In Practice Makes (Closer to) Perfect: Equity-focused Energy Efficiency Case Studies

Laney Sullivan, Maya Saterson, and Kira Ashby, Consortium for Energy Efficiency
Lawrence Rush, Avangrid
David Becker, DTE Energy
Emily Brown, Eversource

ABSTRACT

Program administrators across the United States and Canada are increasingly focused on how to better engage vulnerable or marginalized customers in energy efficiency programs. The Consortium for Energy Efficiency (CEE) launched the CEE Center for Equity and Energy Behavior in 2022 to support equitable access to program offerings, in part by ensuring that non-energy impacts are being fully accounted for in programs for underserved customers. The Center's work addresses how and why historically underserved customer segments such as income-eligible, low-English proficient, rural, and indigenous communities may not participate in—and benefit from—energy efficiency to the same extent as their counterparts. The CEE membership consists of 76 energy efficiency program administrator members directing approximately 70 percent of the $9.3 billion USD spent binationally each year on energy efficiency.

This paper provides an overview of findings from the past two years of research and consensus-driven member deliberations. CEE published an Equity Program Summary in October 2022 with data collected on 55 equity-focused efforts from 17 organizations across the United States and Canada. This paper subsequently highlights three of these efforts, synthesizing successful approaches and common challenges, with the intent of informing the design and implementation of new programs. Among several takeaways identified in the paper, all three programs found it essential to engage directly with the communities they were trying to reach, including working with local organizations and vendors, holding events in familiar spaces, and tapping into neighbor-to-neighbor communications to ensure customers hear about and receive services from people they trust.

Introduction and Overview

Utilities in the United States and Canada are increasingly focused on how to better engage priority audiences in energy efficiency programs. The first step to more equitable engagement is characterizing *who* is inequitably served. The second step is identifying approaches that have worked well and ensuring that non-energy impacts are being fully leveraged both to drive program participation and bolster cost-effectiveness.

The Consortium for Energy Efficiency (CEE) launched the *CEE Center for Equity and Energy Behavior* in 2022 to help promote more equitable participation in and benefit from energy efficiency programs and more fully account for the non-energy impacts of programs for underserved customers. CEE membership consists of 76 energy efficiency program administrator members directing approximately 70 percent of the $9.3 billion USD spent binationally each year on energy efficiency and demand response program expenditures. The Center aims to address the reality that income-eligible, low-English proficient, rural, indigenous communities,

and other priority audiences, may not participate in—and benefit from—energy efficiency to the same extent as their counterparts.

This paper provides an overview of findings from two years of research and consensus-driven member deliberations. The CEE Equity Program Summary includes 55 equity-focused programs from 17 utilities across the United States and Canada. This database details facets of members' equity-focused offerings, with the purpose of facilitating information exchange across program administrators. CEE subsequently selected three of these program efforts for an in-depth case study analysis. Each case study follows the "**ABCDE** Building Blocks of Behavior Change" framework (Karlin et al. 2021), which outlines the intended **A**udience, "target **B**ehaviors to be performed by participants, **C**ontent and **D**elivery of engagement strategies and messaging, and **E**valuation" for each program (Ashby et al. 2021).

The case studies synthesize successful approaches and common challenges to inform program design and implementation. This paper shares the circumstances associated with lessons learned, approaches for enhanced engagement, and metrics to measure and track progress towards more equitable participation. Recommendations include:

- Collecting data to identify a specific target audience is a crucial first step in program development.
- Building trust is especially important for programs offering no-cost services, as there can be skepticism around their legitimacy (e.g., offerings seem "too good to be true").
- Building relationships with community-based organizations (CBOs) from the outset and nurturing these connections throughout the program implementation process is key.
- Tapping into neighbor-to-neighbor communications so potential participants are hearing about utility offerings from a trusted source is a useful way to spread program awareness.
- Utilizing familiar spaces within the community for outreach events is beneficial.
- Recruiting local vendors so customers are familiar with the people delivering these services in their homes and businesses encourages participation.
- Investing in larger evaluation efforts (e.g., process and impact evaluation) is always useful in improving programs going forward.
- Implementing smaller evaluation efforts at the start (e.g., barrier assessments; other surveys) to inform prompt program updates has proven to be helpful as well.

Methodology

In October 2022, CEE conducted an equity survey to program administrators across the United States and Canada and received 23 responses. The survey sought input on equity definitions, priorities, regulatory and legislative requirements, barriers to engagement, successful equity metrics, partnerships leveraged, and other approaches to engagement. Findings are presented in the CEE Equity Program Summary, serving as a resource to facilitate information exchange among program administrators to advance equity-driven programs. The Program Summary reports 55 different equity-focused energy efficiency efforts from 17 program administrators; this paper details three equity programs that were selected as case studies.

The interview protocol used for data collection was based on the previously described Building Blocks of Behavior Change (Ashby et al. 2021). These approximately hour-long interviews provided details on the selected cases Kira Ashby and Laney Sullivan of CEE conducted interviews of the following individuals: Lawrence Rush, Avangrid (September 9,

2023); Chris Ross and Noah Purcell, ICF on behalf of DTE Energy (October 13, 2023); and Emily Brown, Eversource (October 18, 2023).

Building Blocks of Behavior Change

Each of the three case studies was evaluated using the "ABCDE" Building Blocks from the "Building Blocks of Behavior Change" developed by Beth Karlin (2021), as outlined below.

- **A**udience: Who the program is targeting. Defining the audience is the first step to gauging the barriers these individuals face and therefore to facilitate a tailored program design. Different audiences benefit from different methods of engagement.
- **B**ehavior: The specific behavior for the audience that the program aims to change.
- **C**ontent: The message and message framing the program uses to spur behavior change.
- **D**elivery: How the program delivers this content to the audience, including messengers and partners, mediums for communication, as well as timing of program implementation.
- **E**valuation: The documentation and measurement of program progress and impact to inform further program improvement.

Mass Save Clean Energy Pathways (CEP) Program

Summary

The Mass Save® Clean Energy Pathways (CEP) Program is a workforce development program aimed at building up a diverse and sustainable network of energy efficiency individuals by providing training, professional development, and opportunities for growth through a three-month internship. The program utilizes its relationship with CBOs to recruit participants and has enhanced its application process in order to select promising candidates and increase retention.

- **A**udience: Massachusetts residents ages 18 and up who "identify as people of color, women, LGBTQI+ (Lesbian, Gay, Bisexual, Transgender, Queer, and Intersex), first generation residents, and/or multilingual" (Mass Save 2024)
- **B**ehavior: Place these individuals into the energy efficiency workforce long-term
- **C**ontent: Provide technical and professional development training, hands-on experience, and opportunities for job growth through the form of a three-month internship; recruit promising participants through an enhanced application process
- **D**elivery: Recruitment of applicants through trusted CBOs and a variety of marketing materials
- **E**valuation: Both an impact and process evaluation of the first cohort have been completed, changes have been made to the current program

Background

The Mass Save CEP Program was designed by the Massachusetts Program Administrators (PAs) to meet the clean energy goals outlined by Massachusetts's 2019-2021 Three-Year Energy Efficiency Plan. The PAs are Massachusetts' electric and natural gas utilities and energy efficiency providers that have come together to help residents and businesses "save

money and energy" and to "market energy efficiency rebates, incentives, and programs" under the Mass Save name (BW Research 2019).

While Mass Save has offered workforce training for years, the CEP Program was the first large-scale workforce development program focusing on *new entrants* into the energy efficiency workforce. Before designing the program, the PAs began by commissioning the *Massachusetts Energy Efficiency Workforce Development Needs Assessment* (Opinion Dynamics 2022) to inform their starting point. This needs assessment report revealed a lack of diversity among energy efficiency employees and a need to grow the workforce to meet clean energy goals.

The first CEP cohort, or group of interns, began in 2021 and took the form of a nine-month paid internship program aimed at providing a "complete pathway" starting from the identification of a candidate all the way through his or her successful employment (Opinion Dynamics, 2022). Participants reside in environmental justice communities (EJCs) with historically low participation rates in energy efficiency programs, high poverty rates, a high percentage of renters, and a high percentage of households speaking limited English (Opinion Dynamics 2022). The first iteration of the CEP Program involved internship placement into either a weatherization or HVAC track, training, wrap-around services, and ongoing impact tracking (Opinion Dynamics 2022).

The evaluation of the first cohort led to program adjustments detailed in the following sections. The CEP Program is now a three-month internship involving 10 full days of professional development training on top of technical training and work experience. The final month of the internship entails 40-hour weeks on-site to prepare for the possibility of a full-time role following the internship.

Audience | Who is the Program Trying to Reach?

The Mass Save CEP Program aims to bring historically marginalized young adults into the energy efficiency workforce. The baseline assessment in 2019 revealed low workplace diversity in the industry—the majority of energy efficiency workers were Caucasian, English-speaking men and a mere 13 percent were female. The assessment also found that few employers have formal diversity and inclusion initiatives or affirmative action programs.

Definition and characteristics of the target audience. The CEP Program is regionally based, serving Dorchester, Fall River, Lawrence, Mattapan, Roxbury, Springfield, and Worcester. Massachusetts residents ages 18 and above who live in these areas and "identify as people of color, women, LGBTQI+, first generation residents, and/or multilingual" are eligible to participate (Mass Save 2024). Interns are also required to have a high school diploma or equivalent, pass background checks, and have basic English proficiency (Mass Save 2024). The initial goal was to place 120 individuals into an energy efficiency internship across the three-year program (2022-2024), with 90 of the 120 coming from a priority group, as defined above.

Audience demographics. In the first cohort, around two-thirds of applicants self-identified as male and had received a high school diploma or equivalent. Fewer than 20 percent of applicants identified as white, over half identified as Hispanic or Latinx, and around 40 percent identified as Black or African American (Opinion Dynamics 2022). Lastly, nearly all applicants were from an EJ neighborhood as defined by the Massachusetts Executive Office of Energy and Environmental Affairs (Opinion Dynamics 2022). In the most recent cohort (cohort 7), a little over two-thirds of interns self-reported as Black or African American, around 30 percent self-

identified as Hispanic or Latinx, and around 15 percent identified as white. All 13 interns were residing an environmental justice community (EJC), and all self-identified as male.

Audience psychographics, barriers, and needs. A baseline barriers assessment was completed for the first cohort of the CEP Program, asking survey participants to rate the extent to which they felt a number of barriers impacted their ability to be employed or to complete the internship. Individuals who left the program before being paired with a business partner reported doing so for personal reasons including childcare and transportation issues, as well as "due to a lack of transparency about the program pathways, internship placement, and overall structure" (Opinion Dynamics 2022). Access to transportation is a barrier that the CEP Program is still grappling with. Some contractors require employees to have access to their own car, inhibiting potential hires from this work.

Behaviors | What Do We Want Them to Do?

The behavioral goal is for the intended audience to apply for and complete the internship, ultimately leading to a long-term career in the energy efficiency workforce. The needs assessment found that energy efficiency employers struggle in general with hiring due to insufficient applicants and low awareness of job opportunities, especially for plumbing, HVAC, and insulation and weatherization roles (BW Research 2019). At the same time, the assessment found high career satisfaction among energy efficiency workers as this industry provides employment benefits and opportunities for career advancement (BW Research 2019). As a result, there is a gap to be addressed between the lack of candidates applying for these roles and the fact that these jobs provide high career satisfaction and are crucial to the clean energy transition.

Content | What Are We Saying to Them?

To encourage individuals to stay in the energy efficiency workforce following the internship, the CEP Program offers various supports including technical and professional development training, hands-on work experience, as well as long-term growth and full-time job opportunities. Two days of professional development training kick off the internship. For the following eight weeks, a professional development day starts off the week on Monday, followed by four workdays. The baseline assessment found that both employers and workers found hands-on job training and experience to be a critical factor in successful future employment and career navigation in the industry (BW Research 2019). As a result, on top of the technical training and work experience, the last month of the internship entails 40-hour work weeks on-site to prepare for a full-time role. The program aims to recruit business partners who are not only interested in training, but also have openings on their staff for full-time positions to create opportunities for permanent advancement post-internship. Interns are paid for all training, including professional development. Interns in the first cohort were paid $17 per hour, but compensation has been bumped up to $20 per hour in the current model of the program for reasons described in the following section.[1]

In addition to experience and training, interns in the CEP Program are offered wrap-around services such as help with resume writing and interview skills, and with working through personal or professional problems that may impact their work. Additional wraparound services

[1] Massachusetts minimum wage is $15 per hour.

can vary depending on the organization, but some provide extra transportation support or language support. In the first cohort these services were offered by CBOs, but the current Mass Save program provides HR support now as well, for reasons outlined in the following section. Lastly, the application process has been enhanced to ensure that selected individuals are the right fit for the program, improving the chances of participants becoming employed in the industry full-time following the internship. Both HR involvement and the enhanced application process are expanded upon in the Evaluation section below, as these were implemented following the first cohort of the program.

Delivery | How Will We Tell Them?

Delivery mechanism, messengers, and communication channels. To reach potential participants, the Mass Save sponsors work with CBOs, engage in grassroots outreach, and have implemented other forms of marketing. Eversource staff noted the importance of building relationships with CBOs to help with recruiting interns, as individuals are less likely to respond to unfamiliar business partners, as well as with supporting participants throughout the entire length of the internship. The CEP Program also works with a vendor to do grassroots outreach, attending different community events and running information sessions. They also tried social media marketing, but with less success. Eversource has explored getting the word out through existing newsletters, but this effort is too recent to assess yet.

Timing. The first cohort of the CEP Program, following a nine-month internship format, was launched in 2021. This group had high attrition, with the cohort of 13 interns ending with around five graduates, three of whom left with full-time job offers from the "intern's current employer or with another vetted energy company" as of the last day of the program (Mass Save 2024). Subsequent cohorts have reported higher retention rates—the second cohort alone had 14 interns, 12 of whom graduated the program, and eight of whom received job offers at the end.

Evaluation

The evaluation of the first cohort of the program has been completed. The first cohort was a different model than the current version of the program, as it was a nine-month internship involving less professional development training, fewer wrap-around services, and a shorter application process. The second evaluation, which will analyze the second and third cohort, is currently wrapping up, and will provide a more holistic view of the current CEP Program.

HR support. In the first cohort of the CEP Program there were no HR coordinators involved—instead, CBOs provided wrap-around services to interns. Adding HR coordinators allows both interns and employers to have a direct point of contact to communicate when any issues come up, allowing all parties to be notified of conflicts early on and increasing chances of resolution.

Application process. After high attrition for the first cohort, the application process was bolstered to ensure applicants understand the program, want to be involved, and are ready to do so. In the first cohort, participants were simply asked to submit an online application and high scorers advanced to an interview. Recruitment now starts three or four months in advance and begins with a background check followed by a 10-minute phone call, serving as an "interest check." The applicant then moves on to a longer, more formal interview with the vendor, before

interviewing with the business partner. These additional steps extend the total length of this process to about a month, but those who complete it are a lot more invested in the end than interns in the initial cohort who only completed the online survey.

Compensation. As previously mentioned, wages were raised following the first cohort, which proved to be beneficial for the interns and the program. These jobs can often be very physically demanding, so higher wages help get more potential applicants interested.

DTE's Energy Efficiency Assistance (EEA) Program: Neighborhood Approach

Summary

The goal of DTE's EEA Program is to provide income-qualified customers with retrofits and weatherization upgrades at no cost, to help improve their homes' energy efficiency and lower their energy bills. To expand the EEA Program's reach, DTE invested in geotargeted studies to better understand the level of need, how to best serve households, and determine which areas to prioritize. These efforts resulted in the development of the Neighborhood Approach—a community-focused effort to encourage customers to participate in the EEA Program.

- **A**udience: Energy burdened single-family homeowners and renters
- **B**ehavior: Complete home retrofits and weatherization
- **C**ontent: Offer no-cost services that will lower energy costs
- **D**elivery: Utilizing neighbor-to-neighbor communications and community organizations to spread program awareness
- **E**valuation: Has not been completed

Background

DTE Energy is headquartered in Detroit with two regulated utilities serving Michigan: DTE electric serving 2.2 million customers, and DTE gas serving 1.3 million customers (DTE Energy 2023). DTE is committed to cleaner energy, with DTE electric planning to reduce carbon emissions by 90 percent and DTE gas planning to reduce methane emissions 80 percent by 2040 (DTE Energy 2023). Both DTE electric and gas aim to achieve net zero emissions by 2050.

In July 2023, DTE received approval on its CleanVision Integrated Resource Plan (IRP) from the Michigan Public Service Commission. Among other investments in the clean energy transition, this proposal involves "directing an additional $110 million to support income-qualified home energy efficiency programs, customer affordability programs and access to clean energy resources for the Company's most vulnerable customers" (DTE Energy 2023). Spending on DTE's income-qualified programs has increased to encompass 60-64 percent of DTE's residential energy efficiency budget.

The motivation for the development of EEA's Neighborhood Approach emerged from a desire to understand how to reach DTE's most energy-burdened customers who historically have not participated in DTE's energy efficiency programs. The goal of the initiative is to wholistically service these households, by providing home repairs (as required), whole-home weatherization, and large energy-efficient appliance upgrades to help lower energy bills and put them on a more sustainable path going forward.

Audience | Who is the Initiative Trying to Reach?

The Neighborhood Approach is focused on areas that have concentrated energy burden, which is defined as the proportion of one's income spent on energy bills. Compared to the rest of the United States, residents of Michigan spend a higher proportion of their income on energy bills (Brooker, 2023). This is especially the case in Detroit, where black households report a 54 percent higher energy burden than white households, and low-income households report an energy burden nearly four times that of other households (Brooker, 2023). The EEA Program serves customers who are in the highest quintile of energy burden, or extreme energy burden—approximately 10 to 15 percent of customers fall into this category. DTE looked across the service territory to establish where the deepest vulnerability lies. Utilizing a service grouping level through Census tracts, they collected burden information to home in on specific areas; for instance, looking at a specific neighborhood, and then zooming into a several block radius to provide services block-by-block.

Definition and characteristics of the target audience. The EEA Program serves single-family (1-2 units) homeowners and renters. The income qualification for this program is 200 percent of Federal Poverty Level (FPL) or 80 percent Average Median Income (AMI). In 2022 and 2023, up to $1 million was provided annually for 201-300 percent FPL.

Audience psychographics, barriers, and needs. Before the targeting and implementing process, a series of surveys were sent out as a barrier assessment. When the program was still at the Public Use Microdata Area (PUMA) level, the survey pool was for 15,000 households—mainly for the two PUMAs that showed the highest energy burden. Participant feedback was collected through six surveys to assess engagement and proper communication from DTE.

The surveys included around 15 questions each and there was a $10 incentive per completed survey, as well as a sweepstakes for additional incentives. Across all six surveys, there were 2,090 unique respondents, for a fourteen percent response rate overall. The first survey revealed high satisfaction and engagement with DTE, but low program awareness. The best learning channels noted were customer utility bills and community organizations. Half of respondents reported struggling to keep their home warm and reported needing major changes and upgrades, yet customers rarely reported having their heating systems serviced and furnace filters replaced. Many said they frequently put off purchases or avoid paying bills due to financial strain. Responses also pointed to tight-knit connections between customers and their communities and neighbors, with nearly all respondents expressing eagerness to learn more about community programs.

The surveys also provided helpful information to participants. For instance, when a respondent indicated their home was drafty, the survey would connect them to the EEA Program or other relevant information through a manual process. Each respondent was provided with the overall results from the survey as well. Feedback from the surveys was rolled into the design and implementation of the Neighborhood Approach.

Behavior | What Do We Want Them to Do?

The goal of the Neighborhood Approach is to reach energy-burdened customers who might not typically engage in energy efficiency programs and encourage them to undergo high-efficiency product installations, home weatherization, and other services. While these customers

often do not have the time or resources to invest in upgrades, doing so can improve their financial security by lowering their energy bill and improving the comfort of their home.

Through this program, DTE also aims to increase participants' energy literacy and their understanding of how the system of the home impacts their energy usage and related costs. This knowledge helps to ensure products are being used properly following installation, boosting program impact in the long run.

Content | What Are We Saying to Them?

To engage these customers, the EEA Program offers installation of high-efficiency products and home weatherization services at no cost. These services include furnace tune-ups and replacements, refrigerators, water heaters, air sealing and insulation, and direct install measures, among others. In addition, the program responds to "no heat" emergency customer calls.

Delivery | How Will We Tell Them?

The EEA Program and its Neighborhood Approach initiative is offered at no cost, which is often surprising to participants. Thus, to build trust and avert skepticism, the EEA Program engaged in direct outreach, held community events, and worked directly with local agencies and partners such as block clubs. DTE also worked with a behavioral science consultant on the design of the surveys, outreach materials and education materials. Direct outreach entailed a phone campaign, mailings, and door-to-door canvasing. Based on metrics such as number of phone calls, enrollment response rate, and the number of overall participants, these efforts were not as fruitful as expected. DTE staff speculated that this was due to distrust and disbelief that this offer was legitimate.

To test the community event approach in the field, the EEA Program hosted three events including a church gathering, a party in the park, and an open house in a community member's home. While the community events had a lower turnout than expected, the house party hosted by a local community member was very successful as far as converting attendees to participants. The program also worked with a group of community organizations and utilized neighbor-to-neighbor communications to spread the word. In both cases, it was valuable for customers to hear from someone they know is a reputable source. The EEA Program also recognized the importance of framing; for instance, it was helpful to describe the initiative as an opportunity to save costs, make the home comfortable and have new and efficient working equipment. It was also useful to emphasize how this is a special opportunity to participate in an initiative specifically intended to benefit their community.

Timing. Collaborating with program implementers and invited partners, EEA rolled out the implementation plan in February with the goal of completion by end of year 2023.

Evaluation

In this initiative, 61 households engaged, 22 participated, 101 weatherization measures were identified and there was a $30,000 average investment per home ($17,000 through the EEA Program and $13,000 through the Weatherization Assistance Program). While evaluation has not

been completed to date for the program, few participants dropped off across the six equity study surveys, indicating successful engagement and high retention with these customers.

Cost-effectiveness. While the program is not required to be cost-effective, DTE staff commented that they still aim to deliver the program as cost-effectively as possible, in order to maximize the number of homes they can provide service to. Some processes have been put in place to address this concern—for instance, if a health and safety measure is above $10k, it requires more than one contractor estimate and additional approval from DTE. If the entire health and safety project is above $20k, then there is an additional review that may result in a "walk away." DTE staff said that they are unfortunately unable to service every home they assess.

Avangrid's Small Business Energy Advantage (SBEA) Program: Microbusiness Effort

Summary

Avangrid's Small Business Energy Advantage (SBEA) program provides incentives that encourage small commercial customers to undertake energy saving improvements to their businesses by reaching them through diversified marketing materials and engaging with community members. While the SBEA program has been around for over a decade, the Microbusiness Effort is a subset that began at the tail end of COVID to keep the smallest businesses afloat and now continues to provide these customers with attractive incentives.

- **A**udience: Small and micro businesses
- **B**ehavior: Complete energy-efficient improvements within their businesses
- **C**ontent: Provide low-cost energy-saving improvement options on top of incentives and financing
- **D**elivery: Utilize diversified marketing materials; community vendors and members
- **E**valuation: Both a process and impact evaluation have been completed

Background

Avangrid, Inc. is headquartered in Orange, Connecticut, and includes eight electric and natural gas utilities that serve more than 3.3 million customers in New York and New England (Avangrid 2024). The United Illuminating Company ("UI") is one of these eight utilities and serves around 341,000 customers in Connecticut (Avangrid 2024). The SBEA program started as a pilot that expanded into a program at UI. The Connecticut Light and Power Company ("CL&P") and Yankee Gas Services Company ("YGS"), doing business as Eversource Energy ("Eversource"), and The United Illuminating Company ("UI"), Connecticut Natural Gas Corporation ("CNG"), Southern Connecticut Gas ("SCG"), collectively, UIL Holdings Corporation ("UIL"), collectively (the "Companies") currently administer the SBEA Program (Avangrid 2024). The effort has since further expanded and is now run by Energize Connecticut (Energize CT). The Energize CT initiative is comprised of Eversource, CNG, SCG and UI, the Energy Efficiency Board, Connecticut Green Back, and the State, who have united on a shared mission "to provide Connecticut residents and businesses the resources they need to save money and use clean energy" (Avangrid 2024).

Both external and internal drivers led UI to develop the Microbusiness Effort as a subset of the SBEA program. The effort first began during COVID as a request from Avangrid's vendors to keep businesses afloat. At the same time, there was a push to advance equitable engagement—notably, the three plan priorities in Connecticut are equity, decarbonization, and energy affordability. As a result, Avangrid's 2022-2024 Plan Priorities outlines various strategies to address each of these three goals. Two strategies addressing the goal of equity include analyzing customer data to target customers in distressed municipalities and EJ communities, as well as developing non-English marketing materials to expand program reach. A strategy aimed at increasing energy affordability entails increasing financing options to C&I customers to encourage long-term investment in energy saving upgrades provided at little to no upfront costs. The SBEA program, and particularly the microbusiness subset, employs these strategies among others to achieve the three identified goals.

Audience | Who is the Program Trying to Reach?

Definition and characteristics of the target audience. The target audience of the SBEA program is small businesses, which Avangrid defines as a category based on demand. Those that qualify are commercial and industrial UI customers that have an average 12-month peak demand between 10 and 200 kW (Avangrid 2024). The Microbusiness Effort supports the smallest commercial customers who have an average 12-month peak demand of 25kW or less.

Audience demographics. Avangrid staff noted that small business owners are also often low-income customers, and that a lot of these businesses are located in lower income areas. Another objective of the SBEA and Microbusiness Effort is to serve more people from diverse areas. Formal secondary metrics of the program include increasing the amount of participation in the Department of Economic Community Development (DECD) communities and accessing the most distressed towns in Connecticut. Avangrid staff mentioned the program will be moving from DECD to EJCs in 2025, with the former serving as a steppingstone to the latter. While DECD communities capture towns, EJC is split by census blocks, which requires more infrastructure to measure.

Audience psychographics, barriers, and needs. For small businesses, the utility bill is often only given fleeting attention. Replacing lights and other energy efficiency considerations are typically not the first thing on their mind, as time and resources are often limited. Small business owners may also lack the resources to lead and develop projects due to competing priorities. Cost and project payback are two factors that can also serve as barriers.

Behavior | What Do We Want Them to Do?

The goal of the Microbusiness Effort is to encourage small commercial customers to invest in energy-efficient improvements that they otherwise may not have the time and resources to purchase and install. Investing in these upgrades helps the customer grow their business, can boost the aesthetic of the business, and improves the bottom line.

Beyond recruiting participants, Avangrid noted that there is potential to further leverage behavior to enhance the efficacy and resiliency of the program. For instance, although upgrades may be installed, it is often challenging to tell if products are being used properly. Implementing methods such as energy coaching to help customers understand products can help to ensure their

proper use following installation. Staff also noted that engaging customers can generate additional benefits such as further curbing customer demand by increasing customer awareness of areas with higher usage, and by spreading awareness of additional program offerings.

Content | What Are We Saying to Them?

For the SBEA program, a utility-authorized contractor performs an audit of a small business's facility and then manages the installation of the recommended energy-saving improvements. Measures included in this program are lighting upgrades, HVAC, refrigeration systems, motor sand variable frequency drives, and domestic hot water measures (Energy & Resources Solutions 2018).

To encourage small businesses to invest in these energy efficiency upgrades, the Microbusiness Effort offers various incentives. The energy assessment is completed by a utility-authorized contractor at no-cost, no-obligation. The resulting proposal includes all eligible energy efficiency upgrades, including installation costs and estimated savings. If a customer chooses to undergo the installation of any recommended improvements, this process is combined into a one-stop service. Several financial incentives are provided to help businesses pay for upgrades, allowing customers to quickly complete energy-saving improvements. These include zero upfront costs for installations as well as "zero-interest and low-cost financing for the balance of the installed cost," which is payable on the customer's monthly electric bill (Avangrid 2024). Overall, the SBEA program offers up to $100,000 in financing on-bill. The Microbusiness Effort provides 80 percent incentives and up to $4,000 in financing at zero percent interest for projects under $20,000. There is also a one-year warranty on the contractor's parts and labor.

Delivery | How Will We Tell Them?

To reach these communities and encourage participation, Avangrid implements many different outreach methods, partners with local vendors to deliver services, and works to address language as a barrier. In addition to a radio campaign and social media efforts, other outlets include in-person events, sponsor tables, chambers, bill inserts, email campaigns, online marketplace, heat pump installer network, LinkedIn, and press events. Staff also utilize "main street efforts," including door-to-door canvasing for program promotion in previously unreached priority communities and presenting to various community groups to ensure minority-owned businesses are aware of program offerings.

Avangrid has found that it is also key to partner with local vendors to deliver services, so customers are familiar and comfortable with the people who are in their spaces doing this work. The utility has also recently started to work with contractors to identify customers who have already gone through the program, placing them in the role of known and trusted liaisons to reach out to potential customers.

Language barriers have also been important to consider and address. Avangrid makes an effort to diversify their marketing materials and language, creating materials in Spanish and looking to expand to other languages including Polish and Portuguese. It has also been crucial to ensure that vendors have someone who is able to speak business owners' primary language(s). Additionally, the main street efforts mentioned above have recently been expanded to bring translators to go door-to-door to businesses.

Timing. The Microbusiness Effort began in 2020. The pilot, which was internal and served as a test run, was first expanded to be a program in 2023. The program has since been scaled up to the full Energize CT programs.

Evaluation

Metrics and targets. The primary metrics are savings and spending in the program. As previously mentioned, a secondary metric is to promote more signed projects in DECD areas. Across all C&I projects, a goal was set to increase participation from 2022 by completing 69 jobs in 2023. This goal was exceeded as 79 jobs were completed in DECD towns in 2023.

Evaluation methodology. A process evaluation for the SBEA program was completed in 2017, and an impact evaluation that assessed performance between 2013-2015 wrapped up in 2018. As the Microbusiness Effort is a smaller and more recent subset of the SBEA program, a formal evaluation has not yet been completed, but the program is being evaluated internally.

Results. Evaluation efforts have allowed Avangrid to identify what has worked well and what has not, setting the basis for what is to be done in the future. One key finding is that the majority of SBEA projects are lighting jobs, which will have to pivot if the demand for lighting diminishes. Alternative pathways for this program that Avangrid staff discussed are weatherization, heat pump adoption, and refrigeration. Enhancing weatherization efforts for small and micro business customers is also a key strategy in addressing the goal of decarbonization noted in Avangrid's 2022-2024 Plan. Staff also emphasized that lighting projects could be a strong entry point, serving to strengthen customer relationships and build trust, and increasing the likelihood that the customer returns for future efficiency projects.

Cost-effectiveness. The Microbusiness Effort has taken off, accounting for 80% of all SBEA projects in 2023. Staff noted that while some contractors are attracted to these quick jobs, especially when programs like this provide good incentives, many still favor larger projects, which remain more profitable. These microbusiness jobs require more time and resources such as having a crew of contractors on hand dedicated to smaller projects, as well as investing in relationship-building, which can pose a challenge in achieving cost-effectiveness. However, the payoff of these efforts is that customer touchpoints are better, and the program is able to reach those that are most in need. Avangrid aims to balance out their portfolio with other small business efforts coming in that are larger, but staff noted that even more balance is needed as they continue to see high numbers of microbusiness projects.

Discussion

All three efforts selected for this case study analysis aim to better engage a priority audience that is not currently benefiting from energy efficiency programs in proportion to the audiences' prevalence in the community. While the programs' intended audiences differ, many successes and challenges remain consistent across efforts. Importantly, all three efforts found that it was critical to engage with various stakeholders in the community to build trust and boost participation. For the retrofit and weatherization programs, customer behavior can further be leveraged to ensure long-lasting program impact. Evaluation efforts, from initial barrier assessments to more formal impact evaluations, were useful in identifying improvements to

boost program efficacy. Lastly, while some challenges vary from program to program, all efforts continue to tweak, assess, and find ways to overcome barriers in order to deliver energy efficiency offerings to a wider audience.

Successes.

- **Using data to define audience:** Identifying target audiences geographically through a variety of data points including energy burden was effective for DTE's EEA Program.
- **Conducting baseline and barrier assessments:** For the CEP Program, these assessments together revealed underlying needs for the program, key barriers to address, and important program aspects to include, such as hands-on training. For DTE, collecting information via initial customer intelligence surveys was useful in understanding how people hear about utilities and programs—such as from discussion with neighbors—and from there this intel could be used to tap into built lines of communication.
- **Recognizing the role of familiarity in building trust:** Building trust within communities, especially for programs offered at no-cost, is key. Holding outreach events in familiar spaces within the community, recruiting local organizations and vendors to recruit participants and deliver services, distributing materials in local languages and making translators available, and tapping into neighbor-to-neighbor communications all helped participants feel more comfortable and encouraged engagement.
- **Implementing long-term evaluation:** Larger scale evaluation can help boost program success, allowing administrators to make continuous tweaks and improvements. After experiencing high attrition in the first cohort of the CEP Program, alterations such as adding professional development training, enhancing the application and screening process, and providing more support for interns, led to increased retention rates.

Challenges.

- **Transportation as a barrier:** Making workforce development programs more accessible to those with less access to transportation has proven to be difficult. Each contractor has their own transportation requirements for their employees—in some cases, contractors will not hire individuals unless they have access to their own car—posing a barrier to more equitable workforce participation. Through CBOs, the CEP Program provides additional wraparound services, one of which includes providing extra transportation support. However, the availability of this service varies depending on the organization.
- **Indirect delivery efforts:** Although the SBEA and EEA Programs implemented many different indirect outreach methods, most ended up falling short. Efforts such as phone campaigns, mailings, and door-to-door canvasing did not yield as much success as expected, likely due to distrust and disbelief that the offer was legitimate.
- **Vendor challenges:** Despite a push from vendors to participate in small business projects, many still prefer to steer away from these efforts in favor of larger projects that are more profitable.
- **Cost-effectiveness:** Addressing cost-effectiveness due to program volume is a challenge. Programs intended for priority audiences can be resource intensive and thus expensive, which can impact overall portfolio cost-effectiveness.

Takeaways.

- **Behavior beyond installation:** For retrofit and weatherization programs, the target behavior is often to encourage people to undergo these services. While this is a necessary

first step, it is important to consider customer behavior beyond initial installations—once products are installed, it is harder to tell if they are being used properly. To address this, DTE aims to increase participants' energy literacy. Other methods such as energy coaching could be useful to increase customer knowledge and drive program resiliency.

- **Payoff of time and resource-intensive efforts:** Engaging the lowest income customers often requires intensive and direct outreach, but these efforts pay off big for these customers and improve program reach overall. While DTE's direct community efforts did not have huge turnout rates, the efforts were very successful in getting attendees to participate in the program, and every event hosted saw increased participation.
- **Avoiding overreliance on CBOs:** While staff from all three programs noted that it was crucial to build relationships with community-based organizations, the Mass Save CEP Program found it was important to recognize when to call in additional help, such as hiring external HR staff rather than relying on CBOs to provide all wraparound services.
- **Balancing portfolios:** In order to help achieve cost-effectiveness, Avangrid balances smaller, lower margin microbusiness projects with larger ones in the SBEA Program, as these projects collectively fall under the small business section of Avangrid's C&I portfolio. While DTE's Neighborhood Efforts are not required to be cost-effective, the utility still implements various guidelines to deliver the program as cost-effectively as possible in order to reach more customers.

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