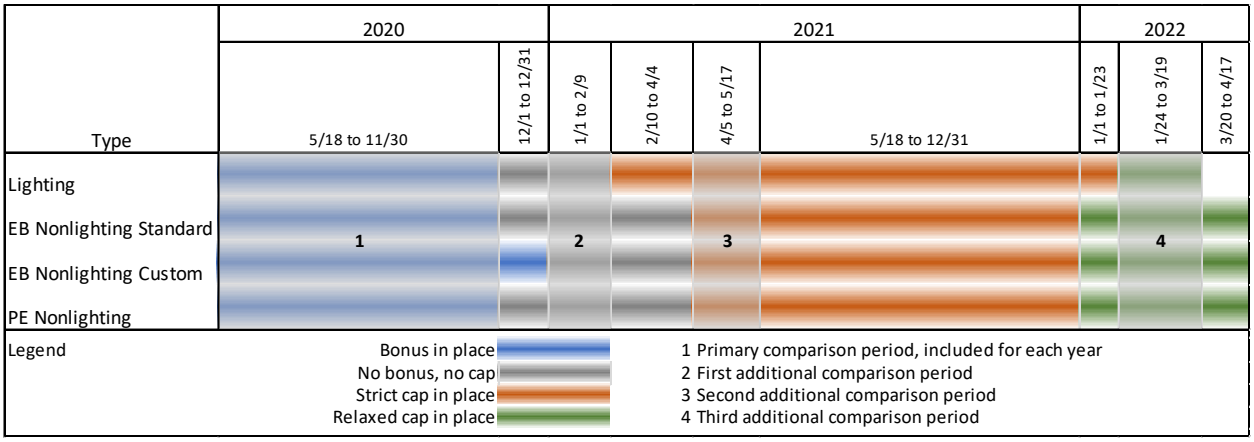
Our analyses also included three additional periods:

- From after the lighting incentive bonus ended to just before the lighting incentive cap began (January 1, 2021, to February 9, 2021);
- The early part of the lighting strict incentive cap (April 5 to May 17, 2021); and
- The period of the relaxed incentive cap (January 24 to March 20, 2022).

Although these intervals are not directly comparable to the May 18-to-November 30 intervals because they cover different times of the year, their inclusion provides some additional sense of the timeframe of the incentive change impacts.

Figure *7-1* shows the incentive bonus and cap timeline, with the primary (annual) comparison period and the three additional comparison intervals overlaid on the timeline. These intervals are of varying lengths. To allow for meaningful comparisons, we normalized the number of projects and the savings in the above time intervals as to the number *per 197 days*, which is the number of days from May 18 to November 30.

Figure 7-1: Incentive Bonuses and Caps Timeline, with Comparison Intervals



EB = Existing Buildings Program (Commercial). PE = Production Efficiency Program (Industrial).

For all analyses, we defined a "standard" project as one with any standard measures and a "custom" project as one with any custom measures. Projects that have both standard and custom measures are included in both sets of analyses.[16]

As detailed below, all analyses compared the normalized number of projects and MWh savings to the number of projects and MWh savings predicted from 2016 to 2019 data. Thus, for each time interval, we show the number of projects and MWh savings that occurred in relation to the levels that would have occurred had the 2016-2019 trends continued.[17]

7.1.1 Commercial Sector

The following sections discuss the analyses of the standard and non-lighting project and MWh savings totals within the commercial sector for the May 18-to-November 30 intervals in 2019 to 2021 as well as the for the additional four intervals described above.

As detailed below and summarized in Table 7-1, the analyses indicated that the bonus had a positive effect, and the caps had a negative effect, on standard lighting and non-lighting savings. The results are less consistent for custom projects and savings but generally show a positive effect of the bonus and a negative effect of caps.

[16] However, as each of the project-based analyses directly compares trends for lighting and non-lighting projects, we excluded projects with both lighting and non-lighting measure types from those analyses – thus, a "lighting" project has only lighting measures and a "non-lighting project" has only non-lighting measures.

[17] Specifically, for each analysis, we used linear regression to identify trends across the May 18-to-November 30 intervals in each year from 2016 through 2019. The slope and intercepts were calculated using the midpoint of each interval (August 24) as the independent or predictor variable (x) and the known number of projects or known savings as the dependent variable (y). We then used the calculated intercept (a), slope (b), and midpoint of each new interval (x) to predict the number of projects or savings for that interval, using the regression equation y = a + bx.

Table 7-1: Summary of Analyses on the Effects of the Incentive Bonus and Caps in the Commercial Sector[1]

Project/ Measure Type	Incentive Bonus or Caps Period					
	Bonus		Strict Caps		Relaxed Caps	
	Number of Projects	MWh Savings	Number of Projects	MWh Savings	Number of Projects	MWh Savings
Standard						
Lighting	Positive (+14%)	Positive (+31%)	Negative (-71%)	Negative (-70%)	Negative (-69%)	Negative (-72%)
Non-lighting	Positive (+9%)	Positive (+32%)	Negative (-54%)	Negative (-64%)	Negative (-52%)	Positive (+49%)
Custom						
Lighting	Positive (+22%)	Positive (+286%)	Negative (-14%)	Unclear[2]	Negative (-60%)	Unclear[2]
Non-lighting	Positive (+33%)	Negative (-19%)	Negative (-57%)	Negative (-89%)	Negative (-95%)	Negative (-99%)

[1] Each cell shows the general effect (positive, negative, none) and the comparison of the number of projects or amount of MWh savings to the number or amount predicted from the 2016-to-2019 trends.

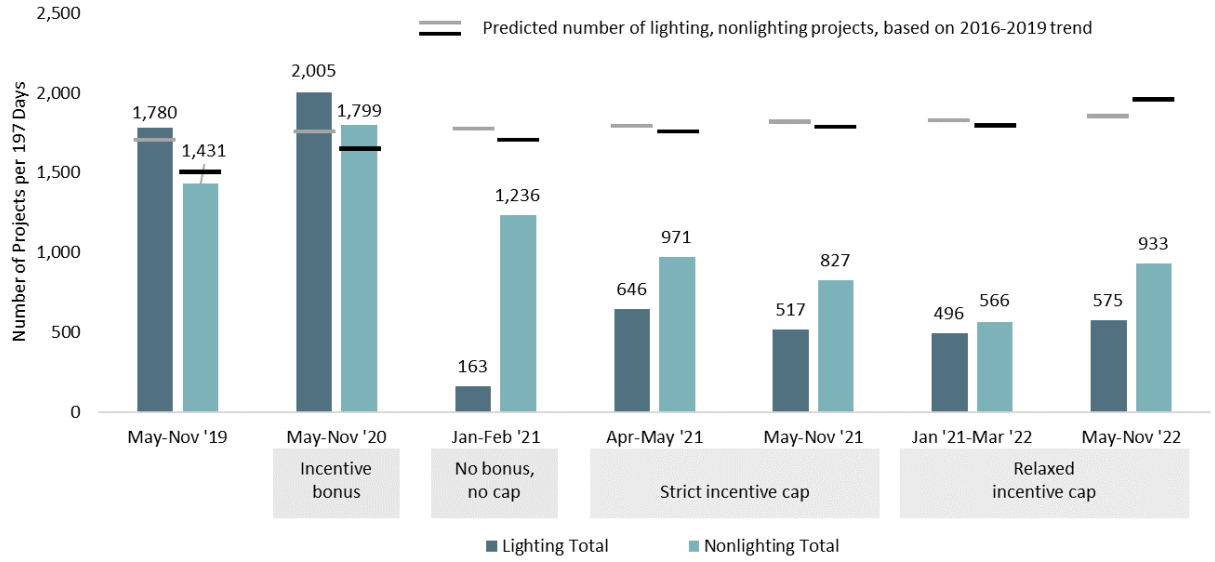
[2] As explained below, is difficult to assess the effect of incentive caps on custom lighting savings because of the overall low levels and the pronounced downward 2016-2019 trend.

7.1.1.1 Standard Projects and Measures: Commercial Sector

Figure 7-2 and Figure 7-3 show the findings for standard project starts and MWh savings. The columns show the normalized number of projects or amount of savings in each interval; a thick line segment above or bisecting the column indicates the levels predicted from the 2016-to-2019 project totals.

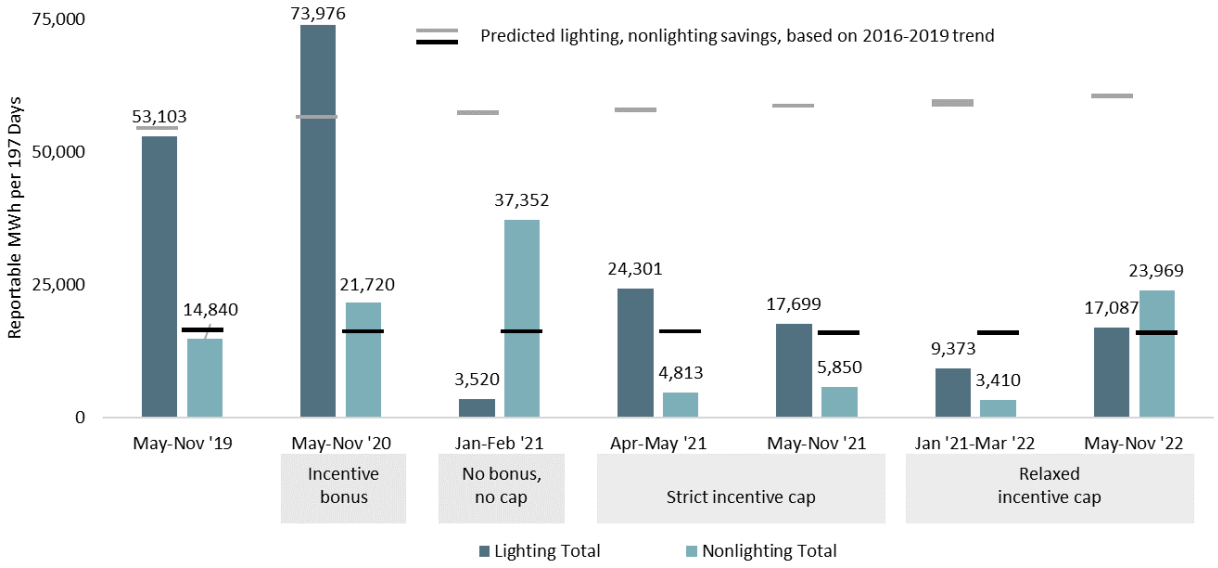
Project starts showed increasing trends from 2016 through 2019; lighting project savings showed a similar increasing trend while the nonlighting savings trend was generally flat throughout the period. Both project starts and savings exceeded the predicted levels during the incentive bonus period and then fell well below the predicted values after the bonus ended, remaining depressed through the rest of the period of study. Overall, the analyses indicate that the incentive bonus had a moderately positive effect on project starts and the savings from those projects, while the subsequent incentive caps had a large negative effect on projects and savings. The effect on both project starts and savings appears stronger for lighting than nonlighting measures.

Figure 7-2: Number of Commercial Lighting and Non-lighting Standard Projects in Relation to Incentive Bonus and Caps*



*Standard project is defined here as a project with any standard measures, even if it has custom measures.

Figure 7-3: Commercial Lighting and Non-lighting MWh Savings from Standard Measures in Relation to Incentive Bonus and Incentive Cap

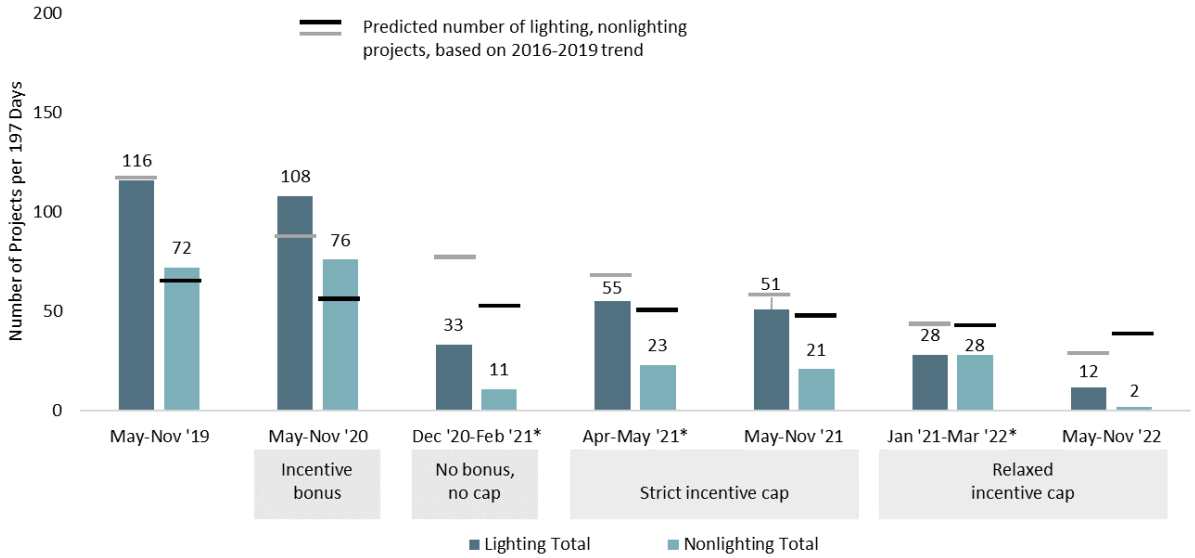


7.1.1.2 Custom Projects and Measures: Commercial Sector

Figure 7-4 shows the normalized *custom* project starts. The 2016-2019 data showed very slight *downward* trends for both lighting and non-lighting project starts. The effects for custom project starts reflected those for standard project starts: above predicted levels during the bonus period, followed by drops to below the predicted levels after the incentive bonus ended. Again, this

suggests that the incentive bonus had a positive effect on the number of projects, and the termination of the bonus and the subsequent incentive cap had a negative effect. However, the effect of removing the bonus does not appear as strong as for standard projects and savings.

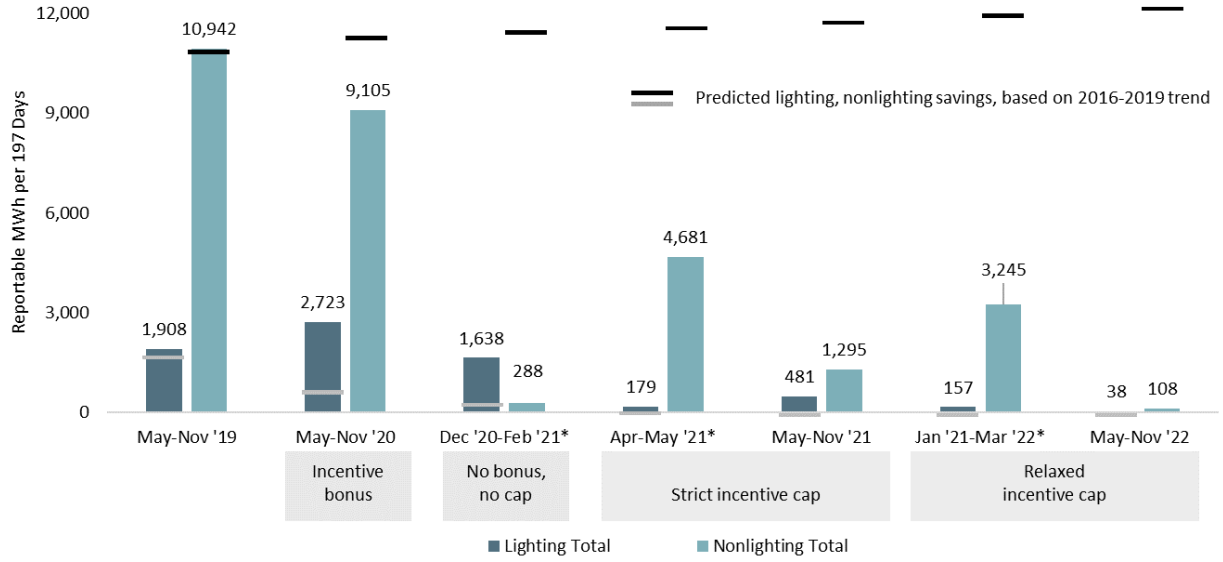
Figure 7-4: Number of Commercial Lighting and Non-lighting Custom Projects in Relation to Incentive Bonus and Caps*



*Custom project is defined here as a project with any custom measures, even if it has standard measures.

As Figure 7-5 shows, the 2016-2019 data showed a pronounced negative trend for lighting savings, and a weak positive trend for non-lighting savings. Again, the bonus period savings were well above the predicted levels. In contrast to the findings for custom project starts, the savings remained above predicted levels after the bonus ended and even during the caps. It is difficult to interpret these comparisons, however, as the strongly declining 2016-2019 trend predicted zero lighting savings by early 2021.

Figure 7-5: Commercial Lighting and Non-lighting MWh Savings from Custom Measures in Relation to Incentive Bonus and Caps



7.1.2 Industrial Sector

The following sections discuss the analyses of the standard and non-lighting project and MWh savings totals within the industrial sector for the May 18-to-November 30 intervals in 2019 to 2021 as well as the for the additional four intervals described above.

As detailed below and summarized in Table 7-2, the analyses indicated that the bonus had a positive effect, and the strict caps had a negative effect, on standard lighting and non-lighting projects and savings. The number of projects continued to be depressed, but the savings showed a rebound, under the relaxed caps. Regarding custom lighting, the data on neither projects nor savings supported any conclusions on the effects of the bonus or caps. The data on custom non-lighting projects and savings are inconsistent but support a positive effect of the bonus on the number of projects and a negative effect of caps on savings.

Table 7-2: Summary of Analyses on the Effects of the Incentive Bonus and Caps in the Industrial Sector[1]

Project/ Measure Type	Incentive Bonus or Caps Period					
	Bonus		Strict Caps		Relaxed Caps	
	Number of Projects	MWh Savings	Number of Projects	MWh Savings	Number of Projects	MWh Savings
Standard						
Lighting	Positive (+44%)	Positive (+80%)	Negative (-71%)	Negative (-78%)	Negative (-32%)	Positive (+24%)
Non-lighting	Positive (+26%)	Positive (+86%)	Negative (-33%)	Negative (-16%)	Negative (-15%)	Positive (+30%)
Custom						
Lighting[2]	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear
Non-lighting	Positive (+85%)	Negative (-46%)	None (-6%)	Negative (-80%)	Negative (-61%)	Negative (-99%)

[1] Each cell shows the general effect (positive, negative, none) and the comparison of the number of projects or amount of MWh savings to the number or amount predicted from the 2016-to-2019 trends.

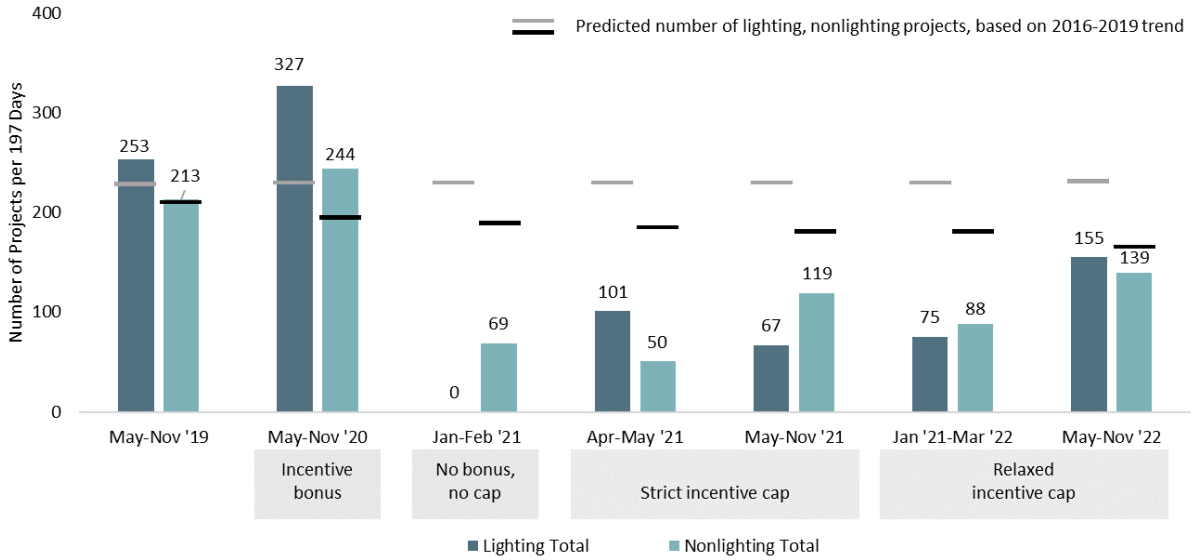
[2] As explained below, we could not draw conclusions regarding custom lighting project starts, which remained at very low levels, as did the predicted amounts, throughout the period of study.

7.1.2.1 Standard Projects and Measures: Industrial Sector

Figure 7-6 and Figure 7-7 show the findings regarding industrial standard project and savings. The 2016-2019 data showed very week, nearly flat, trends for project starts and a downward linear trend for standard lighting savings but a slight *upward* trend for non-lighting savings.

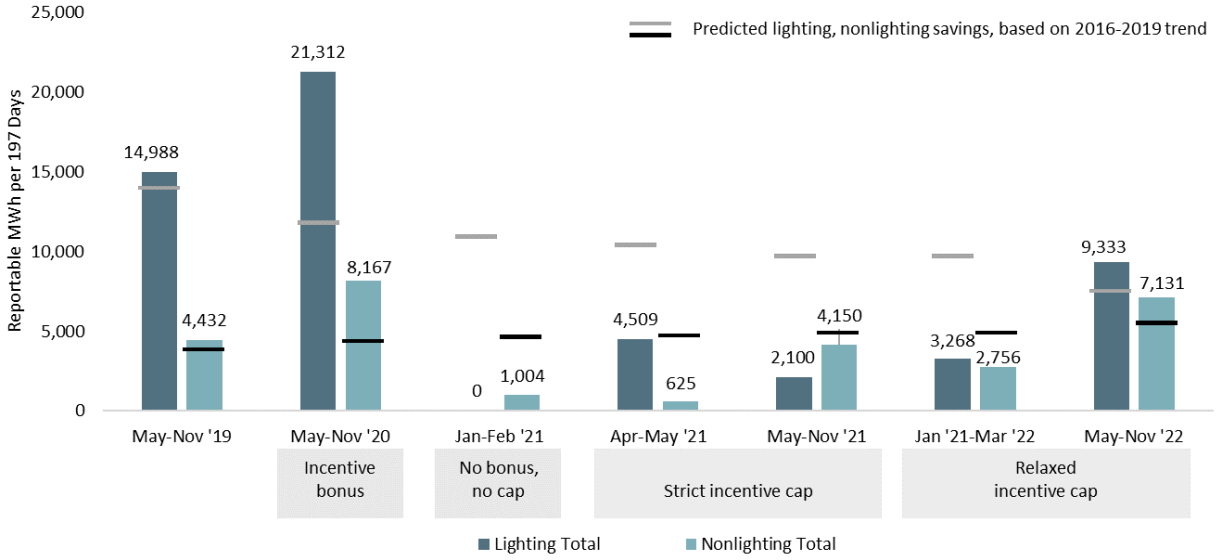
Both project starts and savings during the incentive bonus period were well above the predicted levels but then fell to levels well below the predicted values after the incentive bonus ended and remained depressed during the period of the strict incentive cap and the early period of the relaxed cap. Overall, the analyses indicate that the incentive bonus had a strong positive effect on standard projects and savings. The termination of the bonus and the subsequent incentive cap had a negative effect on lighting and non-lighting projects and savings, although some recovery was seen in the late part of the relaxed incentive cap period.

Figure 7-6: Number of Industrial Lighting and Non-lighting Standard Projects in Relation to Incentive Bonus and Caps*



*Standard project is defined here as a project with any standard measures, even if it has custom measures.

Figure 7-7: Industrial Lighting and Non-lighting MWh Savings from Standard Measures in Relation to Incentive Bonus and Incentive Cap

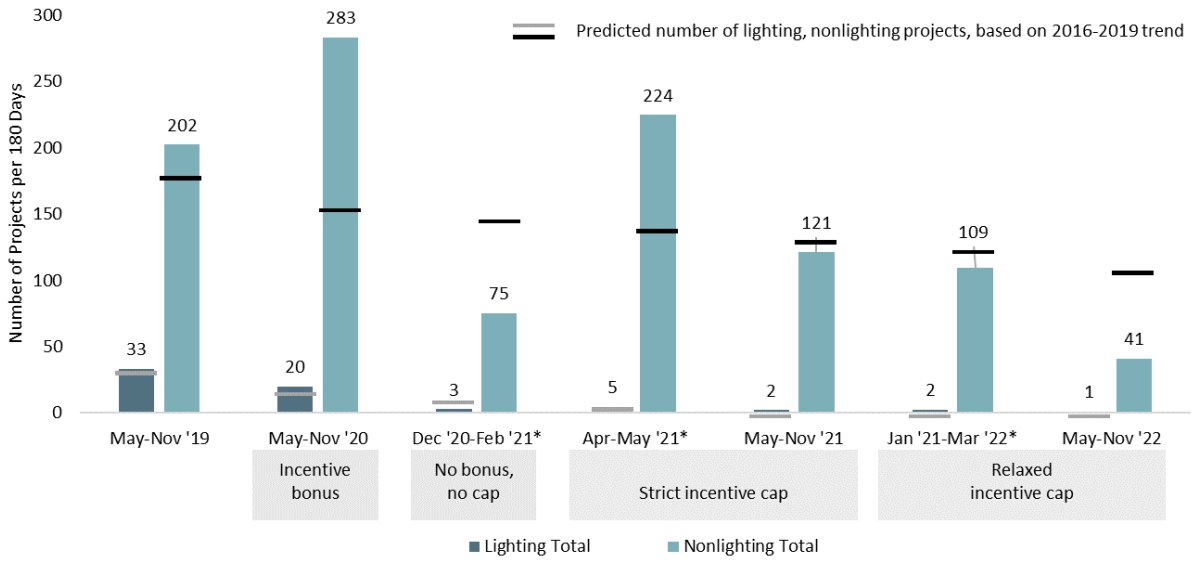


7.1.2.2 Custom Projects and Measures: Industrial Sector

The results for industrial custom lighting project starts and savings did not yield clear conclusions. The results for industrial custom *nonlighting* projects (but not savings) were consistent with those reported above: above predicted values during the bonus period and below predicted values

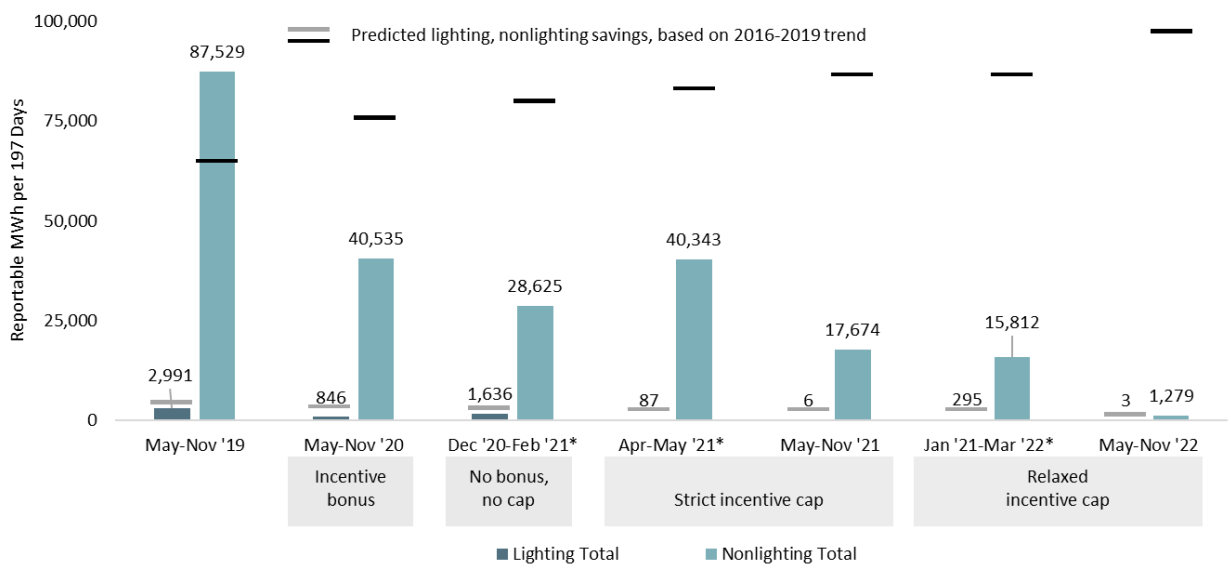
after the bonus ended. However, Figure 7-8 and Figure 7-9 show very low levels of *lighting* project starts and savings, all close to the predicted levels, throughout the period of study. Thus, the data do not permit any conclusion about the effects of the incentive bonus or caps on custom lighting projects or savings.

Figure 7-8: Number of Industrial Lighting and Non-lighting Custom Projects in Relation to Incentive Bonus and Caps*



*Custom project is defined here as a project with any custom measures, even if it has standard measures.

Figure 7-9: Industrial Lighting and Non-lighting MWh Savings from Custom Measures in Relation to Incentive Bonus and Caps



7.2 Staff Reported Lessons Learned from Incentive Caps

All program staff reported that changing from the $500,000 per customer per year incentive cap to a $6,000 per project incentive cap imposed from February 2021 to January 2023 had a major effect on program uptake, and trade ally and customer satisfaction with the program. According to staff, the adoption of the $6,000 cap:

- Chilled program uptake significantly, especially among industrial customers that often have very large projects making $6,000 worth of incentives not worth the effort to apply for.
- May have put some small trade allies out of businesses. Those allies that relied on the Energy Trust incentives to sell projects no longer had a value proposition for customers because the incentives were not large enough.
- Drove large trade allies to relocate their sales representative to Washington and other neighboring states that still had large utility incentives available.
- Drove large commercial and industrial customers to look for non-lighting capital upgrade projects and they were not always energy related capital projects.

Upping the incentive cap to $20,000 for commercial customers and $40,000 for industrial customers from January to March 2022 had little effect in spurring program activity. Program staff attempted to address the lack of program uptake and marketplace dissatisfaction by increasing incentives slightly, but they reported those changes had little impact on increasing project uptake.

Moving the incentive cap to $250,000 per customer in late March 2022 started to spur program interest among some trade allies and customers but staff indicated that the prior year's caps had inflicted heavy damage on the program's ability to meet goals. Staff reported that some trade

allies vowed to never work with Energy Trust again because of the radical change in caps and other trade allies indicated that it would take one year or more to bring in the same level of projects that they had pre-caps.

The enactment of the $6,000 incentive cap was the reason staff provided for why the program would not meet goals. We asked all staff to identify other factors that may have contributed to the decrease in project volume in 2021 and they all reported it was the enactment of the cap.

All program staff indicated they have started to address the problems that the "whiplash" of changing incentives caused between May 2020 and March 2022. Lighting allies and customers went from having larger than normal incentives in the latter half of 2020 to radically smaller incentives throughout most of 2021 to more "normal" incentives in 2022. To address this incentive "whiplash," the program:

- Increased the incentive cap to $250,000 per customer per year.
- Is having one-on-one contact with trade allies to rebuild trust.
- Is working to offer a consistent program offering by not radically altering incentive amounts with bonuses and changes in caps.
- Is offering trade ally meetings around the state, similar to what was offered pre-pandemic, where program staff can interact with allies and offer education about new technologies and program offerings.

7.3 Engaging Dissatisfied Trade Allies

As noted in section 5.1, trade allies reported that program changes from 2020 through 2022 resulted in varying experiences over that time frame. On average, they went from being satisfied with the addition of the bonus incentives offered in 2020 that brought them more work, to very dissatisfied with the implementation of the $6,000 incentive cap in 2021 and the challenges of having a new implementer take over the program, and back to satisfied with the removal of the cap and the implementer running the program smoothly in 2022.

Several trade allies specified that building relationships between Energy Trust implementers and the trade allies is critical to maintaining satisfaction with the program and knowledge of program processes and changes. For example, several allies mentioned implementer staff by name commenting that these staff were instrumental in helping them navigate program processes. One trade ally said, "I think it's important to have an account manager and to not change them too often just to build that relationship and become more used to each other's way of working."

Additionally, these allies reported that their contacts with the implementer need to have technical expertise. According to these allies, the previous implementation staff had a depth of technical knowledge they valued, and the new implementer staff lacked that knowledge, at least during the initial months of taking over the program. These allies reported that the new implementer's knowledge has increased, a welcome improvement to the program.

When thinking about any program transition, especially to a new implementer or a new program design, trade allies emphasized the importance of consistency, especially around incentive levels and measure eligibility. Many noted that consistency is key to continued participation and that their reputation in the community in some cases can be more important than the incentive. One Midstream contractor said, “Consistency is key in order for us to continue to participate in the Energy Trust program.”

8 Overlap Between Business Lighting and Other Programs

Staff, trade allies, and participants informed us about how the Business Lighting program and other Energy Trust programs may overlap in the market causing potential confusion among market actors and, in some instances, offered suggestions to mitigate this duplication of effort.

8.1 Staff Perspective

There was good coordination between the BL program tracks and other Energy Trust programs. Staff reported receiving referrals from Existing Buildings or Production Efficiency staff that identified a customer they think would benefit from Business Lighting services. In those cases, typically the implementer staff, for example Energy 350 staff for Production Efficiency, would contact CLEAResult outreach staff with a referral. The CLEAResult outreach staff would then identify which track seemed most appropriate for the customer and ensure the customer received the appropriate services. Energy Trust and CLEAResult staff both indicated this process worked well and ensured the customer received all possible services.

The Business Lighting and Existing Building staffs are collectively working on identifying and reaching out to 88 community-based organizations that can help the programs provide service to Oregon's diverse and rural communities. Staff reported that they coordinate with Existing Buildings outreach staff to reach out to these organizations and identify events, meetings, or other mechanisms they can use to share program offerings with the membership of these organizations. For example, outreach staff from each organization may present their respective program offerings to a small-town Chamber of Commerce or a business group focused on a specific ethnic group.

Despite generally good coordination between programs, staff reported there was still some confusion in the marketplace. According to staff, small C&I customers could be confused by having two teams representing the same organization (Energy Trust) offering similar services. Staff indicated that it may make more sense to offer a single outreach effort that focused on small businesses with both direct install lighting measures and increased non-lighting incentives for these customers.

8.2 Amount of Overlap between Business Lighting and Other Programs

One research objective was to assess the amount of overlap in participation between the BL Program and other C&I programs. To do this, we examined the percentage of BL participants that also participated in other programs as well as the percentage of participants in other programs that also participated in BL. To put these percentages in context, we also examined the percentage of all lighting participants who also received incentives for non-lighting measures, as well as the percentage of all non-lighting participants who also received incentives for lighting measures, for each year from 2016 through 2020. These analyses provide information on whether the establishment of BL as a separate program may have had an impact on the amount of overlap in participation.

The first analysis asks: Given that someone did a project with lighting incentives, how likely was it they also did a project with non-lighting incentives, and how did that change over time?

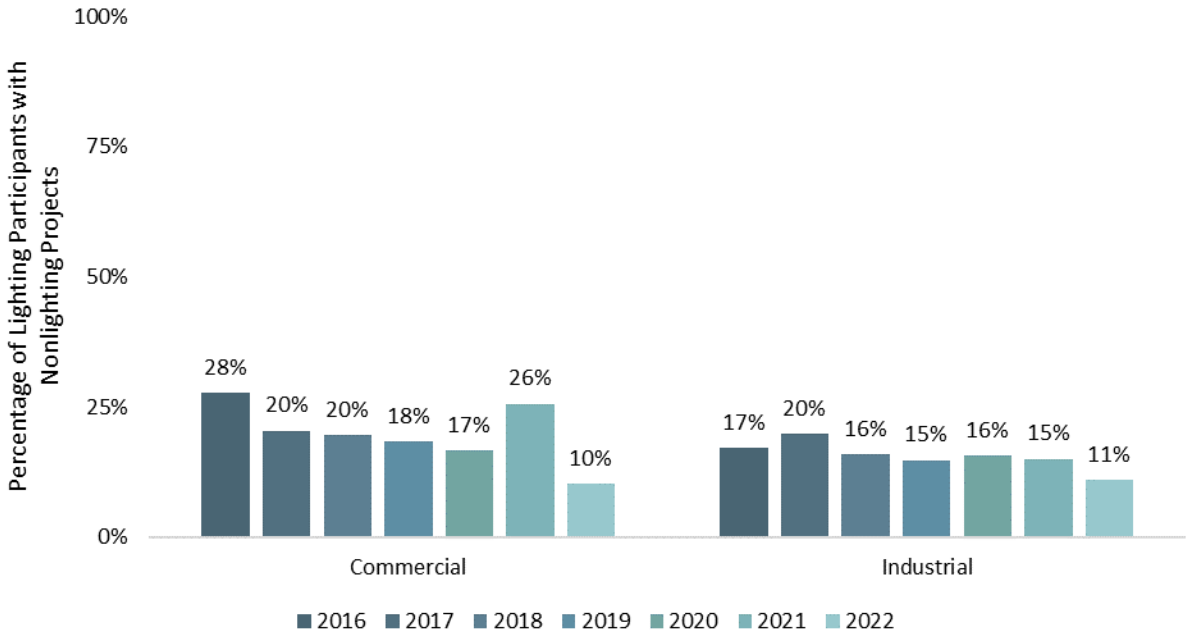
The second analysis asks: Given that someone did a project with non-lighting incentives, how likely was it they also did a project with lighting incentives, and how did that change over time?

Granted, there should be a relationship between the results of the two analyses. However, they would differ in the overall percentages seen if, for example, there are generally more lighting than non-lighting participants, and the time trends may show somewhat different shapes.

8.2.1 Lighting Participants Who Did Non-lighting

Figure 8-1 shows that the likelihood that a commercial lighting customer will also be a non-lighting customer has been declining in general since 2016. Thus, while about one-quarter of 2016 lighting participants also installed non-lighting measures with Energy Trust assistance, that fraction fell to about 10 percent in 2022. However, this decline is not completely consistent across years. In 2021, when BL began operations, the percentage of lighting participants that also did non-lighting projects increased to nearly the 2016 level, but the percentage fell again in 2022 to a level consistent with the rate of decline from 2016 to 2020.

Figure 8-1: Lighting Participants with Non-lighting Projects

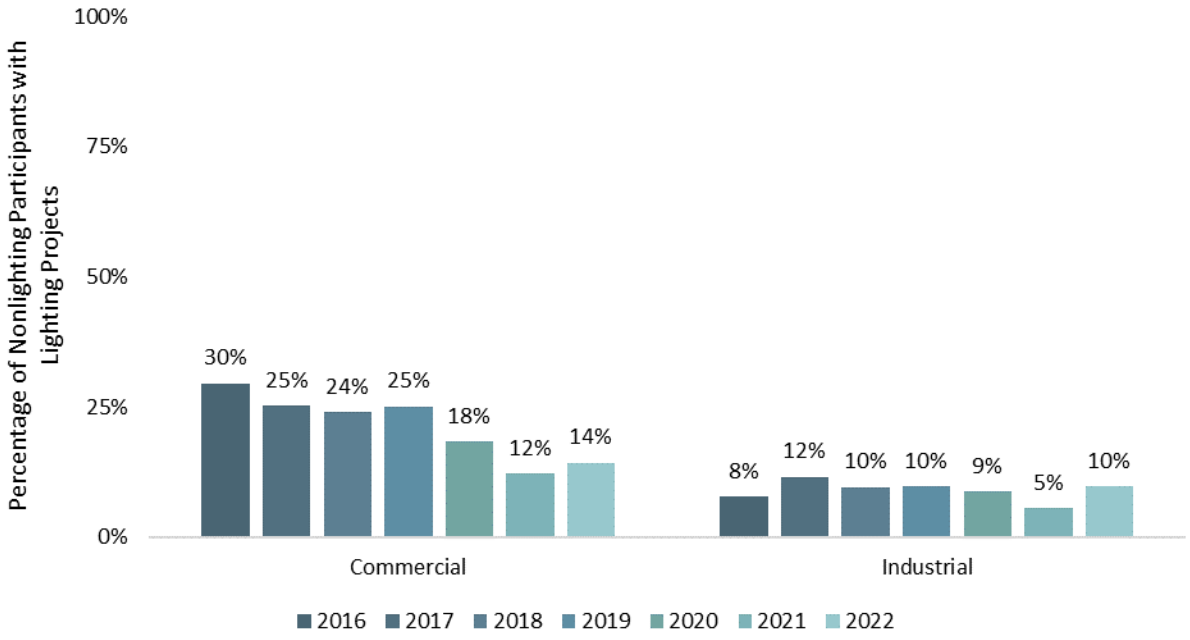


When the industrial sector is considered, the trend is in the same direction, but flatter across the time period. That is, there is less decrease in participation overlap over time. These results do not provide evidence that the amount of overlap between lighting and non-lighting participation changed with the implementation of the BL Program.

8.2.2 Non-lighting Participants Who Did Lighting

Looking at the converse, the percentage of commercial non-lighting participants who also installed lighting through Energy Trust fell more consistently from 2016 through 2021, then leveled off between 2021 and 2022 (Figure 8-2). The decline in overlap after the implementation of BL was no greater than that just before its implementation, suggesting a continuation of a pre-existing trend. Again, this suggests that the decline in overlap is independent of the implementation of the BL Program. In the industrial sector, there does not appear to be a clear change over time in the percentage of non-lighting customers who also did lighting with Energy Trust assistance.

Figure 8-2: Lighting/Non-lighting Overlap, as Percentage of Lighting and Non-lighting Participants: Commercial Sector



9 DEI Goals and Accomplishments

Part of the reason for implementing the Business Lighting program was to address some of Energy Trust's DEI Goals. Below, we describe those goals and present evidence from program data, participants, and outreach efforts to CBOs of the program addressing those goals.

9.1 DEI Goals

A key reason Energy Trust selected CLEAResult to implement the BL program was CLEAResult's experience using diverse program suppliers and engaging minority-owned, women-owned, and rural businesses. According to staff, CLEAResult exceeded Energy Trust's disadvantaged business contracting requirements and CLEAResult was able to demonstrate they had experience encouraging program participation among historically underserved businesses such as those owned by minorities, women, and located in rural locations.

The BL program is addressing its DEI goals, in part, by working with Existing Buildings staff to reach out to diverse business groups around the state. This outreach work began in earnest in 2022.

Identifying appropriate metrics to use to measure progress towards addressing goals has its challenges. Staff suggested that measuring progress in some areas of DEI can be relatively easy. For example, staff suggested determining the percentage of small businesses served in rural areas should be possible as there are data from statewide or federal agencies on number of small businesses in rural areas.[18] However, determining the number of small businesses owned by minorities or women is more difficult because these businesses often do not register as such (e.g., COBID). According to staff, the program may need to conduct a baseline study to determine the population of small businesses owned by minorities or women.

Staff suggested that the SBDI program track is the track with the largest responsibility for addressing DEI goals and did not speak much to addressing DEI goals outside of that track. There was little awareness about specific DEI goals associated with other program tracks and there was little discussion about taking actions to increase participation among traditionally underserved customer in Downstream or Midstream tracks.

About half (n=14) of the 30 interviewed trade allies were aware of Energy Trust's DEI goals, mostly learning about it through events or program collateral. It was not as clear how these goals influenced how they conducted their businesses or how it affected customers. Those familiar with the program talked about how the SBDI effort was a key way for Energy Trust to address DEI efforts or they brought up Energy Trust's desire to contract with traditionally underserved businesses.

Trade allies had suggestions on how to improve DEI initiatives including:

[18] Although, as noted in Section 3.4.3, identifying the size of businesses served by the program is not completely straightforward.

- Increased marketing and trade ally driven outreach in target communities, specifically rural communities (7 mentions).
- Increased incentives for target communities (3 mentions).
- Focusing SBDI activities in rural communities (2 mentions).

9.2 Evidence of Progress from Participants

Comparing the participants of the Downstream and SBDI tracks shows that Energy Trust's SBDI outreach efforts are reaching a population that its traditional Downstream track has not.

Table 9-1 shows personal characteristics of the survey respondents and the business owners. SBDI and Downstream businesses differed in three key ways. SBDI respondents were more likely to be business owners compared to Downstream respondents. SBDI respondents also were far more likely to report the business was female owned and Downstream respondents were more likely to refuse answering the question about gender identity. Finally, SBDI respondents were far more likely to report the business was owned by a Person(s) of Color and Downstream respondents were more likely to refuse answering the question about racial identity.

Table 9-1: Personal Characteristics by Program Track

Type	SBDI	Downstream	Total
Respondent Role	***n*=45**	***n*=47**	***n*=92**
Proprietor/Owner/President*	67%	40%	53%
Director/Manager*	18%	38%	28%
Financial/Administrative	16%	6%	11%
Facilities or Energy Manager	0%	15%	7%
Gender Identity of Proprietor/Owner/President	***n*=41**	***n*=33**	***n*=74**
Male	44%	61%	51%
Female*	46%	12%	31%
Additional gender category	5%	0%	3%
Refused*	5%	27%	15%
Race or Ethnic Background of Owner	***n*=39**	***n*=31**	***n*=70**
White alone	59%	58%	59%
Person of Color*	31%	9%	21%
Multiracial	10%	6%	9%
Asian*	10%	0%	6%
Some Other Race	5%	0%	3%
Latino or Hispanic	3%	3%	3%
Black or African American	3%	0%	1%
Refused*	10%	32%	20%

**Significant difference using chi-square p<.05.*

Table 9-2 shows firmographic characteristics of the surveyed businesses. Here, we found four main differences. First, downstream respondents were generally more responsible for a variety of equipment types in their space. Second, SBDI respondents were more likely to rent space and Downstream respondents were more likely to own space. Third, Downstream participants were more likely to have been past participants of Energy Trust programs. Fourth, Downstream participants were more likely to represent manufacturing facilities compared to SBDI participants. Very few respondents reported being eligible for COBID certification, but most respondents were also not familiar with the certification. SBDI respondents were more likely to report being COBID certified or eligible for certification than their downstream counterparts.

Table 9-2: Firmographics by Program Track

Type	SBDI	Downstream	Total
Responsible for Equipment Upkeep	***n*=45**	***n*=47**	***n*=92**
Lighting	96%	96%	96%
Heating	78%	89%	84%
Cooling	73%	84%	80%
Refrigeration*	56%	87%	59%
Kitchen equipment*	60%	80%	55%
Building Ownership	***n*=45**	***n*=45**	***n*=90**
Rent*	58%	16%	37%
Own and occupy	33%	47%	40%
Own and rent to someone else	7%	16%	11%
Own, occupy, and rent to someone else*	2%	22%	12%
Past Use of Energy Trust Services	***n*=45**	***n*=45**	***n*=90**
Used Energy Trust programs in the past*	18%	56%	37%
Business Type	***n*=44**	***n*=45**	***n*=89**
Retail	25%	11%	18%
Office or commercial real estate	9%	24%	17%
Manufacturing, warehouse, distribution*	2%	20%	11%
Healthcare*	16%	2%	9%
Religious	9%	4%	7%
School	2%	9%	6%
Auto sales, repair, and services	5%	7%	6%
All other	32%	22%	27%
COBID Certified	***n*=44**	***n*=44**	***n*=88**
Unsure	57%	55%	56%
Neither Eligible nor Certified	25%	41%	33%
Certified or eligible bit not certified*	18%	4%	12%
Certified	9%	2%	6%
Eligible, but not certified	9%	2%	6%

**Significant difference using chi-square p<.05.*

9.3 Trade Allies Reported Firmographics and DEI

Most trade allies reported the business owners were male or family owned and identified the owner's racial category as white. A notable minority of respondents (9 of 30) did not answer or were unable to answer our questions about the gender or racial identity of the owner. Due to a lack of information about these characteristics of the trade ally population and the population of contractors in general, we don't know how representative this sample is. Most trade allies were relatively small business when examined by the number of employees. A few identified as Energy Services Companies (ESCOs) or lighting consultants (Table 9-3).

Table 9-3: Trade Ally Firmographics

CATEGORY	Count (*n*=30)
Type of Business	
Distributor	8
Electrical Contractor	6
ESCO	4
Lighting Contractor	2
General Contractor	2
Manufacturer	1
Multiple/Other	7
Gender	
Male Owned	11
Male and Female/Family Owned	7
Female Owned	3
Unknown/Not Answered	9
Owner Racial Category	
White	17
BIPOC (Black, Indigenous, People of Color)	4
Unknown/Not Answered	9
Estimated Oregon Employees	
1 employee	7
2-25 employees	14
26 or more employees	3
Unknown/Not Answered	6

9.4 Evidence from Time Trends in Program LED Penetration Rates

As noted in Section 3.4, the available data did not support an analysis of the degree to which the BL program serves women- or minority-owned businesses. However, Table 9-4 shows the penetration of Energy Trust LED lighting projects each year from 2018 through 2022, by urbanization, location, and number of employees. As this shows, program LED penetration declined between 2020 and 2021, and remained low in 2022. This is generally the case for most subgroup of business sites by urbanization and number of employees, although more pronounced for sites with fewer than 10 employees.[19]

[19] So few sites had at least 500 employees or an unknown number of employees in any single year that it is not reasonable to draw any conclusions or comparisons with other groups. Therefore, we have left those groups out of the table.

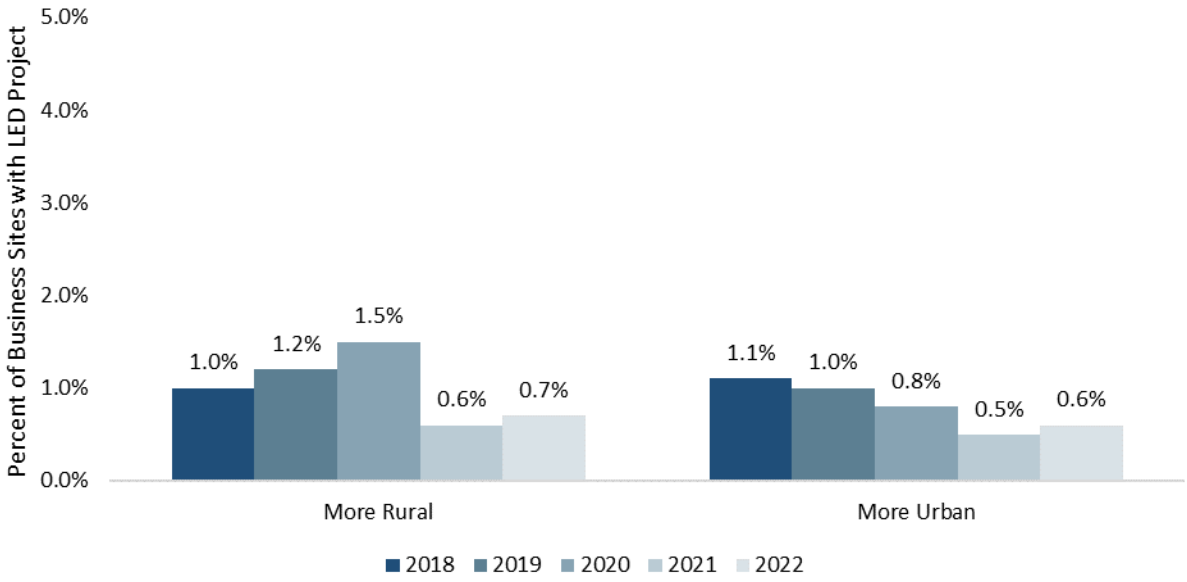
Table 9-4: Penetration of Energy Trust LED Lighting Projects in Rural and Small Business Sites, by Year

	Year				
	2018	2019	2020	2021	2022
All Sites					
# Project sites	2,053	2,101	1,881	1,051	1,240
% of pop.	1.1%	1.1%	1.0%	0.5%	0.6%
More Rural vs. More Urban					
More Rural					
# Project sites	379	465	558	242	252
% of pop.	1.0%	1.2%	1.5%	0.6%	0.7%
More Urban					
# Project sites	1,674	1,636	1,323	809	988
% of pop.	1.1%	1.0%	0.8%	0.5%	0.6%
Number of Employees					
Unspecified[1]					
# Project sites	874	884	798	481	482
% of pop.	0.6%	0.6%	0.6%	0.3%	0.3%
One to Nine					
# Project sites	647	684	670	254	417
% of pop.	1.8%	1.9%	1.8%	0.7%	1.1%
10 to 19					
# Project sites	195	195	156	112	117
% of pop.	2.6%	2.6%	2.1%	1.5%	1.6%
20 to 499					
# Project sites	320	320	230	192	184
% of pop.	4.1%	4.2%	3.0%	2.5%	2.4%

[1] One data field identified nearly all of these as *not* in the one-to-nine-employees range, but there was no other information to indicate whether there were zero or more than nine employees (see Section 3.4.3).

However, closer examination of the trends over all five years suggests a difference between the more rural and more urban sites. These are more evident when the trends are viewed graphically. Figure 9-1 shows that the 2021 level for "more urban" business sites appears consistent with an already-existing downward trend that occurred over the previous three years. By contrast, the prior trend for "more rural" sites was a steady increase in LED penetration, which was interrupted in 2021.

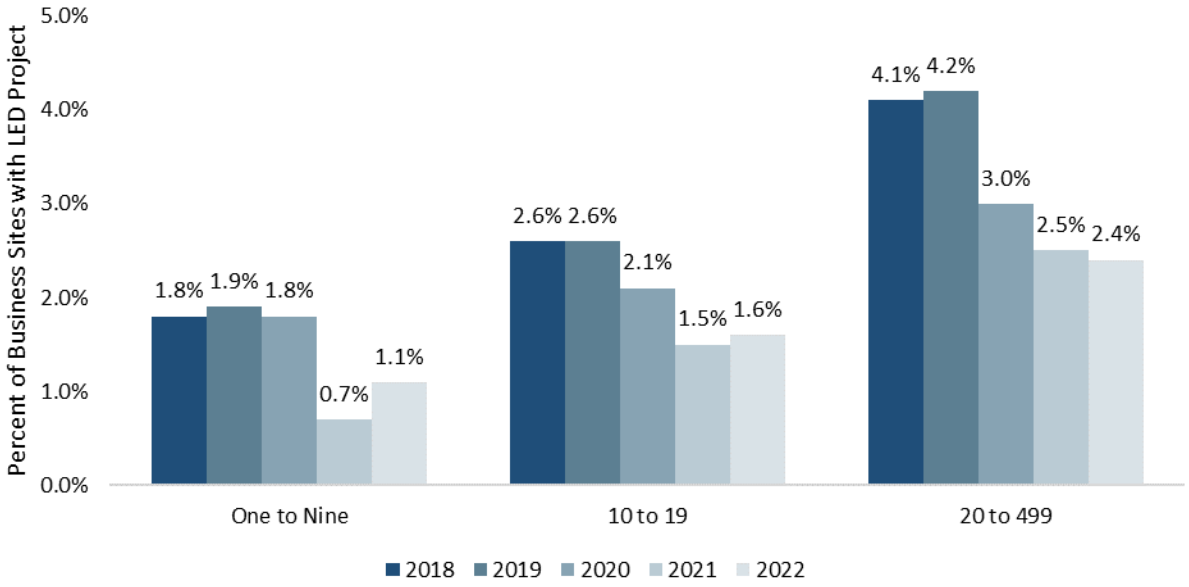
Figure 9-1: Five-Year Trend in Program LED Penetration by Urbanization Level



The five-year profiles show less of a difference by number of employees (Figure 9-2), although larger sites to show a somewhat larger relative drop from 2019 to 2020, compared to the other groups.

These results suggest that the incentive changes in 2021 had more impact on more rural businesses than more urban ones and possibly more impact on medium-sized businesses than smaller ones.

Figure 9-2: Five-Year Trend in Program LED Penetration by Number of Employees



9.5 Using Community Based Organizations to Increase Participation

To help support Energy Trust's Diversity Equity and Inclusion objectives, Energy Trust would like to support and collaborate with Community Based Organization (CBOs). CBOs may have relationships with organizations that may not have been reached in the past such as small, women-owned, minority-owned, rural, veteran owned businesses, with the goal to develop meaningful relationships, resulting in positive outcomes such as increased participation in Energy Trust programs among these groups.

Although there is general familiarity and positive reaction towards Energy Trust's energy efficiency mission, there is a gap in influence. All four of the leaders interviewed seemed to be familiar with Energy Trust, they reported their members had varying levels of awareness. One interviewee hypothesized that Energy Trust had not spurred efficiency actions among CBOs and their members.

The CBOs heard about Energy Trust programs from either Energy Trust or utility staff. Three of the four discussed an Energy Trust presentation describing program details, and one did state that while the presentation was informative it was hard to follow due to their lack of knowledge regarding energy terminology. They said they felt "intimidated and confused."

While it was unclear if CBO interviewees would know about their members participation in Energy Trust programs, none of the interviewees were aware of any of their members receiving incentives from Energy Trust. They suggested that Energy Trust conduct more direct outreach, online workshops, "coffee conversations," connecting with representatives who are trusted in the community, and to continue to offer incentives. One interviewee said, "Due to language barriers and lack of trust it is hard for businesses to go about ETO's opportunities when they are trying to run their businesses – EE [is] becoming less of [a] priority…."

Two of the four organizations have provided some support to Energy Trust to help increase awareness of their products and services. Two of the four organizations did say they have helped to increase program awareness, and it was limited to just explaining how Energy Trust worked and sharing information about the programs. All CBOs stated that they would like to continue to support Energy Trust . A couple suggested that they do more tracking to better understand if members are participating in Energy Trust programs.

Suggestions on how to work with CBOs included mitigating language barriers. Interviewees suggested outreach in languages beyond Spanish, such as Vietnamese, Korean, Arabic or Russian. T

10 Conclusions and Recommendations

Our review of data from and about the BL program results in the following conclusions and recommendations.

Conclusion #1: There were multiple market conditions and program reasons why lighting savings have declined over time and reached their lowest value seen in the last six years in 2021. There are several reasons for the decline in savings values since 2018 and especially since Business Lighting's inception in January 2021:

- It is getting more difficult to gather lighting savings due to the saturation of highly efficient LEDs in the market. Staff and market experts told us this phenomenon is happening in Energy Trust territory and throughout the region. There are still opportunities to install LEDs, especially in small businesses and in certain parts of the state (e.g., in Eastern Oregon).
- Covid-19 disrupted the market in ways that were difficult to see. Energy Trust attempted to respond to some of the disruptions by providing bonus incentives in 2020, spurring greater than anticipated program activity which in turn resulted in a large scale back of program activity in 2021.
- The implementer struggled to implement a new program with three new tracks while dealing with 10 times the number of Downstream projects inherited from the previous implementer than anticipated. This glut in projects may in part have resulted from the implementation of an incentive bonus on Downstream projects in 2020, which was followed by an increase in project activity that well exceeded (in most cases) what would have occurred had the previous three years' trend continued.
- The 2020 incentive bonus led to the need to implement incentive caps in 2021 to avoid running out of incentive funds before the end of the year. The restrictive incentive cap that was in place for much of 2021 is associated with a decrease in project counts and savings. As a result, some trade allies left the Oregon market, at least temporarily, and others lost trust in Energy Trust. Generally, relationships between Energy Trust and trade allies appeared to be mending throughout 2022.
- The delay in getting the SBDI track running early in 2021 resulted in lost time to build up a pipeline of projects in 2021. The SBDI track began developing a pipeline of projects in 2022 and came close to achieving its savings goals at the end of the year.
- The delay in getting the Midstream track running in December 2021 resulted in no Midstream projects being booked in 2021 and minimal projects in early 2022. However, like the SBDI track projects, Midstream projects began to fill the project pipeline in the latter half of 2022.
- Changing implementation of the lighting program in 2021 was a significant shift in program design and processes. Trade allies had become accustomed to the former program design, approach, and implementer, and changing those things caused upheaval among some allies.

  Recommendation #1a: When transforming program designs and approaches that have been running in the market for extended periods of time, Energy Trust should alert all

stakeholders of changes months (if not one year) ahead of time to get stakeholders accustomed to the changes. In particular, Energy Trust should get trade allies' feedback about program changes before implementation. Trade allies should be seen as partners of Energy Trust when redesigning programs, so getting their feedback early in the transition process is key to fostering trust between Energy Trust and the trade allies.

Recommendation #1b: Furthermore, when making changes to long-standing program, Energy Trust should build in extended overlap times from the old approach to the new approach to provide for a smooth transition.

Recommendation #1c: When considering adjusting incentive levels in response to unanticipated events, Energy Trust should seek relevant information and input from other sources, such as other program administrators and from major trade allies. Other program administrators may have pertinent experience, and major trade allies may be able to provide insights on the relative value of increasing incentives in the short-term versus capping them later.

Recommendation #1d: When considering adjusting incentive levels even in response to unanticipated events like a pandemic, Energy Trust should take great care in making large changes to incentives that can have unintended consequences. Consistent and gradual changes to incentives are more palatable to the market and result in far less disruption to trade allies, participants, and program implementers.

Conclusion #2: The Energy Trust team is making efforts to address the myriad of challenges the program faces and is largely doing what market experts suggest is the right approach to gather lighting savings in the future. In 2022, the program removed the incentive cap that stifled program uptake in 2021, especially for small businesses and rural sites, and began full implementation of the Business Lighting program. Staff reported that the new tracks, SBDI and Midstream, were fully operational and staff from the Downstream track were able to concentrate their efforts on addressing trade ally concerns and encouraging program participation again. Our evaluation shows there are places where the program staff could build upon the positive developments, they created by enhancing some outreach efforts, encouraging greater use of the Midstream track, and encouraging the greater adoption of controls. Specifically, we recommend the following.

Recommendation #2a: Continue to build upon the successes of 2022, including continuing to re-engage with trade allies such as by supporting events like trade ally breakfast meetings around the state and facilitating communication between account managers and allies.

Recommendation #2b: Continue to build upon ways to ensure potential SBDI participants receive free lighting measures by reviewing past contact lists and following up with customers that have not scheduled an installation, sometimes several months after their first contact with the program. Our attempts at reaching non- and near- participants revealed that there are very few (if any) customers not interested in receiving free lighting but that some of these contacted customers have not been able to get their installation

scheduled. These customers may need several follow-up calls and reminders conducted over several months before scheduling the work and they may need to schedule their installation work several months out to accommodate their business schedules. For example, an agricultural customer may not be able to do a lighting installation during planting or harvesting seasons.

Recommendation #2c: Continue to build out the Midstream track by recruiting distributors and educating trade allies about the track, the equipment opportunities available through the track, and the ease of participation for trade allies, especially as it compares to the Downstream track.

Recommendation #2d: There is an opportunity to increase adoption of controls by continuing to expand efforts to educate trade allies about controls and their energy and non-energy benefits and by making controls easier to access by offering controls via the Midstream track. Currently, a trade ally often must participate in the Downstream and Midstream tracks when doing a project that involves controls. By having controls part of the Midstream track, a trade ally could order their lights and controls from a distributor and complete a controls project with minimal administrative work.

Recommendation #2e: Continuing and expanding outreach efforts to CBOs to promote Energy Trust programs, especially the SBDI program track, is a way to accomplish two goals. First, CBOs can help Energy Trust address their DEI goals by increasing participation among small businesses and organizations traditionally underserved by efficiency programs. Second, CBOs have the potential to lower outreach costs by delivering a cadre of small businesses/organizations to the program instead of relying solely on the site-by-site outreach model as the program is currently doing. Providing CBOs with a single Energy Trust program contact, as the program is currently working to do, is a way to make the myriad of Energy Trust programs as accessible as possible to CBOs and their membership.

Conclusion #3: The goal of increasing program participation and trade ally involvement among Oregon's diverse businesses is compromised by the unknown number of small businesses owned by people of color and women. Determining the number of small businesses owned by minorities or women is difficult because these businesses often do not register as such (e.g., COBID). Therefore, knowing how much of an effect the program is having on penetrating that population with program services is challenging. This lack of information about small business ownership affects Energy Trust's ability to assess the effect the program is having on customer and trade ally businesses owned by women and people of color.

Recommendation #3: Consider conducting a baseline study of the general population of small businesses and of trade allies in particular to better understand the population of small businesses and trade ally businesses owned by women and people of color so Energy Trust can have a better understanding of how much their efforts are addressing their DEI objectives.

Conclusion #4: The best opportunities for achieving more savings from lighting (other than controls) is in small businesses. They make up a very large share of business sites but have low

program-supported LED penetration. Three-fifths of surveyed SBDI participants said they would not have upgraded their lighting if they had to spend their own money. Thus, even with the removal of non-efficient lighting from the market, without program support, the rate of lighting upgrades in small businesses may not far exceed the rate at which current lighting burns out. Based on analyses of secondary data, the most "target rich" areas for finding opportunities are the Portland Metro/Hood River and East of the Cascades regions.

Recommendation #4a: Continue and expand efforts to reach small businesses via the SBDI program, targeting more urban areas, especially of the Portland Metro/Hood River and East of the Cascades regions.

Recommendation #4b: Consider tactics that encourage trade allies to work in underserved areas, such as providing additional incentive for serving such areas, helping promote trade allies located in underserved areas, and providing a mechanism to increase lead generation for trade allies that are interested in working in traditionally underserved communities.

Appendix A: Market Data Analysis Notes

Deduplicating and Cleaning InfoUSA Dataset

The 98,580 records corresponded to 86,485 unique SiteGUIDs, of which 7,601 were associated with more than one record. Review of these records indicated that all represented instances of minor variations in the content of the address field. We, thus, deduplicated the dataset on SiteGUID.

However, 4,836 of the SiteGUIDs were associated with variable contents in two critical fields: 1) employee_size_location_description, which identifies a range of number of employees (e.g., 1 to 4, 5 to 9); and 2) number_of_ employees, a numerical field identifying an actual employee count. Examination of these records revealed that they also varied in the business_status_ code_description field, which identifies each record as a single location, branch, subsidiary headquarters, or headquarters). Thus, clearly, a single SiteGUID really was related to multiple locations. Since they all had the same address, we could not differentiate the various locations by geography, so we counted each SiteGUID as a unique location. We assigned each SiteGUID the largest employee_size_location_ description value associated with that SiteGUID. There were some cases in which the number_of_ employees value varied for two or more records with the same SiteGUID and employee_size_location_description value. In those cases, we assigned that record the median number_of_employees value for the various employee_size_ location_description values associated with that SiteGUID.

Identifying Records as "More Rural"

We flagged all records that could be identified as "more rural," based on the definition Energy Trust used in its *2018 Diversity, Equity and Inclusion Data and Baseline Analysis*.[20] For that analysis, Energy Trust created a DEIUrban index, with a value ranging from 1 (most urban) to 5 (most rural), based on the U.S. Department of Agriculture (USDA) Rural Urban Commuting Area (RUCA) codes. Any site with an DEIUrban value of 3 or greater is deemed "more rural." The DEIUrban index was included in the utility dataset but not in the InfoUSA or project tracking data. We downloaded the 2010 USDA RUCA data file, which matches the RUCA codes to zip codes, and recreated the DEIUrban index for all records that came from InfoUSA and the project tracking data.

20 https://www.energytrust.org/wp-content/uploads/2018/12/2018_DEI_Data_Baseline_Analysis.pdf.

Estimating the Distribution of Nonresidential Business Sites, by Number of Employees

Using data from the 2018 and 2023 editions of the SBA Frequently Asked Questions About Small Businesses, we estimate that about 36% of business sites with nonresidential rates have zero employees. This was calculated as follows. Taking the midpoint of values reported in the 2018 and 2023 editions, we estimated 76.9% of business sites active in our period of study (2018 through 2022) have zero employees. The 2018 edition states that 60.1% of all business sites with no employees are home-based, and so at least 39.9% are not home-based. Thus, about 30.7% (76.9% x 39.9%) of all business sites have zero employees and are on a nonresidential rate. If 86% of all business sites are on a nonresidential rate (364,000 / 423,500), then 35.7% (30.7% / 86%,) of business sites on a nonresidential rate have zero employees. Sources: SBA Frequently Asked Questions About Small Businesses, 2018 (op. cit.). SBA Frequently Asked Questions About Small Businesses, 2023 (https://advocacy.sba.gov/wp-content/uploads/2023/03/Frequently-Asked-Questions-About-Small-Business-March-2023-508c.pdf).

We assumed the employer business sites (64% of the total) were distributed in the same relative proportions as in the overall Census data. Thus, for example, 28% of business sites have employees in the overall Census data and 20% have one to nine employees. Thus, business sites with one to nine employees make up 74% (20% / 28%) of all business sites with employees. If instead 64% of business sites have employees, then about 47% (74% x 64%) of all employer business sites have one to nine employees. This assumes the same relative proportions of businesses with 1 to 9, 10 to 499, and 500+ employees among businesses with nonresidential rates and among home-based businesses. In fact, it would seem reasonable to assume that, even among businesses with employees, those that are home-based would tend to be smaller than those that are not. Therefore, it would seem likely that the table somewhat overestimates the Census percentage of smaller businesses, and underestimates, the percentage of larger businesses, among those on nonresidential rates. However, we cannot determine the degree of over- and under-estimation.

Appendix B: Staff Interview Guide

Table 5: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	In-depth interview
Estimated Time to Complete	60 Minutes
Population Description	Energy Trust and CLEAResult Staff for Business Lighting Program
Sampling Strata Definitions	None
Population Size	Energy Trust Business Lighting Staff and Implementer Contact List.xlsx
Contact List	Energy Trust Business Lighting Staff and Implementer Contact List.xlsx
Completion Goal(s)	Census
Contact List Source and Date	Energy Trust Staff- Dan Rubado
Type of Sampling	Census
Contact Sought	Key staff associated with Business Lighting Program
Fielding Firm	ADM

Table 6: Research Objectives and Associated Questions

Research Question	Associated Questions
Lighting Market	
What is the current state of the lighting market globally, nationally, and in Oregon in the commercial, governmental, industrial, and indoor agriculture sectors?	*n/a*
What are the remaining opportunities for the program in the lighting market for commercial, industrial, governmental, and indoor agriculture sectors?	*n/a*
What is the current state of the lighting controls market in Oregon?	*n/a*
Program Transition	
How did the launch of the Business Lighting program and transition to a new implementation contractor go?	Q4 to Q5
What were the main challenges that Energy Trust encountered when launching the small business direct install and midstream lighting initiatives?	Q6 to Q12
General Program Operation	
How is the Business Lighting program currently structured?	Q22, Q29, Q37, Q30, Q38
How are general program operations working now?	Q23, Q24, Q32, Q33, Q40, Q41
How well can the program adapt to big external changes that impact the market?	Q61
How can the program design be improved to have more impact on the market?	Q8, Q10, Q22, Q28, Q35, Q42, Q44, Q60
What are the program's plans for the future?	Q61
2021 Incentive Cap Impacts	
What were the impacts of the incentive caps imposed in 2021 on the C&I lighting market?	Q13 to Q21
What were the lessons learned from these experiences?	Q20, Q21
How can the program reengage customers, trade ally contractors, and distributors that were disillusioned by the incentive caps?	Q16 to Q19
Downstream Track Operations and Experiences	
How is the downstream track structured?	Q22 to Q28
How well is the downstream incentive track working now?	Q22 to Q28
How can the downstream track be further improved?	Q22 to Q28
What incentive levels are necessary to keep the lighting market moving towards efficient products with strong program activity?	*n/a*
Direct Install Track Operations and Experiences	
How is the small business direct install track structured?	Q38 to Q44
How well is the small business direct install track working now?	Q38 to Q44

How can the direct install track be further improved?	Q38 to Q44
Midstream Track Operations and Experiences	
How is the midstream lighting track structured?	Q30 to Q36
How well is the midstream incentive track working now?	Q30 to Q36
How do controls fit in with midstream lighting incentives?	Q30 to Q36
Is midstream ready to take on much larger project volumes?	Q30 to Q36
How can the midstream track be further improved?	Q30 to Q36
Overlap Between Business Lighting and Other Programs	
How much overlap is there between Business Lighting participants and the other C&I programs?	Q45 to Q47
Is there any market confusion or crossover between the direct install lighting offer and the Existing Buildings small business direct install offers?	*n/a*
How could cross-program coordination be improved?	Q45 to Q47
DEI Goals and Accomplishments	
What are Business Lighting's DEI goals?	Q54 to Q60
What progress has Business Lighting made towards its DEI goals?	Q54 to Q60

Script

Hello, My name is _____ and I work for ADM and am working on the Energy Trust Business Lighting evaluation. We are conducting this interview today to help us understand the recent achievements of the program and any challenges you may face with implementing the program.

I anticipate this interview will last about 60 minutes. I'll start with some introduction/background questions and then get into questions about the transition from the old program structure to the new one, the effect of incentive caps on program use, and general experiences administering and implementing the program.

This is really designed to be a conversation so please don't hesitate to ask questions or clarify things as we go through the questions.

I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

1. [IF YES] Start recording
2. [IF NO] Take notes as best as possible

Introduction and General Program Information

[ASK ALL]
Q1. To start with, briefly tell me your title and describe your role with the Business Lighting (BL) Program? What are your day-to-day activities with the program?

[ASK ALL]
Q2. How long have you worked with the program?

[ASK ALL]
Q3. Which parts of the program are you most familiar with: downstream, midstream, or direct install?

Program Transition

[ASK IF ENERGY TRUST STAFF]
Q4. I understand that Energy Trust selected CLEAResult as the implementer for the Business Lighting Program, which started in 2021. What were the reasons behind selecting CLEAResult compared to other proposals? In other words, what did Energy Trust especially like about the CLEAResult proposal?

[ASK IF CLEAResult STAFF]
Q5. I understand that Energy Trust selected CLEAResult as the implementer for the Business Lighting Program in 2021. What aspects of the CLEAResult proposal do you think Energy Trust especially appreciated?

[ASK ALL]
Q6. Were you involved with the lighting tracks or measures of the Existing Buildings, Production Efficiency, or Multifamily Programs before those were combined into the Business Lighting program?

1. Yes, I was involved with the previous programs
2. No, I was NOT involved with the previous programs

[ASK IF Q6 = 1]
Q7. From your perspective, what went well when transitioning from the old program format (3 programs offering lighting incentives) to the new Business Lighting Program format (1 program)?

[ASK IF Q6 = 1]
Q8. From your perspective, what aspects of the transition from the old program format to the new Business Lighting program format could have been improved?

[ASK IF Q6 = 1]
Q9. From your perspective, what, if anything, went well when transitioning from the old implementer to the new implementer?

[ASK IF Q6 = 1]
Q10. From your perspective, what, if anything, could have been improved when transitions from the old implementer to the new implementer?

[ASK IF Q6 = 1]
Q11. Are there any positive aspects of how lighting-related services were previously delivered that do not exist under the new Business Lighting program? If so, what are those services and is there an opportunity to include those in the new program?

[ASK IF Q6 = 1]
Q12. Are there any aspects of how lighting-related services were previously delivered that you are glad are not part of the new Business Lighting program? If so, what are those elements and why are you glad they are not part of the new program?

Incentive Caps

I understand that in 2021 the program instituted incentive caps on projects, trade allies, and customers to manage program budgets. The next few questions are about those caps.

[ASK ALL]
Q13. First, can you explain what the caps were, and how they were implemented across each program track?

[ASK ALL]
Q14. Why were incentive caps implemented?

[ASK ALL]
Q15. As the RFP noted and some program documents show, 2021 saw a noticeable decrease in project volume and incentives paid out. In your opinion, how much did the caps contribute to this decrease? What other factors might have contributed to the decrease?

[ASK ALL]
Q16. What feedback, if any, did you hear from customers about the incentive caps?

[ASK ALL]
Q17. What feedback, if any, did you hear from contractors/trade allies about the incentive caps?

[ASK ALL]
Q18. What feedback, if any, did you hear from distributors about the incentive caps?

[ASK IF HEARD NEGATIVE FEEDBACK ABOUT CAPS]
Q19. How do you think the program should address the concerns of customers/contractors/ distributors now?

[ASK ALL]
Q20. Does the Program need to continue to institute incentives caps? Why? And, for how long will the program need to use incentive caps?

[ASK IF PROGRAM PLANNING TO CONTINUE CAP USE]
Q21. How should the program institute incentives caps in a way that is least disruptive to customers/contractors/distributors?

Downstream

I understand there are three tracks within the Business Lighting program. There is the downstream approach, the small and medium business direct install (SMBDI), and the midstream approach. I would like to start talking about the downstream approach and then later in the call, talk about the other two program pathways.

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q22. Overall, how is the downstream effort working so far? Is it meeting its savings goals? Is the program meeting participation goals?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q23. How are data captured for the downstream program track? Who captures the data and how is that data input into your tracking systems?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q24. How, if at all, should the downstream track incentive amounts or structure change? Why?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q25. How has recruitment of business customers to participate in the downstream track gone? What problems, if any, have you experienced in recruitment and what successes have you had? How has recruitment successes/challenges differed by business type?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q26. When thinking about program operations over the last couple of months, what is working well with the downstream track? What could be improved?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q27. Program data indicate the Business Lighting program has not been yielding the energy savings or participation levels originally hoped for. How, if at all, has the downstream track contributed to the lower than expected energy savings or participation?

[ASK IF RESPONDENT HAS DOWNSTREAM RESPONSIBILITIES]
Q28. What steps do you think should be taken to improve downstream participation and savings?

Midstream

I would not like to switch gears and talk about the midstream pathway.

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q29. Overall, how is the midstream effort working so far? Is it meeting its savings goals? Is the program engaging enough distributors and are they promoting the program enough?

[ASK JESSICA, LINDSEY, HEATHER]
Q30. Can you describe how a customer typically goes through the midstream path? Are customers generally aware that they are participating in this track?

[ASK JESSICA, LINDSEY, HEATHER]
Q31. How are data captured for the midstream program track? Who captures the data and how is that data input into your tracking systems?

[ASK JESSICA, LINDSEY, HEATHER]
Q32. How, if at all, should the midstream track structure or incentive amounts change? Why?

[ASK JESSICA, LINDSEY, HEATHER]
Q33. How, if at all, should the measure mix available for the midstream track change? For example, should controls or other measures be included? Why?

[ASK JESSICA, LINDSEY, HEATHER]
Q34. How has recruitment of distributors for the midstream track gone? What challenges , if any have you experienced in recruitment and what successes have you had?

[ASK JESSICA, LINDSEY, HEATHER]
Q35. When thinking about program operations over the last couple of months, what is working well with the midstream track? What could be improved?

[ASK JESSICA, LINDSEY, HEATHER]
Q36. Program data indicate the Business Lighting program has not been yielding the energy savings or participation levels originally hoped for. How, if at all, has the midstream track contributed to the lower-than-expected energy savings or participation?

Direct Install

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q37. Overall, how is the direct install effort working so far? Is it meeting its participation goals? Savings goals?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q38. Can you describe how a customer typically is recruited and participates in the direct install path?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q39. How are data captured for the direct install program track? Who captures the data and how is that data input into your tracking systems?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q40. How, if at all, should the direct install track structure or incentive amounts change? Why?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q41. How has recruitment of small and medium businesses for the direct install track gone? What problems, if any, have you experienced in recruitment and what successes have you had?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q42. When thinking about program operations over the last couple of months, what is working well with the direct install pathway? What could be improved?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q43. Program data indicate the Business Lighting program has not been yielding the energy savings or participation levels originally hoped for. How, if at all, has the direct install pathway contributed to the lower than expected energy savings or participation?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q44. What steps do you think should be taken to improve direct install participation and savings?

Link to other Programs

[ASK ALL]
Q45. How, if at all, do you track overlap between Business Lighting participants and their participation in other C&I programs? How does Business Lighting coordinate with other programs to serve customers participating in multiple programs at the same time?

[ASK IF RESPONSIBLE FOR DIRECT INSTALL EFFORTS]
Q46. How, if at all, does the SMBDI track coordinate with the Existing Buildings direct install offers?

[ASK ALL]
Q47. How could the Business Lighting program better coordinate with other Energy Trust efforts?

CBO Engagement

[ASK ALL]
Q48. I have a couple of questions about the Business Lighting program's engagement with CBOs. First please describe what the objectives are for working with CBOs for the Business Lighting Program?

[ASK ALL]
Q49. What is the role of CBOs working with the program?

[ASK ALL]
Q50. To date, how much work have CBOs done on behalf of the Business Lighting Program?

[ASK ALL]
Q51. How is the program doing so far in meeting its objectives for CBO engagement?

[ASK ALL]
Q52. What, if anything, might prevent the program from meeting those objectives?

[ASK ALL]
Q53. What might be done to overcome barriers to meeting objectives for CBO engagement?

DEI Goals

[ASK ALL]
Q54. I have just a couple of questions about the Business Lighting program's diversity equity and inclusion (DEI) goals. First, what are the DEI goals?

[ASK ALL]
Q55. What metrics are you using to know when you or the program achieved that goal?

[ASK ALL]
Q56. What actions has the program taken to effectively engage Oregon's diverse businesses"?[21]

[ASK ALL]
Q57. What progress do you think the program has made in engaging Oregon's diverse businesses?

21 New Building Program Implementation Manual, Q4, 2021. Diversity, Equity and Inclusion Statement. P. 72.

[ASK ALL]
Q58. What, if anything, has been a barrier to the program engaging Oregon's diverse businesses and what could be done to overcome those barriers?

[ASK ALL]
Q59. What else, if anything, could the program do to better to engage Oregon's diverse businesses and advance Energy Trust's larger DEI objectives?

Plans for the Future and Conclusion

[ASK ALL]
Q60. Looking out over the next couple of years, what market conditions, if any, do you see affecting the program??

[ASK IF Q61 IDENTIFIES CHANGING MARKET CONDITIONS]
Q61. What does the program need to do to adapt to those changing market conditions?

[ASK IF Q61 IDENTIFIES CHANGING MARKET CONDITIONS]
Q62. What will the program need to adapt to those conditions?

[ASK IF Q61 IDENTIFIES CHANGING MARKET CONDITIONS]
Q63. Are there certain measures or services that will be especially important for the program to emphasize? If so, what are those and why?

[ASK ALL]
Q64. In conclusion, what would you like to learn from this evaluation?

Those are all the questions I have. Thanks for your time.

Appendix C: Market Expert Guide

Table 7: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	In-depth interview
Estimated Time to Complete	30 minutes
Population Description	C&I lighting market experts from other EE programs, academic orgs, and lighting product manufacturer representatives
Sampling Strata Definitions	None
Population Size	15 to 20
Contact List	15 to 20
Completion Goal(s)	Census
Contact List Source and Date	TBD
Type of Sampling	Census
Contact Sought	Key contact at manufacturer rep agency, other programs
Fielding Firm	ADM

Table 8: Research Objectives and Associated Questions

All Research Questions	Associated Questions
Lighting Market	
What is the current state of the lighting market globally, nationally, and in Oregon in the commercial, governmental, industrial, and indoor agriculture sectors?	Q3, Q5
What are the remaining opportunities for the program in the lighting market for commercial, industrial, governmental, and indoor agriculture sectors?	Q6, Q7
What is the current state of the lighting controls market in Oregon?	Q8, Q10
Program Transition	
How did the launch of the Business Lighting program and transition to a new implementation contractor go?	*n/a*
What were the main problems that Energy Trust encountered when launching the small business direct install and midstream lighting initiatives?	*n/a*
General Program Operation	
How is the Business Lighting program currently structured?	*n/a*
How are general program operations working now?	Q13, Q14Q15
How well can the program adapt to big external changes that impact the market?	Q19, Q20, Q21, Q26, Q25, Q27, Q28, Q29, Q30
How can the program design be improved to have more impact on the market?	Q22, Q23, Q24
What are the program's plans for the future?	*n/a*
2021 Incentive Cap Impacts	
What were the impacts of the incentive caps imposed in 2021 on the C&I lighting market?	*n/a*
What were the lessons learned from these experiences?	*n/a*
How can the program reengage customers, trade ally contractors, and distributors that were disillusioned by the incentive caps?	Q20, Q21
Downstream Track Operations and Experiences	
How is the downstream track structured?	*n/a*
How well is the downstream incentive track working now?	*n/a*
How can the downstream track be further improved?	*n/a*
What incentive levels are necessary to keep the lighting market moving towards efficient products with strong program activity?	Q29
Direct Install Track Operations and Experiences	
How is the small business direct install track structured?	*n/a*
How well is the small business direct install track working now?	*n/a*
How can the direct install track be further improved?	*n/a*

Midstream Track Operations and Experiences	
How is the midstream lighting track structured?	*n/a*
How well is the midstream incentive track working now?	*n/a*
How do controls fit in with midstream lighting incentives?	*n/a*
Is midstream ready to take on much larger project volumes?	Q13, Q14
How can the midstream track be further improved?	*n/a*
Overlap Between Business Lighting and Other Programs	
How much overlap is there between Business Lighting participants and the other C&I programs?	*n/a*
Is there any market confusion or crossover between the direct install lighting offer and the Existing Buildings small business direct install offers?	*n/a*
How could cross-program coordination be improved?	*n/a*
DEI Goals and Accomplishments	
What are Business Lighting's DEI goals?	*n/a*
What progress has Business Lighting made towards its DEI goals?	*n/a*

Recruitment Script

Hello, My name is _____ and I work for ADM and am working on an evaluation of Energy Trust's business lighting energy efficiency incentives. We understand that you work in C&I lighting and would like to speak with you about the current state of the C&I lighting market in the Northwest and nationally and what opportunities you think exist to push the market to adopt more efficient lighting. Would you have time to talk in the next week or so for about 30 minutes?

Introduction and General Program Information

[ASK ALL]
Q1. To start with, briefly tell me your title and describe your role with your organization? What are your day-to-day activities?

[ASK ALL]
Q2. How long have you worked with your organization?

Lighting Market Feedback

[ASK ALL]
Q3. From your perspective what do you think is the current state of the retrofit lighting and lighting controls market in the C&I sector Oregon, the Northwest, and nationally?

- Where do you see it going in the next few years?
- What role does program support play in supporting current retrofit trends?
- What else can Energy Trust and other program administrators do to support or accelerate the transition to more efficient lighting and controls in the C&I sector?

[ASK ALL]
Q4. From your perspective, what have been the recent technological developments in C&I lighting, ***specifically in lighting retrofit market***? Are there any technological developments that especially apply to the Northwest?

[ASK ALL]
Q5. How, if at all, do the technological developments in C&I lighting differ across various markets? For example, is efficient lighting technology being more adopted in certain building or business types more than others?

[ASK ALL]
Q6. What energy efficient lighting technologies are being widely adopted in the C&I sector? Please be as specific as possible.

[ASK ALL]
Q7. What type of lighting controls (occupancy sensors, daylight controls, building mgt systems, etc.), if any, are being widely adopted in the C&I market? How does the adoption of lighting controls differ across market segments?

[ASK ALL]
Q8. What market segments, if any, are lagging the market in general in adoption of energy efficient lighting and controls? Why do you think that is? In what markets and applications do you see the greatest remaining energy savings opportunities from energy efficient lighting and controls? [PROBE FOR ANY DIFFERENCES BETWEEN LIGHTING AND CONTROLS]

[ASK ALL]
Q9. In what market segments and applications do you see the greatest energy savings opportunity to install more energy efficient lighting and lighting controls?

[ASK ALL]
Q10. Where are the remaining lighting opportunities for energy efficiency programs in Oregon and the Northwest?

[ASK ALL]
Q11. When, if ever, do you think the C&I lighting market will be completely transformed to LEDs, and controls commonplace, such that lighting programs are no longer needed?

Program Feedback

[ASK ALL]
Q12. What are the trends, if any, you see in how lighting programs are being administered? [If needed:] Are programs moving approaches from downstream to midstream? Emphasizing a certain type of lighting technology/design/controls?

[ASK ALL]
Q13. What changes, if any, in lighting program administration have you seen in the last two or three years?

[ASK ALL]
Q14. How, if at all, have lighting programs you are familiar with changed the mix of prescriptive vs. custom measures? For example, are programs largely moving measures to one path over another?

[ASK ALL]
Q15. What program trends have you seen regarding the mix of lighting controls measures? (SAME as above)

[ASK ALL]
Q16. What program trends have you seen in the use of downstream versus midstream delivery?

PROBE: How have such trends affected lighting controls?

[ASK ALL]
Q17. What feedback about the lighting programs you are familiar with have you heard from participants?

[ASK ALL]
Q18. What feedback about the lighting programs you are familiar with have you heard from contractors?

[ASK ALL]
Q19. What feedback about the lighting programs you are familiar with have you heard from distributors or manufacturers?

[ASK ALL]
Q20. In the current lighting market, what, if anything, should efficiency programs be doing differently to engage with customers?

[ASK ALL]
Q21. In the current lighting market, what, if anything, should efficiency programs be doing differently to engage with contractors?

[ASK ALL]
Q22. In the current lighting market, what, if anything, should efficiency programs be doing differently to engage with distributors?

[ASK ALL]
Q23. What groups, other than customers, contractors and distributors, should energy efficiency programs be reaching out to encourage the adoption of efficient lighting?

[ASK ALL]
Q24. What lighting energy efficiency programs, if any, do you look to as models in the United States? Why?

[ASK ALL]
Q25. When thinking about program operations for the lighting programs you are familiar with over the last few months, what is working well with those programs?

[ASK ALL]
Q26. When thinking about program operations for the lighting programs you are familiar with over the last few months, what could be improved with those programs?

[ASK ALL]
Q27. What incentive structures or amounts (as a percentage of a project) seem especially helpful in encouraging sustainable program participation? How, if at all does it differ by lighting measure?

- [IF NEEDED] What incentive structures or amounts do you see as the sweet spot between motivating market activity and avoiding an unsustainable bubble? Do you have examples of specific programs?

[ASK ALL]
Q28. What do you see as the main barriers to markets' adoption of energy efficient lighting?

- What steps, if any, can energy efficiency programs take to address these barriers?

Conclusion

[ASK ALL]
Q29. Moving forward, where do you the see the C&I retrofit lighting market going in the next few years?

- What are the remaining opportunities in the PNW specifically?
- How do you predict savings/opportunities will decline as LEDs and controls become standard?

[ASK ALL]

Q30. Looking out over the next few years, how do you think C&I lighting retrofit programs can adapt to market conditions?

- What do programs need to make those adaptations?
- Are there certain services or measures that will be more important? If so, what are those services or measures.

Those are all the questions I have. Thanks for your time.

Appendix D: Community Based Organizations Guide

Table 9: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	In-depth interview
Estimated Time to Complete	15-20 Minutes
Population Description	Community Based Organizations (CBOs)
Sampling Strata Definitions	None
Population Size	8 to 10
Contact List	8 to 10
Completion Goal(s)	Census
Contact List Source and Date	CLEAResult Staff
Type of Sampling	Census
Contact Sought	Key staff at community-based organizations
Fielding Firm	Encolor for CBOs
Purpose	The primary purpose of these interviews is to be forward looking and get some feedback about how Energy Trust may be able to support CBOs and their members. Due to the limited interaction of CBOs with the Business Lighting program specifically, the guide focuses more one Energy Trust in general. The questions pertain to how CBOs became aware of Energy Trust, what participation or interactions CBOs have had with Energy Trust, and what support they would like to see from Energy Trust for their organization and their membership.

Email Script

Dear <NAME>,

I understand you may have had some recent interactions with Energy Trust of Oregon representatives where they presented information about Energy Trust programs and services to you or members of your organization. As part of its commitment to continuous improvement, Energy Trust of Oregon would like to learn about its impact on organizations and the communities they serve.

Energy Trust has hired ADM Associates and Encolor to contact firms like yours for a brief discussion about your experiences with Energy Trust and to understand how Energy Trust could best communicate its offerings to your membership. We have a goal of talking to up to eight organizations that support communities across the states – can you be one of those who help us reach that goal?

Our chat will take 15 to 20 minutes, although we want you to feel free to share as much information as you want. We will provide a $100 electronic gift card as a thank you to those that agree to talk to us about their experience.

We will treat all data collected in this study confidentially. If you have questions about how we treat collected data, please see ADM's privacy policy at https://www.admenergy.com/privacy.

If you can, please respond by email with a few times when you are available to talk. If we don't hear from you, we'll follow up with a call.

Of course, if you would rather not hear from us again, just let me know by return email. But I hope you can spare a few minutes to give me your feedback.

If you have any questions about this research, please feel free to contact me by return email or at (503) 493-8888 or Dan Rubado, Senior Project Manager, Planning and Evaluation, Energy Trust of Oregon, at dan.rubado@energytrust.org.

Sincerely,

[EMAILERS NAME]

Introduction Script

I anticipate this conversation will take no more than 20 minutes. I'll start with some introduction/background questions.

This is really designed to be a conversation so please don't hesitate to ask questions or clarify things as we go through the questions. In appreciation for the time, we will be providing a $100 electronic gift card after this call.

I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

1. [IF YES] Start recording
2. [IF NO] Take notes as best as possible

Introduction and General Program Information

[ASK ALL]
Q1. To start with, briefly tell me your title and describe your role with the [CBO NAME] What are your day-to-day activities?

[ASK ALL]
Q2. Are you familiar with Energy Trust? (Probe to understand level of program awareness)

[ASK IF Q2 = YES]
Q3. Are you familiar with Energy Trust's business lighting services, that include, among other things, free lighting to small businesses around Oregon. ? [IF NEEDED: Energy Trust provides financial incentives and support to commercial, industrial, and residential utility customers across Oregon to help them make energy efficient upgrades to their buildings and homes]

[ASK IF Q3 = NO OR NOT VERY]
Q4. Is there another person at your organization that may be more familiar with Energy Trust? (Assess, consider ending interview and rescheduling if this individual isn't at all familiar with Energy Trust or the Business Lighting Program)

[ASK ALL]
Q5. Please tell me more about your organization and the community you serve.

Program Awareness

I would like to ask you some questions about your awareness of Energy Trust's business lighting services.

[ASK ALL]
Q6. How did you first hear about Energy Trust of Oregon?

[ASK ALL]
Q7. How aware are your organization's members about Energy Trust of Oregon and the offerings they provide to small businesses and organizations in Oregon?

[ASK ALL]
Q8. Did your organization receive a presentation from an Energy Trust representative?

1. Yes, our organization received a presentation.
2. No, I didn't receive a presentation.
3. I don't remember/I am not sure.

[ASK IF Q7 =1, RECEIVED A PRESENTATION]
Q9. How useful, if at all, was the presentation for your members? [PROBE: Did the presentation provide information members could use to help their businesses or homes]

[ASK IF Q7 =2 or 3, DID NOT RECEIVE A PRESENTATION]
Q10. Would you like to receive a presentation from Energy Trust about their programs and offerings that may be applicable to your organization or members' organizations?]

[ASK ALL]
Q11. What are the best ways to reach your members to explain the services that Energy Trust provides that may be beneficial to your members?

Program Participation

Now I would like to ask you some questions about any participation in Energy Trust programs you or your members may have had.

[ASK ALL]
Q12. Has your organization received any financial incentives from Energy Trust for any upgrades to energy using equipment like lighting, HVAC, kitchen equipment, or other machinery?

1. Yes, my organization received incentives or support from Energy Trust.
2. No, my organization did not receive incentives
3. I don't remember/I am not sure.

[ASK IF Q12 = 1]
Q13. What did you receive incentives for (e.g. lighting, HVAC, etc.)?

[ASK ALL]
Q14. Do you know if any of your members have received incentives or support from Energy Trust for any projects done at their facilities?

1. Yes, at least one member received Energy Trust support.
2. No, I am not aware of any members receiving support.

[ASK IF Q12 = 1]
Q15. What did your members receive incentives for (e.g. lighting, HVAC, etc.)?

Program Support

One of the things Energy Trust of Oregon is trying to accomplish is to reach out to organizations and businesses they may have not reached in the past such as small, women-owned, minority-owned, rural, and veteran-owned businesses. One way they are trying to reach these types of organizations is through community-based organizations such as yours.

[ASK ALL]
Q16. One of the key services Energy Trust is offering is free, energy efficient lighting to small businesses. In your opinion, how useful is a program like that to your members?

[ASK ALL]
Q17. What other types of energy using equipment, if any, do you think your members could use help upgrading to be more efficient?

[ASK ALL]
Q18. What suggestions, if any, do you have for how Energy Trust could best reach your members?

[ASK ALL]
Q19. Has your organization worked with Energy Trust to help increase awareness of their products and services?

[ASK IF Q21= YES]
Q20. How was that experience? Did you think it was successful? What could we do different in the future?

[ASK IF Q21= NO]
Q21. How could we work with your organization to increase awareness of Energy Trust and their products and services?

Those are all the questions I have. Thanks for your time.

Appendix E: Participant Survey

Table 10: Overview of Data Collection Activity

<table>
<tr><th>Descriptor</th><th>This Instrument</th></tr>
<tr><td>Instrument Type</td><td>Other: mixed open and close-ended</td></tr>
<tr><td>Notes About Instrument</td><td>The ADM team will complete about 10 interviews for each program track and, assuming the responses are somewhat consistent, convert the instrument to an online survey. Therefore, we will interview ~20 respondents and survey ~70.</td></tr>
<tr><td>Estimated Time to Complete</td><td>30 Minutes to interview, 15 minutes for survey.</td></tr>
<tr><td>Population Description</td><td>Organizations that participated in program</td></tr>
<tr><td>Population, Contact List, and Completion Goal</td><td>
<table>
<tr><th>Track</th><th>Population</th><th>Sample</th><th>90/10 Target</th><th>85/10 Target</th></tr>
<tr><td>Direct Install</td><td>152</td><td>152</td><td>48</td><td>39</td></tr>
<tr><td>Downstream</td><td>1,163</td><td>342</td><td>65</td><td>50</td></tr>
<tr><td>Total</td><td>1,315</td><td>494</td><td>113</td><td>89</td></tr>
</table>
</td></tr>
<tr><td>Contact List Source and Date</td><td>Energy Trust Staff- Dan Rubado</td></tr>
<tr><td>Type of Sampling</td><td>Purposive</td></tr>
<tr><td>Contact Sought</td><td>Business owner or manager (contact name identified on list)</td></tr>
<tr><td>Fielding Firm</td><td>ADM</td></tr>
</table>

Table 11: Research Objectives and Associated Questions

Research Question	Associated Questions
General Program Operations	
How are general program operations working now?	See track specific questions. below
How well can the program adapt to big external changes that impact the market?	See track specific questions. below
How can the program design be improved to have more impact on the market?	See track specific questions. below
Downstream Track Operations and Experiences	
How well is the downstream track working now?	Q35, Q36, Q37,Q38, Q39,Q40,Q41,Q42, Q43, Q45,Q47, Q48
How can the downstream track be further improved?	Q44, Q46, Q49,
Direct Install Track Operations and Experiences	
How well is the small business direct install track working now?	Q11,Q13,Q14,Q15, Q16,Q17,Q18, Q19, Q20,Q24,
How can the direct install track be further improved?	Q19, Q21,Q22, Q23, Q25,Q26,Q28, Q29,
Overlap Between Business Lighting and Other Programs	
How much overlap is there between Business Lighting participants and the other C&I programs?	Q7, Q8, Q9, Q10, Q30, Q31, Q32, Q33, Q34, Q48
Is there any market confusion or crossover between the direct install lighting offer and the Existing Buildings small business offers?	Q11, Q12
DEI Goals and Accomplishments	
What progress has Business Lighting made towards its DEI goals?	Q52, Q53, Q54, Q55, Q56, Q57, Q54
How well is Business Lighting serving small, rural, and women- and minority owned businesses?	Q21, Q22, Q23, Q24, Q25, Q26, Q27 Q29,Q52, Q53, Q54, Q55, Q56, Q57, Q54
How can the program increase participation by small, rural, and women- and minority-owned businesses?	Q54, Q55, Q56, Q57,
Firmographics	
Identify key characteristics of the organizations	Q3, Q4, Q5, Q6, Q8, Q50, Q51, Q52, Q53, Q55, Q56, Q57, Q54, Q58

Table 12: Fields Needed from Database

Field	Data
Direct Install Participant. [DIP]	1=Yes, 0=No
Downstream Participant. [DSTRM]	1=Yes, 0=No

Address of site where project was done [ADDRESS]	Project address

Email Script

Dear <NAME>,

Your business located at [ADDRESS] recently received a cash incentive, reduced cost, or free installation of energy efficient lighting from Energy Trust of Oregon's Business Lighting Program. As part of its commitment to continuous improvement, Energy Trust would like to learn how you became aware of the incentives or services you received, your satisfaction with any interactions you had with Energy Trust representatives, and how influential the support you received was on your decision to install efficient lighting.

Energy Trust has hired ADM Associates to contact program participants like you for a brief discussion about your experiences. We have a goal of talking to up to 90 program participants across Oregon – can you be one of those who help us reach that goal?

Our chat will take up to 30 minutes, although we want you to feel free to share as much information as you want. We will provide a $50 electronic gift card as a thank you to those that agree to talk to us about their experience.

We will treat all data collected in this study confidentially. If you have questions about how we treat collected data, please see ADM's privacy policy at *https://www.admenergy.com/privacy*.

If you can, please respond by email with a few times when you can chat about your experiences. If we don't hear from you, we'll follow up with a call.

Of course, if you would rather not hear from us again, just let me know by return email. But I hope you can spare a few minutes to give me your feedback.

If you have any questions about this research, please feel free to contact me by return email or at [PHONE] or Dan Rubado, Senior Project Manager at Energy Trust, at dan.rubado@energytrust.org.

Sincerely,

[EMAILERS NAME]

Phone Script

Hello <CONTACT>,

This is _____ with ADM Associates.

I am reaching out to you today because I am working with Energy Trust of Oregon to evaluate their program that provides reduced cost or free lighting. I understand that your firm received lighting with support from Energy Trust in the last year and am hoping to schedule a time to speak with you about that project.

Energy Trust would like to learn how you became aware of the support for your lighting project, your satisfaction with any interactions you had with Energy Trust representatives, and how influential the support you received was on your decision to install efficient lighting.

Our chat will take up to 30 minutes, although we want you to feel free to share as much information as you want. We will provide a $50 electronic gift card as a thank you to those that agree to talk to us about their experience.

What times work well for you in the next week or so?

[SCHEDULE TIME]

Screening and Introduction

[ASK IF DSTRM = 1] (verifies if they're downstream)

Q1. First, did you receive an incentive or discount on your invoice for installing efficient lighting from Energy Trust of Oregon at your facility at [ADDRESS]?

1. Yes
2. No
3. Don't know
4. Refuse to answer

[ASK IF DIP = 1] (verifies if they're direct install)

Q2. Did you receive free efficient lighting from Energy Trust of Oregon at your facility at [ADDRESS]? [If needed: This would have been when a representative from Energy Trust walked through your facility, completed an inventory of your lighting, and then scheduled a contractor to complete a lighting upgrade at your facility]

1. Yes
2. No
3. Don't know
4. Refuse to answer

[PROCEED WITH CALL IF Q1 or Q2 = 1, "YES"]

[ASK ALL]

Q3. What is your job title or role? (DO NOT READ LIST)

1. Facilities Manager
2. Energy Manager
3. Other facilities management/maintenance position
4. Chief Financial Officer
5. Other financial/administrative position
6. Proprietor/Owner
7. President/CEO
8. Manager
9. Other (Specify) ____
10. Don't know
11. Refuse to answer

[ASK ALL]

Q4. Does your organization pay the electric bill for this location?

1. Yes
2. No
3. Don't know
4. Refuse to answer

[ASK ALL]

Q5. Does your organization pay the natural gas bill for this location?

1. Yes

2. No
3. Not applicable – we don't have natural gas
4. Don't know
5. Refuse to answer

[ASK ALL]

Q6. At your site located at [ADDRESS], is your organization responsible for the maintenance and upkeep of….?

	YES	NO	DON'T KNOW	NOT APPLICABLE
Lighting				
Heating system				
Cooling system				
Refrigeration				
Kitchen equipment				
Other, specify: _____				

[ASK DIRECT INSTALL SECTION IF Q2 = 1, RESPONDENT IS A DIRECT INSTALL PARTICIPANT]

Direct Install

Now I'm going to ask you some questions about the lighting assessment you received.

[ASK IF Q2 =1]

Q7. Prior to receiving the assessment from Energy Trust that identified lighting upgrades you could receive for free, were you familiar with Energy Trust services for lighting or any other energy using equipment like heating, cooling, or refrigeration. If so, what did you know about this or other support Energy Trust provides?

[ASK IF Q2 =1]

Q8. Aside from receiving the free lighting from Energy Trust at your facility, have you ever received support from Energy Trust for a project at your facility?

1. Yes
2. No
3. I don't know
4. Refuse to answer

[ASK IF Q8= 1]

Q9. What support, other than the free lighting you recently received, have you received from Energy Trust?

[ASK IF Q8= 1]
Q10. Generally speaking, how satisfied were you with the other support you received from Energy Trust for past projects? (Scale of 1 to 5 with "1" being "very unsatisfied" and "5" being very satisfied)

[ASK IF Q2 = 1]
Q11. Now I'd like to focus on your recent project at [ADDRESS] where you received free lighting. How did you learn about Energy Trust's services to provide free efficient lighting to facilities like yours? **(DO NOT READ LIST) [MULTI SELECT]**

1. From an Energy Trust representative
2. From a contractor
3. Friends or colleagues
4. From Energy Trust's website
5. Social media post (e.g., Facebook, Twitter, Instagram)
6. Through an internet search (e.g., Google)
7. Through an internet advertisement
8. Community event
9. Other (please explain)
10. Don't know
11. Refuse to answer

[ASK IF Q2 = 1]
Q12. What other energy efficiency measures, if any, did the Energy Trust representative talk to you about? [PROBE: Did the representative suggest making non-lighting changes or refer you to a person or website for more information about non-lighting services provided by Energy Trust?]

[ASK IF Q2 = 1]
Q13. What were the main reasons you were interested in scheduling the lighting assessment with Energy Trust? **(DO NOT READ) [MULTI SELECT]**

1. Saving money on energy bills
2. Saving energy
3. Protecting the environment
4. Recommendation from a contractor
5. Recommendation from program staff
6. Financial incentive
7. Replacing equipment that was broken
8. Participation was very easy
9. Other, please specify: _____
10. I don't know
11. Refuse to answer

[ASK IF Q2 = 1]
Q14. During the lighting assessment, did you join the Energy Trust representative on the walkthrough?

1. Yes
2. No

3. I don't know
4. Refuse to answer

[ASK IF Q14 = 1, YES]
Q15. How was that experience of participating in the walk through? [PROBE: Did the representative point out things you did not know about saving energy? Was the representative professional and courteous during the walk through?

[ASK IF Q2 = 1]
Q16. How soon after the walk-through assessment did you receive a report with recommendations for upgrades?

1. Immediately after the assessment was completed
2. Within one week of the assessment
3. Between 1-3 weeks of the assessment
4. Between 3-4 weeks after the assessment
5. More than 4 weeks after the assessment
6. I don't remember
7. Refuse to answer

[DISPLAY IF Q16≠1]
Q17. What information in the report was most useful to you?

[DISPLAY IF Q16≠1]
Q18. What information in the report was least useful to you?

[DISPLAY IF Q16≠1]
Q19. What, if any, additional information would you like to have seen included in the report?

[ASK IF Q2 = 1]
Q20. If the Energy Trust representative had not recommended the lighting upgrades, how likely is it that you would have installed the same upgrades anyway? Would you…

1. Definitely have installed the upgrades
2. Probably have installed the upgrades
3. Probably not installed the upgrades
4. Definitely not installed the upgrades
5. I don't know
6. Refuse to answer

[ASK IF Q2 = 1]
Q21. If the lighting upgrades you received had not been provided to you **for free**, how likely is it that you would have installed the same upgrades anyway?

1. Definitely have installed the upgrades
2. Probably have installed the upgrades
3. Probably not installed the upgrades
4. Definitely not installed the upgrades
5. I don't know
6. Refuse to answer

[ASK IF Q2 = 1]

Q22. Please rate how understandable the process of getting free lighting from Energy Trust was for you on a scale of one to five, where one is not at all understandable and five is completely understandable.

1. 1 - Not at all understandable
2. 2
3. 3
4. 4
5. 5 - Completely understandable
6. Don't know
7. Refuse to answer

[DISPLAY IF Q22 < 4]

Q23. What information, including instructions on forms, could have made the process more understandable? _____

[ASK IF Q2 = 1]

Q24. Now I'm going to ask you some questions about your satisfaction with Energy Trust and the free lighting you received. Please rate your satisfaction with the following items using a scale of one to five, where one is "very dissatisfied" and five is "very satisfied."

	1 – Very Dissatisfied	2	3	4	5 – Very Satisfied	I don't know	Refuse to answer
The professionalism of the Energy Trust representative you worked with	1	2	3	4	5	98	99
The usefulness of the information provided in the lighting assessment report you received from the Energy Trust representative	1	2	3	4	5	98	99
The professionalism of the contractor that completed the lighting installation	1	2	3	4	5	98	99
The quality of the lighting products you received	1	2	3	4	5	98	99
The quality of the installation of the lighting	1	2	3	4	5	98	99
The time it took to complete the lighting assessment conducted at your site.	1	2	3	4	5	98	99
The time it took to schedule and complete the installation of your lighting	1	2	3	4	5	98	99
The number of steps you had to take to receive the lighting	1	2	3	4	5	98	99
The process of receiving the lighting overall	1	2	3	4	5	98	99

[ASK IF Q2 = 1]
Q25. What additional lighting or lighting controls, if any, would you have liked to receive from Energy Trust?

[ASK IF Q2 = 1]
Q26. How would you recommend that Energy Trust contact organizations like yours to encourage them to take part in this program that provides free lighting opportunities?

[ASK IF Q2 = 1]
Q27. On a scale of one to five where one is not at all likely and five is extremely likely, how likely are you to recommend Energy Trust's free lighting program to other organizations like yours?

[ASK IF Q6_2, Q6_3 , Q6_4 , Q6_5 , Q6_6 =Yes]
Q28. Based on your experience working with Energy Trust for this recent lighting project, how likely is it that you would use Energy Trust services for any non-lighting upgrades at your facility? Why?

[ASK IF Q2 = 1]
Q29. What recommendations, if any, do you have for Energy Trust to make this free lighting service work better for organizations like yours?

Downstream

[ASK IF Q1= 1]
Q30. Prior to the recent support you received from Energy Trust for efficient new lighting, were you familiar with Energy Trust services for lighting or any other energy using equipment like heating, cooling, or refrigeration? If so, what did you know about this other support Energy Trust provides?

[ASK IF Q1= 1]
Q31. Have you ever received support from Energy Trust for a project at your facility prior to the recent project you completed at [ADDRESS]?

1. Yes
2. No
3. I don't know
4. Refuse to answer

[ASK IF Q31= 1]
Q32. How many projects have you completed that received support from Energy Trust?

[ASK IF Q31= 1]
Q33. What types of projects did you complete with support from Energy Trust? [IF NEEDED: Were they lighting, HVAC, refrigeration, building shell, new construction, etc.]

[ASK IF Q31= 1]
Q34. Generally speaking, how satisfied were you with the support you received from Energy Trust for past projects? (Scale of 1 to 5 with "1" being "very unsatisfied" and "5" being very satisfied)

[ASK IF Q31= 1]
Q35. What differences, if any, have you noticed in incentive amounts for projects over the last couple of years?

[ASK IF Q35 INDICATES RESPONDENT NOTICED DIFFERENCES IN INCENTIVE AMOUNTS]
Q36. How, if at all, have those differences in incentive amounts affected your decisions about using Energy Trust programs and services?

[ASK IF Q1 =1]
Q37. Now I'd like to talk about that most recent project at [ADDRESS]. What were the main reasons you were interested in upgrading your lighting equipment? **(DO NOT READ) [MULTI SELECT]**

1. Saving money on energy bills
2. Saving energy
3. Protecting the environment
4. Recommendation from a contractor
5. Recommendation from program staff
6. Financial incentive
7. Replacing equipment that was broken
8. Other, please specify: _____

9. I don't know
10. Refuse to answer

[ASK IF Q1 =1]
Q38. How was the project at [ADDRESS] initiated? Did you reach out to a contractor to help you solve a lighting issue you had or did a contractor identify a lighting need, or was it something else?

[ASK IF Q1 =1]
Q39. How did you find a contractor to help you with your lighting upgrades?

1. Worked with the contractor in the past
2. Employee at my company
3. From an Energy Trust Representative
4. Friends or colleagues
5. From Energy Trust's website
6. Social media post (e.g., Facebook, Twitter, Instagram)
7. From an Energy Trust customer service representative
8. Trough an internet search (e.g., Google)
9. Through an internet advertisement
10. Other (please explain)
11. I don't know
12. Refuse to answer

[ASK IF Q1 =1]
Q40. Did you know what types of lighting upgrades you wanted before you contacted a contractor?

1. Yes
2. No
3. I don't know
4. Refuse to answer

[DISPLAY IF Q40=1]
Q41. What types of lighting upgrades did you want?

1. Interior office lights
2. Exterior lighting like parking lots or safety lighting
3. High-bay
4. Low-bay
5. Lighting controls
6. Cooler/freezer display case lighting
7. Other (please specify)
8. I don't remember
9. Refuse to answer

[ASK IF Q1 =1]
Q42. Did the contractor recommend any additional upgrades you had not previously thought of?

1. Yes

2. No
3. I don't know
4. Refuse to answer

[DISPLAY IF Q42=1]
Q43. What kinds of lighting upgrades did your contractor recommend?

1. Interior office lights
2. 2. Exterior lighting like parking lots or safety lighting
3. 3. High-bay
4. 4. Low-bay
5. 5. Lighting controls
6. 6. Cooler/freezer display case lighting
7. 7. Other (please specify)
8. 98. I don't remember
9. 99. Refuse to answer

[ASK IF Q1 =1]
Q44. If there was no discount on the lighting equipment, how likely is it that you would have installed it anyway?

1. Definitely would have installed
2. Probably would have installed
3. Probably would not have installed
4. Definitely would not have installed
5. I don't know
6. Refuse to answer

[ASK IF Q1 =1]
Q45. Now I'm going to ask you some questions about your satisfaction with Energy Trust and the contractor you used to complete your lighting project. Please rate your satisfaction with the following items using a scale of one to five, where one is "very dissatisfied" and five is "very satisfied."

	1 – Very Dissatisfied	2	3	4	5 – Very Satisfied	I don't know	Refuse to answer
The variety of lighting types eligible for incentives	1	2	3	4	5	98	99
The ease of receiving financial incentives	1	2	3	4	5	98	99
The professionalism of the contractor that completed your project	1	2	3	4	5	98	99
The quality of the lighting products you received	1	2	3	4	5	98	99
The quality of the installation of the lighting	1	2	3	4	5	98	99
The amount of the incentive	1	2	3	4	5	98	99

The amount of time it took to get the incentive	1	2	3	4	5	98	99
The steps you had to take to get through the program	1	2	3	4	5	98	99
The program overall	1	2	3	4	5	98	99

[DISPLAY ANY IN Q45 <3]
Q46. You indicated some dissatisfaction. Why were you dissatisfied?

[ASK IF Q1 =1]
Q47. On a scale of one to five, where one is "not at all likely" and five is "extremely likely", how likely is it that you would recommend Energy Trust's lighting incentive services to an organization like yours?

1. 1- Not at all likely
2. 2
3. 3
4. 4
5. 5 - Extremely likely
6. Don't know
7. Refuse to answer

[ASK IF Q6_2, Q6_3 , Q6_4 , Q6_5 , Q6_6 =Yes]
Q48. Based on your experience working with Energy Trust for this recent lighting project, how likely is it that you would use Energy Trust services for any non-lighting upgrades at your facility? Why?

[ASK IF Q1 =1]
Q49. What suggestions, if any, do you have to make the process of receiving Energy Trust supported equipment easier for organizations like yours?

Firmographics

Thank you for your responses so far. I have a few more questions about your organization.

[ASK ALL]
Q50. Which best describes your organization located at [ADDRESS]? Is it…

1. Your company's only location
2. One of several locations owned by your company
3. The headquarter location of a company with several locations
4. I don't know
5. Refuse to answer

[ASK ALL]
Q51. Does your organization rent, own and occupy, or own and rent the facility to someone else at this location?

1. Rent

2. Own and occupy
3. Own and rent to someone else
4. Own, occupy, and rent to someone else
5. I don't know
6. Refuse to answer

[ASK ALL]
Q52. How would you describe your business? [For example: Is it a restaurant, professional services firm like a law firm, insurance office auto repair, retail, etc.]

[ASK ALL]
Q53. How would you describe your typical customer? [For example, are you serving small businesses, serving large Fortune 500-type companies, are you a retail establishment, or something else?]

[ASK ALL]
Q54. Is this business a COBID certified business or is eligible to be COBID certified? (Certification Office for Business Inclusion and Diversity) [IF NEEDED: This is a certification program in Oregon that aims to "level the playing field by providing certified firms a fair opportunity to compete for government contracts regardless of owner ethnicity, gender, disability, or firm size." Generally, COBID businesses are small businesses, business owned by women, minorities, veterans, or other small/emerging businesses.]

1. Yes – COBID certified
2. Yes – COBID eligible
3. No
4. I don't know
5. Refuse to answer

[ASK ALL]
Q55. What is the gender of the principal owner of the business?

[ASK ALL]
Q56. What is the race or ethnic background of the principal owner of the business?

[ASK ALL]
Q57. What is the primary language used by the principal owner of the business?

[ASK ALL]
Q58. How many people work at this organization at the site located at [ADDRESS]?

[ASK ALL]
Q59. Thank you for taking the time today. As I mentioned at the beginning of this call, we are providing a $50 electronic gift card to those that help us by completing this call. What is the best email to send that gift card to?

1. Email:_____
2. [IF NOT ABLE TO RECEIVE EMAIL] What address should we mail a physical gift card to?
3. Address_____

Thanks again for your time.

Appendix F: Trade Ally Guide

Table 13: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	In-depth interview
Estimated Time to Complete	30 to 45 minutes
Population Description	Trade Allies of the Business Lighting program
Sampling Strata Definitions	None
Population Size	~200
Contact List	~200
Completion Goal(s)	30 Completes
Contact List Source and Date	Energy Trust – Mid-September 2022
Type of Sampling	Purposive, TBD
Contact Sought	Contact familiar with participation in Energy Trust Business Lighting program.
Fielding Firm	ADM

Table 14: Research Objectives and Associated Questions

Research Question	Associated Questions
Lighting Market	
What is the current state of the lighting market globally, nationally, and in Oregon in the commercial, governmental, industrial, and indoor agriculture sectors?	Q56 to Q64
What are the remaining opportunities for the program in the lighting market for commercial, industrial, governmental, and indoor agriculture sectors?	
What is the current state of the lighting controls market in Oregon?	
Program Transition	
How did the launch of the Business Lighting program and transition to a new implementation contractor go?	Q15 to Q37
What were the main challenges that Energy Trust encountered when launching the small business direct install and midstream lighting initiatives?	
General Program Operations	
How is the Business Lighting program currently structured?	
How are general program operations working now?	Q26 to Q37
How well can the program adapt to big external changes that impact the market?	
How can the program design be improved to have more impact on the market?	
What are the program's plans for the future?	n/a
2021 Incentive Cap Impacts	
What were the impacts of the incentive caps imposed in 2021 on the C&I lighting market?	Q15 to Q21 Q22 to Q29
What were the lessons learned from these experiences?	
How can the program reengage customers, trade ally contractors, and distributors that were disillusioned by the incentive caps?	
Downstream Track Operations and Experiences	
How is the downstream track structured?	n/a
How well is the downstream incentive track working now?	Q15 to Q21 Q26 to Q37
How can the downstream track be further improved?	
What incentive levels are necessary to keep the lighting market moving towards efficient products with strong program activity?	
Direct Install Track Operations and Experiences	
How is the small business direct install track structured?	Q38 to Q41
How well is the small business direct install track working now?	
How can the direct install track be further improved?	
Midstream Track Operations and Experiences	

How is the midstream lighting track structured?	Q42 to Q55
How well is the midstream incentive track working now?	
How do controls fit in with midstream lighting incentives?	
Is midstream ready to take on much larger project volumes?	
How can the midstream track be further improved?	
Overlap Between Business Lighting and Other Programs	
How much overlap is there between Business Lighting participants and the other C&I programs?	*n/a*
Is there any market confusion or crossover between the direct install lighting offer and the Existing Buildings small business direct install offers?	*n/a*
How could cross-program coordination be improved?	*n/a*
DEI Goals	
What are Business Lighting's DEI goals?	*n/a*
What progress has Business Lighting made towards its DEI goals?	Q67 to Q72 in conjunction with Q61, Q63, Q5, Q6, Q7,
How well is Business Lighting serving small, rural, and women- and minority-owned businesses?	
How can the program increase participation by small, rural, and women- and minority-owned businesses?	

Email Script

Dear <NAME>,

I am contacting you because I understand that your business had completed lighting projects that received support from the Energy Trust of Oregon's Business Lighting program in the last year. Your customers for these projects would have received reduced cost or free lighting equipment.

As part of its commitment to continuous improvement, Energy Trust would like to learn about your experience working with Energy Trust, your satisfaction with any interactions you had with Energy Trust representatives, and how influential the support your projects received was on your customer's decision to install efficient lighting.

Energy Trust has hired my firm, ADM Associates, to contact firms like yours for a brief discussion about your experiences. We have a goal of talking to up to 30 contractors and distributors that work across the states – can you be one of those who help us reach that goal?

Our chat will take 30 to 45 minutes, although we want you to feel free to share as much information as you want. We will provide a $75 electronic gift card as a thank you to those that agree to talk to us about their experience.

We will treat all data collected in this study confidentially. If you have questions about how we treat collected data, please see ADM's privacy policy at https://www.admenergy.com/privacy.

If you can, please respond by email with a few times when you can chat about your experiences. If we don't hear from you, we'll follow up with a call.

Of course, if you would rather not hear from us again, just let me know by return email. But I hope you can spare a few minutes to give me your feedback.

If you have any questions about this research, please feel free to contact me by return email or at [PHONE] or Dan Rubado, Senior Project Manager, Planning and Evaluation, Energy Trust of Oregon, at *dan.rubado@energytrust.org*.

Sincerely,

[EMAILERS NAME]

Phone Script

Hello <CONTACT>,

I am contacting you because I understand that your business has completed lighting projects that received support from the Energy Trust of Oregon's Business Lighting program in the last year. Your customers for these projects would have received reduced cost or free lighting equipment.

My firm, ADM Associates, is working with Energy Trust to evaluate their services that support the installation of efficient lighting. I would like to learn about your experience working with Energy Trust, your satisfaction with any interactions you had with Energy Trust representatives, and how influential the support your projects received from Energy Trust was on your customer's decision to install efficient lighting.

I need about 30 to 45 minutes of your time in the next week or so. As a thank you for your time, we will provide a $75 electronic gift card to those that agree to talk to us about their experience with Energy Trust.

Can you suggest some times when you are available?

[SCHEDULE TIME FOR INTERVIEW]

Introduction

Thanks for taking time to talk with me today about your experience with Energy Trust of Oregon. We will cover topics such as how well, or not, Energy Trust has supported your customer's projects, your experience with Energy Trust staff and forms, and what changes, if any, you see coming to the lighting market.

Our chat will take about 30-45 minutes although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses.

I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

General Program Information

To begin with, I have a few questions about your firm.

[ASK ALL]
Q1. How would you describe your business? Are you a(n)…

1. Electrical contractor
2. Lighting contractor
3. Lighting designer
4. Energy Services Company
5. Other, please specify: _____
6. I don't know
7. Refuse to answer

[ASK ALL]
Q2. Which best describes your organization's location? Is it…

1. Your company's only location
2. One of several locations owned by your company
3. The headquarters location of a company with several locations
4. I don't know
5. Refuse to answer

[ASK ALL]
Q3. How would you describe your typical customer? [For example, are you serving small businesses, serving large Fortune 500-type companies, government entities, schools, manufacturing facilities, or something else?

[ASK ALL]
Q4. How do you typically acquire projects? Are you generally cold calling to customers, are customers seeking you out, something else?

Program Experience

My next few questions are about your experiences and satisfaction with using Energy Trust programs and services.

Past Experience with Energy Trust

[ASK ALL]
Q5. In what year, approximately, did you first complete a project that received support from Energy Trust?

[ASK ALL]
Q6. How many projects have you completed in the last year that received support from the Energy Trust of Oregon?

[ASK ALL]
Q7. Over your career at your firm, how many projects have you completed that received support from the Energy Trust of Oregon?

Program DEI Goals and Objectives

[ASK ALL]
Q8. Are you aware of Energy Trust of Oregon's Diversity, Equity, and Inclusion (DEI) Goals and Objectives?

1. Yes I am aware
2. No, I am not aware
3. Don't know
4. Refuse to answer

[ASK IF Q8 =1]
Q9. How did you hear about Energy Trust of Oregon's DEI Goals and Objectives?

[ASK IF Q8 =1]
Q10. Do you understand how these goals are impacting the Business Lighting program? (Probe on specifics on how these goals may be impacting the way they do business or not)

[ASK IF Q8 =1]
Q11. Do you think these goals are impacting how you engage your customers? (use appropriate terms if downstream or midstream)

[ASK IF Q8 =1]
Q12. Do you have any ideas on how Energy Trust of Oregon can better serve all customers, especially businesses owned by people of color, serving low-income communities, or those located in rural areas?

[ASK IF Q8 = 2]
Q13. Energy Trust of Oregon developed a set of DEI Goals and Objectives in an attempt to serve customers that have historically not benefited equitably from the products and services they offer. Currently, Energy Trust of Oregon focuses on supporting communities of color, limited income communities, and rural communities. Knowing the population that Energy Trust of Oregon is attempting to serve, how do you think they have done in making sure that these groups have access to program incentives?

[ASK IF Q8 = 2]
Q14. Do you have any suggestions on how Energy Trust of Oregon can better serve all customers?

Program Track Specific Questions

Downstream

[ASK IF DSTRM =1]
Q15. In the last year, how often do have you incorporated Energy Trust incentives into your lighting project bids and sales pitches? Would you say you….

1. Almost always incorporate Energy Trust incentives (90% to 100%)
2. Mostly (60 to 89%)
3. Sometimes (40% to 59%)
4. Rarely (10% to 39%)
5. Almost Never (0% to 9%)
6. Don’t know
7. Refuse

[ASK IF DSTRM =1]
Q16. How, if at all, has that percentage changed over the course of the last few years?

[ASK IF Q16 INDICATES CHANGE IN PERCENTAGE OF PROJECT BIDS]
Q17. What caused that change?

[ASK IF DSTRM =1]
Q18. Thinking back to 2020, what percentage of your overall company revenue was associated with Energy Trust supported lighting projects? Would you say it was….

1. Less than 5% of revenue
2. 5 to 10%
3. 11 to 25%
4. 26 to 50%
5. More than 50% of revenue
6. Don’t know

7. Refuse

[ASK IF DSTRM =1]
Q19. Now, in the last year (Fall 2021 to Fall 2022), what percentage of your overall company revenue was associated with Energy Trust supported lighting projects? Would you say it was….

1. Less than 5% of revenue
2. 5 to 10%
3. 11 to 25%
4. 26 to 50%
5. More than 50% of revenue
6. Don't know
7. Refuse

[ASK IF Q18 AND Q19 INDICATE CHANGE FROM 2020 to 2022]
Q20. Why has the percentage of lighting projects supported by Energy Trust changed over the last couple of years?

[ASK IF DSTRM =1]
Q21. How, if at all, have the changes in lighting incentives the program made over the two years affected your business? [Probe: Any negative affects? Positive affects?]

Satisfaction with Energy Trust

The next series of questions I have are about your satisfaction with various elements of Energy Trust's program to support efficient lighting. I will start with a few questions about incentives and then talk about communications and the overall application process.

Incentives

[ASK IF DSTRM =1]
Q22. What thoughts do you have to share about the changes in incentive levels that took place from 2019 to 2022?

[ASK IF DSTRM =1]
Q23. What impact did the fluctuations in incentive levels have on your business/ on your attitudes toward Energy Trust?

[ASK IF DSTRM =1]
Q24. How did your customers react to the fluctuations in incentive levels?

[ASK IF DSTRM =1]
Q25. What concerns, if any, do you have about incentives levels going forward?

[ASK IF DSTRM =1]
Q26. How satisfied have you been with Energy Trust incentives over the last year?

[ASK IF DSTRM =1]
Q27. How, if at all, has your satisfaction with Energy Trust incentives changed over the last couple of years?

[ASK IF Q27Q31 INDICATED CHANGE IN SATISFACTION WITH INCENTIVES]
Q28. What caused that change in satisfaction with Energy Trust's incentives?

[ASK IF DSTRM =1]
Q29. What changes, if any, would you make to the incentive amounts Energy Trust is currently offering to customers? Why would you make those changes?

Communications

[ASK IF DSTRM =1]
Q30. How satisfied have you been with the **communications** you have received about Energy Trust programs and services over the last year?

[ASK IF DSTRM =1]
Q31. How, if at all, has your satisfaction with Energy Trust's **communications** changed over the last couple of years?

[ASK IF Q31 INDICATED CHANGE IN SATISFACTION WITH COMMUNICATIONS]
Q32. What caused that change in satisfaction with Energy Trust's **communications**?

ASK IF DSTRM =1]
Q33. What changes, if any, would you make to how Energy Trust **communicates** with firms like yours? Why would you make those changes?

Application Process

[ASK IF DSTRM =1]
Q34. How satisfied have you been with the **process of applying** for incentives over the last year?

[ASK IF DSTRM =1]
Q35. How, if at all, has your satisfaction with the **process of applying** for incentives changed over the last couple of years?

[ASK IF Q35 INDICATED CHANGE IN SATISFACTION WITH APPLICATION PROCESS]
Q36. What caused that change in satisfaction with the process of **applying for incentives**?

[ASK IF DSTRM =1]
Q37. What changes, if any, would you make to the **process of applying** for Energy Trust incentives? Why would you make those changes?

Direct Install

[ASK IF DI=1]
Q38. I understand you did some installation work through Energy Trust's Small Business Direct Install program. That is the program that supplies free efficient lighting to small

businesses. Energy Trust sends an assessor to these businesses that inventories their lighting and then an Energy Trust representative contacts you to complete the installation work. Does this sound familiar to you?

1. Yes
2. No

[ASK IF DI=1 AND Q38 = 1]
Q39. How does the installation process go, in general? (Any hiccups? Customers who weren't expecting you? Any reasons you couldn't do the installation – equipment in the way, dogs, other dangerous conditions?)

[ASK IF DI=1 AND Q38 = 1]]
Q40. How suitable is the equipment you've installed to the spaces where you've installed it? Have you ever thought the wrong equipment was ordered? Would you have installed more, less, or different equipment?

[ASK IF DI=1 AND Q38 = 1]]
Q41. What reactions have you gotten from customers, if any, about the installation process? Have they been satisfied with the lighting? If not, what have the complaints been?

Midstream Contractors

[ASK IF MSTRM =1]
Q42. I understand you purchased some lighting equipment from a distributor that offered you Energy Trust discounts on the lighting equipment. Energy Trust works with these distributors to offer discounts on certain popular lighting measures and by doing that, the cost of the efficient lighting is discounted at the distributors counter instead of at the customer level. Does this sound familiar to you?

1. Yes
2. No

[ASK IF MSTRM=1 AND Q42 =1]
Q43. What is the process ordering and obtaining lighting through the Midstream track?

[ASK IF MSTRM=1 AND Q42 =1]
Q44. How has that process gone, generally? Any hiccups? Have you always been able to get the lighting you needed? Do you get recommendations from the distributor and, if so, do you follow them?

[ASK IF MSTRM=1 AND Q42 =1]
Q45. Do you interact with anyone other than the distributor and your customer in the process of ordering and obtaining lighting through the Midstream program? If so, who? (e.g., someone from Energy Trust or an implementer?)

[ASK IF MSTRM=1 AND Q42 =1]
Q46. How have those interactions been?

[ASK IF MSTRM=1 AND Q42 =1]
Q47. How do you explain how the Midstream track works to your customers?

[ASK IF MSTRM=1 AND Q42 =1]
Q48. What feedback have you gotten from customers about going through the Midstream track? (Do they accept that they are getting a discounted price? Would they rather do a traditional rebate or is this better for them?)

Midstream Distributors

[ASK IF MSTRMDIS=1]
Q49. I understand you are participating in Energy Trust's Midstream program by offering your contractor customers lighting equipment that Energy Trust discounts by paying you a share of the cost of that equipment. Is that correct?

1. Yes
2. No

[ASK IF MSTRMDIS=1 AND Q49=1]
Q50. How did you become involved in the Midstream track (Did someone contact you or did you contact Energy Trust?)

[ASK IF MSTRMDIS=1 AND Q49=1]
Q51. How did the process of becoming a Midstream participating distributor go? (Any hiccups? Was the process easy? Any unreasonable requirements?)

[ASK IF MSTRMDIS=1 AND Q49=1]
Q52. What about the process of tracking and reporting sales? (Is it reasonable? Any issues?)

[ASK IF MSTRMDIS=1 AND Q49=1]
Q53. What is the process by which customers order and obtain lighting through the Midstream program?

[ASK IF MSTRMDIS=1 AND Q49=1]
Q54. Do you tell your customers about the Midstream track if they don't ask you about it? Are your customers (contractors) even aware they are getting a discount from Energy Trust?

[ASK IF MSTRMDIS=1 AND Q49=1]
Q55. How, if at all, do you explain how the Midstream track works to your customers?

Lighting Market Changes

[ASK ALL]
Q56. What customer types (e.g. retail, restaurant, rural/urban, etc.) are more likely to have inefficient or outdated lighting than others?

[ASK ALL]
Q57. What lighting technologies do you think have the most promise to save energy in the next three to five years? [e,g, LEDs in certain applications, occupancy controls, lighting integrated into building management systems, etc.)

[ASK ALL]
Q58. What types of lighting controls, if any, are your customers most interested in [e,g, LEDs in certain applications, occupancy controls, lighting integrated into building management systems, etc.)?

[ASK ALL]
Q59. What types of customers are interested in lighting controls? Are all customers interested in controls or are there differences by size of customers, industry, location, or something else?

[ASK ALL]
Q60. What types of controls, if any, are customers interested in? Is it basic occupancy sensors, integration with building management systems, timers, something else?

[ASK ALL]
Q61. How if at all, did the Covid-19 pandemic affect your business?

[ASK IF Q61 INDICATES NOTABLE CHANGES TO BUSINESS]
Q62. What did your firm do to adapt to the changes the pandemic caused?

[ASK ALL]
Q63. How if at all, did supply chain issues affect your business?

[ASK IF Q63 INDICATES ADAPTING TO SUPPLY CHAIN ISSUES]
Q64. What did your firm do to adapt to the supply chain problems?

[ASK IF Q63 INDICATES ADAPTING TO SUPPLY CHAIN ISSUES]
Q65. Are the issues you faced due to supply chain or pandemic related issues resolving themselves and going back to “pre-pandemic normal” or are these issues persisting?

Firmographics

Thank you for your responses so far. I have a few more questions about your organization.

[ASK ALL]
Q66. How many people work at your company in Oregon?

[ASK ALL]
Q67. What is the gender of the principal owner of the business?

[ASK ALL]
Q68. What is the racial identity of the principal owner of the business?

[ASK ALL]
Q69. Is the principal owner of Hispanic, Latino, or Spanish origin?

[ASK ALL]
Q70. Is this business a COBID certified business or is eligible to be COBID certified? (Certification Office for Business Inclusion and Diversity) [IF NEEDED: This is a certification program in Oregon that aims to "level the playing field by providing certified firms a fair opportunity to compete for government contracts regardless of owner ethnicity, gender, disability, or firm size."

1. Yes – COBID certified
2. Yes – COBID eligible
3. No
4. Don't know
5. Refused

Conclusion

[ASK ALL]
Q71. How could Energy Trust best support firms like yours over the next three to five years?

[ASK ALL]
Q72. Do you have any other comments that you would like to relay to Energy Trust about their services, how to best reach organizations like yours, or anything else you would like to share?

[ASK ALL]
Q73. Thank you for taking the time today. As I mentioned at the beginning of this call, we are providing a $75 electronic gift card to those that help us by completing this call What is the best email to send that gift card to?

1. Email:_____

Thanks again for your time.

Appendix G: Near Participant Guide

Table 15: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	Other: mixed open and close-ended
Estimated Time to Complete	30 Minutes
Population Description	Small-medium-sized businesses that had audit but no installation
Sampling Strata Definitions	Exclude those identified as not qualified
Population Size	49, as of 9/20/22
Contact List	
Completion Goal(s)	Up to 15
Contact List Source and Date	Energy Trust Staff- Dan Rubado
Type of Sampling	Purposive
Contact Sought	Business owner or manager (contact name identified on list)
Fielding Firm	ADM

Table 16: Research Objectives and Associated Questions

RESEARCH QUESTION	ASSOCIATED QUESTIONS
Direct Install Track Operations and Experiences	

What are the reasons/barriers that business do not proceed with installation?
 	
Topics to assess:
• Confirm approximate date of assessment
• Did customer see any marketing about program? Ask about all planned channels
• Did customer experience proceed as described?
  ○ Initial phone/email contact to assess interest and possible dates
  ○ In-person outreach
  ○ Ask about other program participation, TA engagement?
  ○ How did they record the information? (Pad, paper, other?)
  ○ Did they collect information on other qualifiers? Biz size, building size, rural, BIPOC, etc.?
  ○ Did they explain program clearly? (Ask about specifics)
• Did they do walkthrough of entire building? If not, why not?
• What lighting opportunities did they identify? (Can check against the report, if available)
• Did they identify non-lighting opportunities? If so, what? (Check against report, if available)
• Assess quality of interactions with outreach and installer – were they professional, courteous, prompt?
• Assessment of report –
  ○ Did they read it?
  ○ What did they think of it?
  ○ Were the advantages explained clearly? If not, what wasn't clear?
  ○ What was their reaction to the information about reducing carbon?
• Does customer own building/have authority to make equipment changes?
• Why didn't they go ahead?
• Did anyone from the program follow up with them?
	All questions

Email Notice

Dear <NAME>,

Your business recently received a no-cost assessment of energy-saving opportunities through the Energy Trust of Oregon Business Lighting Program but did not have any new lighting installed. As part of its commitment to continuous improvement, Energy Trust would like to get your feedback about that assessment and the reasons you did not have new lighting installed.

Energy Trust has hired ADM Associates to contact businesspeople like yourself for a brief discussion about your experiences. We have a goal of talking to up to 20 such individuals – can you be one of those who help us reach that goal?

As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

Our chat might take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses. If you have questions about how we treat collected data, please see ADM's privacy policy at https://www.admenergy.com/privacy

Please let us know a few times when you can chat about your experiences. If we don't hear from you, we'll follow up with a call.

Of course, if you would rather not hear from us again, just let me know by return email. But I hope you can spare a few minutes to give me your feedback.

If you have any questions about this research, please feel free to contact me by return email or at (971) 401-0758 or Dan Rubado, Senior Project Manager, Planning and Evaluation, Energy Trust of Oregon, at dan.rubado@energytrust.org.

Sincerely,

Phone Script If No Response to Email

Hello,

This is _____ with ADM Associates. I am trying to reach <CONTACT>.

IF NEEDED:

We emailed <CONTACT> about a week ago on behalf of Energy Trust of Oregon to try to set up a time to talk about the energy-savings assessment that Energy Trust provided to your business. I'm just following up on that email.

IF NOT AVAILABLE: Try to get callback time.

IF REACHED RIGHT CONTACT:

Hello,

This is _____ with ADM Associates. We emailed you about a week or so ago about the energy-savings assessment that Energy Trust provided to your business. Do you remember that email?

IF DOES NOT REMEMBER EMAIL:

The purpose was to try to set up a time to chat about your experience with that assessment and the reasons you did not have equipment installed. This is part of Energy Trust's commitment to continuous improvement. Your feedback will help Energy Trust improve its services to businesses like yours.

Do you have some time to talk now?

As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experience with the assessment, including how the program outreach staff contacted you, what information they provided you, what went on during the assessment, whether you received an assessment report and, if so, what you thought of it, and the reasons you didn't get any equipment installed afterward.

Our chat might take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses.

IF REMEMBERS EMAIL:

I'm just following up on that email.

As you'll recall, the purpose was to try to set up a time to chat about your experience with that assessment and the reasons you did not have equipment installed.

Do you have some time to talk now?

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experience with the assessment, including how the program outreach staff contacted you, what information they provided you, what went on during the assessment, whether you received an assessment report and, if so, what you thought of it, and the reasons you didn't get any equipment installed afterward.

Our chat might take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only

the overall findings to Energy Trust, not any individual responses. As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

Phone Script If Scheduled Interview Via Email

AFTER REACHING CORRECT PERSON:

Hello,

This is _____ with ADM Associates, calling as scheduled to talk about the Energy Trust energy assessment that was done at your business. Is this still a good time to talk?

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experience with the assessment, including how the program outreach staff contacted you, what information they provided you, what went on during the assessment, whether you received an assessment report and, if so, what you thought of it, and the reasons you didn't get any equipment installed afterward.

Our chat might take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses. As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

Confirmation of Participation

[ASK ALL]

Q1. First, I'd like to confirm that information I have, which is that Energy Trust's free energy assessment was done on or about <DATE>. Is that correct?

1. IF NO: Approximately when did the assessment occur? _____

Program Marketing and Awareness

The next couple of questions are about how you learned about Energy Trust's Business Lighting program.

[ASK ALL]
Q2. Tell me how you were first contacted about the energy assessment:

PROBES, IF NEEDED:

Did someone contact you by phone or email?
Was that before or after they first came to your business?
What did they tell you or ask you during that contact?
Did they ask about any other contact you had had or were having with Energy Trust?
Did they ask about your number of employees?
Did they ask about the size of the buildings your business occupies?
Did they ask you whether your business was COBID certified, owned by a woman or minority, or was a new emerging business?

[ASK ALL]
Q3. What was your overall impression of the person who contacted you about having an assessment?

PROBES, IF NEEDED:
Were they professional?
Were they courteous?

[ASK ALL]
Q4. Before someone contacted you to participate in the assessment, had you ever heard of Energy Trust of Oregon? If so, where?

[ASK ALL]
Q5. [IF Q4 = YES] Had you ever received any incentives or support from Energy Trust of Oregon? If so, what did you receive support for?

[ASK ALL]
Q6. Before someone contacted you to participate in the assessment, had you seen or heard anything about getting free lighting equipment through Energy Trust? If so, where?

PROBE ABOUT, IF NEEDED:
Social media (e.g., Facebook or Twitter)
Brochures or flyers
Community organizations

Other businesses
Chambers of commerce
Business associations or alliances (e.g., industry-specific, geographically specific, culturally specific)

Audit Experience

Now I'm going to ask a few questions about the walkthrough of your site.

[ASK ALL]
Q7. Can you briefly describe how the walkthrough was conducted?

PROBES, IF NEEDED:
Did they go through the entire area your business occupies at that site?
Did they ask you or someone else from your business to accompany them?
If so, did you accompany them?

[ASK ALL]
Q8. What kinds of opportunities did they point out to save energy from lighting upgrades?

[ASK ALL]
Q9. What kinds of opportunities did they point out to save energy from nonlighting equipment upgrades?

[ASK ALL]
Q10. What was your overall impression of the person who did the assessment?

PROBES, IF NEEDED:
Were they professional?
Were they courteous?

Impression of Report

Now, just a couple of questions about the assessment report. This is the document that described the lighting opportunities available to your business.

[ASK ALL]
Q11. First, do you recall receiving a report on the results of the assessment?

[ASK ALL]
Q12. How soon did you get the report after the assessment was completed?

[ASK ALL]
Q13. What mostly stands out in your mind about the report?

[ASK ALL]
Q14. What information in the report was most useful to you?

[ASK ALL]
Q15. What information was least useful?

Decision Making

[ASK ALL]
Q16. At any time before, during, or after the assessment, was it explained to you that any lighting upgrades would be done at no cost to you?

[ASK IF Q16 = YES]
Q17. Who told you that?

[ASK ALL]
Q18. At any time before, during, or after the assessment, was it explained to you that Energy Trust would handle all dealings with the lighting contractor?

[ASK IF Q18 = YES]
Q19. Who told you that?

[ASK ALL]
Q20. After the assessment, what were you told about having the new lighting installed? PROBE, IF NEEDED: What were you told about how the work would be scheduled and completed?

[ASK ALL]
Q21. Why is it you did not go ahead with the new lighting? PROBE, IF NEEDED: What concerns did you have, if any, about the contractor who would install the lighting?

[ASK ALL]
Q22. What concerns did you have, if any, about the lighting?

PROBE, IF NEEDED:
Were types of lighting recommended that you did not want? If so, what?
Did you have any concerns about the quality of the lighting? If so, what?
Did you have any concerns about energy or cost savings that the lighting would achieve? If so, what?

[ASK ALL]
Q23. What concerns did you have, if any, about the contractor who would install the lighting?

PROBE, IF NEEDED:
Did you have any concerns about the quality of work the contractor would do? If so, what?

Firmographic

[ASK ALL]
Q24. Finally, please tell me what your business or organization does.

[ASK ALL]
Q25. What is your title or role in your business or organization?

[ASK ALL]
Q26. Does your business or organization own or lease the space it occupies?

[ASK IF Q26 = NO]
Q27. Does your business or organization have the authority to install new lighting in the space it occupies?

[ASK ALL]
Q28. Approximately how many people does your firm or organization currently employ in Oregon?

[ASK ALL]
Q29. Is your firm or organization minority-owned, women-owned, or service-disabled/veteran-owned?

[ASK IF Q29= YES]
Q30. Which of those describes your firm? Does your firm or organization have COBID certification as a disadvantaged business?

Those are all the questions I have. As I mentioned when I initially contacted you, we are providing a $50 electronic gift card as a thank you for providing feedback today. What email address should we use?

1. Email:_____

It takes about one to two weeks to process the gift cards so please keep an eye on your inbox for that card.

Thanks for your time.

Appendix H: Nonparticipant Guide

Table 17: Overview of Data Collection Activity

DESCRIPTOR	THIS INSTRUMENT
Instrument Type	Other: mixed open and close-ended
Estimated Time to Complete	15 Minutes
Population Description	Small-medium-sized businesses that refused audit
Sampling Strata Definitions	Exclude those identified as not qualified
Population Size	75
Contact List	75
Completion Goal(s)	Up to 15. With a population of 75 and nonparticipant response rates being typically less than 10%, we will likely get ~5 completes.
Contact List Source and Date	Energy Trust Staff- Dan Rubado
Type of Sampling	Purposive
Contact Sought	Business owner or manager (contact name identified on list)
Fielding Firm	ADM

Table 18: Research Objectives and Associated Questions

RESEARCH QUESTION	ASSOCIATED QUESTIONS
Direct Install Track Operations and Experiences	

What are the reasons/barriers that business do not proceed with installation?
 	
Topics to assess:
• Confirm approximate date of contact
• Did customer see any marketing about program? Ask about all planned channels
• Did customer experience proceed as described?
  ○ Initial phone/email contact to assess interest and possible dates
  ○ In-person outreach
  ○ Ask about other program participation, TA engagement?
  ○ Did they collect information on other qualifiers? Biz size, building size, rural, BIPOC, etc.?
  ○ Did they explain program clearly? (Ask about specifics)
• Assess quality of interactions with outreach – were they professional, courteous, prompt?
• Does customer own building/have authority to make equipment changes?
• Why didn't they go ahead?
• Did anyone from the program follow up with them?
	All questions

Email Advance Notice

Dear <NAME>,

Your business or organization recently chose not to receive a no-cost assessment of energy-saving opportunities from Energy Trust of Oregon and installation of energy efficient lighting through the Energy Trust Business Lighting Program. As part of its commitment to continuous improvement, Energy Trust would like to get your feedback about that offer and the reasons you chose not to receive an assessment or have new lighting installed.

Energy Trust has hired ADM Associates to contact businesspeople like yourself for a brief discussion about your experiences. We have a goal of talking to up to 20 such individuals – can you be one of those who help us reach that goal?

As a thank you, we are providing a $25 electronic gift card to all those that complete interviews with us.

Our chat should take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses. If you have questions about how we treat collected data, please see ADM's privacy policy at https://www.admenergy.com/privacy

Please let us know a few times when you can chat about your experiences. If we don't hear from you, we'll follow up with a call.

Of course, if you would rather not hear from us again, just let me know by return email. But I hope you can spare a few minutes to give me your feedback.

If you have any questions about this research, please feel free to contact me by return email or at (971) 401-0758 or Dan Rubado, Senior Project Manager, Planning and Evaluation, Energy Trust of Oregon, at dan.rubado@energytrust.org.

Sincerely,

Phone Script If No Response to Email

Hello,

This is _____ with ADM Associates. I am trying to reach <CONTACT>.

IF NEEDED:

We emailed <CONTACT> about a week ago on behalf of Energy Trust of Oregon to try to set up a time to talk about the energy-savings assessment that Energy Trust offered to your business or organization. I'm just following up on that email.

IF NOT AVAILABLE: Try to get callback time.

IF REACHED RIGHT CONTACT:

Hello,

This is _____ with ADM Associates. We emailed you about a week or so ago about the energy-savings assessment that Energy Trust offered to your business. Do you remember that email?

IF DOES NOT REMEMBER EMAIL:

The purpose was to try to set up a time to chat about your experience with that assessment offer and the reasons you did not have the assessment. This is part of Energy Trust's commitment to continuous improvement. Your feedback will help Energy Trust improve its services to businesses like yours.

Do you have some time to talk now?

As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experience with the assessment, including how the program outreach staff contacted you, what information they provided you, what you thought of the interactions, and the reasons you didn't schedule an assessment.

Our chat should take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses.

IF REMEMBERS EMAIL:

I'm just following up on that email.

As you'll recall, the purpose was to try to set up a time to chat about your experience with the assessment offer and the reasons you did not have an assessment.

Do you have some time to talk now?

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experiences, including how the program outreach staff contacted you, what information they provided you, and the reasons you didn't get an assessment done.

Our chat should take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses. As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

Phone Script If Scheduled Interview Via Email

AFTER REACHING CORRECT PERSON:

Hello,

This is _____ with ADM Associates, calling as scheduled to talk about the Energy Trust energy assessment that was offered to your business or organization. Is this still a good time to talk?

IF NO TIME TO TALK:

Can we schedule a time in the next week or so?

IF YES:

That's great. I'll go ahead and start. I will be taking notes throughout the call, but I would also like to record our conversation to make sure I capture what you are telling me accurately. The recording is confidential. Is it ok that I record the call?

[IF YES] Start recording

[IF NO] Take notes as best as possible

USE AS NEEDED:

Our chat will cover your experience, including how the program outreach staff contacted you, what information they provided you, and the reasons you didn't get an assessment.

Our chat should take less than 20 minutes, although we want you to feel free to share as much information as you want. All your responses will be treated as confidential. We will report only the overall findings to Energy Trust, not any individual responses. As a thank you, we are providing a $50 electronic gift card to all those that complete interviews with us.

Confirmation of Participation

[ASK ALL]
Q1. First, I'd like to confirm that information I have, which is that a representative from Energy Trust contacted you on or about <DATE> to offer a free lighting energy assessment at one or more of your organization's work places. Is that correct?

[ASK IF Q 1 = NO]
Q2. What is incorrect? _____

Program Marketing and Awareness

The next couple of questions are about how your interactions with Energy Trust.

[ASK ALL]
Q3. Tell me how you were first contacted about the energy assessment:

PROBES, IF NEEDED:

Did someone contact you by phone or email?
Were there any face-to-face conversations? If so, when and where?
What did they tell you or ask you during those contacts?
Did they ask about any other contact you had had or were having with Energy Trust?

[ASK ALL]
Q4. What was your overall impression of the person or persons who contacted you about having an assessment?

PROBES, IF NEEDED:
Were they professional?
Were they courteous?

[ASK ALL]
Q5. Before someone contacted you to participate in the assessment, had you ever heard of Energy Trust of Oregon? If so, where?

[ASK ALL]
Q6. Had you ever received any incentives or support from Energy Trust of Oregon? If so, what did you receive support for?

[ASK ALL]
Q7. Before someone contacted you to participate in the assessment, had you seen or heard anything about getting free lighting equipment through Energy Trust? If so, where?

PROBE ABOUT, IF NEEDED:
Social media (e.g., Facebook or Twitter)
Brochures or flyers
Community organizations

Other businesses
Chambers of commerce
Business associations or alliances (e.g., industry-specific, geographically specific, culturally specific)

Decision Making

[ASK ALL]
Q8. At any time, was it explained to you that any lighting upgrades would be done at no cost to you?

[ASK IF Q8 = YES]
Q9. Who told you that?

[ASK ALL]
Q10. At any time, was it explained to you that Energy Trust would handle all dealings with the lighting contractor?

[ASK IF Q10 = YES]
Q11. Who told you that?

[ASK ALL]
Q12. What were you told about having any new lighting installed? PROBE, IF NEEDED: What were you told about how the work would be scheduled and completed?

[ASK ALL]
Q13. Why is it you did not go ahead with the assessment? PROBE, IF NEEDED: What concerns did you have, if any, about having someone visit your workplace?

[ASK ALL]
Q14. What concerns did you have, if any, about the lighting?

PROBE, IF NEEDED:
Were there any types of lighting mentioned that you did not want? If so, what?
Did you have any concerns about the quality of the lighting? If so, what?
Did you have any concerns about energy or cost savings that the lighting would achieve? If so, what?

[ASK ALL]
Q15. What concerns did you have, if any, about having a contractor install the lighting?

PROBE, IF NEEDED:
Did you have any concerns about the quality of work the contractor would do? If so, what?

[ASK ALL]
Q16. What concerns or questions, if any, did you raise with the person who contacted you about the assessment?

[ASK IF Q16 INDICATES ANY QUESTIONS/CONCERNS]
Q17. Were those concerns or questions adequately addressed? What was left unanswered or not addressed?

[ASK ALL]
Q18. What could have been said or done to convince you to go forward with the assessment?

Firmographic

[ASK ALL]
Q19. Finally, please tell me what your business or organization does.

[ASK ALL]
Q20. What is your title or role in your business or organization?

[ASK ALL]
Q21. Does your business or organization own or lease the space it occupies?

[ASK IF Q21= NO]
Q22. Does your business or organization have the authority to install new lighting in the space it occupies?

[ASK ALL]
Q23. Approximately how many people does your firm or organization currently employ in Oregon?

[ASK ALL]
Q24. Is your firm or organization minority-owned, women-owned, or service-disabled/veteran-owned?

[ASK IF Q24= YES]
Q25. Which of those describes your firm? Does your firm or organization have COBID certification as a disadvantaged business?

Those are all the questions I have. As I mentioned when I initially contacted you, we are providing a $50 electronic gift card as a thank you for providing feedback today. What email address should we use?

1. Email:_____

It takes about one to two weeks to process the gift cards so please keep an eye on your inbox for that card.

Thanks for your time.