

An Equity Lens for Market Transformation: Delivering Equitable Benefits at Scale through an Integrated Program Design Approach

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ABSTRACT

The equity focus adopted in recent years by energy efficiency resource acquisition programs across the country has been slower to manifest as a significant component of market transformation initiatives. Market transformation interventions typically focus on influencing supply chain entities that offer market leverage (e.g., manufacturers, distributors, contractors, retailers) rather than end-use customers, making potential impacts on environmental and social justice (ESJ) communities less readily apparent. Assumptions that ESJ community members are unlikely to be early adopters of high-efficiency products and practices can also limit the equity considerations applied to market transformation efforts.

Recent work to develop California's first market transformation portfolio seeks to address this challenge by embedding an equity lens into program design from the start. This paper details activities used to create a more integrated approach to market transformation that maximizes benefits to communities that have historically faced a disproportionate energy burden and limited energy efficiency investment, including:

- Developing data-driven tools to define and characterize ESJ communities, highlight areas for focused investments, and track benefits delivered to these target areas
- Using findings from listening sessions with community-based organizations and equity stakeholders that highlight persistent market barriers and opportunities within ESJ communities
- Designing program strategies that factor in equity considerations at each stage of development, from initial research plans to full-scale implementation strategy.

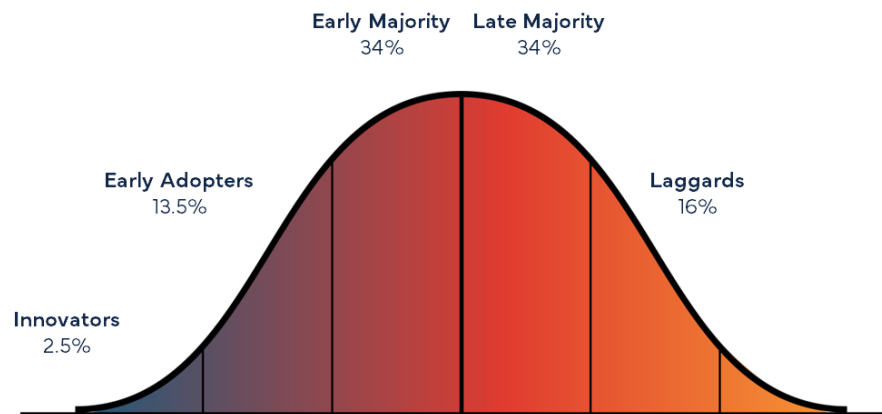
Examples from active energy efficiency market transformation efforts supplement this discussion of program design approaches, providing a comprehensive understanding of how market transformation organizations can – and should – elevate equity.

Introduction

Achieving ambitious climate goals – whether empowering customers to reduce energy use, cutting greenhouse gas (GHG) emissions, or improving the energy performance of new and existing buildings – requires an acknowledgement of the high barriers to clean, safe, and affordable energy faced by many communities. A disproportionate energy burden and historical inequities in program design and investment often make energy efficiency less accessible to low- and moderate-income households and small or minority-owned businesses. As the need to accelerate adoption of energy efficiency technologies and practices becomes more urgent, so does the need for targeted strategies that ensure related efforts equitably serve the communities most susceptible to pollution and other negative impacts of power generation, as well as extreme weather events related to climate change.

While numerous traditional energy efficiency programs have evolved to reflect this priority, integrating equity considerations into a market transformation approach remains a relatively new concept. Market transformation, defined as the strategic process of intervening in a market to create lasting change by removing market barriers or exploiting opportunities, accelerating the adoption of identified technologies or practices, historically focuses on influencing supply chain entities that offer market leverage (e.g., manufacturers, distributors, contractors, retailers, and organizations representing industries) rather than specific end-use customer segments. Market transformation also emphasizes interventions that target early adopters in the diffusion of innovation curve developed by E.M. Rogers (see Figure 1), with an underlying assumption that this segment represents consumers with resources and a higher tolerance for risk – categorizing lower-income individuals as “laggards” (Rogers 1962).

Figure 1. Diffusion of Innovation Model (Rogers 1962)



As a result, instead of prioritizing specific equity considerations, market transformation initiatives largely rely on efforts to increase market availability and influence enhanced codes and standards for better-performing, higher-efficiency products and practices that yield increased benefits for the general population. In recent years, energy efficiency market transformation organizations have revisited this approach to better support equity goals, as evidenced by the following:

- The [2025-2029 Strategic & Business Plan](#) adopted by the Northwest Energy Efficiency Alliance (NEEA) includes “advancing the equitable delivery of energy efficiency benefits to Northwest consumers through market transformation” (NEEA 2023) as one of its four primary strategic goals.
- NEEA also cites the need for “research to identify customer segments that are not directly benefiting from market transformation activities, or are benefiting much later, and strategies to accelerate the equitable distribution of benefits to all Northwest consumers” (NEEA 2023) in prioritizing activities for its next operational cycle.
- [The Minnesota Efficient Technology Accelerator](#), a statewide market transformation program implemented by the Center for Energy and Environment (CEE), includes equity as a criterion in selection of new initiatives and identifies strategies to mitigate any potential increase in the financial burden of customers (CEE 2022).

Equity is also centered in the comprehensive market transformation framework established by the California Public Utilities Commission (CPUC) in December 2019, which created a statewide market transformation administrator now known as CalMTA and administered by Resource Innovations. In addition to directing CalMTA's market transformation initiatives (MTIs) to drive incremental savings that achieve the state's energy efficiency, equity, and GHG emission reduction goals, [CPUC Decision 19-12-021](#) states that MTIs should integrate strategies to maximize equity and should consider transformational efforts that maximize energy savings, health, affordability, and job access for disadvantaged communities (CPUC 2019).

This paper describes CalMTA's process to apply an ["equity lens"](#) in development of its statewide MTI portfolio, incorporating strategies that improve access to energy efficiency among environmental and social justice communities (ESJ) within a market transformation framework (CalMTA 2023). By ensuring better access and increased opportunities for ESJ community members to participate in energy efficiency, this work provides additive value to each MTI: breaking down barriers to accelerate market adoption of the focus technology/practice. While developed for the California energy efficiency market, the tools, tactics, and best practices identified through this process can be replicated by other market transformation organizations and programs seeking to prioritize energy equity.

California's Equity Landscape

CalMTA's work exists in a robust and active energy efficiency landscape where policymakers have made significant steps towards ensuring that communities facing a disproportionate energy burden and historical inequities of efficiency investment enjoy the benefits of energy efficiency. In 2021, [CPUC D.21-05-031](#) created a new equity segment for investor-owned utility (IOU) energy efficiency programs, without the cost-effectiveness threshold established for most traditional programs (CPUC 2021).

Other notable equity-oriented activities in the state include the formation of a new ESJ-focused [rural regional energy network](#), which has 80% of its budget allocated to equity activities (Ernst 2023); the launch of new offerings within the state's Energy Savings Assistance (ESA) program portfolio aimed at providing deeper and higher-value savings to participants, such as the Clean Energy Homes and Whole Home Pilots; and direction for a [tariffed on-bill financing redesign](#) to better serve ESJ communities through the TECH Clean California program (TECH 2023).

These programmatic decisions accompany unprecedented funding for equity-aligned programs, as represented in the initially allocated \$922 million investment in the California Energy Commission's new [Equitable Building Decarbonization Program](#) (CEC 2022) and \$30 million in CPUC [Equity and Access Grant Program](#) funding to enable participation from Tribes and community-based organizations (CBOs) in program design and feedback (CPUC 2023a). State agencies will also have [access to more than \\$580 million in funding](#) through the Inflation Recovery Act (IRA)'s Home Energy Performance-Based, Whole-House Rebates (HOMES) and High-Efficiency Electric Home Rebate Act (HEEHRA) programs, the latter of which focuses exclusively on low- and moderate-income households (CPUC 2023b).

Definitions

While the terminology used to describe marginalized communities in California varies widely, the CPUC established [a definition of “Environmental and Social Justice \(ESJ\) Communities”](#) for the purposes of CPUC policy and programs: “predominantly communities of color or low-income communities that are underrepresented in the policy setting or decision-making process, subject to a disproportionate impact from one or more environmental hazards, and are likely to experience disparate implementation of environmental regulations and socioeconomic investments in their communities” (CPUC 2022). As a CPUC program, CalMTA uses the term “ESJ communities” when describing efforts to enhance equity outcomes from market transformation. CalMTA understands this term to include the following populations, among others:

- Low- and moderate-income customers
- Communities of color
- Tribal communities
- Non-native English speakers
- Rural communities
- Disadvantaged communities pursuant to California Senate Bill 535
- Priority Populations as defined under California Assembly Bill 1550
- “Underserved” and “hard to reach” communities as defined by the CPUC, and with their definitions explored through the Equity Metrics Working Group (EMWG) hosted by the California Energy Efficiency Coordinating Committee (CAEECC).

Purpose and Objectives

Developing an integrated equity lens to function within the unique structure of market transformation fulfills two primary CalMTA objectives: (1) supporting statewide priorities on environmental and social justice in addition to energy and climate goals and (2) ensuring MTI outcomes reflect the needs and desires of the communities they benefit. CalMTA’s understanding of energy equity and environmental justice draws heavily on the thought leadership of organizations like the Energy Equity Project (EEP), which developed the first standardized national framework for comprehensively measuring and advancing energy equity. EEP’s [Energy Equity Framework](#) provides the following definitions for four primary dimensions of work seeking to contribute positively to energy justice:

- **Recognition or “structural” justice** describes “the need to understand different types of vulnerability and specific needs associated with energy services among social groups (especially marginalized communities).” For instance, recognition justice could be addressed by allocating program budgets to make a significantly higher proportional investment in communities that have not historically been prioritized for energy efficiency funding.
- **Procedural justice** “ensure[s] that community voices are heard throughout the design, implementation, and evaluation of energy programs and policies,” with a focus on building trust and credibility and dismantling power imbalances. Advancing procedural justice can range from ensuring that program materials are accessible to individuals who speak a language other than English to participatory budget and program design, in which community representatives have a voice in determining the allocation of public funds.

- **Distributive justice**, as defined by EEP, addresses “how the benefits and harms of the energy system are distributed,” with equity achieved by “eliminating the harms and increasing the benefits while expanding access to them.” In practice, this may include prioritizing energy efficiency technologies that yield community health benefits like improved air quality or coordinating with weatherization programs that can upgrade suboptimal housing stock in ESJ communities to maximize the potential benefits of a targeted energy efficiency or electrification technology.
- **Restorative justice** refers to efforts to “repair injustices arising from energy decision-making” and encompasses both past, ongoing, and potential future harm. While a relatively new and complex concept, restorative justice strategies may include prioritizing energy efficiency investment in communities with a high pollution burden or those most impacted by power outages and rolling blackouts.

The dimensions defined by EEP (EEP 2022) directly inform CalMTA’s understanding of energy equity and the equity lens applied to MTI development.

Understanding the ESJ Landscape

Equity-focused market transformation interventions should begin with research to characterize specific ESJ communities and identify key points of influence, barriers to adoption of targeted technologies or practices that need to be mitigated, and opportunities that can be leveraged. This understanding helps align MTI strategies and interventions with relevant market barriers and opportunities, increasing the likelihood that MTIs will achieve their targeted impact on ESJ communities and contribute to accelerated adoption and long-lasting market change. CalMTA characterized ESJ communities in California through the following activities.

Data-Driven Tools

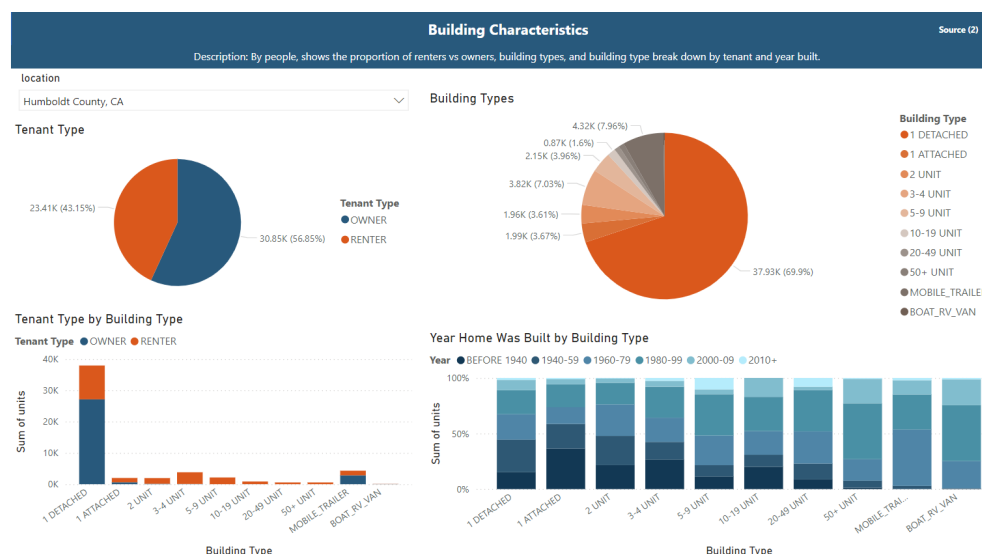
Using publicly available data, CalMTA quantified important residential equity metrics (e.g., pollution burden and poverty level) and summarized this data in a PowerBI dashboard (Figure 2). The dashboard enables users to layer desired metrics and display them on a map or in other useful data visualizations such as tables and charts. Sources used to quantify these data points included the [Energy Justice Dashboard \(BETA\)](#) and [Low-Income Energy Affordability Data \(LEAD\) Tool](#) developed by the United States Department of Energy (DOE 2023), and the California Communities Environmental Health Screening Tool: [CalEnviroScreen 4.05](#) (OEHHA 2023). The resulting Equity Data Dashboard displays information in an interactive format, including pollution burden, poverty level, and linguistic isolation by geographical location, age, and ethnicity; household-level information (e.g., proportion of renters vs. owners, building type and year built, or heating fuel type); and additional health and social issues, including severity of asthma, graduation rates, and housing cost burden.

To encourage effective use of the dashboard, CalMTA provided all members of the MTI team with a fact sheet to help them understand the purpose of the dashboard, its content layout and data sources, and a description of potential use cases. The dashboard’s design features integrated explanations of key features to help users navigate the interactive content, along with definitions of key equity concepts. Using this dashboard allows CalMTA to better understand where to target market transformation interventions to reduce inequity in households where both energy burden and potential energy savings are high. In developing an MTI focused on

portable/window heat pumps, for instance, dashboard usage might be used to highlight the following key takeaways:

- To support initiative uptake in areas such as Los Angeles where the pollution burden is higher, the MTI target audience should reflect high percentage of renters and include multifamily property managers and operation managers, with intervention strategies tailored to the multifamily rental market.
- For areas with the lowest area median income (AMI), such as Trinity, Imperial, and Tulare Counties, MTI intervention strategies should focus on the technology's value to homeowners living in single-family homes, as these buildings comprise the most community housing stock. CalMTA should also seek to better understand barriers to participation in these counties, including supply chain challenges, upfront cost, and access to low-risk/zero-interest financing.
- During MTI Plan development and strategy pilot deployment, team members have access to the dashboard to identify counties with the lowest AMI. This informs partnerships with local CBOs in those areas to better understand barriers to participation and develop intervention strategies that address community needs.

Figure 2. CalMTA Equity Dashboard Screenshot



Program Landscape

Because CalMTA seeks to coordinate with, complement, and leverage other energy efficiency efforts in California, the team conducted a review of existing equity programs in the state with a focus on programmatic best practices, lessons learned, and metrics used to evaluate program services. Staff from Cadmus on the CalMTA team reviewed key documents, including regulatory filings, relevant research (e.g., [the Low-Income Needs Assessment](#) (LINA) required by Assembly Bill 327 [Evergreen 2022] and [the Low-Income Program Energy Efficiency Potential and Goals Study](#) developed by Guidehouse [Guidehouse 2021]), energy efficiency program administrator planning documents, and more than 100 evaluations, news sources, and annual reports of relevant ESJ-focused programs. Analysis resulted in identification of best practices (with embedded lessons learned) for application in market transformation initiative

design, implementation, and assessment as well as guidance on potential ESJ performance metrics based on review of those used by other entities in the state.

Internally, in collaboration with The Ortiz Group and Unrooz Solutions, CalMTA identified leading equity and workforce development organizations in California and key contacts at those organizations. The first round of stakeholder identification focused on organizations with significant membership networks or a pipeline of work in ESJ communities, with the understanding that these higher-reach entities were well-positioned to share information about CalMTA with a large group of constituents. Additional market research focused on capturing organizations in key geographic regions across the state (e.g., those with high energy burdens as identified through CalEnviroScreen, rural areas, and all IOU territories), ensuring statewide representation. CalMTA also targeted stakeholders representing communities of color, Tribal lands, and segments historically categorized by the IOUs as “hard-to-reach,” such as small businesses. CBO identification focused on organizations with previous experience supporting the installation of new technology, providing valuable on-the-ground insight into how the products selected as MTI focus areas may be received by ESJ communities.

Qualitative Feedback

As one procedural justice approach, CalMTA supplemented findings from market research and data analysis with qualitative feedback gleaned from a series of listening sessions with ESJ community representatives conducted in November 2023. Participants were recruited from a list of identified stakeholders working with ESJ communities on energy-related topics, particularly those representing low-income communities, communities of color, Tribal lands, veterans, elders, workforce development, affordable housing, community resiliency, environmental health impacts, social justice, and public policy. CalMTA conducted sessions virtually using Zoom and analyzed session transcriptions to identify recurring topic areas, which were then processed and aggregated as key takeaways. Applying listening session takeaways to CalMTA’s market transformation framework informed the following recommendations for addressing equity in this work:

1. During MTI development, **identify trusted CBOs and other entities with established community connections to help integrate the voices of ESJ communities into research and strategy development** and support co-creation of culturally appropriate messaging and education. For instance, rather than simply engaging a CBO to enroll community members in a pilot program, early engagement can enable collaboration on pilot design, including a review of included technologies to ensure they will be well-received and mitigate potential concerns upfront.
2. When promoting less proven energy efficiency technologies, or those the market is less able to support, to ESJ communities, **ensure that market transformation initiatives include strategies designed to minimize potential risk or unintended negative impacts**. For instance, offerings focused on electrification measures could include a stipend to offset any potential increase in utility bills while those targeting adoption of newer technologies could offer extended warranties in case of underperformance or negative end-user experience.
3. **Leverage upstream market interventions to share insights from ESJ communities with key market actors**, demonstrating the potential for increased market share by making technologies more accessible to the communities that will benefit most from increased energy efficiency. When piloting an underutilized technology, working with

culturally competent CBOs and trusted allies can yield critical feedback regarding features or benefits that will increase or inhibit adoption among those they serve. This can in turn be used to influence manufacturers' product enhancements to better respond to ESJ community needs and increase overall market adoption.

4. **Design residential initiatives targeting ESJ communities with an understanding of specific housing stock characteristics and needs**, including partnerships with existing programs to support upgrades that will ready homes for more advanced energy efficiency and electrification measures. Engaging local weatherization programs that can implement no-cost envelope upgrades to supplement efforts focused on electrification measures in low-income zip codes, for example, will ensure the product performs optimally and does not create unintended negative impacts.
5. In components of market transformation initiatives targeting ESJ community member participation (e.g., workforce development), ensure strong partnerships and collaboration with existing programs and support systems to **leverage existing infrastructure and work to incorporate wraparound services like childcare or transportation assistance**. For example, education and training efforts could include strategies like offering free public transit passes to participants or compensating a local licensed service provider to watch children on-site.
6. As much as possible, **embed equity considerations and create mechanisms to prioritize the needs of diverse participants in procurement protocols**. Evaluation criteria used to select project implementers should include "points" for certified diverse business enterprises; organizations should also consider an established target spend for these diverse businesses across all initiatives. Additionally, professional contracts should be structured to offer prevailing/union-level wages rather than a selection process that favors the lowest overall bid.

A [summary report](#) published on CalMTA's website and shared with participants provides greater detail about listening session logistics, learning objectives, key findings, and recommendations (CalMTA 2024a).

Developing an Equity Lens

CalMTA recognizes the historical lack of energy efficiency investment in ESJ communities, especially communities of color, and strives for equity in MTI portfolio development. Creating an equity lens that can support this overarching goal within the market transformation framework informs MTI intervention strategies tailored to the unique barriers faced by ESJ communities, mitigating unintended impacts of MTI implementation in ESJ communities, and ultimately resulting in more expansive and accelerated market transformation. CalMTA works with experts in the California market on equity program development and implementation to:

- Align relevant MTIs with existing income-qualified program efforts
- Collaborate with community-based organizations to engage ESJ communities through trusted channels
- Conduct targeted outreach and listening sessions to better understand the unique barriers that ESJ communities face and inform market transformation intervention strategies to help overcome those barriers

- Include equity in scoring criteria for submitted MTI concepts, identifying and prioritizing initiatives that demonstrate positive benefits to ESJ communities
- Collaborate with ESJ community representatives to identify and mitigate unintended impacts of MTI implementation in ESJ communities
- Emphasize and promote the economic opportunities unlocked by MTIs to decrease the wealth gap and increase wealth-building, high road career paths, and workforce development opportunities
- Track and report on equity impacts to enable continuous improvement of ESJ community interventions, providing accountability to communities.

Idea Scoring

CalMTA follows a CPUC-approved stage-gate process for developing MTIs, with activities included in each stage that bring to the forefront ideas or intervention strategies with the potential to positively impact ESJ communities:

- **Phase I: Concept Development:** Through a public Request for Ideas (RFI) process, CalMTA identifies and prioritizes potential concepts. “Advancement Plans” are developed for the top-ranked ideas describing the research and other key activities that must be completed before creating a full MTI Plan for that idea.
- **Phase II: Program Development:** The team then completes the activities described in the Advancement Plans as well as strategy pilots to test potential interventions, resulting in a refined product definition, MT theory, logic model, baseline forecast, and total system benefits (TSB) calculations. This work results in development of a full MTI Plan, submitted for CPUC approval.
- **Phase III: Market Deployment:** After CPUC approval, CalMTA begins implementing the activities described in the MTI Plan to remove or reduce key market barriers. CalMTA establishes MTI-specific market progress indicators to evaluate progress on an ongoing basis and determine when the market has reached the desired end-state. At this point, CalMTA exits the market and monitors the MTI focus area to ensure market growth continues.

The scoring criteria used to evaluate RFI submittals features a distinct category for ESJ impacts, with the scoring committee asked to assess whether the proposed MTI will provide beneficial impacts to ESJ communities or leverage existing community resources in its execution. In reviewing ideas, CalMTA scoring committee members assess a wide range of potential equity-aligned outcomes, such as whether the MTI would reduce household energy burdens, create high-road career pathways in ESJ communities, or yield direct benefits above and beyond the mass market benefits, such as making a once-premium product more affordable and accessible to a broader audience. Additional scoring categories also help maximize the benefits delivered to ESJ communities by looking beyond traditional savings or cost-effectiveness criteria. For instance, the “non-energy impact” category captures the benefits or impacts that the MTI will deliver in addition to energy savings and GHG emissions reductions, such as improved indoor air quality (IAQ) or thermal comfort, factors that are especially significant in communities with higher pollution levels and suboptimal housing stock.

This equity-informed approach elevates MTIs that best align with California’s statewide priorities and CalMTA’s internal commitment to energy justice. Of the three MTIs selected by CalMTA for initial development, two (portable or window heat pumps and induction cooktops

and ranges) were determined to have a high level of potential impact on ESJ communities based on the following market understanding:

- Portable/window heat pumps replace less efficient window air conditioners and help fill a technology gap for ESJ community members due to their (1) relative affordability, compared to central or mini-split heat pumps and (2) portability, which makes them more accessible to renters – who represent about 50% of households in California. They can be easily purchased during climate events and can serve as an entry point into electrification for moderate-income customers, particularly with potential product enhancements like air filtration capabilities.
- Affordability presents a key barrier to the adoption of induction stoves. The benefits of induction are therefore often beyond the reach of low- and moderate-income ESJ communities. Through integrated strategies designed to bring lower-priced models to market, provide higher availability of smaller-sized units, and increase awareness of the non-energy benefits induction provides (e.g., improved indoor air quality, safety, cooking performance), this MTI directly delivers value to ESJ communities.

MTI Development

After ideas are selected for further development, CalMTA's process continues to thoughtfully consider equity components. MTI Advancement Plans document the information-gathering and research needed to develop a comprehensive MTI Plan for future implementation. Each Advancement Plan includes a preliminary logic model, plans for market and technology research, and strategy pilots used to test potential market interventions – creating an opportunity for CalMTA to better understand unique barriers and opportunities in ESJ communities and apply this insight to the full MTI Plan. CalMTA proactively identifies opportunities to center equity and ESJ community benefits in MTI design and implementation at this early stage, with strategies updated based on results of the program development stage. For instance, CalMTA's plan for the two MTIs described above feature the following equity-aligned interventions:

- Retailer engagement to ensure quality affordable products are available and accessible in ESJ community zip codes
- Contracting with existing community partners and energy efficiency programs to reach ESJ communities
- Awareness- and demand-building messaging and outreach tailored to community needs
- Targeted retailer promotions coupled with local utility incentives and IRA funding to drive adoption in ESJ community zip codes.

To support integration of equity considerations into MTI development, CalMTA is finalizing creation of supporting guides or tools that will allow for an ESJ lens to be applied. These tools include:

- **Equity-focused logic model guidance** to bring a more structured and intentional equity perspective into the process of developing conceptual logic models for each MTI
- A **market transformation intervention best practices** document, which serves as a dynamic resource that gathers top recommendations from industry experts, specifically focusing on approaches that apply to market transformation
- **Research approaches** that ensure research processes and questions remain free from the biases and assumptions of the researchers (e.g., including a peer review step to test

assumptions and providing recommendations on when and how to engage the sounding board for community-based feedback).

Equity will also be specifically addressed in the full MTI Plans developed in Phase II of CalMTA's process. The MTI Plan template includes a section dedicated to describing how the initiative will bring benefits to the ESJ communities based on insights from listening sessions, stakeholder engagement, research, and other Phase II activities. The template also addresses equity in a section focused on workforce development, which includes strategies used to create a positive wealth generation impact for ESJ communities.

Participatory Engagement and Design

As an established best practice in equity work, validated by feedback from the listening sessions conducted by CalMTA, direct engagement of ESJ community representatives in MTI research, design, and evaluation can be critical to successful deployment. Community voices must be heard to confirm MTI technologies and interventions appropriately respond to community needs and do not create unintended negative impacts. Leaders in energy equity like [The Greenlining Institute](#) have found that the lack of community input into energy efficiency program design contributes to undesirable outcomes, including diminished trust in the utility sponsor or predatory lending in the financing of energy projects (Lim and Fahnestock 2023). The process of participatory design brings ESJ communities to the table as contributors, encouraging creative problem-solving, community-driven solution development, and an assurance that promoted energy efficiency technologies are accessible to and serve the existing needs of ESJ community members. CalMTA's work to incorporate direct feedback from ESJ communities in MTI development includes the following strategies:

- **Proactive early engagement:** In the summer of 2023 following initial program start-up, CalMTA facilitated introductory meetings with priority equity stakeholder organizations in California to share information about CalMTA's structure and strategic goals, gain a deeper understanding of that organization's work with ESJ communities, and encourage participation in or promotion of the first RFI. CalMTA re-engaged many of these organizations as participants in the November listening sessions, prior to finalization of the first batch of MTIs or selection of second-batch ideas. These sessions yielded valuable insight into ESJ communities' past experiences with energy efficiency and opportunities to deliver greater value that will inform MTI development. We a
- **Ongoing engagement and "sounding board:"** Throughout MTI development and deployment, CalMTA will thoughtfully engage and cultivate ongoing trusted relationships with CBOs and other key ESJ stakeholders. In addition, we anticipate more direct engagement in 2024 to create a panel of diverse ESJ community experts to serve as a "sounding board" that can be engaged on equity-focused aspects of each MTI. Direct lines of communication between CalMTA and this panel will help ensure that, whenever applicable, MTIs address community needs, mitigate barriers, and avoid unintended negative impacts. As an established best practice adopted by CalMTA, all participants in this work will be compensated for their time and expertise.
- **Strategy pilot development:** CalMTA engaged CBOs and other equity stakeholders as partners to create and implement ESJ-community-focused pilots that test an MTI theory or intervention strategy. For the [Portable/Window Heat Pump Self-Installation Practices](#) strategy pilot, launched in March 2024, CalMTA engaged partner CBOs supporting pilot delivery not just to reach households in our target market, but also to help shape the

scope of work, including identification of target buildings/participants, featured products, timelines, and budget (CalMTA 2024b). For example, CBO partners suggested providing stipends for participating households and identified opportunities to leverage existing programs serving our target market – enabling the pilot to build on existing market outreach rather than starting from scratch.

Evaluation Metrics

Because market transformation program design and evaluation has not traditionally focused on equity, few established industry standards for equity-related MTI performance metrics exist, although NEEA incorporates regional equity considerations into its MTI portfolio and evaluation approach. Like market progress indicators, development and tracking of equity metrics enables continuous improvement of MTI interventions and provides critical accountability to CalMTA stakeholders.

CalMTA is currently developing performance indicators at both the CalMTA program level and MTI level with input from the CPUC, the Market Transformation Advisory Board (MTAB), and, for MTI-specific metrics, listening session participants who are actively working with ESJ communities. MTI-specific equity metrics may include performance indicators such as:

- **Number of CBOs/other ESJ market partners engaged in MTI design and implementation:** measured using a customer relationship management (CRM) platform
- **Awareness of product and benefits among ESJ communities:** measured through surveys
- **Market adoption among ESJ communities:** measured through program and sales data (e.g., through the ENERGY STAR® Retail Products Platform)
- **Number of existing equity-segment programs in California** that transition from incentives on air-conditioning-only products to require qualified portable/window heat pumps: measured through program documentation
- **Non-energy impacts among adopters in ESJ communities** (e.g., energy burden, home comfort, safety, health): measured through local/partner program participant evaluation

CalMTA evaluation experts are also investigating whether an innovative approach recently developed by the Lawrence Berkeley National Laboratory and funded by the United States Department of Energy Building Technologies Office and E4The Future, could be applied to assess the relative impact of MTIs on ESJ communities (Woolf 2024). This quantitative alternative to benefit-cost analysis assesses a program's intended benefits and costs for targeted populations, relative to those for non-targeted populations. If CalMTA determines this approach could be operationalized for MTIs, the team could calculate a distributional equity value for each MTI, with a value of "1" indicating that the benefits delivered to ESJ communities and associated program cost are equal to those in non-ESJ communities. Using this construct, a value greater than one would indicate that a program resulted in some degree of restorative justice.

CalMTA's work to develop and monitor appropriate equity metrics leverages existing efforts in California, including the identification of statewide metrics led by the newly reconstituted California Energy Efficiency Coordinating Committee (CAEECC) [Equity & Market Support Working Group](#). Phase 1 of the working group, which concluded in late March 2024, focused on identifying information that could be used as baselines for energy efficiency program metrics, methods for establishing current baselines, and valuation methods for indicators that have already been adopted by the CPUC. Phase 2 activities will build on this

foundation and will likely include developing goals for the IOUs' equity-segment programs, to inform applications for the 2028-2031 period, as well as community engagement indicators and overall portfolio objectives.

Conclusion

Creating an equity lens that can be applied to market transformation portfolio development faces inherent challenges: namely, the focus on upstream market interventions to catalyze change and the perception of ESJ community members as an unlikely target market for newer energy efficiency technologies. Yet as climate change increases the urgency of deeper energy efficiency investment, extending the reach of market transformation efforts beyond audiences conventionally viewed as "early adopters" will be critical to achieving true market transformation.

CalMTA's experience applying an equity lens to MTI development highlights the following best practices, intended to be replicable for other entities pursuing similar market transformation goals:

1. **Understanding the specific market(s) targeted through equity-focused interventions and defined outcomes increases the likelihood of MTI success.** ESJ communities are not a monolith: they can range from dense urban areas with a high percentage of multifamily tenants to rural communities relying on wood pellets or propane for heat, resulting in unique barriers and opportunities. Using data-driven tools to identify geographical areas that meet specific criteria and engaging priority stakeholders who represent the market segment in question can help better align MTI interventions with ESJ community needs.
2. **ESJ community members and equity stakeholders should be engaged and compensated as valuable contributors to MTI design and implementation,** either through established structures like a sounding board, mechanisms like community listening sessions, or when possible, co-creation/participatory design. Capturing these important stakeholders' voices and insights upfront ensures that MTIs deliver the desired benefit to ESJ communities and minimizes the possibility of unintended negative impacts. Leveraging trusted channels of communication can also contribute to more rapid acceptance of new efficient technologies or practices among communities that may benefit from them most.
3. **Building ESJ community trust requires transparency and accountability.** Addressing equity in market transformation must extend beyond a stated goal to concrete metrics, ideally created in collaboration with community members, that are consistently tracked and publicly reported on. Organizations should incorporate equity into formal evaluation frameworks and use these established metrics to demonstrate they are "walking the talk." For ESJ community members who have experienced disingenuous, neglectful, or even predatory behavior from some service providers, quantifying desired equity impacts and outcomes can be a first step toward deeper engagement in energy efficiency.

In defining this approach, CalMTA builds on the foundational work conducted by energy efficiency organizations nationwide as well as the critical efforts to support energy equity and environmental justice across California. As the energy efficiency industry continues to prioritize equity and benefits to communities negatively impacted by historical inequities in efficiency investment, the traditional market transformation framework can evolve similarly. This shifting paradigm, with equity embedded into program design and evaluation, will not only maximize

benefits to ESJ communities: it will also contribute directly to market transformation's core goal of accelerating diffusion of a technology or practice to create lasting, sustainable change.

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