

Public Programs Best Practices Guide: Improving the Quality of Jobs in the Residential Building Decarbonization Sector

On behalf of the Bay Area Residential Decarbonization
High Road Training Partnership

Led By Rising Sun Center for Opportunity

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HIGH ROAD

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Table of Contents

Executive Summary	3
Introduction	4
High Road Policy Design	6
Model Residential Decarbonization Programs	9
Part 1: High Road Market Transformation Levers	10
Part 2: High Road Job Quality Labor Standards	14
Part 3: Supporting Disadvantaged Business Enterprises	21
Part 4: Lessons Learned	26
Conclusion and Recommendations	36
Appendices	39

Executive Summary

This guide is intended to serve as a resource for public administrators and policy makers to consider available approaches to improve job quality and access in the design of High Road residential building decarbonization programs while mitigating “tragic tradeoffs”.¹ It is a complementary resource to the [Job Quality and Labor Standards Toolkit](#) and the two [Industry Papers](#) published by the Bay Area Residential Decarbonization High Road Training Partnership.

The purpose of this guide is to:

- Uplift residential decarbonization strategies that increase job quality in this sector.
- Equip policymakers and program administrators with fundamental data and recommendations to actively shape this industry transformation, and
- Present and analyze a variety of tools and approaches that public program administrators can utilize to build High Road programs to serve their unique communities.

To accomplish these goals, this Guide presents qualitative and case study research to describe the existing landscape of residential building decarbonization, and illuminate best practices for policy designers and decision makers. The Models for Program Design provided in Part 4 include [procurement documents](#) from residential decarbonization programs that can be utilized as a resource for public administrators in the design of new programs.

Key Recommendations and Proposed Actions

1. **Mandates and Incentives:** Simultaneously set baseline job quality standards, support employers in meeting these standards, and reward initiatives that exceed them.
2. **Support for Minority, Women, and Disadvantaged Business Enterprises (MWDBEs):** Prioritize inclusive procurement, capacity-building, and access to capital to uplift MWDBEs in the residential decarbonization sector.
3. **Comprehensive Services:** Design programs that address multiple needs, such as electric appliance installation, weatherization, and health and safety upgrades, to benefit low- and middle-income homeowners.
4. **Intensive Project Management:** Ensure sufficient staffing and resources for program coordination to achieve desired outcomes for job quality and decarbonization goals.
5. **Regional Collaboration:** Leverage larger-scale, collaborative projects to achieve consistency in standards, reduce administrative costs, and accelerate climate goals.

¹ Rogers, Joel. *What Does 'High Road' Mean?*, COWS, 23 Oct. 2020, cows.org/publications/what-does-high-road-mean/.

Introduction

This Best Practices guide was written by and in support of the [Bay Area Residential Decarbonization High Road Training Partnership](#) (the “Bay Area H RTP” or “the Partnership”). It presents and analyzes policy approaches to improving job quality and increasing equitable job access in the residential decarbonization sector. It focuses on programs that provide decarbonization retrofit services for existing, small scale residential buildings of 4 units or less. The term “decarbonization” is used to encompass the variety of energy efficiency and electrification services that will reduce fossil fuel emissions from residential buildings to ensure that homes are clean, efficient, and safe (See [Appendix 2](#) for a Glossary of Terms). Decarbonizing homes plays a critical role in meeting climate action goals and holds the potential to significantly improve the quality of housing stock for all communities.

The guide is designed within the “High Road” framework, which refers to a holistic group of approaches in the midst of competitive market circumstances, which view shared prosperity, environmental sustainability, and effective democracy as essential complements rather than tragic tradeoffs.² High Road strategies highlight the intersection of job quality, equity, and climate, and in this framework the key to success lies in incorporating social cooperation and empowerment in every step of the process.³ Equitable outcomes are not guaranteed on their own. Effective and thoughtful policy work is needed to achieve priorities around increasing job quality, advancing racial and economic equity, and maximizing greenhouse gas reductions. We hope this Guide will ease the time and expertise burden to design, launch, and lead residential decarb programs for holistic, equitable outcomes. Specifically, this guide emphasizes demand-side policies, which stimulate the creation of High Road job and business opportunities. The Partnership also prioritizes additional supply-side initiatives which focus on worker training and providing support to ensure that community members have equitable access to these High Road opportunities.

This guide provides a set of recommendations to meet High Road goals and ensure equitable distribution of the benefits of residential decarbonization. Residential decarbonization work is set to grow significantly in the coming years and unfortunately, current market dynamics, economic systems, and societal inequities mean that **this industry is unlikely to create High Road jobs without transformative policy intervention**. It requires intentional and strategic policies, carefully designed programs, and a significant allocation of public resources.

² Floyd, and Floyd. *What Is an MWBE Set-aside Program?*, Grandbay Financial, January 29 2019, www.grandbayfinancial.com/what-is-an-mwbe-set-aside-program/.

³ Sklar, Kaye. *Report a Procurement Path to Equity - Open Contracting Partnership*, The Aspen Institute, 2020, www.open-contracting.org/wp-content/uploads/2020/11/OCP-AspenCUI-2020-Pathway-to-Equity.pdf.

The Partnership's guiding vision is to co-create a residential building decarbonization industry that supports quality jobs, has accessible entry points and pathways to build a qualified workforce, and provides stable career pathways for disadvantaged workers while simultaneously reducing greenhouse gas emissions, creating healthier and more affordable housing benefits for residents, and building more resilient and empowered communities (Visit [this document](#) to learn more about our Partnership's vision, focus, and principles to equitably decarbonize residential buildings in the Bay Area). The work of the Bay Area H RTP comes at a pivotal time. **Policy makers and public administrators have the opportunity to change the trajectory of this industry and ensure that residential decarbonization work becomes a catalyst for economic equity, more just housing systems, and a cleaner, healthier future for all.**

Project Aims and Role of this Document

This guide aims to balance multiple goals that must be addressed simultaneously, without the tradeoff of any one goal for the sake of another:

- 1) Maximize the number of decarbonization projects funded and ensure that program benefits to residents are distributed equitably.
- 2) Improve job quality so that workers can access sustainable careers via residential decarbonization work.
- 3) Ensure that projects are attainable for minority and women-owned businesses, which are often smaller and may employ more diverse workforces.

High Road Policy Design

High Road Approach and Residential Decarbonization

The approach to creating High Road employment opportunities is centered on increasing the demand for quality jobs and the supply of available workers in tandem. In other words, policies must both ensure that there is demand from High Road employers to hire for High Road jobs, and that there are enough workers available and prepared to take those jobs. An oversupply of workers for the number of jobs available can depress wages and lead to qualified workers who cannot find employment. A shortage of qualified workers for the number of High Road jobs, (too little supply) can result in uncompleted decarbonization work and an increase in the cost of services - putting building decarbonization services out of reach for low and middle income families.

Furthermore, due to historic and ongoing oppression, there is a consistent trend in which higher quality jobs are less accessible for disadvantaged and marginalized communities. The graphic below is from a report by Inclusive Economics titled “High-Road Workforce Guide for City Climate Action”, and illustrates this balance succinctly.



Figure 1: The Combined Goal of Job Access and Job Quality

Source: Inclusive Economics’ High-Road Workforce Guide for City Climate Action

To combat this issue, it is common to think first of implementing or sponsoring qualified training programs to attract and prepare the people historically excluded from good jobs for work in the building decarbonization sector. However, for cities and program administrators to effectively balance social and economic equity while reducing greenhouse gas (GHG)

⁴ Inclusive Economics, *High-Road Workforce Guide for City Climate Action*, Inclusive Economics, April 2021, https://www.usdn.org/uploads/cms/documents/workforce-guide_4.12.21_form.pdf

emissions, it is important to refrain from implementing initiatives that increase the supply of new workers before a sufficient number of high quality building decarbonization jobs are stimulated.⁵

The job quality policy approaches in this guide focus on the **demand-side** of High Road labor policies. Demand-side policies are focused on generating demand for workers, and ensuring demand is specifically for high-quality jobs. The **supply side**, mostly focused on training and job access, is addressed by the Workforce Training and Job Access Guide being developed by the Partnership. These two guides will work in tandem with the Partnership's [Job Quality and Labor Standards Toolkit](#) to support the creation of building decarbonization programs and policies that both increase the demand for good jobs and ensure that all workers are supported, trained, and have access to these jobs.

There are a number of ways that public entities can, and government entities in the Bay Area have, created demand for residential decarbonization services. These policies can include emissions reduction targets, building performance standards, electrification requirements, and public subsidies for building decarbonization retrofits. Most recently, the Bay Area Air Quality Management District's (BAAQMD) ruling on the phase out of gas appliances will create region-wide demand for this work.⁶

Employment projections for building decarbonization careers show that without significant intervention, the vast majority of jobs will be created in firms that compete by outbidding each other, which often leads to low quality jobs. This is especially true in the residential sector. Contractors, workers, the climate, and consumers suffer from the low bid model, including experiencing comfort or operation problems due to the variable work quality that comes from low road work driven by this race to the bottom model.⁷ Low wages and benefits, low union density, and other poor job quality standards will mean that residential building decarbonization will not provide a pathway to a stable and sustainable career, and therefore skilled workers will be difficult to attract and retain, the quality of the work will be compromised.

Approaches to "Industry Transformation"

It can seem daunting to combat the historic systems and society-wide inequities that lead to low quality jobs. However, economic systems are built on policy choices. The policy approaches in this Guide have the potential for "market transformation", especially when enacted widely through coordinated, collective action.

⁵ Inclusive Economics. *High-Road Workforce Guide for City Climate Action*, Inclusive Economics, April 2021, https://www.usdn.org/uploads/cms/documents/workforce-guide_4.12.21_form.pdf

⁶ Listgarten, Sherry, *The Bay Area Votes to Phase out Sales of Gas Heaters*, Palo Alto Online, March 14 2023, www.paloaltoonline.com/blogs/p/2023/03/14/the-bay-area-votes-wednesday-on-phasing-out-sales-of-gas-heaters.

⁷ Jones, Betony. *Los Angeles Building Decarbonization: Community Concerns, Employment Impacts, and Opportunities*, Inclusive Economics, June 15, 2021, <https://www.nrcd.org/sites/default/files/los-angeles-building-decarbonization-jobs-impacts-report-20211208.pdf>

Ensuring that High Road employers are doing the work of residential building decarbonization will require two simultaneous policy strategies:

1. Creating the conditions in which High Road employers are competitive to win projects means disrupting the status quo of race-to-the-bottom bidding. Programs should mandate minimum labor standards so that High Road employers are able to compete within the residential construction contractor pool. See the Partnership's recommended Labor Standards for the residential decarbonization sector [here](#).
2. Programs should provide or facilitate incentives and systems of support for current low or middle of the road employers to become High Road employers. This second approach is specifically important to meet inclusion and equity goals related to small and MWBDE contractors.

There are currently not enough High Road employers in these sectors to complete the amount of work that is needed to ensure all Bay Area residents live in clean, safe, and resilient homes. Industry transformation approaches also need to focus on supporting employers in their journey to becoming High Road employers.

Model Residential Decarbonization Programs

In 2022, the Bay Area Residential Decarbonization High Road Training Partnership identified 38 publicly funded residential building decarbonization retrofit programs that served the Bay Area, and none had labor standards to ensure the quality of the jobs being subsidized. By 2024, over \$1 billion in committed public residential decarbonization subsidies included labor standards designed to enhance the quality of jobs in this sector. This shift demonstrates the growing movement of public programs toward advancing both decarbonization and economic equity.

The following real-world examples of residential decarbonization programs in development illustrate how High Road principles can be implemented. The goal of this section is to provide resources that serve as a practical foundation for policymakers and program designers to replicate and scale High Road residential decarbonization efforts across the Bay Area and beyond. Public program designers and policymakers can reference and utilize resources from these established programs (linked below) and the Partnership's recommended [Labor Standards](#) to design and implement additional initiatives that create high-quality green jobs.

The key procurement documents which advance job quality in a residential decarbonization program are:

- The Request for Proposal (RFP)
- Program Implementer Contract (when a Program Implementer is utilized)
- Residential Construction Contractor Request for Qualifications (RFQ)
- Residential Construction Contractor Agreement

This [resource folder](#) includes examples of these documents from model programs including:

- California Energy Commission's Equitable Building Decarbonization Program
- BayREN's Single-Family Program
- Ava's Induction Stove Program
- Peninsula Clean Energy's Single-Family Home Electrification Program
- City of Berkeley's Just Transition Residential Electrification Pilot Program

For ease of use, the model procurement documents provided here highlight the job quality requirements and incentives. Implementers are encouraged to use these models to inform and support their program design.

Part 1: High Road Market Transformation Levers

Mandates and Incentives

The residential decarbonization industry does not generally produce High Road jobs currently, so both mandates and incentives are recommended to achieve the goal of creating a High Road industry.

Job quality mandates, ideally phased in and strengthened over time, ensure that only employers providing “High Road” jobs will benefit from public funds, helping raise the job quality floor of the industry. Phasing in mandates by increasing the rigor of the requirements over time may be important if there are not currently enough High Road employers that can meet the optimal mandates.

Incentives give firms a financial (or other) advantage if they meet more rigorous labor standards, without mandating that they do so. The Inflation Reduction Act (IRA) prominently uses incentives in its approach to increase job quality on projects it funds. In many of the tax credit programs, for instance, developers and investors receive 5-10 times more in tax credits if projects have prevailing wage standards and/or meet certain apprenticeship requirements.⁸ One of the major downsides of incentives is that they do not guarantee outcomes, they simply encourage them. If firms choose to forgo incentives, public dollars may go toward low-road employers.

This is why a combination of more achievable mandates, strengthened over time, and more rigorous incentives is the most effective path for transforming the current residential decarbonization industry. Mandates can provide the “floor” or baseline for what a program/jurisdiction expects in terms of job quality while incentives can allow firms to be rewarded for excelling in high quality job creation. As the market transforms and improves on the path toward the High Road, mandates and incentives can be adjusted to raise the baseline.

Transforming the residential decarbonization market will require a dedicated and dynamic policy approach that blends mandates, incentives, and contractor supports to achieve these [labor standards](#) with the goal of continuous improvement in job quality. Direct install programs are the most efficient and effective program design strategy for mandated and incentivized labor standards.

Example: The California Energy Commission's Equitable Building Decarbonization Program is a state initiative aimed at reducing greenhouse gas emissions from buildings while prioritizing equity and accessibility. It provides funding, incentives, and technical assistance

⁸ Williams, Mike, *The Inflation Reduction Act Provides Pathways to High-Quality Jobs*, Center for American Progress, 14 May 2022, www.americanprogress.org/article/the-inflation-reduction-act-provides-pathways-to-high-quality-jobs/.

to support the transition from fossil fuel-based systems to cleaner, electric alternatives like heat pumps and induction cooking. The program emphasizes delivering benefits to under-resourced and disadvantaged communities, ensuring that the transition to decarbonized buildings promotes environmental justice and affordability. The EBD Program exemplifies an effective blend of mandates and incentives to advance its goals. It utilizes labor standard mandates, requiring contractors to comply with prevailing wage laws and meet robust training standards to ensure the creation of High Road jobs. Additionally, the program incentivizes contractors who demonstrate adherence to key factors, such as promoting workforce diversity and engaging in inclusive business practices. This dual approach—mandating baseline labor protections while rewarding contractors that exceed these requirements—provides a model for aligning climate goals with equitable economic outcomes. By focusing on equitable outcomes, it seeks to create High Road opportunities, including quality jobs, workforce development, and improved health and safety standards, while achieving California's climate and energy goals.

Contracting & Procurement Standards and Best Value Contracting

The general concept is that public programs award funding and structure contracts on criteria other than simply which firms bid the lowest or spend the least. These approaches can be seen as flexible and customizable frameworks that program administrators can use to embed the labor and job quality standards that are discussed throughout this report.

Contracting & Procurement Standards: This approach has been utilized most prominently in recent years in the public transportation sector. Jobs to Move America, a strategic policy center working to transform public spending and corporate behavior, has developed a fully customizable procurement policy called the U.S. Employment Plan. It has been used by public entities in their public purchasing processes and has been proven to have positive impacts on job creation, investment in manufacturing facilities, and generating career pathways for people traditionally left out of the manufacturing sector.⁹

Example: The Los Angeles Department of Transportation has adopted the U.S. Employment Plan in order to meet its commitment to electrify its transit fleet by 2030. To meet its local hire criteria specified in the U.S. Employment Plan, a training partnership has been established among the Los Angeles County Workforce Department, bus manufacturers, United Steelworkers (USW) Local 675, Jobs to Move America, and Citrus College to provide a nine week training program for electric bus manufacturing jobs.¹⁰

⁹ Jobs to Move America, *The U.S. Employment Plan: Good Jobs and Equity*, Jobs to Move America, April 10 2020, jobstomoveamerica.org/resource/u-s-employment-plan-2/.

¹⁰ Inclusive Economics, *High-Road Workforce Guide for City Climate Action*, Inclusive Economics, April 2021, https://www.usdn.org/uploads/cms/documents/workforce-guide_4.12.21_form.pdf

While procurement standards can be utilized for procurement of a wide variety of services and goods, policy makers should consider utilizing the U.S. Employment Plan for bulk purchasing, such as for heat pump water heaters.

Best Value Contracting: Best Value Contracting systems award contracts based on a determination of which firms provide the most value both in terms of cost and additional criteria. Firms are asked to submit answers to questions and public programs can award points based on a series of job quality standards (such as paying workers a living wage and providing health insurance), contractor history, inclusive hiring practices, etc. A study done by the Performance Based Studies Research Group at Arizona State University has tracked hundreds of projects across 41 industries and found consistent cost savings and added value over traditional low bid contracting models.¹¹

Contract language also provides the opportunity for public program administrators to define the incentives and penalties if a contractor does not meet criteria contained within the contract. Contract monitoring and enforcement is an additional burden for public program administrators, but an important function to ensure that High Road employment conditions are being met.

Contractor Pre-Qualification and Responsible Contractor Criteria

Typically, contractor pre-qualification and responsible contractor criteria are used to streamline bidding processes. Pre-qualification/responsible contractor requirements mandate that businesses that seek government contracts meet a set of standards. To ensure and maintain High Road job quality standards, public program administrators can include wages, absence of histories of labor or code violations, certifications or licenses, and other job quality standards as part of the requirements to become pre-qualified.¹²

The impact of pre-qualification and responsible contractor criteria on expediting contracting processes could be very useful in the context of building decarbonization programs. For instance, adoption of heat pump water heaters will often take place when a resident's existing gas water heater becomes inoperable. In that instance, residents will not be willing to wait long periods of time before restoring hot water service to their household. **Having a pre-approved list of High Road contractors that is easily accessible to residents will help ensure that time-sensitive appliance replacements are driving High Road job growth.**

¹¹ Dean Kashiwagi, *Case Study: Best Value Procurement/Performance Information Procurement System Development*, Journal for the Advancement of Performance Information and Value 3, no. 1, January 2011, <http://journal.cibw117.org/index.php/japiv/article/view/104/103>.

¹² Zabin, Carol, *California Takes the High Road to Equity and Economic Recovery, Putting California on the High Road: A Jobs and Climate Action Plan for 2030*, California Workforce Development Board, June 2020, cwdb.ca.gov/wp-content/uploads/sites/43/2021/05/CWDB-Press-Release-Jobs-Package-FINAL-051721_ACCESSIBLE.pdf

Example: Versions of these approaches are utilized across government entities. The Washington State Department of Transportation requires contractor pre-qualification to bid on highway construction projects. They also maintain a “small business roster” of contractors certified to bid on small public works projects. Additionally, the system tracks whether businesses are small and minority or women-owned.

Senate Bill 350 also required the California Energy Commission to develop a set of responsible contractor criteria to ensure high quality performance standards in its building energy efficiency retrofit programs.

The Partnership or a program could develop a pre-qualified list of contractors that meet High Road job standards, effectively a High Road Contractor Certification program. Or this approach could be implemented by advocating for the inclusion of job quality standards for existing pre-qualified contractor lists such as the one managed by TECH Clean California. That list could be utilized across programs and jurisdictions, which would signal to contractors that qualifying for the list will result in consistent work. Furthermore, partners should focus their contractor support efforts on expanding this list with an eye toward equity and inclusion. In addition to the efficiency gains and standardized market signals that this list would provide, it would provide important information on where there are contractor capacity gaps.

Pre-qualification and responsible contractor criteria can carry the risk of being applied in exclusionary and inequitable ways. It creates another potential layer of gatekeeping for firms to receive work and there have been examples of these approaches leading to racist outcomes for contractors. Furthermore, auditing and monitoring would need to be put in place to ensure that pre-qualified contractors or those on a responsible contractor list are in continued compliance and have equal access to job opportunities.

Part 2: High Road Job Quality Labor Standards

The following section describes the [recommended labor standards](#) developed collaboratively by the Partnership. These labor standards are recommended by the Partnership for use in publicly funded residential decarbonization programs to encourage and support consistency for contractors, consumers, and program implementers working on multiple programs across jurisdictions. Each subsection provides a description of the labor standard category, what requirements are recommended via the [Job Quality and Labor Standards Toolkit](#), and examples of ways the standards have been applied.

Designing, implementing, and enforcing job quality standards will likely involve extra administrative burden, which can be reduced by collaborating regionally, leveraging current systems, and drawing insights from other government departments experienced in similar approaches. Part 4 of this document shares administrative approaches that can help with the implementation of job quality standards and maximize the impact on public funding. That being said, the administrative burden of this work should be an important consideration in budgeting for, designing, and implementing public programs. For a more in-depth description of incentivized standards and supports for labor standard implementation, please refer to the [Job Quality and Labor Standards Toolkit](#).

The labor standard categories covered in this section are:

1. *Fair Wages and Benefits*
2. *Regional + Targeted Hire and Diverse Business Enterprises*
3. *Compliance and Accountability*
4. *Training and Certification*

Fair Wage and Benefits

The goal of recommended Fair Wage and Benefits standards is to ensure a high quality of jobs in the residential decarbonization sector to attract and retain more workers in the field, improve the quality of installations and persistence of climate benefits, and improve the lives of workers and their families.¹³ To realize this goal, residential decarbonization retrofit work paid for with any amount of public funding (including California ratepayer funds) should require residential prevailing wages¹⁴ (including fringe benefits) for all contractors, including the prime and all sub-contractors. Wage requirements establish wage floors for all workers in specified trades, in specified locations. Prevailing wage is the widely accepted wage requirement for the construction industry and is determined by the state of California. Prevailing wage standards require that contractors and subcontractors pay their workers no

¹³ US Department of Labor, US Department of Commerce. (n.d.). *Good Jobs Principles*. <https://www.dol.gov/sites/dolgov/files/goodjobs/Good-Jobs-Summit-Principles-Factsheet.pdf>. See the [Job Quality Labor Standards Toolkit](#) for more detailed information

¹⁴ Department of Industrial Relations (n.d.). *Prevailing Wage Rate Determinations*, Department of Industrial Relations, <https://www.dir.ca.gov/oprl/residential/reslist.html>

less than the wage rates and health and pension benefits “prevailing in the local areas, based on the classification or type of work performed by each worker”.¹⁵ California law dictates that the prevailing wage standards apply to state, municipal, or local projects with a value of more than \$1,000.¹⁶

The results from H RTP’s Industry Analysis highlight numerous benefits of implementing an industry labor standard: substantial improvements in worker earnings and benefits, enhanced racial equity in earnings, boosted local economy, increased governmental revenues, and amplified climate investments through improved project quality.¹⁷ The analysis also anticipates rises in employer labor costs, total operating costs, and consumer prices, projecting project cost increases of 6-9% with the implementation of prevailing wage and benefit requirements in residential decarbonization projects.¹⁸ However, if this additional project cost is subsidized by public investment, it yields a return of between \$2.61 and \$2.76 in net taxpayer savings for every \$1 in taxpayer spending to ensure residential decarb projects have prevailing wages and benefits (factoring in the projected project cost increase, additional tax revenues, and the reduction in safety net spending when construction jobs move to the High Road). **Subsidizing High Road jobs saves taxpayer dollars.**

This is important because the construction industry continues to lag behind the rest of the economy in terms of offering workers important benefits such as health insurance and retirement benefits. According to an analysis done in March of 2018, of the 20 professions least likely to have health insurance, 11 of them are in the construction industry. This analysis also found that only 27.4% of construction workers participate in an employment-based retirement plan and those rates have been continuously declining since 2018.¹⁹

In America’s system of benefits tied to employment, labor unions and union signatory contractors offer a uniquely impactful model for workers. Not only are union construction workers more likely to receive health insurance and retirement benefits, unions offer a portable benefits option that provides unmatched stability and coverage for workers. The same benefits follow the worker as they are employed on many different jobs and with multiple contractors through the union hiring hall. While non-union contractors may be able to offer comparable wages, they generally do not offer the benefits package or portability that the union provides.

¹⁵ Ibid

¹⁶ Department of Industrial Relations (n.d.). *Prevailing Wage FAQs*. Department of Industrial Relations, https://www.dir.ca.gov/oprl/FAQ_PrevailingWage.html

¹⁷ Thomason, Sarah. *Industry Analysis Paper Series*, Movement Economics, 2024. <https://risingsunopp.org/policy/>

¹⁸ Thomason, Sarah. *Economic Impacts of a Wage and Benefit Labor Standard for the Bay Area Residential Decarbonization Industry*, Movement Economics, 2024. <https://risingsunopp.org/wp-content/uploads/H RTP-Economic-Impact-Assessment-Aug-13-2024.pdf>

¹⁹ Slowey, Kim. *Construction Workers Least Likely to Have Health Insurance*, Report Finds, ConstructionDive, March 27, 2018, <https://www.constructiondive.com/news/report-construction-workers-least-likely-to-have-health-insurance/519991/>

To help change the prevalence of benefits in the residential construction industry, the H RTP suggests that union contractors continue to meet the retirement requirements of their Master Labor Agreement with their union local, and that non-union contractors offer employees a retirement savings plan, such as a 401k, with an employer match of 3%, at minimum. The Partnership-recommended labor standards also require contractors provide a minimum equivalent of the Covered California Silver Level of healthcare,²⁰ paying at least 85% of the premium for their full time employees, including paying at least 75% of the premium for family and dependents, if applicable. Vision and dental coverage are required for the employee and dependents.²¹

Examples: The City of Denver established a set of labor standards across its Climate Action, Sustainability & Resiliency programs. As part of its Preferred Contractor/Vendor qualifications it included healthcare and retirement benefits as one of the categories a contractor can provide evidence of meeting in order to qualify. The City of Berkeley also recently passed the HARD HATS (“Helping Achieve Responsible Development with Healthcare and Apprenticeship Training Standards”) ordinance that requires contractors to provide apprenticeship programs and healthcare coverage for workers at major construction projects. This legislation only applies to large projects (bigger than the vast majority of residential decarbonization programs considered in this guide) but is notable as a Partnership member taking another bold step to improve job quality.²²

Regional and Targeted Hire + Disadvantaged Business Enterprises

Regional and Targeted Hire is a strategy for policymakers to ensure that prioritized groups of residents are receiving the employment opportunities generated by a public program. The goal of including a Regional Hire requirement is to encourage the hiring of workers who live in and around a project area. Targeted Hire standards are designed to increase equitable access to these high-quality residential decarbonization jobs for priority workers who have been historically excluded from quality work.²³ The goal of both types of labor standard is stimulating and supporting the regional economy and its residents, keeping earnings local, and helping priority populations become more financially stable. Disadvantaged Business

²⁰ Covered California Silver Level Coverage includes: 70-94% of costs paid by your insurance company, free preventative care, free children’s dental and vision, etc. For individual out of pocket maximums: \$1,150-\$9,100. Individual medical deductible: \$0-5,400. Individual pharmacy deductible: \$0-\$150. Family out of pocket maximums: \$2,300-18,200. Family medical deductible: \$0-10,800. Family pharmacy deductible: \$0-300.

²¹ Johnson, Dale. *What Percentage of Health Insurance is Paid by Employers?*, LinkedIn, 2023, <https://www.linkedin.com/pulse/what-percent-health-insurance-paid-employers-dale-johnsen/>. In 2021, the average employer contribution to employee-only health insurance premiums in California was 82%. For family/Dependent coverage, the average employer contribution was 70%. Based on these numbers, we have come up with our recommended percentages for premium coverage by employers.

²² Savidge, Nico. *Berkeley Sets New Labor Standards for Big Construction Projects Over Developer Objections*, Berkeleyside, May 3, 2023, <https://www.berkeleyside.org/2023/05/03/berkeley-hard-hats-ordinance-labor-standards-construction-housing>

²³ Priority workers have been defined in H RTP’s Job Quality Labor Standards Guide under the Targeted Hire section. To see the criteria, please refer [here](#).

Enterprises standards are aimed to increase the economic vitality and representation of small, disadvantaged contractor businesses in the residential decarbonization sector.

Oftentimes, local and targeted hire programs are attached to larger projects with more employment opportunities and therefore, an increased opportunity for contractors to recruit workers from target populations. For instance, it may be difficult for a small contractor to change the makeup of their workforce if they only employ a handful of employees. Program administrators will need to consider how these policies are applied and enforced. For example, contractors may only be required to show they attempted in good faith to meet hiring requirements since there are instances in which workers that meet the description are not available. On occasion, some policies have lists of trades that are exempt from hiring requirements.

Example: There are a number of local and targeted hire requirements in the Bay Area. One such example is in the City of San Francisco, where the Board of Supervisors amended the City's Administrative code, moving from a "good faith" standard to mandatory levels of local hiring.²⁴ It is now considered to be one of the strongest requirements in the country. According to the most recent report from the City, 34% of all construction hours were performed by local residents in 2022 and the percentage of apprentice worker hours performed by local residents was more than the required 51%. Recent reporting from the City of San Francisco shows that projects covered by project labor agreements have better performance on local hiring outcomes than those not covered.²⁵

Compliance and Accountability

The goal of recommended Compliance and Accountability standards is to ensure contractor quality, standardize requirements for contractors across jurisdictions and programs, and support safety, equity, and inclusion for workers. Knowing if one is legally complying with codes and laws and possessing the insurance necessary to perform quality work in the residential construction sector can be confusing to navigate - especially when different regulatory environments and various compliance requirements exist across jurisdictions. This recommended standardization levels the playing field for all contractors, reducing barriers, variability, complexity, and the cost associated with navigating different regulatory expectations. With standardization, contractors have to spend less time and money adhering to multiple regulatory environments across jurisdictions and in turn focusing more on their core business activities and delivering valuable services. This will increase access to

²⁴ City and County of San Francisco, *2023 Local hiring Policy Annual Report*, City and County of San Francisco, 2023, https://sf.gov/sites/default/files/2023-03/2023%20Local%20Hiring%20Policy%20Annual%20Report.pdf?_gl=1*1w5wwup*ga*MTQ1ODYwNDQ2LjE3MzQ3MTYxNjg.*_ga_BT9NDEONFC*MTczNDcxNiE2Ny4xLjAuMTczNDcxNiE3MS4wLjAuMA.*_ga_63SCS846YP*MTczNDcxNiE2Ny4xLjAuMTczNDcxNiE3MS4wLjAuMA.

²⁵ City and County of San Francisco, *San Francisco Local Hiring Policy for Construction 2011-2012 Annual Report*, City and County of San Francisco, 2023, <https://sf.gov/sites/default/files/2023-03/2023%20Local%20Hiring%20Policy%20Annual%20Report.pdf>

contracting opportunities and allow smaller firms to better compete with larger, more established contracting firms.

Public entities can use various policy levers to increase the usage of agreements such as Project Labor Agreements (PLAs), Community Workforce Agreements (CWAs), and Community Benefits Agreements (CBAs). These are powerful vehicles for providing structure and accountability for the labor standards discussed in this section. They also have significant benefits in terms of organizing large, complex projects with multiple contractors, such as an aggregated or neighborhood-scale residential decarb project. This increased efficiency comes through a variety of channels including decreased labor disputes, better synchronized work schedules, and better trained workers.²⁶ **Research has shown that despite much higher wages and benefits for workers, projects covered by PLAs do not lead to higher construction costs than non-PLA projects** and they have the same or fewer construction problems while attracting the same number of bidders.²⁷

CWAs are a type of PLA that includes community workforce benefits such as local and targeted hiring requirements, while CBAs are negotiated between developers and community groups to determine community benefits that the developer will provide *including and in addition* to community hiring or workforce standards. All three of these negotiated agreements (PLAs, CWAs & CBAs) have great potential to increase job quality for workers.²⁸

For the residential building decarbonization sector, many projects and programs do not reach the scale to be covered by a negotiated agreement. While these agreements can theoretically be applied to any project size, the time and resources needed to negotiate an agreement means that it is typically only worthwhile on larger projects that involve higher amounts of funding and a larger number of job opportunities. To standardize the use of PLA's in residential decarbonization projects, requiring them for upstream direct install programs with estimated aggregated construction program costs exceeding \$1 million of public funding is recommended.

Example: In 2009, the Clean Energy Workforce Portland (CEWP) project provided energy efficiency improvements to 500 homes in Portland, Oregon. In addition to requirements that mandated a family sustaining wage and benefits, the project's CWA had significant local and targeted hire requirements and support for MWDBEs. It mandated that 80 percent of employees were local hires; 30 percent of work hours completed by employees of color,

²⁶ Project Labor Agreement Resource Guide, U.S. Department of Labor, 2023, <https://www.dol.gov/general/good-jobs/project-labor-agreement-resource-guide>

²⁷ Berkeley Labor Center, *Project Labor Agreements and Bidding Outcomes: The Case of Community College Construction in California*, Berkeley Labor Center, Jan 9th 2017, <https://laborcenter.berkeley.edu/project-labor-agreements-and-bidding-outcomes/>

²⁸ Inclusive Economics, *High-Road Workforce Guide for City Climate Action*, Movement Economics, April 2021, https://www.usdn.org/uploads/cms/documents/workforce-guide_4.12.21_form.pdf

women, and low-income residents; and 20 percent of contracts go to businesses owned by women or people of color.²⁹

Training and Certification

While this guide primarily focuses on demand-side policy mechanisms, apprenticeship requirements and skill standards can be implemented to ensure high quality work is completed and help incentivize a pipeline of worker training and support that leads to High Road careers. The goal of recommended training and certification standards is to ensure opportunities for job accessibility, growth, and career advancement for workers, and to ensure that contractors, subcontractors, and workers are appropriately trained and certified to deliver high quality work that maximizes energy savings and emission reduction within the residential decarbonization sector.

Registered apprenticeship programs are the gold standard of workforce development initiatives. Participants get paid family-sustaining wages while they learn on-the-job and they receive well-funded classroom training needed to be successful journeymen in a specific trade. Since registered apprenticeships are extremely competitive, pre-apprenticeship training programs are also an effective way to support disadvantaged workers' access to apprenticeship programs. Because of the valuable experience participants obtain through apprenticeship programs, the H RTP recommends at least 30% of workers on each project installation will have either (1) graduated from a state-approved apprenticeship program, or (2) possess at least three years of relevant installation experience and have received training and certification in the type of equipment being installed. In addition, on each project installation that utilizes three or more workers, jobs must include at least one apprentice, MC3 pre-apprenticeship graduate, or entry-level worker³⁰ that is receiving hands-on training and guidance from the experienced journeyman or the contractor. As part of their 'Just Transition Residential Electrification Pilot Program,' the City of Berkeley included in their RFP for a program administrator draft Contractor Qualifications which included, "Certification that the contractor participates in, makes training fund contributions to, and sponsors apprenticeships from a state-approved apprenticeship program that partners with an MC3 pre-apprenticeship (apprenticeship ready) program".³¹

To ensure that the workforce is appropriately trained for the job, the H RTP recommends accessible, baseline certification requirements for residential construction jobs. These certifications include an OSHA 10 or 30 certification to satisfy Cal/OSHA California training requirements, and the EPA 608 certification for HVAC workers for those who maintain, service, repair, or dispose of appliances that contain ozone depleting refrigerants be

²⁹ Ibid

³⁰ Entry-level workers have less than 3 years of relevant work experience.

³¹ City of Berkeley Finance Department. *Request for Proposal: Just Transition Residential Electrification Pilot Program*. City of Berkeley, 2023, https://drive.google.com/file/d/1cA35tPc23lBMScZ4Xd0aBdRNOjBeW_SZ/view?usp=sharing

certified in proper refrigerant handling techniques.³² Additional skill standards can incentivize firms to invest in and support employees in gaining skills that will help advance their careers and command higher wages. For a comprehensive list of potential trainings and certifications programs can choose to incentivize, see the H RTP’s [Certification Inventory](#).

Example: One example of a powerful partnership focused on skills and credentials is the Building Skills Partnership. Born out of the Justice for Janitors movement, they offer programs throughout California. In Los Angeles, they have convened leaders including SEIU United Service Workers West, the Building Owners and Managers Association of Los Angeles, the National Green Building Council, and janitorial service companies to develop, implement, evaluate, and modify a standardized credential and career pathway system. This program cultivates a skilled workforce necessary to meet the region’s high-performance building standards while providing skills and opportunities for career advancement to workers.

³² Bay Area High Road Training Partnership. *Bay Area H RTP Job Quality and Labor Standards Toolkit*, Rising Sun Center for Opportunity, 2024, <https://risingsunopp.org/wp-content/uploads/H RTP-Res-Decarb-Job-Quality-and-Labor-Standards-Toolkit-v2.pdf>

Part 3: Supporting Disadvantaged Business Enterprises

The decarbonization sector has traditionally been dominated by larger contractors, which has historically made it difficult for minority-owned, women-owned, and disadvantaged business enterprises (MWDBEs) to compete for contracts. MWDBEs face many barriers to entry and growth due to discriminatory and non-discriminatory factors, including limited access to capital, lack of technical expertise, and limited access to well-resourced networks and connections. To ensure that all communities and workers benefit from the transition to a low-carbon economy and to promote diversity and inclusion in the residential decarbonization sector, it is important to develop High Road strategies for supporting MWDBEs.

Despite their understood benefits, inclusive procurement policies and their effective application are somewhat disjointed. Inconsistency and lack of standardization among procurement strategies remain the largest conflict to ensure inclusive procurement strategies are effectively implemented. Standardization of requirements for contractors across jurisdictions and programs is recommended to assist in the implementation of these strategies.

Inclusive Procurement and Contracting

Inclusive procurement practices refer to the intentional effort of promoting social and economic inclusion in the procurement process. Effective inclusive procurement programs don't stop at providing equitable green jobs, but also work to close the wealth gap which is necessary to protect the welfare and future of workers' children, families, and communities. Inclusive procurement strategies that support MWDBEs are essential for promoting job creation, innovation, and economic, social, and environmental impacts. These strategies include:

- **Setting aside a percentage of procurement contracts for MWDBE Contractors:** Some governments and organizations set aside a specific percentage of procurement contracts for MWDBE businesses. Connecticut, for example, applies this practice by mandating 25% of government contracts to be set-aside for small businesses, with 25% of that amount dedicated to going towards MWDBEs.³³ Prop 209 in California currently prohibits a specific set aside, however many California programs set procurement targets that drive inclusive procurement.³⁴

³³ Floyd. *What Is an MWBE Set-aside Program?*, Grandbay Financial Services, 20 Jan. 2018, www.grandbayfinancial.com/what-is-an-mwbe-set-aside-program/.

³⁴ City governments can set goals for hiring disadvantaged groups if they can prove that they have been active in playing a part in racial disparities and are explicit in wanting to solve said racial disparities. Prop 209 does not prohibit robust anti-discrimination provisions and robust demographic data gathering regarding contractors and workers. [Source](#).

- **Regional + Targeted Hire of Workers:** Encouraging local hiring not only increases equitable access to high quality residential decarbonization jobs for priority populations, strengthening their representation, but also stimulates and supports the regional economy by keeping earnings local. See H RTP’s [regional and targeted hire standards](#) for more details.
- **Equitable Bidding Practices:** Bidding processes that are accessible to small and local businesses require project funders to engage in outreach to inform MWDBEs of upcoming procurement opportunities and facilitate their networking connections.³⁵
- **Inclusive Language + Plans:** To attract applicants from diverse backgrounds, fair chance hiring language on job descriptions/application processes should be utilized. Workplaces should also consider creating workforce diversity and inclusion plans with goals to monitor and track success. To support the protection of all workers, within this plan should be a policy addressing how the organization responds to discrimination and bullying, and outlining the procedures for investigations of hate, intimidation, or harassment.
- **Partnerships:** Work with suppliers to identify opportunities for social and economic impact in the community. This includes collaborating with local organizations and stakeholders to identify and support underrepresented businesses in the procurement process.³⁶
- **Constructive Feedback:** Contractors who were not selected for a bid should be given constructive feedback that is impartial and precise to enhance their chances in selection in future bidding opportunities.³⁷ This feedback can assist contractors in correcting their errors and enhancing their future proposals to increase their chances of winning a bid.³⁸

Capacity Building and Training for Existing Contractors

Capacity building for MWDBEs is integral to enhance the knowledge, skills, resources, and capabilities of minority, women, and disadvantaged business enterprises so that they may compete effectively in the marketplace. This includes providing access to technical assistance, training, mentoring, networking opportunities, financing, and other resources that can help MWDBEs overcome barriers to entry, scale up their operations, and participate more in economic development activities. To enable the next generation of contractors to compete more effectively, it is essential to expand and strengthen the pipeline for these businesses. Strategies could include:

- **Training and Capacity Building:** Provide training and capacity building to potential

³⁵ Sklar, Kaye. *Report a Procurement Path to Equity - Open Contracting Partnership*, 2020, www.open-contracting.org/wp-content/uploads/2020/11/OCP-AspenCUI-2020-Pathway-to-Equity.pdf.

³⁶ Mishel, Lawrence. *Diversity in the New York City Union and Non-Union Construction Sectors*, Economic Policy Institute, March 2, 2017, <https://www.epi.org/publication/diversity-in-the-nyc-construction-union-and-nonunion-sectors/>

³⁷ Ibid

³⁸ Ibid

suppliers so that they may better compete for procurement opportunities. Organizations like the Construction Resource Center³⁹ and Emerald Cities Collaborative (ECC) provide capacity and technical assistance trainings to MWDBEs, which helps make these businesses more competitive.⁴⁰

- **Mentor-Protégé Programs:** Some organizations create mentor-protégé programs that pair large businesses with MWDBEs to provide guidance and support. Doing so allows MWDBEs to strengthen their capacity and effectively compete in the procurement process.⁴¹
- **Developing a succession strategy for first-generation MWDBE contractors and practitioners:** Although first-generation contractors and procurement professionals have acquired valuable knowledge and expertise and have benefited from the policies and practices of the 1970s, they are now aging out, and there is no plan or pipeline in place to continue building contractor capacity and community wealth. Despite facing past and present discrimination, MWDBEs have to aggressively network to stay competitive in the constantly evolving construction industry.⁴² Some options include offering mentoring incentives and support for new contractors. Encouraging collaborative projects between large and small firms through joint ventures, enabling them to establish a performance record of handling increasingly larger and more complex projects. Enhancing the capacity of MWDBEs to foster relationships in order to drive business development.
- **Promote self-reliance and improve community benefits:** Uplift alternative strategies for building community wealth, such as contractor cooperatives, community investment pools, and group purchasing arrangements.
- **Enhancing MWDBEs' capacity to comply with emerging construction standards and technologies:** Offer training and information sessions on green construction policies, technologies, and practices to meet industry standards, enabling contractors to acquire new skills and adopt innovative materials and technologies. Provide access to organizational and project management software to support efficient project execution. Emphasize pre-fabrication and other cutting-edge construction technologies to increase efficiency and productivity.
- **Contractor Financing and Support:** Generations of discrimination, particularly in lending, contracting, and business ownership, have contributed to a wealth gap that puts minority-owned firms at a disadvantage in terms of their track record, credit scores, business networks, accumulated wealth, and other characteristics needed to

³⁹ Construction Resource Center (n.d.). *Construction Resource Center - Educate, Inspire, Aspire*, Construction Resource Center, <https://www.constructionresourcecenter.org/>

⁴⁰ Emerald Cities Collaborative. *Economic Inclusion*, Emerald Cities Collaborative, 2023, <https://emeraldcities.org/our-work/#economic-inclusion>

⁴¹ Congressional Research Service. *Small Business Mentor-Protege Programs*, Congressional Research Service, June 10 2022, <https://sgp.fas.org/crs/misc/R41722.pdf>

⁴² Fairchild, Denise. *Inclusive Procurement and Contracting: Building a Field of Policy and Practice*, Emerald Cities Collaborative, February 2018, https://emeraldcities.org/wp-content/uploads/2021/06/Inclusive-procurement_02.21.18-002-1.pdf

compete.⁴³ Access to resources that guide contractors through the process of securing financial assistance, obtaining bonding and insurance, and understanding how to navigate these requirements is vital for ensuring their participation in larger projects and contracts. Offering support in these areas helps businesses secure the capital they need to scale operations, reduces risks, and increases their ability to meet regulatory requirements. Providing contractors with clear pathways to find financing options also empowers them to make informed decisions, expand their capacity, and ultimately thrive in the marketplace. For relevant resources provided by Merriwether & Williams, see footnote below.⁴⁴

- **Collective Purchasing:** Establish a group purchasing organization to reduce the cost of high-quality equipment and materials for green construction.⁴⁵
- **Providing Assistance in Understanding and Complying with Requirements:** Connect contractors with resources and supportive services to pursue relevant licenses, address citations, and secure permits and approvals. Provide Contractor training regarding labor law, building codes, relevant ordinances, discrimination and harassment prevention, workplace safety, and handling of hazardous or environmentally harmful materials.⁴⁶ For example, connecting contractors to technical assistance from CRC, Emerald Cities, and SBA services to support them with compliance.

Increasing Access to Capital and Financing

MWDBEs have historically faced marketplace discriminatory practices that have prevented inclusive procurement and resulted in contracting disparities. Commercial loan denial rates arising from discriminatory behavior, for example, negatively affect the ability of MWDBEs to effectively compete in the public procurement systems. Access to bonding, insurance, and capital persists as a historical issue for MWDBEs and requires direct involvement in the supply of capital in inventive ways. Increasing access to capital is imperative for MWDBEs to grow their businesses, take on larger projects, manage cash flow to stay afloat during slow periods, and become competitive in the current market. Such access to financing can be leveraged through:

- **Fair Wage and Benefits Supports:** Identify cash flow financing resources to help contractors carry the consistent cost of maintaining high-wage worker positions with benefits throughout ebbs and flows of work. Make sure the structuring of programs provides sufficient funding for contractors to be able to pay at prevailing wage levels and provide benefits, and advocate for modifying cost-effectiveness requirements to

⁴³ Lohrentz, Tim. *The Impact of Prop 209 on California's MWBE's*, Equal Justice Society, January 2015, <https://equaljusticesociety.org/wp-content/uploads/2019/10/ejs-impact-prop-209-mwbes.pdf>

⁴⁴ Merriwether & Williams Insurance Services (n.d.). *CTWI Merriweather Contractor Financing Support Resources*, CTWI, https://drive.google.com/drive/u/0/folders/1PO95ohbq5NuNjzwily-ovqA4zIVo_nIR

⁴⁵ Ibid

⁴⁶ Bay Area High Road Training Partnership. *Job Quality Labor Standards Toolkit*, Rising Sun Center for Opportunity, 2024, <https://risingsunopp.org/wp-content/uploads/H RTP-Res-Decarb-Job-Quality-and-Labor-Standards-Toolkit-v2.pdf>

allow for non-energy benefits such as quality jobs to be considered during program design.

- **Aggregate capital resources:** Aggregate funds from community development financial institutions to finance more substantial undertakings and/or create one or more collateral pools for contractors to simplify their access to working capital, bonding, and insurance.
- **Utilize community economic development financing mechanisms:** Mechanisms include Low-Income Housing Tax Credits,⁴⁷ New Markets Tax Credits,⁴⁸ and Community Reinvestment Act resources, as well as projects, to enhance the capabilities and experience of MWDBE contractors.

Certification Programs

Certification programs for MWDBE contractors are an important tool for promoting diversity and inclusion in the residential decarbonization sector. Certification programs for MWDBEs can help provide these businesses with access to procurement opportunities and other resources that aid business growth and success. The following suggestions provide guidance for residential decarbonization project sponsors and agencies in implementing MBE and WBE certification programs.⁴⁹

- **Appropriate certification requirements:** To promote inclusivity and decrease the burden on MWDBEs, try to limit the amount of required certifications needed to qualify for contracts.
- **Outreach and marketing strategies:** Program sponsors should develop outreach and marketing strategies to promote MBE and WBE certification programs to potential participants that highlight the benefits of certification, such as access to procurement opportunities and other resources.
- **Measuring and evaluating program effectiveness:** The effectiveness of MBE and WBE certification programs must be evaluated on a regular basis to ensure that the programs are meeting their goals.
- **Encourage MWDBE Certification:** Gaining certification as an MWDBE can help businesses gain access to government contracts and other opportunities in the residential decarbonization sector. Requiring and supporting certifications such as the Minority Business Enterprise (MBE), Women Business Enterprise (WBE), and Disadvantaged Business Enterprise (DBE) can help MWDBEs gain visibility, credibility, and access to additional work beyond the program you are designing.⁵⁰

⁴⁷ California State Treasurer, *Low-Income Housing Tax Credit Programs*, Office of the State Treasurer, 2024, <https://www.treasurer.ca.gov/ctcac/tax.asp>

⁴⁸ Community Development Financial Institutions Fund, *New Markets Tax Credit Program*, US Department of the Treasury, 2024, <https://www.cdfifund.gov/programs-training/programs/new-markets-tax-credit>

⁴⁹ MWBE Enterprises. *MWBE Certification*, MWBE Enterprises, 2023, <https://www.MWDBE-enterprises.com/minority-business-enterprise-mbe-certification/>

⁵⁰ Pursuit. *MWBE Certification: How it Can Help You Reboot Your Business*, Pursuit, September 4th 2020, <https://pursuitlending.com/resources/MWDBE-certification-how-it-can-help-you-reboot-your-business/#:~:text=MWDBE%20certification%20often%20opens%20the.reboots%20from%20pandemic%20Related%20setbacks.>

Part 4: Lessons Learned

Efficient design and administration of programs is important to achieve High Road objectives. There are two main mechanisms through which efficient program administration can improve job quality for residential decarbonization workers:

1. Decreasing program costs by reducing administrative costs such as marketing, overhead, and program management. These savings can unlock money to support higher job quality while still ensuring projects are financially viable for homeowners and contractors alike.
2. Increasing program uptake and participation, therefore increasing the number of workers needed in jobs subject to High Road job standards.

Lessons Learned From the American Recovery and Investment Act of 2009 (ARRA)

In order to better understand program design best practices, it is important to reflect on the administrative lessons learned from the home retrofit projects conducted as part of the American Recovery and Investment Act of 2009 (ARRA). These programs have similar goals to the industry's current efforts today and can provide a useful blueprint for best practices as well as potential pitfalls for current home retrofit programs.

A Department of Energy (DOE)-funded evaluation⁵¹ of the 54 Better Buildings Neighborhood Program shows wide ranges of program success, with the most “successful” programs averaging a cost of \$3,153 per upgrade, and the least successful of the programs averaging nearly ten times that cost at \$32,194 per upgrade.⁵² On average, all of these programs are net-positive for lifetime savings over cost (an average cost of \$5,234 per upgrade with average lifetime savings of \$6,700 across all 54 programs). However, the wide range of results within projects emphasizes that well-designed and executed programs can offer significantly greater benefits at lower costs.

The three overarching themes found throughout the evaluations of ARRA-era retrofit programs and echoed in many of this report's research interviews with stakeholders are:

- 1. Right-size incentive amounts:** Incentives must be large enough to attract the attention of both homeowners and contractors. If incentive amounts are too small, homeowners and contractors may be inclined to opt for cheaper and less efficient technologies, potentially resulting in a failure to electrify.

⁵¹ Research Into Action, Inc. *Process Evaluation of the Better Buildings Neighborhood Program*, DOE, June 2015, <https://www.energy.gov/eere/analysis/articles/process-evaluation-better-buildings-neighborhood-program-final-evaluation>

⁵² Successful programs were identified by their score on 12 metrics that include cost effectiveness, market saturation, and economic impacts. It should be noted that these projects were not more expensive because they were more expansive in scope. This means that larger, more comprehensive home retrofits were not more likely to “fail”.

- 2. Reduce Upfront Costs:** The costs of minor home retrofit activities can be expensive, let alone whole-home retrofits, and frontline residents often do not have the cash to provide up-front and the flexibility to wait for reimbursement from a rebate or tax credit. This same dynamic applies for retrofit programs that provide the rebate to the contractor (midstream model). High upfront costs make programs inherently inequitable as incentives become effectively only available for more financially secure households. Some mechanisms to reduce up-front costs include direct installation programs, low cash-down financing options, and reducing information and task burdens, such as a one-stop shop/concierge service.
- 3. Make It Easier to Do The Right Thing:** While early-adopters are often motivated by factors other than ease and cost, ensuring that decarbonization retrofit activities are accessible to mainstream consumers requires programs that make it easier for homeowners to undertake decarbonization retrofits. Some mechanisms to make it easier for homeowners could include a one-stop shop offering concierge services, pre-vetting of contractors, and easy-to-navigate program interfaces and forms.⁵³

The following subsections discuss specific components of programs that can address one or more of the three goals outlined above.

Understanding and Accessing Incentives

Sacramento Municipal Utility District: Flexible Financing & Pre-Selected Contractors

The Sacramento Municipal Utility District (SMUD) Better Buildings Program (BBP) was identified as one of the more successful programs under Retrofit California.⁵⁴ SMUD used a single contractor–selected through a Request for Proposal Process–for each neighborhood program and issued payments directly to the contractor on behalf of customers using financing through SMUD.⁵⁵ The contractors were required to attend SMUD’s finance workshop so that they had a complete understanding of the process. Any applicable rebates were applied to the loan amount by SMUD. SMUD offered secured and unsecured loans for up to \$35,000 and up to 120 months, and streamlined the financing application to allow applicants to apply for both types of loans simultaneously. SMUD also developed three tiers of retrofit “packages” that offered a starting point for homeowners, but also offered flexibility in the retrofit activities that were selected. Each of these steps decreased

⁵³ These three goals are summarized in a LinkedIn post by Marti Frank, a Principal at Efficiency for Everyone. Frank, Marti. How do we Massively Scale up Residential Energy Retrofits?, LinkedIn, 2018, <https://www.linkedin.com/pulse/how-do-we-massively-scale-up-residential-energy-retrofits-marti-frank/>

⁵⁴ Energy Upgrade California. *Retrofit California: Better Buildings Program Overview*, OSTI, March 3 2014, <https://www.osti.gov/servlets/purl/1126788>

⁵⁵ SMUD (n.d.). *Rebates for my Home*, SMUD, <https://www.smud.org/en/Rebates-and-Savings-Tips/Rebates-for-Mv-Home>

administrative and financial barriers, and generally sought to make the process easier for homeowners and contractors alike.⁵⁶

Better Buildings Program San Jose (BBPSJ): Stacked Funding Sources

The Better Buildings Program San Jose (BBPSJ) leveraged other citywide programs for home repair to fix leaking roofs and address plumbing issues while simultaneously installing energy efficient equipment.⁵⁷ This one-stop shop strategy to ensure federal, state, and local incentives were layered onto ARRA funds provided strong synergies between programs, addressed whole-home needs to improve housing quality, and did not rely on homeowners to be able to connect the dots.

City of Albany: Rebate Awareness at the Permit Counter

In the past, the City of Albany, California, has paired rebate awareness efforts with their permitting process. When a contractor or homeowner applied for a permit, the webpage then linked to the applicable rebate offers and to a Google Form that took a few minutes to fill out. Upon completion of the form, applicants received confirmation that their rebate was “reserved” and the money was then locked in for three months. Once the work was completed, the homeowner would have to send a picture of the signed inspection form, and the check would be received within one to two weeks. This system, which seamlessly integrated rebates into the permitting process, helped to remove barriers to awareness and trouble with separate applications. Ultimately, a guided process means that the knowledge and administrative steps required of homeowners is minimized. By blending the features of these programs, program designers can decrease the costs and other barriers to decarbonization for homeowners if they don’t have to:

- Shop for contractors,⁵⁸
- Determine if the pricing provided is at fair market rate,
- Identify and apply for multiple available rebates and financing tools, including stackable funding for health and safety upgrades, or
- Determine the best design for their house amongst competing technical options.

Targeted Programs

Sacramento Municipal Utility District

A targeted program is one that is open to all participants but includes additional efforts to attract a certain type of participant. A 2016 meta-analysis of energy efficiency program

⁵⁶ Energy Upgrade California. *Retrofit California: Better Buildings Program Overview*, OSTI, March 3 2014, <https://www.osti.gov/servlets/purl/1126788>

⁵⁷ Ibid

⁵⁸ Note that pre-selecting contractors can create greater ease for consumers and for the inclusion of labor standards, however, inequitably designed public RFP processes can also pose additional barriers for disadvantaged businesses to participate in programs. Careful design of contractor pre-selection processes and the provision of bid training should be considered when taking this approach to enhance job quality and equitable access for both contractors and workers.

evaluations from throughout California revealed systemic disparities in who receives the benefits of non-targeted programs. For example, participants of the two best-funded non-targeted programs were more likely to be White, English-speakers, homeowners, and have incomes of over \$100,000 or have a college degree.⁵⁹ The same analysis showed that targeted programs—or even tagged programs (which are accessible *only* to specific populations)—are much more successful in achieving representation of participants. In order to ensure equitable access to program offerings, public program administrators should consider designing criteria for identifying targeted populations and tailoring outreach efforts to those populations, particularly underserved communities.

For example, the SMUD Better Buildings Program initially saw interest from neighborhoods with above-average incomes, given these households would be most likely to be able to afford and pursue home retrofits. However, the program simultaneously dedicated a specific outreach effort to boost participation of households eligible for the Energy Assistance Program Rate (EAPR), which subsidizes 30% of energy costs for low-income households. In 2018, EAPR pilot programs benefitted 6,124 low-income households which was a significant increase from 3,468 low-income households in 2017.⁶⁰ This example shows that while economic circumstances tend to drive the most benefits toward higher-income households, intentional intervention and targeted outreach can ensure equitable distribution of program funds across income-levels.

Insourcing - Direct Employment in the Public Sector

Los Angeles Department of Water and Power (LADWP)

The privatization of government services has swept across the globe and throughout American government since the 1980s. However, across industries, contracting work out from public sector entities to private firms has been shown to lead to significant declines in job quality.⁶¹ Retaining and reclaiming jobs in the public sector is typically a good choice in terms of guaranteeing job quality. Public sector jobs are often unionized and provide high wages and benefits. Public entities are also likely to have more developed systems and mandates to foster job access and equity.

The Los Angeles Department of Water and Power (LADWP) insourced weatherization jobs that had previously been contracted out. They created a new pre-craft job classification for this work in the utility and a training program that not only provides important service

⁵⁹ Frank, Marti. *Who's Participating and Who's Not? The Unintended Consequences of Untargeted Programs*, ACEEE Summer Study on Energy Efficiency in Buildings, 2016, https://www.aceee.org/files/proceedings/2016/data/papers/2_542.pdf

⁶⁰ Sacramento Municipal Utilities District. *Impact Report 2018*, City of Sacramento, 2018, <https://www.smud.org/-/media/About-Us/Newsletters/Reports-and-Statements/2018-Annual-Report/2018-Annual-Report.aspx>

⁶¹ Levinson, Marks. *The Privatization Myth*, The American Prospect, April 8 2022, <https://prospect.org/culture/books/privatization-myth-cohen-mikaelian-review/>

toward the utility's weatherization goals but also serves as a pipeline into utility employment within a skilled trade. This decision has ensured that weatherization work done by LADWP is a High Road career path.

There are also significant opportunities to insource the project management and administrative functions of a building decarbonization program. This could include work around navigating rebate programs, connecting homeowners and contractors, project managing aggregation approaches, etc. Rather than asking contractors to take on administrative scopes of work that pose barriers to their engagement with residential decarbonization projects or attempting to procure contracted intermediaries to do that work, public programs should consider insourcing those roles to be filled by public employees. This insourcing approach may work best for comprehensive retrofit and decarbonization projects that involve multiple rebates and/or those that work with low and middle income residents who may have more complex construction needs. It also could pair well with programs that utilize multiple rebates or funding streams and/or require technical project management.

Types of Incentives

DOE Better Buildings Neighborhood Program

Strategically designed incentives can simultaneously drive higher standards, more effectively target certain demographics, and reduce overall costs of the program. There are four common types of incentives:⁶²

1. **Measure-Based Incentives:** Incentive amounts are based on specific measures included in the upgrade. These types of incentives were most common and made up 38% of ARRA-funded residential grantees.
2. **Performance/Savings-Based Incentives:** Incentive amounts increase as projected energy savings increase. In the case of the SMUD BBP, homes with greater efficiency savings were offered greater potential rebates. Homes that achieved 50% energy savings could receive up to \$9,000 in rebates.⁶³ This structure incentivizes homeowners with the least efficient homes to undergo more extensive retrofit activities and was used by 24% of residential grantees.
3. **Project Cost-Based Incentives:** Incentives are a proportion of the total upgrade cost, with an upper limit, accounting for 15% of residential grantees.
4. **Tiered Incentives:** Incentives based on participant income, which has successfully increased participation among lower-income homeowners.

⁶² Research Into Action Inc. *Process Evaluation of the Better Buildings Neighborhood Program*, US Department of Energy, June 2015, <https://www.energy.gov/eere/analysis/articles/process-evaluation-better-buildings-neighborhood-program-final-evaluation>.

⁶³ Energy Upgrade California. *Retrofit California: Better Buildings Program Overview*, OSTI, March 3 2014, <https://www.osti.gov/servlets/purl/1126788>

Existing research suggests that performance-based upgrades tend to generate the greatest average project savings, but tend to be more expensive to implement than measure-based incentives. How savings are measured is another consideration; if rebates are withheld until formal measurements can be taken, rebate payouts may take too long to be attractive or feasible for most homeowners or contractors. Savings based on estimates are a better choice because they can allow for rapid disbursement of incentives.

Contractor Training

DOE Better Buildings Neighborhood Program

A review of the ARRA-funded retrofit projects revealed that one of the most common traits among successful programs was required contractor training.⁶⁴ The training included technical education, program processes and management, and sales strategies for retrofit projects. There were several important components of contractor training that were identified through ARRA-era program successes.⁶⁵ The following components should be incorporated into any contractor training offered:

- Guidance on meeting labor standards for program participation to ensure consistent results
- Compensation for training hours to enable and incentivize participation
- Some measure or certification of competency for technical activities included in the retrofit programs
- Flexible timing for trainings
- Options to substitute certain technical trainings based on certifications/experience

Identifying a responsible party for contractor training is another important factor. For some aspects of training—such as understanding the outlines of the program—a public entity may be best positioned to conduct the training. Other training aspects—such as technical skills or sales—may be hosted by other program partners, such as community-based organizations, experienced contractors, community colleges, or manufacturers.

Permitting

Permitting is an extremely important intervention point, not only to ensure safe and high-quality installations, but also to provide compliance levers to confirm new equipment requirements and job quality standards have been met. It is also an opportunity to ensure all eligible rebates have been applied. However, the permitting process is time consuming and requires an inspector from the city to inspect the installation site, adding additional costs in permitting fees and contractor billable hours. Many cities see pervasively low permit rates;

⁶⁴ Successful programs were identified by their score on 12 metrics that include cost effectiveness, market saturation, and economic impacts.

⁶⁵ McRae, Marjorie. *What Have We Learned about Success and Its Drivers in Comprehensive Residential Upgrade Programs?*, International Energy Program Evaluation Conference, 2015, <https://www.iepec.org/wp-content/uploads/2015/papers/040.pdf>.

current permitting rates for HVAC system replacements in California are less than a third of all projects, and potentially as low as 2.7% according to the California Energy Commission.⁶⁶ The low rate of permitting has significant implications for any decarbonization program: if permit uptake is poor, the uptake of incentives that are designed to accelerate adoption of electrified home systems will similarly be poor. Improving permitting processes will result in higher adoption of publicly subsidized residential decarb programs, and therefore a higher rate of accountability to any labor standards included in those programs. The following highlight several innovative ways to improve the permitting process:

SolarAPP+: Permitting for Rooftop Solar

The SolarAPP+ system was developed by the National Renewable Energy Laboratory (NREL), which sought to improve the permitting process for rooftop solar projects. SolarAPP+ is an online portal where solar contractors can upload their installation specifications and have those specifications reviewed instantly for code compliance. This means that permitting for rooftop solar projects fell from nine business days to zero days through SolarAPP+. Public staff also save time through this system—an estimated 1.5 fewer full-time employees were required to process SolarAPP+ permits. Inspection failure rates were also lower in the piloting of the SolarAPP+ system (17%) compared to the typical failure rate (27%).⁶⁷ The CalAPP initiative builds off of the SolarAPP+ system. Developing and implementing a CalAPP-style permitting system for electric appliances replacement could increase permitting by making it easier and faster to get projects approved.

City of Davis Resale Program: Pre-Sale Inspection

The City of Davis, California developed a Resale Program that requires prospective sellers of residential buildings (up to 3 units) to get a pre-sale inspection done to ensure that the buildings are up to code and relevant work is permitted. Prior to close of the sale, the seller needs to complete any necessary work or the buyer has to agree to complete the necessary work within 90 days of close of escrow. The inspection costs \$456 for a single family residence, and more for additional units.⁶⁸ This approach helps maintain the quality of residential building stock and has also had some success in increasing permitting rates and decreasing unpermitted work. In contrast to the low HVAC permitting rates cited above per the CEC, over the past five years 95% of properties in Davis with resale inspections obtained a permit to replace their HVAC system.⁶⁹

⁶⁶ California Energy Commission. *WHPA Comments on CEC's Request for Promotion of Regulatory Compliance of Central Air-Conditioning and Heat Pumps Systems*, Western HVAC Performance Alliance Inc. (WHPA), 2018, <https://efiling.energy.ca.gov/GetDocument.aspx?tn=224550>

⁶⁷ Cook, Jeffrey. *SolarAPP+ Performance Review: 2021 Data*, NREL, 2022, <https://www.nrel.gov/docs/fy22osti/83046.pdf>

⁶⁸ City of Davis. *Resale Program*, City of Davis, 2023, <https://www.cityofdavis.org/city-hall/community-development-and-sustainability/building/resale-program>

⁶⁹ City of Davis. *City of Davis Resale of Property Ordinance*, City of Davis, 2023 https://www.bayrencodes.org/wp-content/uploads/2019/08/5.-City-of-Davis-Resale-Presentation_Final.pdf

Even though the program has had enormous success in boosting permitting of home renovations, there are a few considerations to account for if replicated. The program is more expensive than traditional code enforcement, and the \$70,000 fee per violation is not enough to cover the cost of the program. There are also logistical challenges, as last-minute claims are common and challenges arise related to work done by previous owners and out of town agents who knowingly or unknowingly violated rules. Ultimately this policy requires administrative and financial heft, but it succeeds in compelling home owners and prospective buyers to comply, while not negatively affecting those who do not plan on relocating.

Project Aggregation

One strategy to reduce costs and streamline administration is to aggregate across multiple homes and implement neighborhood-wide, or even city- or regional-wide projects. This aggregation can entice High Road contractors who might not traditionally apply for individual home retrofit projects, minimize travel across multiple locations, create a more stable project pipeline for contractors, allow for discounts from the bulk purchase of equipment, and pool resources to save costs. It also provides a more efficient allocation of labor and is a structure better suited to apply labor standards.⁷⁰

Several programs in California during the ARRA era sought to do just this, and the results are mixed. Ultimately the offering of neighborhood-wide projects that were standardized and allowed for bulk-purchasing faced several challenges:

- Building enough consensus to meet the necessary threshold of number of homes that will opt in took time and money
- Homes and homeowners had unique needs and priorities that didn't fit standard packages
- Customers preferred contractor choice, often wanting to use a contractor they are already familiar with
- Neighborhoods can have a mix of renters and ineligible borrowers for standard financing offerings that posed additional equity considerations
- Contractors did not want to work with suppliers outside of those they were familiar with

Some of the ARRA projects addressed these challenges. For example, SMUD offered tiered packages as starting points, but allowed participants to customize those packages. And in the time since these ARRA-funded projects, some potential solutions to these challenges have been developed. For example, BlocPower is seeking to leverage data science to reduce project costs, timelines, and figure out the most cost-effective way to retrofit homes. Additionally, alternative aggregation models don't need a whole neighborhood approach but

⁷⁰ City of Berkeley (n.d.). *Sidewalk Repair*. City of Berkeley, <https://berkeleyca.gov/city-services/streets-sidewalks-sewers-and-utilities/sidewalk-repair>

rather can simply compile a set of pre-selected homes across different neighborhoods that can be done in succession.

City of Berkeley's Sidewalk Repair Program: Aggregating Neighborhood Projects

The City of Berkeley's sidewalk repair program, while not focused on decarbonization, nonetheless offers lessons in how an aggregated project at the neighborhood scale can work to provide high-quality, low-cost construction services to single family homeowners using High Road labor.⁷¹ Since 2019, Berkeley has completed between 500 and 600 sidewalk repair projects per year. The majority of these projects are for the sidewalks in single family neighborhoods. The city hires a contractor to survey a portion of the city each year, and the contractor prepares a custom bid for every property that has a damaged sidewalk within that area. Not every homeowner that gets a bid says yes, but for those that do, the city covers half of the cost of the job. The schedule for construction is determined by the contractor so that all of the jobs running at a given time are in close proximity to one another. The contractor works on 4 to 5 projects at a time and keeps their crew busy year round. This arrangement allows the workers and equipment to move from site to site with little travel time. The contractor currently working with the city on this is a union, minority-owned business of approximately 20 employees, and is signatory to the Laborers, Cement Masons, and Operating Engineers.

One-Stop-Shops

New York's Retrofit Accelerator: Intensive Project Management

Findings from the ARRA-funded projects and discussions with several stakeholders revealed the importance of the public sector being able to play the role of intermediary between contractors and homeowners. This intermediary has several important roles:

- Provide a single point of contact for decarbonization projects that convey the standards, requirements, and public program structure to both contractors and homeowners
- Manage the individual retrofit projects, including coordinating contractors. New York's Retrofit Accelerator offers contractors and homeowners support in the form of a one-stop center, which provides a good model in filling knowledge and programming gaps⁷²
- Help layering all available rebates, provide a universal intake application, support permitting, and reduce administrative burden
- Mitigate any challenges before they escalate

⁷¹ City of Berkeley's Sidewalk Repair Program (n.d.). *Sidewalk Repair*, City of Berkeley, <https://berkeleyca.gov/city-services/streets-sidewalks-sewers-and-utilities/sidewalk-repair#:~:text=Request%20support%20with%20sidewalk%20repairs,safe%E2%80%9D%20repair%20by%20the%20City>.

⁷² New York's Retrofit Accelerator (n.d). *Building a Better NYC With Energy Upgrades*, NYC Accelerator, <https://accelerator.nyc/>

One-stop-shop, whole-building programs can lead to three times as much savings in energy costs AND seven times the uptake rate as other energy efficiency programs.⁷³ These intermediaries fill a crucial role to proactively address challenges from a place of deep administrative knowledge and understanding of the program. Furthermore, homes—and especially lower-income homes—often require additional health and safety construction work that adds complexity and cost to projects. Intensive project management can identify these challenges, potentially connect this work to other rebate or subsidy programs within the city or region, and complete this work all in one project. In the absence of city-led or sponsored management, these homes may end up abstaining from rebate programs and any other applicable health and safety construction due to lack of eligibility or out of fear of spiraling costs and project complexity.

⁷³ Energy Efficiency for All (n.d). *One-Stop-Shops for the Multi Family Sector*, Energy Efficiency for All, https://assets.ctfassets.net/ntcn17ss1ow9/30B8LUDt8GTegjPE8clalF/4b334a9fb7f2a5fa658e2f751c4e5575/EEFA_OneStopShop_Fact_Sheet_2_.pdf

Conclusion and Recommendations

The Guide is a “toolbox” for improving job quality within the residential decarbonization sector. The toolbox approach is intended to support public administrators and policy makers in understanding the range of policy choices that make most sense for *their* programs and *their* communities.

The recommendations presented here highlight key strategies for equitably improving job quality in the residential decarb sector. They are both applicable in the design of specific programs, and they offer direction for advocacy and collaborative systems-change work.

Residential decarbonization is an industry that will need to expand rapidly to meet climate and equity goals. Without transformative intervention, however, the growth of this industry will likely not create High Road jobs. **To overcome current market dynamics, economic systems, and societal inequities that create low road employment, government intervention will be needed.** Change will not happen over night and one city will not be able to do it on its own. Creating clean, healthy, and energy efficient homes for all is a public infrastructure opportunity that will only happen with significant investment of time and resources. The recommendations below attempt to set the residential decarbonization movement on a new trajectory toward a High Road future.

Recommendations

#1: Combine labor standard mandates, contractor supports, and incentives: Approaches to improve job quality should utilize three simultaneous strategies: 1. Set mandates to raise the floor on job quality; 2. Provide supports to employers to achieve that baseline, and; 3. Provide incentives to reward going beyond the baseline mandate.

#2: Prioritize MWDBE Support: Given historical legacies of exclusion and bias, public program administrators intentionally support MWDBEs on their journey to being High Road employers. This intentional support will increase job quality and ensure the benefits of these programs are equitably distributed amongst residents, workers, and employers alike.

#3: Comprehensive Services: Public programs should allow for more comprehensive services for homes that need them in order to ensure low and middle income homeowners benefit and to expand the impact of job quality standards. Low and middle income homeowners often have more construction needs that must be taken care of first in order to safely install electric appliances. Programs that allow for a more comprehensive set of services are also able to take advantage of more sources of public funding.

#4: Intensive Project Management: For more comprehensive programs to be successful and job quality standards to have the desired impact, programs will need to have more “intensive” project management and administrative support, such as providing a one-stop-shop or concierge service. We define “intensive” as the amount of staff time and resources devoted to coordinating and implementing a project beyond the construction work.

While project management and administrative services can be done by private partners, there are benefits to “insourcing” this work and ensuring it is done by government employees. First, public sector positions are typically High Road jobs and often provide better compensation and benefits than non-profit partners. Insourcing project management can also help programs leverage existing systems and other government programs. For example, rolling the permitting and project management process into one streamlined system can improve permitting rates, help track project management and success metrics, and have lower administrative overhead than both programs operating separately.

#5: Benefits of Scale: Aggregating projects and creating *larger, regional programs* can have two key benefits: 1. Increasing the project pipeline volume and ease of access for participating contractors can shift funds from marketing and bidding to complying with job quality standards, and; 2. Addressing the capacity and resource challenges many municipalities may face in administering “comprehensive” and “intensive” programs.

There are additional benefits to larger scale projects especially for approaches to increasing job quality. Larger scale projects will increase viability for High Road employers and create a large pool of employers and workers devoted to this work. It also will make certain job quality policies much more feasible, for instance, setting labor standards through PLAs and CWAs.

#6: Benefits of Regional Collaboration: In addition to facilitating larger scale projects, regional approaches can provide consistency for contractors and consumers, reduce administrative costs for local public entities, and align collective advocacy and operational strategies. Many of the programmatic best practices require extensive logistical support, funding, and personnel. Few cities will be able to finance initiatives of this scale alone, so a unified regional approach can pool resources and ensure continuity across programs. Region wide systems are also able to take advantage of economies of scale and send clear, region-wide policy signals to the sector that High Road opportunities are going to be persistent and pervasive. Furthermore, contractors only have to learn one system of incentives rather than separate programs for separate cities.

There is also an opportunity to advocate for state-level collaboration; California has set ambitious decarbonization goals. Rolling out a uniform system, such as CalApp+, that

includes consistent labor standards and compliance reporting systems can streamline administrative processes and pool resources to build toward state goals.

Residential decarbonization is an opportunity to upgrade the region's housing stock - an infrastructure investment that is at the core of efforts to fight climate change and advance equity and prosperity in our communities. The scale of our ambitions should match the importance of the issue.

Appendices

Appendix 1: List of Interviews

- BayREN
- Building Electrification Institute (BEI)
- City of Albany
- City of Berkeley
- City of San Francisco Environment Department
- Charley Cormany, Efficiency First California
- Construction Trades Workforce Initiative
- David Dixon
- Emerald Cities Collaborative
- Kruse Construction
- Lloyd Ware, formerly City of Oakland
- Margaretta Lin, Executive Director at Just Cities and faculty advisor for this project at University of California, Berkeley, Goldman School of Public Policy

Appendix 2: Glossary of Terms

- **Building Decarbonization:** Refers to the goal of ending our dependence on fossil fuels (oil and natural gas primarily) as power sources in buildings to reduce the carbon dioxide emissions that raise global temperatures.⁷⁴ Building decarbonization entails increasing energy efficiency and converting fossil fuel powered systems to electric alternatives, which can increasingly use renewable energy.⁷⁵
- **Co-creation Approach:** Co-creation uses an active and ongoing participatory process and assumes shared power, responsibility, accountability, and decision-making with community members. It involves engaging with community members and residents on strategy from the onset and relying on their experience and expertise to identify and frame problems, inform work plans and policies, and create solutions.⁷⁶
- **Construction Unions:** A group of construction workers, tradespeople, or laborers who come together to negotiate with employers on behalf of their members. Unions can represent an entire industry or be more specialized, such as plumbers, carpenters, or electricians. Unions work to protect their members' rights and interests, and to ensure they receive fair pay, benefits, and safe working conditions.
- **Direct Installation:** This is a type of publicly funded program that provides electric appliance installations, energy efficiency measures, and/or related upgrades directly to consumers at minimal or no cost. It is often designed for lower-income households.
- **High Road:** The codified definition of High Road via the CA State Labor Code means a set of economic and workforce development strategies to achieve economic growth, economic equity, shared prosperity and a clean environment. The strategies include, but are not limited to, interventions that:
 - Improve job quality and job access.
 - Meet the skill and profitability needs of employers.
 - Meet the economic, social, and environmental needs of the community.
- **Inclusive Procurement:** Inclusive procurement practices refer to the intentional effort of promoting social and economic inclusion in the procurement process.
- **Rebates:** A refund offered to a customer by a manufacturer, public agency, distributor or retailer when a customer purchases certain appliances or performs certain upgrade measures.

⁷⁴ “Building Decarbonization Assessment.” *California Energy Commission*, [www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment#:~:text=Building%20dec](http://www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment#:~:text=Building%20dec;); US Green Building Council. (n.d.) *Building Decarbonization Definition*. USGBC. <https://www.usgbc.org/about/priorities/decarbonization>

⁷⁵ “Building Electrification 101”. https://static1.squarespace.com/static/5b6a482db27e39e8fc65bbf/t/623c9fb54f30085f6943a76e/1648140225236/BEI+Building+Electrification+101_Final2021-2.pdf

⁷⁶ King County. (n.d.) *Community Engagement and Co-Creation*. King County. <https://kingcounty.gov/en/legacy/elected/executive/equity-social-justice/community-engagement>

- **Public Program Administrators and Implementers:** Entities who manage and oversee government programs and services. They play a key role in designing, implementing, and managing subsidized decarbonization projects. Administrators and Implementers within the 9-Bay Area County region could include: The California Energy Commission, BayREN, AVA Clean Energy, StopWaste, Energy Solutions, AEA, Franklin Energy, etc.

Appendix 3: Overview - Residential Decarbonization Industry

This appendix describes key aspects of the residential decarbonization sector, including technologies, policies, and labor standards, as well as the challenges and opportunities in creating equitable programs.

Current Landscape

The Inflation Reduction Act (IRA) and California initiatives like the Equitable Building Decarbonization Program (EBD) have created opportunities for reducing emissions while promoting equity and job quality. However, challenges such as high costs, limited incentives, and unequal access continue to persist. Public policies can address these issues by subsidizing projects, setting labor standards, and incentivizing equitable participation, though balancing these goals with resource constraints remains critical.

Existing Labor Standards

A 2022 review of 38 Bay Area programs found limited adoption of labor standards. In contrast, over \$1 billion in recent programs now include wage requirements in California, demonstrating progress in integrating job quality into residential decarbonization efforts.

Decarbonization Project Types

Projects can range from single-system upgrades (e.g., heat pump water heaters) to full-home retrofits. Programs may offer direct installation services or rebates/incentives targeting different supply chain levels (upstream, midstream, downstream). Each model has advantages and tradeoffs in cost, flexibility, and administrative complexity. Upstream direct install programs are the most conducive to creating High Road jobs.

Scenario	Retrofits Included	Methodology
Full Electrification	<p>Heat Pumps to replace fossil fuel fired HVAC system – assumed variable speed ASHP</p> <p>Heat Pump Water Heating – Assumed 80 gallon</p> <p>Electric Cooktop – assumed induction</p> <p>Electric Clothes Dryer – assumed heat pump technology, not electric resistance</p>	<ul style="list-style-type: none"> Cost assumptions adopted from E3's Residential Building Electrification in CA study ("E3 Study") for single family homes and low-rise multifamily buildings, and RMI's analysis from Berkeley's Existing Building Electrification Strategy (BEBES). Adjustments made to assumptions based on Association for Energy Affordability (AEA) experience implementing Bay Area retrofits as program service providers. Included 25% cost increase to account for unforeseen implementation costs and potentially higher labor costs in the future under a high road labor strategy, per AEA recommendation. Assumed slight decrease in electrification capital costs over 20 years based on NREL analysis.
Energy Efficiency	<p>Air Sealing</p> <p>Insulation</p>	<ul style="list-style-type: none"> Cost assumptions adopted from E3 Study and BEBES Analysis. Adjustments made based on AEA's experience implementing Bay Area retrofits as program service providers.
Electric Readiness	<p>Electrical Panel Upgrades</p> <p>Knob and Tube Replacement</p>	<ul style="list-style-type: none"> Knob and tube wiring replacement costs and prevalence by building type estimated from interviews with Berkeley electricians and City's Housing Department
Health and Safety	<p>Basic Retrofit: Smoke detectors, ventilation improvements, pest infestations, asthma triggers, and slip and fall hazards.</p> <p>Deep Structural Retrofit: Electrical repairs, fire hazards, indoor air quality, roof repairs, and other structural defects in the home</p>	<ul style="list-style-type: none"> Estimates adopted from national industry assumptions about upgrade costs in LMI residential buildings. Adjusted based on input from AEA and City's Housing Department on prevalence and severity of health and safety issues by building type

Table 1: Activities Within Residential Decarbonization.

Source: BEI Berkeley Funding Analysis

Appendix 4: Community Engagement & Equity

The fundamental structures of residential building decarbonization programs can determine who benefits from public investments. In order to ensure that public programs are meeting publicly-held goals and advancing equity, program administrators should consider how benefits will be accrued throughout the design and implementation of the program. Without thinking specifically about equity, the benefits of residential decarbonization work and public programs in this space will continue to predominantly benefit higher income homeowners. Engagement with residents and workers can lead to more just and successful policy decisions. Early and ongoing engagement with workers and residents should set the direction of projects, increase job quality standards, and improve outcomes for programs. Building long-term relationships with these stakeholders and co-creating policy design together will ensure that programs operate as intended and benefit priority audiences. These relationships will also be critical long-term, as iteration may be needed over time to continue to improve policy outcomes.

Center the Most Impacted Communities in Policy Design

Prioritizing impacted communities can contribute to the overarching goal of this guide: enhancing job quality within residential retrofit programs.

Communities that are defined as “most impacted” are those who have been historically oppressed and are most likely to experience environmental, housing, and employment injustice. To empower these communities means creating space for them to lead in policy and program design so their needs and unique considerations are factored in.

Engagement Audiences & Approaches

- **Engage with Affected Unions to Grow Good Jobs and Minimize Job Loss:** To attract skilled workers, it is important to establish favorable conditions.⁷⁷ Engaging with local building trades councils and Labor Management Cooperation Committees (LMCCs) can help identify areas where objectives overlap. Building efficiency and electrification is sophisticated work that necessitates skilled building professionals across various occupations. The building trade unions and their signatory contractors collaborate to provide comprehensive training for construction professionals, including apprenticeships. Collaborating with apprenticeship coordinators to integrate efficiency and electrification skills and technology into the training curriculum is a sound approach to cultivating a competent and skilled workforce. Moreover, built-in employment opportunities for apprentices ensures that their skills and knowledge are put into action to actualize building decarbonization goals.

⁷⁷ Jones, Betany. *California Building Decarbonization*, UCLA Luskin Center for Innovation, November 2019, innovation.luskin.ucla.edu/wp-content/uploads/2019/11/California_Building_Decarbonization.pdf

- **Plan an orderly transition:** Involve a broad range of stakeholders and experts, including labor representatives, ratepayer advocates, utilities, and others, in the planning process. The aim is to systematically reduce and ultimately retire the natural gas distribution system in California in a manner that is safe, economically viable for existing customers, and reduces worker displacement.
- **Create Worker Boards:** Worker standards boards are government bodies composed of workers and industry representatives.⁷⁸ The implementation of workers' boards can guarantee that employees working in industries with low union membership or those facing challenges in participating in worksite-level negotiations due to outsourcing can still benefit from High Road standards and ensure that they play a role in establishing and monitoring implementation of the standards for their respective industries.⁷⁹ Several states and localities have already enacted laws permitting the formation of workers' boards. For instance, New York City employed a wage board to increase the minimum wage to \$15 per hour for fast-food workers in 2015, while Seattle has established a standards board for domestic workers.

Co-creation is a community engagement strategy that uses an active and ongoing participatory process and assumes shared power, responsibility, accountability, and decision-making with community members.⁸⁰ By engaging with community members and residents in program design and implementation, it puts them in a leadership role and allows them to aid in identifying and framing problems, informing work plans and policies, and ultimately creating solutions. Engaging in community co-creation is hard work that requires time, resources, and staff capacity. Nevertheless, when executed effectively, it can help policy makers gain critical expertise, enhance policy design, garner political support, address social and racial inequities, and cultivate new relationships based on mutual trust, respect, and shared power that they otherwise would not have gotten without intentional engagement.⁸¹ Simply put, cities will never meet their climate goals if low and middle income and historically disadvantaged communities are left behind.

Research into community co-creation brought forth a number of key considerations for public program administrators when conducting these processes:

- **Community co-creation can increase uptake in voluntary incentive programs:** Workers and residents being aware of and willing to participate in retrofit programs plays a huge role in a program's uptake. The level of uptake determines the amount

⁷⁸ Nadeau, Sarah. *Workers' Boards: Frequently Asked Questions*, Center for American Progress, December 11 2019, www.americanprogress.org/article/workers-boards-frequently-asked-questions/.

⁷⁹ Wall, Malkie. *11 Things State and Local Governments Can Do to Build Worker Power*, Center for American Progress, February 1 2021, www.americanprogress.org/article/11-things-state-local-governments-can-build-worker-power/.

⁸⁰ King County. (n.d.) *Community Engagement and Co-Creation*. King County. <https://kingcounty.gov/en/legacy/elected/executive/equity-social-justice/community-engagement>

⁸¹ BEI, *Equitable Approaches to Building Performance Standards*, July 2022, static1.squarespace.com/static/5b6a482db27e39e8fcf65bbf/t/62dee651086dc41b0aae71d4/1658775123616/BEI_Equitable+Building+Performance+Standards_July+2022.pdf.

of jobs generated, thus impacting the effectiveness of job quality standards. Community engagement, among its many benefits, can be seen as the first step in an outreach and awareness campaign.

- **Center Storytelling:** While program administrators and policy researchers can provide quantified data on the benefits of residential retrofits, the personal stories and experiences of people who have benefited from or worked to deliver residential retrofits will likely provide a more accessible avenue for engagement and address the practical concerns that residents and workers may have. Storytelling from members of a community will also increase reliability of decarbonization programs, and can potentially increase uptake as well.
- **Engage with Holistic Impacts of Programs:** Rather than simply seeing residents as recipients or workers as implementers, it is important to understand that residents are concerned about job opportunities for their neighbors and workers are interested in clean and healthy homes for their communities. Having holistic conversations about the benefits of these programs could provide important insights on the best way to design and implement residential retrofit programs.⁸²
- **Community Partners and Organizations are Key:** The City of Minneapolis' Blueprint for Equitable Engagement, cited as an early model for this work, stresses the importance of partnering with community and neighborhood organizations. These organizations have direct relationships within the community, and can help governments effectively engage with their constituents. Community members and residents from impacted communities also might be more likely to provide their thoughts and input on the design of decarbonization programs if the entity who is asking for it is a respected and well-known local organization. Local governments need to be self aware and cannot overlook the fact that there can be negative associations with the government within these communities, so seeking out alternative avenues for inclusive engagement is necessary. Engaging these neighborhood, community, and partner organizations is likely to have downstream benefits to the success of the program. These organizations may play key roles in the administration and project management of these programs or in providing outreach and engagement throughout the life of the program. Partner organizations should be compensated and supported for their role in engagement, design, and implementation of these programs.

Key Components and Additional Resources to Support Equitable Community Engagement

- Principles of Community Engagement⁸³
 - Honor the wisdom, voice, and experience of residents

⁸² Dixon, David. Personal interview with the Authors, May 2023.

⁸³ Bergstrom, Danielle. *The Sustainable Communities Initiative*, Policy Link, 2012, <https://www.policylink.org/resources-tools/community-engagement-guide-for-sustainable-communities>

- Treat participants with integrity and respect.
- Center race in any equitable engagement.
- Go to the community.
- History matters. Understand previous government impacts.
- Be transparent about motives and power dynamics.
- Share decision making and initiative leadership.
- Be Flexible. Engage in continuous reflection and willingness to change course.⁸⁴
- Process for conducting equitable community engagement⁸⁵
 - Identify key partners (stakeholders).
 - Partner with the community.
 - Prepare an Inclusive Plan that identifies Outcomes, Metrics, and Deliverables.
 - Tailor communication strategies.
 - Empower leadership and decision making.
 - Follow up.⁸⁶

Lower and middle income residents are the ones disproportionately impacted by fossil fuel emissions, inefficient and unhealthy building heating/cooling systems, and undue energy price burdens.⁸⁷ Public programs should focus their programs on lower and middle income residents who bear the brunt of climate change and the negative effects of fossil fuel combustion. To do so successfully, the perspectives of those residents must play a lead role in program design and implementation. Empowering residents in building retrofit program design and implementation will improve uptake, which expands the impact of job quality standards.

Starter List of Guides and Resources for Conducting Resident Engagement

While this guide does not provide a comprehensive blueprint for conducting equitable and impactful community engagement/empowerment, below is a selection of relevant guides:

- Best Practices for Equitable Engagement: Regional Housing Technical Assistance Program, Association of Bay Area Governments, [Link](#)
- Equitable Community Engagement Guide for the City of Honolulu, [Link](#)

⁸⁴ Neighborhood Improvement Services. *Equitable Community Engagement Blueprint*, Neighborhood Improvement Services, 2018, https://d3n8a8pro7vnm.cloudfront.net/durhamnis/pages/592/attachments/original/1543332399/Draft_Equitable_Engagement_Blueprint_%2818%29_11.06.pdf?1543332399

⁸⁵ Resilient O’ahu. *Equitable Community Engagement Guide*, Resilient O’ahu, 2021, <https://static1.squarespace.com/static/5e3885654a153a6ef84e6c9c/t/61006a81bdf6542c63e27a71/1627417226346/Equitable+Community+Engagement+Guide.pdf>

⁸⁶ Regional Housing Technical Assistance Program (n.d.). *Best Practices for Equitable Engagement*, Association of Bay Area Governments, https://abag.ca.gov/sites/default/files/documents/2022-06/Best_Practices_for_Equitable_Engagement.pdf

⁸⁷ Frausto, Owen. “Energy Inequity in Low-Income Housing.” *Energy Inequity in Low-Income Housing*, 13 Dec. 2021, kleinmanenergy.upenn.edu/news-insights/energy-inequity-in-low-income-housing/.

- Equitable Community Engagement Blueprint, City of Durham: Neighborhood Improvement Services, [Link](#)
- The Community Engagement Guide for Sustainable Communities, Policy Link and Kirwan Institute, [Link](#)
- Community Engagement Guidelines for Project Applicants, City of Oakland, [Link](#)
- Blueprint for Equitable Engagement, City of Minneapolis: Neighborhood and Community Relations, [Link](#)
- Greenlining’s Making Equity Real In Climate Adaptation And Community Resilience Policies And Programs: A Guidebook, [Link](#)
- Facilitating Power’s Spectrum of Community Engagement to Ownership, [Link](#)
- BEI’s Equitable Approaches to Building Performance Standard, [Link](#)