Accelerating Equity with Data

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ABSTRACT

Barriers to successful limited income[1]programs arise in engaging and enrolling customers. More investment to subsidize the cost of efficiency and electrification improvements is important, but barriers such as low customer program awareness and complex, time-intensive application processes persist and contribute to a lack of equity in the clean energy transition. One way to get through these barriers is with data.

Utilities have a wealth of data that can be useful in targeting and customizing outreach based on customer characteristics. This paper will examine strategies to leverage data and web-based solutions to identify, engage, and enroll limited income customers in energy efficiency and affordability programs that result in an equitable distribution of benefits. Outbound communication can leverage moments that matter to get customers' attention. Once customers are engaged and motivated to take action, providing them all the additional resources they need to enroll in one place via mechanisms such as through technical assistance or a one-stop-shop can avoid substantial drop off. In fact, studies have shown that proactive engagement with tailored technical assistance is a proven way of getting more residents to engage and participate in programs.

This paper will outline the barriers faced engaging and enrolling limited income customers, describe how data can be used to address these barriers, and conclude with some real-world examples that demonstrate how other utilities might leverage data to accelerate equity within their programs.

Introduction

Recent legislation, such as the Inflation Reduction Act (IRA), along with initiatives such as Justice40, indicate a significant shift in strategic policy direction, prioritizing equity and serving limited income customers. For utilities, barriers to successful limited income programs arise not only in identifying how to design programs that result in successful implementation but also in engaging and enrolling customers. While policies have sought to address this issue through goals or spending mandates, limited income customers remain underserved and face barriers to engagement throughout the program process. These customers are therefore also missing out on the additional non-energy benefits that utility programs offer, such as health and comfort benefits. To tackle this gap, utilities can enhance engagement strategies and program adoption rates with data.

[1] This paper uses limited income to refer to customers who face a higher energy burden or at the low or moderate income level. Limited income is meant to encompass various customers facing financial and/or other barriers to accessing programs

Utilities can use data to proactively reach out to customers with the highest energy need, as well as identify what programs are available to the customers, enabling the combining of incentives and streamlining the participation process. Utilities have a wealth of data that can significantly enhance outreach and education efforts. This data can target and customize outreach based on customer characteristics, like geographic location, housing type, income, and more. By tapping into this information, utilities can create personalized, proactive outreach specifically designed to inspire and empower limited income customers to engage and act (Harvard Business Review, 2023). With data, utilities can design and deliver comprehensive, user-friendly experiences and identify gaps in service within their territories. But to access this data and unlock the benefits of these programs, there must be coordinated action by utilities, state agencies, and other stakeholders.

This paper will provide a summary of the current methods utilities use to enroll low-income customers and prioritize equity in programs, as well as pitfalls they have. Then, using real world examples, it will show how utilities data can use data to overcome key barriers in program deployment, customer participation and engagement. Finally, the paper highlights some next steps and considerations for utilities, regulators, and other stakeholders that are looking to adopt similar strategies.

Data Can Address Inequities in Utility Programs

Current utility programs that seek to engage limited income customers face barriers in engaging with these customers and designing programs that suite their needs. Without intervention, utility programs, including energy efficiency and other building electrification programs, will remain more accessible to wealthy households who can afford the technology, are aware of its availability, and live in homes ready for electrification (Green & Healthy Homes Initiative, 2021). These barriers not only prevent limited income customers from experiencing the benefits of utility programs, but can increase their energy burden, as utilities transition to a low carbon electric grid. As highlighted by the California Public Utilities Commission, affluent households can afford clean energy and grid-flexible technologies, enabling them to leverage potential structural benefits and causing a cost burden to fall on lower-income and vulnerable customers (CPUC, 2021).

There are a few methods taken to tackle this issue in program today. For energy efficiency programs, utilities and regulators will set goals or spending mandates that look to target or prioritize limited income customers. These metrics can encourage utilities to invest in more in limited income programs, but overlooks crucial aspects of program success like customer engagement and enrollment. While new policies, such as Justice40, will increase investment to subsidize efficiency and electrification improvements, barriers such as low customer program awareness and participation persist (Section 223 of EO 14008). Data has emerged to overcome these barriers through identifying potential customers and informing program design to ensure that it serves the customers.

Inequities Appear Throughout the Energy System

Past policies in housing, health, energy, and environmental spheres have all contributed to limited income communities facing barriers to participation in utility programs, resulting in

less benefit flowing to these communities (Green & Healthy Homes Initiative, 2021). Not only do limited income communities pay disproportionally more into our energy system and live in older homes (higher energy use homes). While the average person pays 6% on energy, limited income households often spend 10-15% of their total budget on energy, sometimes even reaching as high as 30% (Just Solutions Collective, 2022). This results in limited income households paying about $36 to $40 billion more a year in energy bills compared to other customers. Energy burden is also correlated with a greater risk for respiratory diseases, increased stress, and economic hardship, including difficulty in moving out of poverty (Just Solutions Collective, 2023). While programs like the Low-Income Home Energy Assistance Program (LIHEAP) and the Weatherization Assistance Program (WAP) have been implemented at the federal level to attempt to provide relief for customers,[2] these programs are underfunded and still have low participation rates.

For utility programs, limited income customers are generally underserved by both gas and electric energy efficiency programs and data shows that limited income communities do not receive an equitable share of funding from energy efficiency programs. (Morales and Nadel, 2022) Current programs spend 13% of funding on limited income programs, yet these households make up 27.5% of US households. Further compounding these issues is the fact that utility programs often rely on an opt-in approach, requiring customers to be proactive and informed to receive rebates. Key challenges that appear when utilities attempt to serve limited income households include:

- **Design barriers:** Program implementers, often, do not design programs with the barriers that limited income households face in mind, such as competing demands on their time and limited bandwidth to spend researching and learning about programs and technologies that are available to them (Amann et al., 2023). Limited income homes are also more likely to need structural or health and safety repairs; most programs are not prepared to address these issues, resulting in customers not being able to participate at all (Green & Healthy Homes Initiative, 2021).
- **Fragmented experience:** The offered programs are often disjointed and do not consider comprehensive solutions or lowering administrative barriers in the application process for energy assistance (Just Solutions Collective, 2023).
- **Market intervention focus:** Many programs only look to leverage market interventions such as rebates, tax credits, loan products, energy efficiency standards, and emissions limits. Households can participate, but they must have resources to purchase the upgrade or appliance to benefit from the program. (Green & Healthy Homes Initiative, 2021).

To combat low participation rates, some states have required utility demand-side management plans to deliver a certain level of benefits to limited income customers and environmental communities. New York and Illinois are two examples of states with such requirements. Illinois's Climate and Equitable Jobs Act (CEJA) requires that utilities include meaningful consideration of environmental benefits and community input, and the Future Energy Jobs Act (FEJA) of 2016 put in place minimum spending goals for utilities. In New York,

[2] LIHEAP looks to provide bill assistance in the winter, and WAP looks to provide insulation services, in the hopes of providing long-term bill reductions.

the Climate Act requires the State to invest or direct resources to ensure that disadvantaged communities receive at least 35%, with the goal of 40%, of overall benefits of spending on clean energy and energy efficiency programs (*Climate Act*, n.d.). With these types of policies emerging, it is even more important to lean into data to inform the design and implementation of energy affordability and efficiency program.

Programs Have Attempted to Tackle These Inequities

One space where utilities have enacted strategies to better serve limited income customers is with energy efficiency programs. These policies attempt to provide equitable access to programs for limited income customers. Equitable access means providing programs with proactive engagement that ensures the fair distribution of benefits and burdens from our energy system (Park 2014). The current standard of equality, allowing everyone access to the same resources or opportunities, still results in barriers for limited income communities as participation rates of limited income customers are much lower than those of market rate customers (Amann et al. 2023). Centering equity means that decarbonization policies and programs must account for starting-line disparities by recognizing the harms of the past, incorporating voices from those who have been most burdened historically, and taking proactive approaches to ensure that the benefits of building decarbonization are accessible to every resident (NEEP 2022). The result is while programs exist, they are difficult to participate in and/or customers are unaware that they are eligible for them. Below is an overview of some of initiatives that aim to overcome barriers to limited income participation but fail to result in more uptake:

- **Investment or savings goals:** Some energy efficiency programs have a limited income portfolio goal or spending target (NEEP, 2022). This value can range but is meant to ensure that a set number of savings stem from limited income programs or that a set level of financing is spent on limited income customers. While these goals drive program implementers to try to serve these markets, choosing to focus on savings can obscure the broader challenges and benefits that might flow to communities because of this program, such as additional costs needed to implement programs, the up-front costs required by the customer, and non-energy benefits including health and safety that might not be captured by energy metrics alone (Morales and Nadel, 2022).
- **Performance incentive mechanisms (PIMs):** PIMs encourage utilities to reach a level of performance by offering them a financial incentive to achieve a certain goal (NREL, 2009). Like investments or savings goals, PIMs that reward savings from limited income communities can encourage programs to invest in those communities, but do not translate to engagement with communities. Some states have started to use PIMs to drive equitable outcomes. For example, Massachusetts has adopted an equity component in its performance incentives to encourage achievement of at least 85 percent of planned portfolio equity benefits (DPU 21-120 through DPU 21-129, 2022).
- **Targeting programs and tracking metrics:** Other utilities have looked to target programs to address certain communities that states, or regulatory agencies have identified as priority communities. However, this approach, often based on census tract data or state identified communities, can overlook thousands of customers that may be

outside of those areas and can miss those with the highest need (Mimaroglu and Gunel 2022). Furthermore, there are compounding issues that result in customers being underserved. One dataset may not be able to show the full impacts or may miss customers who might not fall into that specific category.

- **Marketing and engagement:** Typically, utilities have used high-cost strategies to conduct outreach for limited income customers using traditional methods such as billboards and mass media or datasets such as credit scores. When these methods have worked and a customer is engaged with the program, there are usually time-intensive and complex processes for customers to navigate on their own (O'Keefe, 2023). Using a credit score, for engagement, also fails to paint an accurate picture. Research has shown that credit scores can perpetuate racial inequities and exclude a significant number of eligible customers (Ratcliffe and Brown, 2017). Data from utility projects that use credit scores as a qualifier corroborated this, showing that limited-income customers are underrepresented (or under-enrolled) in the program.

Data Can Help Address These Barriers

Current utility programs struggle to serve limited income customers with current methods and tools. Addressing this gap, will mean transforming how utility programs find, reach, and enroll limited income customers in affordability and energy efficiency programs. Community-based events and outreach are one successful way to address barriers, but to truly see in an increase in impact and personalize the experience, utilities must tap into data and digital solutions.

To understand the ways data can grow programs, first, we need to understand all the data that is available, and how utilities can use it. There is a wealth of data available that can be combined to engage or identify limited income customers. Utility customer data, census tract and demographic data, along with data created by data science and analytics, can all be used to better understand every household in a utility's territory energy burden and usage patterns. The table below provides an overview of the different types of data that are available.

Table 1. Different Types of Available Data

Utility Data Sets	Third Party Data	Proprietary Data	Customer-Provided Data
• Program participation • Account info • Outage • Usage • Billing • Rate codes • Customer profile	• Parcel • Weather • Demographic • JD Power • Zip codes • Contact information	• Load archetypes • Program propensity • Customer activity score • Disaggregation • Neighbor rank • Customer insights	• Home Energy Audit answers • Web engagement • Program status • Outbound communication metrics • Income self-attestation

• Call center volume • Customer preferences			• Survey responses

Source: Oracle Opower Platform Data Extracts

Using Data to Identify Customers and Their Needs

The first step towards greater awareness and engagement with programs by limited income households and disadvantaged communities is identifying those households within a utility territory. Currently, energy efficiency program administrators rely on out-of-date or incomplete datasets to identify customers for limited income programs. This creates program administration issues since it is difficult for utilities to identify customers to target; so customers must find and apply for the appropriate programs. In place of a single dataset, utilities can look to data science predictive analytics tools to change this dynamic. Advancements in technology have resulted in data platforms that can leverage utility, third-party, and customer-provided data to identify financially vulnerable customers and predict program eligibility). This approach applies predictive analytics to utility data and layers publicly available datasets on top of purchased proprietary datasets, utility data, and data collected directly from customers to generate a suite of affordability metrics:

- **Household energy burden:** What proportion of a household's income goes towards energy expenses?
- **Ability to Pay Index:** What is a household's available budget for utility costs after housing costs (rent and mortgage) are accounted for? Note that this is a census tract-based score that customers are bracketed into. Every household is assigned to a bracket.
- **Census tract poverty ratio:** What proportion of households are living at or below the poverty level? Again, this is a census tract based metric.
- **Energy Affordability Score:** This is a weighted composite of the other affordability metrics that assigns a score of 1 to 100 for all residential customers in a utility's service territory. It is a household level metric to better understand those customers who may not check the box on energy burden, ability-to-pay, and census tract poverty ratio metrics.

With these metrics, not only can implementers identify customers who would likely qualify for limited income programs with a higher degree of accuracy than using a census tract-based approach like area median income or credit score, but they can also understand customers' ability to afford energy relative to one another in a utility territory or across a state.

In addition to these affordability metrics, data can be used to identify limited income customers that may benefit from utility energy efficiency and clean energy programs. For instance, layering parcel data (e.g., homes built before 1980) with energy usage and home ownership, utilities can identify limited income customers that are in most need of weatherization that have not previously participated in the program. This can help address additional benefits like comfort in the home.

To combat low participation rates, some states have required utility demand-side management plans to deliver a certain level of benefits to limited income customers and environmental communities. With participation data, utilities can follow customers through their journey and prompt additional programs once they have completed their current project. For example, if a customer has gas heating or delivered fuels, after weatherizing their home, they may receive a promotion for air source heat pumps. Machine learning and data science capabilities enable this type of tool to prioritize customers with the greatest need and greatest likelihood of eligibility, without leaving any groups of customers behind. This is drastically different from the current methods used to identify customers currently.

These tools provide deeper insights into household characteristics compared to historically used datasets for identifying income-eligible customers in the utility industry, like a credit score, generated from credit agencies like Experian. Credit score-based income verification undercounts the number of income-eligible customers. For example, at a northeast utility, across their three-state territory, 55-75% of customers were either listed as 'income ineligible' or 'income unknown' with the credit agency dataset. However, verified income data for a subset of these customers demonstrated that many were in fact income-eligible with an additional 178,000 customers identified to target as likely limited income when compared to the credit agency dataset (Lin et al. 2019).

Using Data to Target and Proactively Engage Customers

The clean energy transition is challenging the current utility business model; utilities are starting to shift away from generating electricity through fossil fuel powerplants over vast national networks. Instead, they are looking at microgrids and distributed energy resources, and residential utility customers are becoming more dynamic energy users, creating an even greater need to engage customers in demand side management programs. (Sumic and Jones, 2023). This will require changes to grid infrastructure and homes and buildings. To ensure this model is equitable, coordinating energy affordability, energy efficiency, and electrification programs is paramount. Utilities can use data and invest in technology to help in this transition.

One of the main concerns with electrification and efficiency programs is that even if a customer can leverage incentives to afford heat pumps, the operations and maintenance costs may result in a higher energy burden due to the cost of electricity. With data, utilities can better understand the bill impacts of heat pumps and other program measures:

1. Conducting a load shape analysis for targeted customers (perhaps those with an energy burden greater than 6%).
2. Disaggregating the customer's heating and cooling load.
3. Conducting rates modeling if a customer lives in a utility territory that offers time-of-use rates, or other rates that could be beneficial for those who electrify their homes.
4. Providing an online rate calculator tool for customers to use.
5. Providing an online simulation to assess a customer's willingness to shift their usage patterns to maximize the benefits of electrification.

Historically, many utilities have relied on mass marketing techniques like billboards, social media, and generic communications. Outbound communication strategies that incorporate

personalized information and utility data from the type of analyses above can inform the most beneficial product offerings and provide clear context for why these programs are being recommended. Utilities can also conduct and present these analyses to customers via web solutions and in their preferred language. The data can also be used in personalized, targeted, and proactive outreach to customers. This customer-centric approach helps customers understand how their energy usage makes them a good fit for upgrades and highlights the potential benefits for energy affordability.

A multi-channel approach to proactive outreach including email, web, text, and video can complement existing efforts, such as in-person events and marketing. Utilities can send timed, proactive alerts through a customer's preferred method of communication, for a higher likelihood of engagement. These alerts can happen during moments that matter, such as when program application periods open, during seasonal transition, if they are headed towards a high bill, etc. Sending alerts at these moments tends to increase engagement levels from customers. The key to making these interactions memorable is experience automation technology, where every word, data point, and pixel gets chosen to connect to each customer on a personal level (McDonald, 2021). Figure 1 provides two examples.

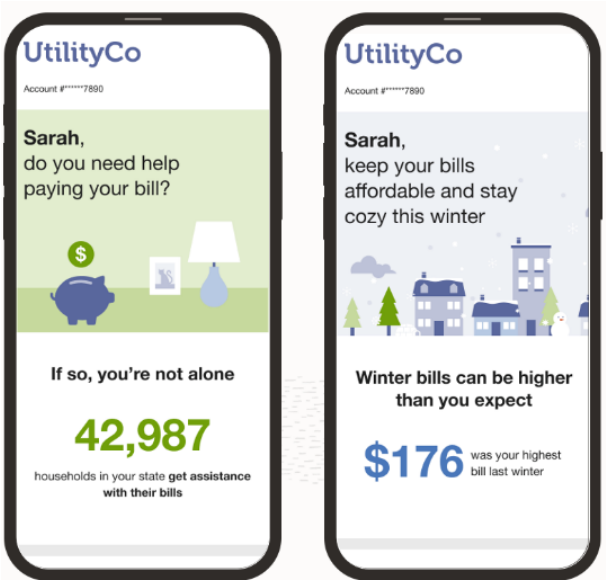

Figure 1 Affordability Alert Example, Oracle Opower

The first alert highlights how many people nearby have successfully participated in programs for financial assistance. The second highlights the customer's highest bill from the previous winter, prompting them to take action to get assistance with winter bills. The Affordability Alerts incorporate behavioral science concepts to inspire customers to take next steps to learn more about available programs. Examples of the behavioral science principles used in the pilot include:

- **Social Proof:** Customers are shown how many other customers have participated in programs, so they know they aren't alone in seeking assistance. This lets the customer

know it is possible to complete the process and that others are benefiting from the programs available.

- **Anchoring:** There is an anchor, or resonating frame of reference, to help nudge users toward a desired behavior. Anchoring may appear in the alert as highlighting how many people in their area have successfully participated in an energy affordability program.
- **Personalization:** Tailored messaging promotes a positive response and experience. Personalization may appear in many ways, from using the customer's name to highlighting how much they spent on heating the previous season.

Using Data to Identify the Right Programs for Customers

Once a customer is digitally engaged, utilities need to have a platform to send limited income customers to. This helps to ensure they participate in the program. Providing a holistic approach helps to overcome the challenges utility customers face when navigating a myriad programs. From utility, state, and federal programs, there may be various options for the types of projects customers are considering, all with different incentives, eligibility requirements, and application requirements. For the average consumer, great effort is needed to take advantage of every available offer. Proactive outreach can be used to drive customers to a digital one-stop-shop (OSS).

These platforms can gauge eligibility and populate personalized recommendations by drawing on both utility and third-party data (e.g., parcel data). To verify this data and gather more information about the customer, the OSS may incorporate a short survey. This can provide new avenues to verify customer eligibility via self-attestation. The survey may ask questions regarding income, other assistance program participation, how many people are in the household, etc., all geared towards the type of programs included in the OSS. Creating a simple survey allows the customer to quickly identify if they are eligible for programs, reducing the burden of multiple interactions and gathering of documents that a customer will typically go through.

Most importantly, utilities can use an OSS to tailor the focus on energy affordability and deliver recommendations for financial assistance, as well as programs that remediate health and safety issues in the home, removing barriers to energy efficiency programs. For example, Connecticut addresses housing-related health hazards, such as lead-based paint, mold, asbestos, and injury risks, through programs including CT's Children's Heath Homes Program and the Lead Poisoning Prevention and Control Program. The OSS can be inclusive of federal-, state-, local-, and ratepayer-funded programs, and provide consumers with personalized recommendations based on known consumer and household attributes, household energy profiles, and information collected directly. By bringing these programs together and organizing the recommendations based on benefits and eligibility, customers can take advantage of the programs that will assist them the most. In addition, sending follow up outbound communication is a way to drive customers back to their savings hub to continue engagement. This approach is a comprehensive example of how utilities can identify, engage, and enroll limited income customers in energy affordability programs.

Case Study Examples

The following case studies provide examples of how utilities are beginning to leverage various types of data and technology in a holistic way to better identify, engage, and enroll customers in energy affordability and efficiency programs.[3]

National Grid Affordability Pilot

Energy affordability and equitable access to energy efficiency programs have been priorities for Massachusetts as the Commonwealth increases its investment in decarbonization programs. The current demand-side management plan includes an equity performance incentive. The Energy Efficiency Advisory Council (EEAC) charged the utilities with finding new and innovative ways to increase participation in the low-income discount rate and income-eligible energy efficiency programs.

In the summer of 2023, National Grid and Oracle Opower partnered to launch a 300,000-limited income customer pilot to increase enrollment in financial assistance and energy efficiency programs to help make their energy bills more affordable (Oracle, 2024). Oracle Opower launched this as a Randomized Controlled Trial where Oracle Opower selected 540,000 customers that were likely eligible for these programs based on a variety of data sources, including the EEAC-defined disadvantaged communities and data from the US Census such as the income-to-poverty ratio and census tract energy burden (EEAC, n.d.). The pilot included user-tested outbound communications, Affordability Alerts, designed to direct limited income customers to a personalized one-stop shop, the Savings Hub, of financial and/or EE assistance programs. The program also included direction for income-eligible and moderate-income customers toward the assistance programs that provide the most benefit.

The Affordability Alerts direct customers to a survey with six questions to determine program eligibility, including owner/renter status, household size, federal program participation, income, priority group identification, and emergency status (e.g., have they had their service shut off?). When a customer completes the survey, they are sent to their online Savings Hub with personalized recommendations about programs they are eligible to participate in. The programs promoted in the Savings Hub are highlighted in the table below.

Table 2. Affordability Programs Included in the National Grid Pilot

Program Type	Program(s)
Ongoing bill discount	• Discount rate
Payment plans	• Arrearage Management Program • More Time to Pay
Predictable bills	• Budget plan
One-time bill credit	• LIHEAP
One-time grant	• MA Good Neighbor Energy Fund

[3] These Opower Oracle case studies are first-of-their-kind examples of a comprehensive outreach and education strategy that leverages a data-driven methodology combined with a personalized one-stop shop. Other providers in the utility sector also offer one-stop shop services.

No-cost appliance upgrades	• Energy Efficiency Services • Enhanced Energy Efficiency Services

Source: Oracle Opower, 2023

Over the course of the pilot, Oracle Opower tracked customer journeys to understand how many customers engaged with the Affordability Alerts and the Savings Hub on their way to enroll in these programs and how that rate compared to (1) customers that didn't receive an Affordability Alert, and (2) customers that opened but did not click an Affordability Alert, indicating they're somewhat digitally engaged, but did not actually use the Savings Hub.

Oracle Opower found that customers who engaged deeply with the solution were almost twice as likely to enroll in an energy assistance program, as compared to those that did not receive an Affordability Alert, and some programs saw a significant boost in enrollment. Within the first six months, over 26,000 customers used the Savings Hub to provide their eligibility information and see personalized program recommendations. Nearly half of these customers clicked "Apply Now" on at least one program. The findings showed these personalized messages engaged customers to click through to the Savings Hub at a rate 2.6X above cross-industry averages (Questline Digital, 2023). The chart below highlights the programs that saw the biggest boost, including the arrearage management program, LIHEAP, and the discount rate.

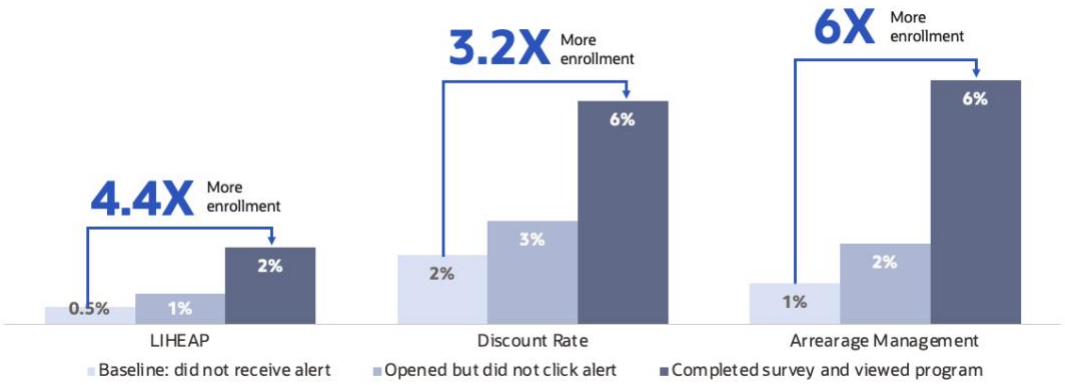

Figure 2. Program Enrollment Rate by Savings Hub Engagement Level, AMP, LIHEAP, and Discount Rate were programs that showed in top recommended spot of the Savings Hub. Oracle Opower, 2024

National Grid found that working together, the Affordability Alerts and the Savings Hub boosted enrollment in their discount rate and appliance management programs by over 3X, in their arrearage management program by 6X, and in the Massachusetts low-income home energy assistance program (LIHEAP) by more than 4X. Looking more closely at the LIHEAP results, survey results indicate Oracle Opower's predictive analytics successfully identified National Grid's priority customer segment with 73% of survey respondents eligible for LIHEAP. Of the 26,000 completed surveys, 19,000 customers had a household income at or below 60% Massachusetts' estimated state median income. By proactively engaging, LIHEAP enrollment among customers that deeply engaged with the Affordability Alerts and Savings Hub was 4.4X higher compared to those that did not receive an Affordability Alert. Using an estimated average LIHEAP payment of $1,031 per participant, these actively engaged customers received an estimated $290,000 in LIHEAP payments.

The discount rate, which offers customers a 32% discount on their bills, saw a similarly strong boost of 3.2X higher enrollment for customers that engaged deeply with the pilot solution. The Appliance Management Program (AMP) saw 1,889 participants enroll after the pilot launch. Through the Community Action Program (CAP) agencies, AMP delivers electric savings to low-income customers through a combination of home energy audits, education about energy used by household appliances, and the installation of energy savings measures. This program has been around since 1996 and this pilot provides a substantial way to increase enrollment rates (ACEEE 2008).

These results show that personalized, targeted, and informed engagement with utility customers can significantly increase enrollment and participation. After the success of the first year, National Grid is considering adjusting the prioritization of programs to incorporate additional energy efficiency programs for customers that have already enrolled in programs such as the discount rate. Connecting affordability and efficiency programs expands the customer journey and leverages energy affordability programs as a first step towards energy efficiency to enable financial readiness.

Washington Gas Light Company (WGL)

Partnering with WGL, which covers Washington, DC, Maryland, and Virginia, Oracle Opower deployed personalized low-income customer communications to demonstrate the impacts of increasing awareness and access to energy assistance programs. Prior to the pilot, WGL saw an increasing number of customers struggling with utility bills amid escalating energy prices and the financial strain of the pandemic. To combat this, WGL set forth clear goals:

- **Ensuring customer health and safety**: Prevent service shutoffs for low-income customers.
- **Reducing customer arrears**: Guide more customers towards federally funded assistance programs.
- **Enhancing customer satisfaction**: Offer support and assistance rather than focusing on collections.

The pilot, running from September 2022 to May 2023, used Oracle predictive analytics to understand the customers who required the greatest assistance. The analytics leveraged customer billing data to calculate household-level energy burden. Oracle's platform overlaid datasets from a wide range of sources (including census tract and customer arrearage data) to provide the utility with a clear picture of their low-income or limited income customers. WGL used this analysis to reach customers who were likely having trouble paying their energy bills on time and who would most likely be approved for financial assistance programs. The pilot targeted over 70,000 low-income customers with carefully tested communications. These messages, refined through behavioral science techniques like social proof, encouraged seeking assistance. The results were impactful:

- **Enhanced targeting through predictive analytics:** Oracle analytics demonstrated remarkable efficacy—targeted customers were twice as likely to be in arrears or approved for LIHEAP.

- **Exceptional digital engagement:** The communications achieved a remarkable 3-5X higher click-through rates compared to cross-industry averages, indicating highly effective and relevant messaging.
- **Impacts to program enrollment**: The utility also saw account enrollment in energy assistance programs increase by about 30% among their customer base.

In the six months that followed the campaign, enrollments reached an all-time high. On average, over 1,500 WGL customers signed up for assistance each month (Oracle 2023). This pilot proved that a data-driven approach along with tailored outreach can effectively increase awareness and access to energy assistance programs, significantly benefiting low-income customers. The utility not only delivered content that resonated with their audience but also played a pivotal role in alleviating the energy cost burden during challenging times.

Recommendations

There are a variety of considerations when determining how utilities can best leverage data and digital technology as they better serve customers in a modern, equitable and decarbonized utility future. The following includes policy-based and technology-based recommendations.

- **Leverage data to engage limited income customers:** Leveraging data to engage consumers can accelerate participation in programs designed to alleviate energy burdens and ease enrollment in energy efficiency and building decarbonization programs, as highlighted in the case study above. Data can help by unlocking the opportunity to use predictive analytics to identify and engage limited income customers. Once enrolled, customers can be kept engaged by using data in the form of behavioral science. Showing clear value and actionable next steps can increase participation and build knowledge and understanding of the program's benefits (Morales and Nadel, 2022). Finally, utilities can use this data to ease the burden of the application process by pre-populating information and streamlining requests.
- **Use data to create a seamless customer experience:** For program design and to ensure continued engagement, data can be leveraged to create a personalized and streamlined online portal or one-stop-shop technical assistance for customers, increasing accessibility to program information and applications for federal, state, and utility programs. Setting up a single point of contact simplifies access for customers (Morales and Nadel 2022). These platforms can also provide educational materials on utility programs, including standardized language for talking about heat pumps and home energy retrofits, shared methodologies for calculating customer benefits from rebate programs, and unified action recommendations. This will reduce market confusion and could streamline administrative processes throughout the various programs.
- **Use metrics to track progress:** Programs are designing goals to ensure they are not only achieving energy savings, but also impacting as many low-income households as possible and reducing energy burden (Morales and Nadel 2022). Historically, tracking metrics have been set up to track spending and savings, but leveraging data can enable utilities and other stakeholders to use different metrics to measure the impact and success of

programs (NEEP 2022). Using data-informed metrics, programs can monitor any improvement or gaps in delivery and provide accountability to reduce those gaps.

- **Align regulatory structures to ensure access and secure use of data:** Using data to engage with customers will mean identifying ways to invest in the technology to use the data and policies to ensure it is protected (DOE 2023). For this, utilities and regulators can consider ways to encourage utilities to invest in infrastructure that will enable data gathering and use for programs that target limited income individuals. Including investment in such infrastructures as part of a utility portfolio can unlock the opportunity for more programs that are able to engage and enroll more limited income customers. Working with regulators, stakeholders can establish data access rules and procedures that ensure customers' privacy is protected, and customers can share data with third parties to participate in energy efficiency and other programs that lower costs and transform their homes.

Conclusion

Using data can unlock new ways to accelerate equity within utility programs. As highlighted in the report, data can be used to market to and keep customers engaged, as well as tailor programs and technical assistance to their needs. This information can alleviate the burden on participants and encourage participation in utility programs. The report highlighted some case studies; adoption of these illustrated policies can be done at the utility or state level now. With data available, utilities can start to engage more limited income customers and see the benefits of these programs flow down to the community.

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