

Quick Start, Lasting Impact: Lessons from the TECH Clean California Quick Start Grant Program

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Executive Summary

The Quick Start Grant program was launched as part of the TECH Clean California initiative to accelerate market transformation for heat pump space and water heating through strategic investments in quick-deploying, innovative pilot projects that focus on solutions for low-income households and historically underserved communities. The program aimed to identify, refine, and validate effective, scalable strategies to inform statewide approaches and serve as a replicable model for equitable energy innovation.

From July 2021 to December 2024, the Quick Start Grant program awarded \$3.85 million to 19 projects selected through two public solicitations. Equity-focused projects — supporting market segments like low-income households, disadvantaged communities, renters, and mobile homes — received 83 percent of the total funding. The program successfully met its key performance indicators (KPIs). It enabled the installation of over 500 heat pumps (benefiting 922 households), resulting in verified annual greenhouse gas (GHG) savings of 142 metric tons CO₂e from incentivized single family installations alone. Beyond installations, Quick Start Grants facilitated the market deployment of new products like 120V and modular central heat pump water heaters, generated crucial performance data, supported new contractor training tools such as visual field guides, and developed replicable interventions for future electrification programs. Program grantees also leveraged an additional \$6.2 million in funding.

The Quick Start Grant program had several key benefits. It deployed TECH Clean California program funding rapidly, within six months of the program launch. By launching quickly and funding projects grantees had already been developing, implementation and results were expedited. The program also achieved outsized results with a relatively small investment: Quick Start Grant funds often supplemented or filled gaps — such as funding necessary home repairs not covered by other programs — in existing project funding, enabling significant heat pump installations and high-impact GHG reductions. The program also provided critical support to small and diverse organizations that might otherwise lack access to grant funding, including community-based organizations. Additionally, it helped close adoption gaps by implementing equity-focused strategies that complemented the broader market-facing approaches of TECH Clean California.

Key learnings emerged for implementing similar programs. Administrators should establish a common understanding of how the innovation will effect change and should prioritize developing a scaling plan for grant projects from the outset. Adaptive management practices, including flexibility in scope, budget, and timelines, are essential to ensure programs remain responsive to emerging challenges and maximize impact. One of the program's greatest successes has been showcasing the value of flexible grant funding and trust-based administration in reducing friction and overcoming market barriers, particularly for community-based partners. Other key learnings include the necessity of supporting the whole home ecosystem by funding repairs beyond the appliance itself, and investing in trusted community partnerships to reach underserved populations effectively.

Additionally, establishing a robust knowledge transfer plan and providing dedicated off-ramp support for grantees at the project's conclusion will enhance long-term impact and integration of successful strategies.

From a state policy perspective, the program highlights the importance of allocating large, flexible funding pools to advance equity and ensure comprehensive participation across all communities, particularly funding that covers the full suite of necessary home repairs and supports the administrative capacity of community partners. The Quick Start Grant program demonstrated the value of targeted, agile funding in advancing equitable electrification and clean energy adoption. It can serve as the basis of a replicable funding model for future programs seeking to build an inclusive, decarbonized energy system.

Program Description

Market Barrier and Proposed Solution

Statewide initiatives and large-scale pilots can bring about broad market transformation of proven technologies. These large programs create consistent market signals, achieve economies of scale, and build extensive networks of participants. When it comes to encouraging the spread of heat pump technologies, however, traditional large-scale programs may lack the flexibility to address the nuanced and numerous barriers slowing widespread adoption. These include barriers that are distinct from energy efficiency, such as those related to fuel-switching, as well as those connected to heat pump technologies, e.g., physical requirements or the replacement of separate heating and cooling systems. These barriers vary across different communities and demographics and are often complex and interconnected.

The Quick Start Grant program was conceptualized as a means to support and test multiple innovative solutions to accelerate heat pump adoption, particularly in cases where traditional programs provide insufficient support.¹ The program offered a competitive, open solicitation for quick-deploying pilot ideas to transform the market for heat pumps. It sought to test whether relatively small, strategic investments could provide outsized returns, meaningfully expanding heat pump adoption in unique market segments. Focusing on smaller-scale interventions was intended to build replicable models that could later be scaled statewide without significant upfront investments. This strategy enabled the program to invest in promising but untested ideas that complemented existing initiatives and might not have otherwise received funding. Because the Quick Start Grant program was part of the larger TECH Clean California initiative, the concepts and refined strategies developed through grant projects had a pathway to scale.

The program had two main objectives:

1. To identify, refine, and validate effective, scalable strategies that significantly accelerate heat pump adoption, particularly within California's hard-to-reach communities, informing statewide market approaches and long-term decarbonization frameworks; and
2. To establish the Quick Start Grant program as a replicable model for fostering energy innovation equitably outside of California.

Project Team

- VEIC designed, implemented, and administered the program.
- Energy Solutions provided oversight and advised on project selection and contracting.
- TECH Clean California partner organizations, including the Association for Energy Affordability, Tre'laine Consulting, and The Ortiz Group, provided advice on program design and project selection.

¹ See D. 20-0-027, Decision Establishing Building Decarbonization Pilot Programs, at pp. 12, 85 (April 6, 2020), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M331/K772/331772660.PDF>.

Program Approach and Evolution

Through the awarded projects, the Quick Start Grants aimed to:

1. Promote the development and refinement of interventions that can be scaled into statewide solutions,
2. Address specific challenges in hard-to-reach communities and households with limited incomes, and
3. Contribute to California’s carbon reduction goals by accelerating the transition to clean heating technologies.

The program was implemented from July 2021 through December 2024, with a total available grant budget of \$4 million. Two open solicitations were held to select grant projects: the first in September 2021 and the second in May 2022.² Grants were awarded in amounts from \$50,000 to \$350,000, with projects intended to be completed within 16 months. The average grant award was \$200,000 across both cohorts of recipients.

Proposals were evaluated based on projects’ potential for scalability, the ability to achieve measurable results within the allotted timeframe, and the inclusion of match or in-kind funding. The solicitation identified several focus areas based on stakeholder feedback on key market barriers. Given that this list was non-exhaustive and intended to guide proposals, the solicitation was open to all types of projects and approaches to grow the market; applicants were not confined to the focus areas and did not receive scoring advantages for addressing them.

Once selected, each grant team was paired with a VEIC subject matter expert who monitored the project’s progress and served as a thought partner. When projects faced unexpected barriers, the VEIC subject matter expert worked with grantees and the broader TECH Clean California team to modify the project’s schedule, budget, or scope so that work could continue. In addition, VEIC convened group meetings for each cohort of grant recipients to share project updates and lessons learned, and to collaboratively address challenges projects were facing.

The Quick Start Grant team made adjustments over the program’s course to strengthen the program’s emphasis on projects supporting equitable electrification, and to improve overall project management. Many of these changes were informed by input from external stakeholders and grant recipients throughout the program.³ These changes are described below in Table 1.

² Appendix A: 2021 Quick Start Grant Solicitation and Scoring Rubric and Appendix B: Quick Start Grant Solicitation.

³ During the design phase for both rounds of the solicitation, the Quick Start Grant team met with a range of stakeholders, including industry professionals, community-based organizations, environmental justice advocates, and technical experts. These meetings were intended to improve the team’s understanding of community priorities for project focus areas, as well as gather feedback on how the Quick Start Grant program could encourage project ideas that supported low-income and historically underserved communities and participation from community-based organizations. A summary of the feedback the team received is available in Appendix C: Stakeholder Feedback Summary.

Table 1: Changes and Refinements Made to Quick Start Grant Program Pilot

Objective	Change from Year 1 to Year 2
<p>Ensure a robust response to the solicitation from community-based organizations</p>	<p>Conducted more proactive outreach to community-based organizations, tribes, and groups advocating for low-income and disadvantaged communities</p> <p>Changed scoring criteria to award 10/110 points when community-based organizations, project beneficiaries, or groups with experience in the target community are on the implementation team or participate meaningfully in the pilot design</p>
<p>Increase percentage of grant projects focused on equitable electrification</p>	<p>Increased the commitment to fund projects that benefit low-income households, disadvantaged communities, or other historically underserved customer groups from 40% (Year 1) to 75% (Year 2)</p> <p>Changed evaluation scoring to require direct benefits to equity communities (Year 2), instead of also awarding points for indirect benefits (Year 1)</p>
<p>Ensure the selection process recognizes the skills of community-based or smaller organizations, which may have limited formal grant writing experience or smaller staff capacity</p>	<p>Added interviews for finalists to selection process to supplement written application</p> <p>Extended time solicitation was open for applications from one month (Year 1) to two months (Year 2) to accommodate organizations with smaller staff</p> <p>Increased potential funding for labor costs and increased maximum grant size from \$250,000 to \$350,000</p>
<p>Increase flexibility of grant administration</p>	<p>Simplified internal process for granting extensions to project timelines to minimize disruptions to workflow</p> <p>Instituted monthly recurring meetings with VEIC project liaison (Year 2), replacing monthly written surveys (Year 1) to more proactively strategize with grantees around project barriers</p> <p>Provided grantees with a collaborative tool to monitor progress and proactively address concerns (Year 2)</p>
<p>Increase opportunities for collaboration between grantees and within the TECH Clean California initiative, and create opportunities for grantees to share best practices from their work</p>	<p>Held quarterly grantee summits as a space to problem solve and exchange project experiences with peers (Year 2)</p> <p>Added a public webinar series as a grant deliverable to share grantees' work more broadly (Year 2)</p>
<p>Improve processes for identifying grant scaling opportunities</p>	<p>Developed scaling framework (theory of change and monitoring, evaluation, and learning strategy) for each grant during work scoping phase (Year 2)⁴</p>

4 For more detail, see Appendix F: Quick Start Grant Program Framework.

Program Achievements

The Quick Start Grant program awarded a total of \$3.85 million to 19 projects testing innovative solutions to advance the heat pump market, with the majority of funds benefiting low-income households and disadvantaged communities. Each of these projects addressed needs within a unique market segment that otherwise would have been excluded from participating, from overcoming outdated infrastructure to increasing access in rural communities (Figure 1). In total, efforts from grantees resulted in more than 500 heat pump installations in market segments that face persistent challenges with participation. This figure includes several central systems, meaning the benefits extend to an even greater number of households.

Achievement of Key Performance Indicators

The Quick Start Grant program successfully met all key performance indicators (KPIs) set in its implementation plan. The KPIs are summarized in Table 2 and results are further described below and in appendices where indicated.

Table 2: Key Performance Metrics for the Quick Start Grants Program

Goal	Metric	Data Source	Project Total
1. Quick Start Grant solicitations issued in Years 1 and 2	Year 1 solicitation released by September 1, 2021 Year 2 solicitation released Fall 2022	Quick Start Grant team	Year 1 solicitation released September 1, 2021 Year 2 solicitation released May 31, 2022
2. 6–12 grants awarded in Year 1	>12 applications received by October 1 deadline 6–12 high-impact proposals selected by November 1	Quick Start Grant team	Year 1: <ul style="list-style-type: none"> • 36 applications received • 11 winning grantees notified November 1, 2021 Year 2: <ul style="list-style-type: none"> • 31 applications received • 8 winning grantees selected
3. GHGs reduced	Energy or GHG savings from project activities, where applicable	TECH Clean California incentive claims data	142 metric tons CO ₂ e
4. Heat pump market advanced	Dependent on awarded projects, but could include new products released to market, greater installer familiarity with heat pump technologies, or proven strategies for reaching customers	Quick Start Grant team and grantee	Achieved

Goal	Metric	Data Source	Project Total
5. Quick Start Grant program tests unique strategies	Strategies that do not appear in other TECH Clean California initiatives or in other building decarbonization programs' documentation	Quick Start Grant team	Achieved
6. Historically excluded groups benefit from Quick Start Grant projects	Specific metrics will be project-dependent, but could include the number of participants in historically excluded groups or reductions in energy burden of project participants	Grant awardees	Year 1: <ul style="list-style-type: none"> • 8 of 11 projects have equity focus; 73% of total funding awarded to equity projects Year 2: <ul style="list-style-type: none"> • 7 of 8 projects have equity focus; 95% of total funding awarded to equity projects See also Table 4

1. Solicitations Issued in Years 1 and 2

The Quick Start Grant program released two solicitations as planned, the first in September 2021⁵ and the second in May 2022.⁶ The second solicitation was originally scheduled for release in September; however, the team released the solicitation four months earlier to extend the time available for applicants' proposal development, project selection, and contracting.

In Year 2, the team added "Finalist Interviews" to enhance the quality and comparability of submissions, ensuring a more equitable evaluation process. The approach requested that applicants clearly articulate their strategic intent, the significance and scalability of their proposed solution, well-defined research questions, and a robust rationale for pilot design, including underlying assumptions, anticipated risks, and the theory of change guiding implementation.

2. Six to 12 Grants Awarded in Year 1

In both years of the project, the response to the solicitation was robust and allowed for the selection of high-impact projects. In the first cohort of Quick Start Grant projects, 11 winning projects were selected from a pool of 36 applications. In the second cohort, 8 projects were selected out of a pool of 31 applications. Selected projects tested emerging technologies as well as new approaches in workforce development, outreach and education, program layering, installation best practices, and many other topic areas. Descriptions of the selected projects are included in Appendix D: Project Summaries and Updates.

5 Appendix A: 2021 Quick Start Grant Solicitation and Scoring Rubric.

6 Appendix B: Quick Start Grant Solicitation.

The second cohort of projects was smaller than the first due to two primary factors. First, the maximum grant size increased while the total funding pool remained constant, resulting in fewer awards. Second, available funding in each utility service area became a limiting factor. Because TECH Clean California was funded by the state's four gas investor-owned utilities (IOUs), program funds were required to be distributed across their territories, in proportion to each utility's contributions. The first cohort of Quick Start Grant projects launched without allocation restrictions. By Spring 2022, however, general equipment incentives had become disproportionately concentrated in Pacific Gas and Electric (PG&E) territory. To balance out overall program spending, funding for Quick Start Grants in the PG&E service territory was limited in the second solicitation. While 20 out of 31 applications were proposed for the PG&E territory, available funding could support only three projects. Additionally, some funding designated for the Southwest Gas service area could not be used because of a lack of strong project proposals specific to that area.

Two Cohorts of Quick Start Grants

- \$3.85 million in grant funding awarded to 19 projects
- 15/19 projects support low-income households or historically underserved communities
- Grants address key barriers to scale:
 - Solutions for renters
 - Making installations faster and simpler
 - Layering compatible programs for wrap-around services
 - Growing the skilled workforce
 - Models for reaching underserved communities



- 1 [AESC](#)
- 2 [Barnett Plumbing](#)
- 3 [BlocPower](#)
- 4 [Franklin Energy](#)
- 5 [RCEA](#)
- 6 [Revalue.io](#)
- 7 [Small Planet Supply](#)
- 8 [The Energy Coalition](#)
- 9 [USGBC-LA](#)
- 10 [IHACI](#)
- 11 [NBI](#)
- 12 [Diversity Coalition](#)
- 13 [RHA](#)
- 14 [City of Sacramento & SMUD](#)
- 15 [350 Bay Area](#)
- 16 [Viridis Consulting](#)
- 17 [Climate Resolve & USGBC-LA](#)
- 18 [Bright Power](#)
- 19 [Goodwill Southern California](#)

Figure 1: Map of awarded Quick Start Grant projects.

3. Greenhouse Gases Reduced

Using the Iris incentive portal database, the team was able to verify 230 single family heat pump installations attributed to Quick Start Grant projects, resulting in an estimated annual GHG savings of 142 metric tons CO₂e.

This figure does not capture the full extent of GHG savings attributable to the Quick Start Grant program's investments. It includes only the GHG savings attributable to single family installations that received TECH Clean California incentives, and for which the installer checked a box on the incentive form indicating they were Quick Start Grant participants. Not all grantees applied for TECH Clean California incentives for their projects and, among those who did, we expect that contractors participating in Quick Start Grants were not always aware that the checkbox applied to their projects. In addition, it does not capture results from any of the multifamily installations.

Further, many grant awards served as the complementary piece that allowed comprehensive electrification projects to move forward. The City of Sacramento, for example, calculated just over 40 tons of annual GHG savings from the participating homes in their project, which are expected to increase as Sacramento Municipal Utility District (SMUD) gets closer to its 2030 zero-carbon energy production goal.

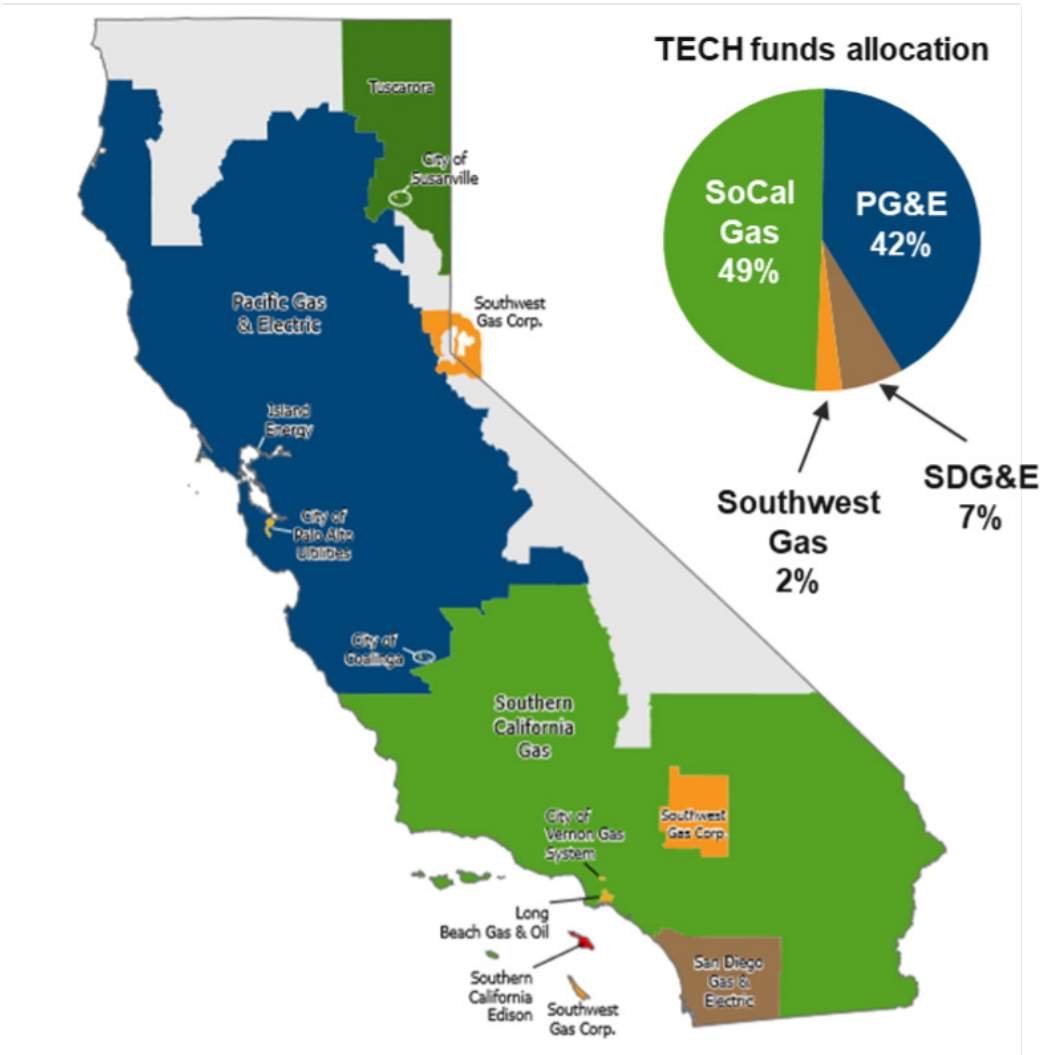


Figure 2: Map of California IOU service areas and the proportion of TECH Clean California funds allocated to each.

Source: California Energy Commission, <https://cecgis-caenergy.opendata.arcgis.com/pages/pdf-maps>

Table 3: Estimated Ex Ante Annual GHG Savings (Metric Tons CO₂e) from Incentive Claims Data through October 2024⁷

Equipment	Number of Single Family Heat Pump Installations	Sum of Ex Ante Annual GHG Savings (Metric Tons CO ₂ e)
Heat Pump Water Heater	175	121
HVAC	55	21
Total	230	142

4. Heat Pump Market Advanced

Using internal performance reporting documentation, the Quick Start Grant team verified that a total of 527 heat pump installations were facilitated by grant projects. With many of these installations supporting multifamily projects, the benefits of these installations extended to 922 households.

Table 4: Heat Pump Installations and Households Benefiting from Quick Start Grant Funding Confirmed by Performance Reporting

Grantee	Housing Type	Heat Pump HVAC Installs	Heat Pump Water Heater Installs	Households Directly Benefitting
The Energy Coalition	Single family	-	20	20
Revalue.io	Single family and multifamily	17	19	28
U.S. Green Building Council California	Single family and multifamily	8	3	11
Small Planet Supply	Multifamily	-	5	40
Franklin Energy	Single family	48	9	47
Redwood Coast Energy Authority	Single family	19	1	20

⁷ Note: the claims data only include single family incentive claims where incentive applicants confirmed participation in the Quick Start Grant program. There are discrepancies with what the Quick Start Grant team independently verified for installations and what was entered for incentive claims. Additionally, some grantees did not apply for TECH Clean California incentives for their installations. Multifamily projects were also tracked separately.

Grantee	Housing Type	Heat Pump HVAC Installs	Heat Pump Water Heater Installs	Households Directly Benefitting
Barnett Plumbing	Single family	-	149	149
National Building Institute	Single family	-	32	32
350 Bay Area	Multifamily	32	0	32
Climate Resolve	Single family and multifamily	7	14	16
Viridis Consulting	Multifamily		9	404
Bright Power	Multifamily	101	1	101
City of Sacramento	Single family	22	11	22
Total	-	254	273	922

While the Quick Start Grant program had a relatively small budget of approximately \$4 million available to distribute, it enabled a variety of unique, fast-moving, and impactful projects to go forward that did not have alternative sources of funding. The outcomes of these investments highlight the program's impact on advancing the heat pump market beyond the number of installations that Quick Start Grant funding directly supported. Descriptions of the impact of select projects on key market areas are included below. A full list of Quick Start Grant projects is included in Appendix D: Project Summaries and Updates.

NEW PRODUCTS INTRODUCED TO THE MARKET

Supporting 120V heat pump water heaters: A \$150,000 grant supported a field evaluation of the energy performance and costs of installing 120V plug-in heat pump water heaters in 32 single family homes. The project generated crucial energy performance and cost data that has been published by the U.S. Department of Energy (DOE), using the Quick Start Grant as a demonstration project for utilities to increase investment in water heater programs.⁸ The 120V product emerged as a valuable opportunity in emergency replacement scenarios, as evidenced by Barnett Plumbing reporting a 52 percent customer conversion rate when incorporating the 120V product into their loaner strategy.

Supporting new central heat pump water heater products for underserved multifamily market segment: A \$200,000 grant helped Small Planet Supply develop and deploy a standardized, modular, prepackaged central heat pump water heater system — called WaterDrop — to minimize the design requirement, installation complexity, cost, and challenges inherent to retrofits in small multifamily buildings. With limited available space, complex configurations, and no suitable off-the-shelf products

⁸ See U.S. DOE. NBI 2023 Plug-In HPWH study. <https://heatpumpdata.energy.gov/data/studies/nbi-2023-plug-hpwh>.

available, each central heat pump water heater is a unique assembly of individual components designed by one group and installed by another. The project successfully completed five pilot installations that demonstrated the system's feasibility and performance, highlighting cost savings and reduced GHG emissions. The WaterDrop product is now commercially available and was installed in the subsequent Quick Start Grant project in the Heather Village community. In 2024, the Advanced Water Heating Initiative (AWHI) recognized the WaterDrop System with the Commercial Heat Pump Water Heater Market Transformer award.⁹

INCREASING CONTRACTOR FAMILIARITY

Developing accessible materials for workforce training: A \$90,000 grant supported the creation of a Best Practices Guide and related Visual Field Aids for heat pump water heater installation by Richard Heath and Associates (RHA). The lack of a guiding document had been a major impediment to heat pump water heater installations, often requiring instructors to spend time developing curriculum without the benefit of standardized resources. The core of the project involved developing a comprehensive best practices document and accompanying visual job aids for contractors to reference while in the field, both designed to streamline and improve the quality of heat pump water heater retrofits. These resources address common installation challenges and aim to boost contractor confidence and consistency, ultimately increasing heat pump water heater market adoption by overcoming existing knowledge gaps in the industry. Contractors and educators who piloted the materials widely praised their functionality and usefulness, encouraging plans for future development, including app-based accessibility and multilingual versions. The documents have been used in training organized by TECH Clean California and reproduced for a national audience by the U.S. DOE's Building Science Education Solution Center.¹⁰ RHA has since gone on to run San Diego Gas & Electric's (SDG&E's) LEARN Program and has integrated the resources from their Quick Start Grant into the new workforce development initiative.¹¹

Augmenting on-site technician training opportunities: The Institute of Heating and Air Conditioning Installers' (IHACI) Quick Start Grant project focused on developing and piloting Visual Service, a diagnostic software tool designed to address California's heating, ventilation, and air conditioning (HVAC) technician shortage and improve heat pump installation quality. The software facilitates remote expert support for field technicians, improving training efficiency and ensuring quality installations through real-time data collection and documentation. While the pilot project demonstrated positive user feedback and successful triage evaluations, challenges arose in consistent software adoption among experienced technicians and installers, highlighting the need for improved training methods, multilingual support, and clearer communication of the software's financial benefits to contractors. Ultimately, IHACI recommends further development, including Title 24 compliance and expanded training programs, to achieve broader adoption and realize Visual Service's potential for workforce development and improved HVAC system performance. Following the grant period, IHACI reported that Visual Service has been integrated into two additional pilots, including the City of Sacramento's Quick Start Grant project, and is being used in workforce development training through the U.S. DOE's Career Pathways to Advance the Trades in HVAC Services (PATHS) program.¹²

9 AWHI. Excellence in water heating awards program. <https://www.advancedwaterheatinginitiative.org/excellence-in-water-heating-awards-program>.

10 Better Buildings Solution Center. Heat pump water heater installation training modules. U.S. DOE. <https://bsesc.energy.gov/training-modules/heat-pump-water-heater-installation>.

11 San Diego Learn. About us. <https://www.sandiegolearn.com/about-us>.

12 U.S. DOE. DOE recognizes eight organizations for excellence in expanding the use of smart technologies. <https://www.energy.gov/eere/buildings/articles/doe-recognizes-eight-organizations-excellence-expanding-use-smart>.

STRATEGIES TO EXPAND REACH OF EXISTING PROGRAMS

Employing holistic home electrification strategies: A \$350,000 grant awarded to the City of Sacramento complemented their Home Energy Equity Pilot, a partnership with SMUD and Habitat for Humanity that funds an electrification and anti-displacement program for low-income single family homeowners. The partnership model to leverage city, utility, and community-based organization resources proved to be a successful way to integrate electrification with housing stabilization to ensure low-income homeowners benefit from clean energy technologies without the risk of being pushed out of their homes. The project exceeded its initial goal of installing heat pumps in 20 homes and presented best practices and recommendations for scaling equitable home electrification efforts statewide. Experience from implementation emphasized the crucial role of partnerships and addressed the need for simplified processes and upfront financial support to expand access for low-income households. The City of Sacramento has used lessons from their Quick Start Grant project as part of their Existing Building Electrification Strategy¹³ and Climate Action Plan¹⁴ to promote an equitable transition to carbon neutrality. SMUD has leveraged this Quick Start Grant project to pilot process improvements as part of a \$3 million effort to electrify 300 homes in the Meadowview neighborhood,¹⁵ including streamlining recruitment and customer engagement strategies, and optimizing cost drivers of electrification projects.

Integrating perspectives of communities facing structural barriers: Diversity Coalition aimed to expand the reach and accessibility of equitable electrification and decarbonization programs by focusing on Black, Indigenous, and People of Color (BIPOC) and low-income communities in San Luis Obispo County. The project team engaged over 1,500 community members through outreach events and feedback mechanisms to understand their awareness of, interest in, and perceived barriers to heat pump adoption. Diversity Coalition found that tailored outreach and educational materials that address the specific concerns, cultural contexts, and financial realities of these communities were effective in fostering wider acceptance of clean energy technologies when delivered by a trusted community messenger. By the project's conclusion, more than 70 percent of participants reported understanding heat pump technologies, up from 22 percent before the intervention. Diversity Coalition will apply insights gained from this grant to a new project in partnership with the City of San Luis Obispo and a local nonprofit, and will be assisting with outreach to residents and community organizations to support the City of San Luis Obispo's mobile home electrification program.

5. Quick Start Grant Program Tests Unique Strategies

A benefit of funding external organizations through the Quick Start Grant program was that TECH Clean California could support a broad spectrum of ideas to accelerate adoption of heat pump technologies that were not part of TECH Clean California's original strategy or other building electrification funding programs. Some examples included:

Solutions for emergency replacements: Equipment failure drives up to 90 percent of water heater replacements, creating an urgent need to restore hot water in a home.¹⁶ In these emergency situations, homeowners tend to prioritize immediate solutions over energy efficient alternatives. The relatively

13 City of Sacramento. Existing building electrification: Climate and sustainability planning. <https://www.cityofsacramento.gov/community-development/planning/long-range/climate-and-sustainability-planning/existing-building-electrification>.

14 City of Sacramento. Climate and sustainability planning: Long-range planning. <https://www.cityofsacramento.gov/community-development/planning/long-range/climate-and-sustainability-planning>.

15 SMUD. (2024). Congresswoman Matsui secures \$3 million for SMUD's clean energy transformation. <https://www.smud.org/Corporate/About-us/News-and-Media/2024/2024/Congresswoman-Matsui-secures-3-million-for-SMUDs-clean-energy-transformation>.

16 Badger, et al. (2024). Emergency Replacement Heat Pump Water Heater Market Study. CalNEXT. https://calnext.com/wp-content/uploads/2024/07/ET23SWE0020_Emergency-Replacement-HPWH-Market-Study_Final-Report.pdf.

lengthy installation process for heat pump water heaters puts the technology at a disadvantage, often resulting in like-for-like replacements. This challenge is reflected in program participation, with emergency replacements representing only six percent of TECH Clean California incentive claims through March 2025. A \$150,000 grant to Barnett Plumbing successfully piloted a loaner gas water heater model to bridge this gap, enabling faster deployment of heat pump systems. The initiative significantly improved conversion rates, rising from under 1 percent to 17.1 percent, and further to 52 percent with the introduction of 120V heat pump options. Barnett Plumbing highlighted the key factors driving success:



Convenience: immediate hot water



Cost-effectiveness: subsidized installations and repurposed loaners



Trust: professional service and clear communication

The success of the project advocates for scaling this loaner model by securing stable funding, streamlining incentive programs, and partnering with other organizations to overcome logistical challenges and expand technician training. Since concluding the project, Barnett's gas loaner concept has expanded into other CalNEXT research projects,¹⁷ and has been offered by 3CREN¹⁸ and MCE¹⁹ as a contractor incentive program.

Supporting electrification for unregulated fuel customers: Redwood Coast Energy Authority's (RCEA's) project sought to incentivize heat pump adoption in rural Humboldt County, California, where many residents who are not connected to the natural gas grid rely on inefficient, high-emission fuels such as propane, kerosene, fuel oil, and cordwood. Fuel-substitution programs funded through the California Public Utility Commission (CPUC) ratepayer resources have historically excluded users of nonstandard fuels, who often qualify as lower-income and are burdened by higher heating costs. The project aimed to overcome high upfront costs and distrust of utilities hindering electrification among low-income households. Facilitating the transition to electric heat pump systems can also eliminate the need for costly, ratepayer-funded gas line extensions in these areas. RCEA's strategy involved collaborating with local contractors, providing layered rebates, and conducting extensive community outreach. Their efforts resulted in 20 heat pump installations through the end of 2024. Previously, only 9 installations had been completed in Humboldt County,²⁰ highlighting the critical importance of the technical assistance they provided during their Quick Start Grant project. RCEA noted in their final report, "Though many rural contractors are small in size, they exist by functioning as a trusted community resource. As such, they can play a pivotal role in supporting rural electrification efforts." The main challenges for this project were difficulties enrolling contractors and limited low-income participation. The report recommended increasing and sustaining funding along with dedicated local staff support to ensure broader, long-term impact.

17 HPWH Conversion Readiness Program Focused Pilot (ET23SWE0075). CalNEXT.

18 3C-REN. Gas water heater loaner program: Learn how to make it work for you. <https://www.3c-ren.org/event/gas-water-heater-loaner-program-learn-how-to-make-it-work-for-you>.

19 California Community Choice Association. MCE launches emergency water heater loaner program. <https://cal-cca.org/mce-launches-emergency-water-heater-loaner-program>.

20 See TECH Heat Pump Data, available at <https://techcleanca.com/heat-pump-data>.

Leveraging governance structures of homeowners associations to electrify communities: Viridis Consulting partnered with a homeowners association (HOA) in Heather Village, a 404-unit multifamily complex in California, to replace gas water heaters with electric heat pumps and identify a feasible pathway to community-wide electrification. The project overcame several hurdles, including aging infrastructure, limited homeowner knowledge, and complex HOA governance, demonstrating the viability of the approach to electrifying older multifamily buildings. Key to its success was extensive homeowner education, a phased implementation approach starting with a community-wide electrification feasibility study and demonstration project, and the securing of supplemental funding through grants and financing programs to complement HOA financial commitments. The project highlights best practices for other HOAs seeking to electrify, stressing the importance of proactive board engagement, a multi-disciplinary project team, and transparent communication with residents to build trust and support. The project serves as a replicable model for large-scale decarbonization in similar communities. Upon completion of the Quick Start Grant, Viridis Consulting and the Heather Village HOA have continued their partnership, intending to fully decarbonize the community, including engaging with Southern California Edison (SCE) to decommission existing natural gas infrastructure instead of investing in costly repairs.

In addition to seeking out types of interventions not covered by other programs, another intent of the Quick Start Grant program was to fill funding gaps for existing projects, enabling them to go beyond direct installations of heat pumps into complementary areas such as workforce development, distributed energy generation, community outreach, and broader electrification services. In total, grantees reported a total of \$6.2 million in leveraged funds, demonstrating the program's effectiveness in mobilizing additional resources.

Types of Activities Supported through Cost Share Contributions:

- *Financial contributions:* direct funding for installations, operational costs, and project development
- *In-kind contributions:* staff time, engineering services, and program management
- *Discounts and incentives:* manufacturer discounts, utility incentives, and rebates
- *Technical assistance:* training, technical support, and strategic partnerships
- *Community engagement:* outreach activities, contractor engagement, and tenant workshops

Common Cost Share Funding Sources:

- *Utilities:* providing incentives and support for research and installations
- *Manufacturers:* offering discounts on equipment
- *Government agencies:* contributing through grants, rebates, and in-kind staff time
- *Nonprofits and community organizations:* supporting operational costs and community engagement efforts
- *Private sector:* offering gap financing and technical assistance

This pooling of funds enabled grantees to bridge financial gaps, mitigate or eliminate upfront costs for consumers, and coordinate essential program resources, thereby reducing market friction and accelerating the adoption of clean energy technologies. Over time, such momentum can shift broader marketplace norms, encouraging further investment in cleaner technologies at reduced costs.

6. Historically Excluded Groups Benefit from Quick Start Grant Projects

The program design intentionally set application questions and scoring metrics to select projects that support equitable electrification and target market segments that have been historically underserved by clean energy programs. In both years, the definition of equity communities encompassed:



Low-income households²¹



Disadvantaged communities²²



Renters or multifamily housing, especially naturally occurring affordable housing²³



Customers on unregulated fuels, e.g., wood or propane



Mobile or manufactured housing



Customers whose primary language is not English



Rural or remote communities

In Year 1, the team's public target was for 40 percent of project funds to go to projects that benefited low-income households, disadvantaged communities, or other hard-to-reach customers. In Year 2, this public goal was raised to 75 percent.

In alignment with this goal, a possible 20 out of 110 total points were awarded in both years based on the extent to which the project demonstrated equitable benefits — to market segments that face formidable barriers to building electrification or have been historically underserved by clean energy or energy efficiency programs — and inclusive processes — where community-based organizations, project beneficiaries or other groups with experience in the target community are either on the implementation team or participate meaningfully in the program design.

In the first cohort of Quick Start Grant projects, 9 of 11 winning projects had an equity focus, representing \$1,588,768 out of \$1,988,712 awarded, or 80 percent of total grant funding. In the second cohort, seven of the eight winning projects had an equity focus, representing \$1,910,000 out of \$2,000,000 awarded, or 95 percent of total grant funding. The project table in Appendix E: Equity Evaluation and Assessment provides a specific description of each projects' equity focus.

²¹ Defined as households qualifying for the California Alternative Rates for Energy (CARE) or Federal Electric Rate Assistance (FERA) programs.

²² As defined by CalEnviroScreen 4.0. California Office of Environmental Health Hazard Assessment. CalEnviroScreen 4.0. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

²³ Naturally occurring affordable housing (NOAH) refers to residential properties that are affordable to low- and moderate-income households without government subsidies or formal affordable housing programs, typically older buildings or homes priced lower due to their age, location, or condition.

Publications and Resources

Throughout the four years of the Quick Start Grant program, the team pursued many avenues to publicize and share results from the grants.

- **Final reports:** Final reports summarizing and presenting work conducted through all grants are published to the TECH Clean California public reporting website, techcleanca.com/quick-start-grants.
- **Webinars:** A webinar series allowed grantees to publicize their work with a broader audience of stakeholders, also published to the TECH Clean California public reporting website, techcleanca.com/quick-start-grants.
- **Conference presentations:**
 - » National Energy and Utility Assistance Coalition Annual Conference, June 2022. Addressing Barriers to Clean Heating with Quick Start Grants (Desmond Kirwan, VEIC).
 - » AESP Annual Conference panel, February 2023. Building Electrification Programs and Policies that Serve Everyone (Myriam Tourneaux, VEIC).
 - » ACEEE Hot Water and Hot Air Forum, March 2023. Delivering Results through Innovation: Results from a Heat Pump Water Heater Loaner Pilot (Chris Badger, VEIC and Ben Foster, Barnett Plumbing).
 - » NBI Getting to Zero Forum, May 2023. Testing New Program Synergies to Overcoming Barriers to Residential Building Electrification (Myriam Tourneaux, VEIC).
 - » ACEEE Buildings Summer Study, August 2024. Taking the Emergency Out of Emergency Water Heater Replacements (Chris Badger, VEIC).
 - » Getting to Zero Forum, April 2025. Solutions to Expand Heat pump water heater in Low-Income Communities (Genaro Bugarin, The Energy Coalition; Desmond Kirwan, VEIC; Michael Ferreria, California Energy Commission; and Mayte Sanchez, Los Angeles Cleantech Incubator).
- **Other presentations to stakeholders:**
 - » Regulatory Assistance Project webinar, May 9, 2023. Transforming the Appliance Market: Strategies for Lower-Emissions Heat and Hot Water (Chris Badger, VEIC and Ben Foster, Barnett Plumbing). Available at [rap-appliance-standards-webinar-2023-may-9.pdf](#).
 - » Presentations to CPUC Low Income Oversight Board: [April 2022](#), [August 2022](#)
 - » Presentation to Denver Regional Council of Governments, October 2024. (Teddy Kisch, Energy Solutions).
- **Media stories:**
 - » Desmond Kirwan, "Empowering Communities: The Quick Start Grant Program's Role in Driving Equitable Decarbonization." AESP Energy Intel. (January 14, 2025). [Empowering Communities, Advancing Sustainability - AESP - Page 1 - 61 | Flip PDF Online | PubHTML5](#)
 - » Chris Badger, "The key to successfully deploying heat pump water heaters? Funding innovation." Utility Dive (December 16, 2024). <https://www.utilitydive.com/news/the-key-to-successfully-deploying-heat-pump-water-heaters-funding-innovati/735367>
 - » VEIC staff, "The gaps in building decarbonization programs – and how to fix them." Smart Cities Dive (November 11, 2024). Available at <https://www.smartcitiesdive.com/spons/the-gaps-in-building-decarbonization-programs-and-how-to-fix-them/732088>

These efforts are in addition to grantees' own efforts to publicize their work, which are described in each project's final report.

Key Learnings and Next Steps

Innovation Requires Flexibility

A key finding of the Quick Start Grant program is the indispensable role of flexibility in fostering innovation. Over the four-year grant administration period, numerous Quick Start Grant projects found it necessary to adjust their initial scope or direction in response to real-world challenges, including shifts in incentives, difficulties with participant recruitment, and other unforeseen obstacles or opportunities. The Quick Start Grant team worked closely with recipients to provide flexibility and maximize impact.

For example, Franklin Energy reallocated funds initially set aside for recruitment to support additional installations when demand exceeded expectations. Similarly, the City of Sacramento scaled back its outreach campaign to prevent over-recruitment, ensuring the program's limited capacity did not erode community trust.

For some, adaptability was essential not just for expanding impacts but for maintaining progress. The Energy Coalition, for instance, faced delays in coordinating multiple programs aimed at electrifying low-income homes. Setbacks in solar and battery installations pushed the timeline beyond the original scope, while historic inflation drove up retrofit costs. Recognizing the complexity of braiding funds for maximum benefit, the Quick Start Grant team provided the necessary flexibility for The Energy Coalition to find creative solutions. At the grantee's request, funds initially allocated for data collection were redirected to support the completion of 20 planned installations, ensuring tangible benefits for low-income households despite evolving challenges.

As this need for flexibility became apparent during the initial months of implementation for the first cohort of grant recipients, the Quick Start Grant proactively incorporated flexibility into grant agreements, for example, through adaptable milestone targets or budget allocations. This foresight minimized the need for formal contract amendments, reducing administrative burdens and potential delays associated with legal reviews. Across all grant projects, changes and evolution of scope were documented in the publicly available final reports for transparency and awareness.

Innovative projects, particularly those introducing new technologies or approaches, inherently involve a degree of experimentation where definitive outcomes cannot be predicted with certainty. Focusing on the outcomes, rather than inputs or activities, drove better results for populations and services with complex needs. A significant strength of the Quick Start Grant program's design was the team's purposeful collaboration with grantees, enabling the exploration of viable alternative pathways when projects encountered roadblocks in pursuit of their original objectives. This adaptive management approach allowed for course correction while maintaining a focus on achieving the program's overarching goals.

While the Quick Start Grant program embraced flexibility as a cornerstone of its approach to fostering innovation, it is important to acknowledge the appropriate limits of this adaptability and the criteria that guided decisions to pivot project scopes. The team approached flexible administration of the program as a strategic choice to overcome unforeseen obstacles and maximize learning, but it was not intended to fundamentally alter the core objectives of the program or to indefinitely support projects that demonstrated a lack of viability or potential impact. The decision to support a pivot was typically made through a discussion between the grant administration team and grant recipient. This process involved a careful assessment of the challenges encountered, the viability and potential impact of the proposed alternative pathway, and the alignment of the revised project scope with the overall goals of the program. In instances where a project faced challenges that fundamentally undermined its ability to achieve meaningful outcomes or align with program goals, termination, though a less desirable outcome, was considered as a responsible stewardship of program resources.

The Quick Start Grant team consistently received positive feedback from grantees about the program's flexibility and responsiveness. Grantees frequently cited the ability to make mid-project adjustments as a critical factor in maintaining momentum and achieving meaningful progress in the face of implementation challenges. This feedback underscores the value of designing programs that recognize the iterative nature of innovation and empower grantees to adapt and learn throughout the project lifecycle. The Quick Start Grant team found that embracing flexibility is not merely an accommodation but a fundamental element in successfully driving innovation and achieving market transformation goals.

Achieving Equitable Electrification Requires Supporting the Entire Home Ecosystem

As electrification programs evolve, it is clear that comprehensive support for homes, encompassing not only the installation of new technologies but also the necessary repairs and upgrades, is key to unlocking broader participation and ensuring long-term success. To achieve meaningful energy transitions, funding must extend beyond the electrification measure itself, addressing the often-overlooked infrastructure needs that make these technologies viable in the first place.

Many organizations applied for Quick Start Grant funding to cover work that was necessary for heat pump installations but not funded by other energy and electrification programs. Most frequently, this funding was needed for electrical repairs and home infrastructure remediation. At the launch of the Quick Start Grant program, rebates for these services were rarely available, limiting the potential reach of electrification programs to those who had adequate home infrastructure or the financial means to pay for repairs. Franklin Energy's partnership with MCE's Home Energy Savings (HES) program is a prime example. Over the timeframe of the Quick Start Grant, the HES program installed heat pumps in 70 homes, 47 of which received Quick Start Grant-funded home repairs — meaning 67 percent of homes needed assistance to get a heat pump installed.

Three grant projects reported ranges for home repair costs, averaging around \$2,000 per home. In the City of Sacramento's project, electrical upgrades and repairs needed to electrify homes ranged from about \$1,650 to \$3,500. Franklin Energy's project strove to minimize repair costs by working with a single, experienced contractor and using a simple, tiered cost structure for repairs; the cost per home averaged just over \$2,000, with a range of \$1,250 to \$5,500. The Energy Coalition reported a wide variety of repair costs, with outliers requiring over \$8,000 in non-equipment installation costs. In their project, the two highest cost drivers were main service panel upgrades, averaging \$5,602, and water heater relocation, averaging \$3,045. The Energy Coalition observed a higher frequency of panel upgrades in their project to accommodate the necessary infrastructure for solar and battery storage installations — a strategy intended to protect low-income households against unexpected bill impacts from electrifying.

While several programs have started offering electrical upgrade incentives since the launch of the Quick Start Grant program, they still leave significant gaps in coverage. TECH Clean California covers up to \$4,000 for electrical work, plumbing work, water heater relocation, venting, and some home remediation measures for small multifamily equity projects. For single family projects and general market small multifamily projects, TECH Clean California can cover 50 percent of the cost of electric panel work or replacements, capped at \$2,000.²⁴ While these incentives are helpful, the experiences of the grantees demonstrate that low- and even moderate-income qualified homeowners do not have the discretionary income to move forward with heat pump installations unless the costs are comparable to conventional alternatives.

²⁴ TECH Contractor Knowledge Base. <https://frontierenergy-tech.my.site.com/contractorsupport/s/article/Electrical-Panel-Upgrades>.

Upgrades, Repairs, and Remediation Costs by Equipment Type

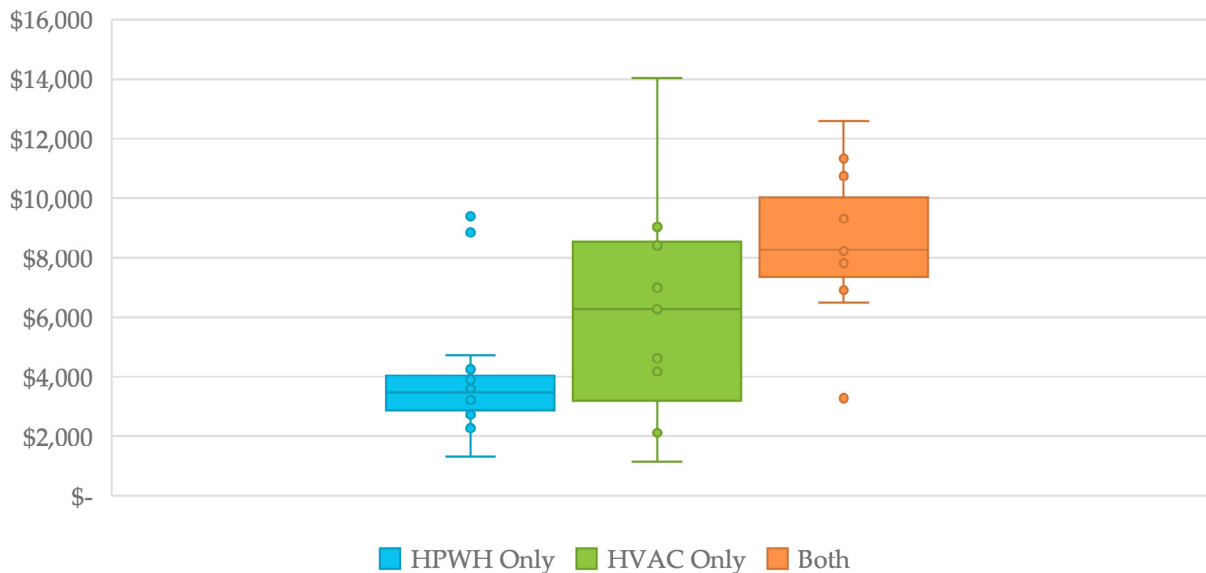


Figure 3: Range of non-equipment costs to facilitate heat pump installations, such as general electrical work, panel upgrades, plumbing, or ventilation work.

Many grantees creatively layered multiple state- and federally-funded sources with the Quick Start Grant award to provide comprehensive services to communities in need. Some grantees, such as Franklin Energy, have leveraged findings from their Quick Start Grant experience to procure additional grants to continue covering these services. However, the grantees all reflected that incentive layering is an imperfect solution that adds significant administrative burden. Funding sources often have inconsistent eligibility requirements, complicating recruitment and introducing significant case management needs to manage different administrative demands, timelines, contractors, and work streams. These processes can become overwhelming, especially for individual contractors or for organizations with limited capacity and resources.

The experiences of these grantees demonstrate that as policymakers look to the future of equitable electrification programs, programs will more effectively and efficiently reach the communities they are intended to serve if funding can be concentrated into a single, flexible program that funds the full suite of necessary repairs. When a single funding source is not possible, programs should aim for consistency in eligibility and not establish requirements that limit program layering.

Invest in Trust-Based Community Partnerships for Enduring Impacts

Rebates and financial incentives may work well for those who can afford to act quickly, but for households facing compounding financial, logistical, and structural barriers, they are not solutions on their own. The impacts of historical and structural inequities on program access cannot be understated. These injustices have created a legacy of distrust in underserved communities, making it difficult for even the most well-intentioned programs to reach these populations. Without the right support systems, incentives remain out of reach for those who need them most. Real innovation comes from creating the programs, financial tools, and hands-on assistance that transform incentives into practical solutions.

This process does not happen overnight, nor simply because funding is available. It requires sustained investment in community engagement, program infrastructure, and trust building to ensure that underserved households can fully participate in and benefit from the clean energy transition. Programs

like the Quick Start Grants, though not designed to overcome these longstanding challenges, must acknowledge the historical context of distrust and design strategies that address it. Funders must prioritize long-term, trust-based relationships with community organizations, recognizing them as experts in their own communities.

Recognizing that effective solutions require diverse perspectives, the Quick Start Grant program was intentionally designed to be inclusive. Through extensive stakeholder feedback across 23 sessions, the program crafted two grant solicitations aimed at attracting non-traditional applicants — including community-based organizations, diverse business enterprises, and small businesses — alongside established market actors. This approach sought innovative ideas from voices often overlooked, avoiding expertise bias and centering the needs of target communities.

Working with the organizations that received Quick Start Grant awards surfaced insights on the unique operational realities of smaller, community-based organizations that often constrain their role in building decarbonization initiatives. While larger institutions may possess dedicated administrative departments and established operational procedures, smaller organizations often rely on lean teams where staff members wear multiple hats. Ironically, these very administrative functions — such as community outreach, program coordination, and impact measurement — are often the core strengths and differentiators of these organizations, equipping them with invaluable expertise to navigate the unique social, economic, and cultural landscapes of the communities they serve. This deep commitment is reflected in the trust these organizations have cultivated with hard-to-reach populations and is often why they are sought after as partners to improve program reach and effectiveness.

However, as reported by grantees, funding opportunities frequently impose stringent restrictions on the allocation of funds towards administrative services. These limitations can inadvertently penalize smaller organizations, forcing them to stretch already thin resources and potentially hindering their ability to deliver on the very activities that make them uniquely effective. The administrative burden associated with complex reporting requirements and narrowly defined budget categories can also be disproportionately taxing for organizations with limited staff capacity. This can create a significant barrier to entry for smaller organizations, effectively excluding them from opportunities to implement impactful and creative solutions.

In contrast, a distinctive feature of the Quick Start Grants program was its commitment to a flexible and trust-based approach to grant administration. Recognizing that grant recipients possess the deepest understanding of their communities and the most effective strategies for achieving program goals, the program empowered grantees to determine how best to leverage their funding and deliver on the agreed-upon contract. This meant that organizations could allocate resources in a manner that aligned with their specific needs and operational structures, including investing in the crucial administrative services necessary to support their community engagement and program delivery. This autonomy fostered innovation and allowed grantees to tailor their approaches to the unique contexts of the communities they served. As Diversity Coalition stated in their final report, the Quick Grant program demonstrated how “trust from funders allowed the project team to galvanize the community in innovative ways, achieving results that would have been unattainable otherwise.”

Flexible administration not only facilitated the successful implementation of the Quick Start Grants but also highlights a critical insight for the broader funding landscape: embracing trust-based funding practices and empowering grantees with greater control over their resources can lead to more valuable investments and unlock impactful innovation. By reducing unnecessary friction, funders can enable these organizations to focus on what they do best — serving their communities and driving meaningful change.

An additional consideration when working with smaller organizations is recognizing the challenges posed by the start-and-stop nature of grant funding. The conclusion of a grant-funded project often creates a steep funding cliff, making it difficult to sustain successful initiatives. Future grant programs should explore ways to provide continued support, whether by integrating effective approaches into broader programs or assisting grantees in securing future funding partners. Helping grantees scale their projects is essential for driving long-term market transformation statewide.

Targeted Projects Deliver Immediate Results, While Larger-Scale Efforts Lay the Groundwork for Lasting Change

Some Quick Start Grant projects could be easily summarized in a single phrase, such as “a visual field guide to heat pump water heater installation” or “a gas loaner for emergency water heater replacements.” Others were more complex and difficult to describe succinctly, often focusing on installing heat pumps in a challenging market segment while deploying multiple, concurrent strategies to overcome barriers. A comprehensive program strategy values both projects that deliver immediate, measurable outcomes as well as those that foster more gradual, foundational changes. Investing in community capacity building, particularly where systemic barriers hinder participation in electrification programs, lays critical groundwork and prepares communities for future initiatives. Simultaneously, supporting early-stage innovations with clear potential for scalability helps prime the market for broader participation. Unifying these complementary efforts under one cohesive program creates the conditions that support both immediate progress and sustained long-term market transformation.

Projects centered on a single product or intervention tended to be lower cost and had a clearer path to scale. For example, Barnett Plumbing’s project introduced a relatively simple but effective solution: providing a loaner gas water heater for emergency replacements when fuel switching could not be completed immediately. Other grantees tested novel products, such as Small Planet Supply’s prepackaged heat pump water heater assemblies or IHACI’s applications for remote collaboration between field installers and master technicians. These projects addressed specific process or technological barriers, introducing new products and approaches that were ready for broader adoption. They achieved clear progress on modest budgets and proved scalable in part because the market challenges they tackled were well-defined and self-contained. Often these interventions were aimed at market segments — such as moderate- to high-income single family households — that already have the means, motivation, and opportunity for rapid heat pump adoption and require only targeted interventions to accelerate the transition.²⁵

By contrast, other projects sought to create comprehensive electrification strategies that addressed interconnected challenges, including housing quality, limitations in government programs, and broader socioeconomic barriers, which cannot be resolved through individual interventions alone. These types of projects were inherently more complex and often required adjustments to scope, budget, and timeline. However, these challenges do not diminish the value of the more involved projects simply because they result in fewer installations per dollar invested. Instead, they highlight the program’s role in addressing gaps left behind by traditional funding and initiatives. While they may have a less immediate path to broad adoption, they laid the foundation for long-term, systemic change.

Projects led by Bright Power, the U.S. Green Building Council California (USGBC-CA), the City of Sacramento, and The Energy Coalition, for example, installed a seemingly modest number of heat pumps, yet their true contribution extends beyond the individual homes they upgraded. Each installation seeded awareness in the community, demonstrating the feasibility of electrification and normalizing the transition to clean energy. Viridis Consulting’s engagement with the Heather Village community provided

²⁵ Acxiom Corporation (2015). Energy Consumer Dynamics Segmentation Cluster Descriptions.

a clear illustration of these effects: By prioritizing education, relationship-building, and a hands-on demonstration project, they gave the HOA board the confidence needed to scale electrification efforts for more than 400 homes. As Viridis acknowledged in their final report, the success of this process hinged on the presence of electrification champions in the community.

Assuming that every community has established electrification champions, or that residents will readily participate simply because a program is well-intentioned, overlooks the significant barriers that many face in accessing these opportunities. Decades of broken promises and systemic inequities in housing, education, and economic opportunity have cultivated deep distrust, making clean energy initiatives feel disconnected from everyday realities. Without deliberate investments in repairing these relationships, electrification and climate resilience risk being perceived as abstract ideals rather than tangible, attainable solutions.

Further demonstrating this, initiatives led by the Diversity Coalition and Alternative Energy Systems Consulting, Inc. (AESC) did not focus on immediate installations but played a pivotal role in bringing the needs of underserved communities to the forefront of regulatory and policy discussions. By exposing structural barriers and advocating for more inclusive solutions, their efforts laid the groundwork for policies that can drive future adoption at scale. At the same time, their direct engagement with communities has helped residents recognize that they are not excluded from the clean energy transition and that real, meaningful benefits are within reach. While these foundational efforts may not deliver immediate large-scale deployment of heat pumps, they are essential in shaping the systemic conditions that make future adoption possible. Without sustained investment in this incremental progress, programs risk perpetuating exclusionary practices and stalling the long-term transformation necessary for an equitable clean energy future.

In the end, market transformation requires both precision to scale what is ready and persistence to tackle what is not. Supporting both direct implementation and capacity building within a single program like the Quick Start Grants creates valuable synergies, as empowered communities are better equipped to adopt and sustain changes over the long term. For simpler projects with clear scalability, the program provides the platform and structure needed to integrate successful models into larger initiatives. For more complex, multilayered projects, a Quick Start Grant program can support their long-term success by not only funding early-stage work but also by establishing pathways for sustained investment, ensuring that incremental progress translates into lasting change.

Taking Learnings to Scale

A main goal of the Quick Start Grant program was to promote the development and refinement of interventions that could be scaled into statewide solutions. While the projects have demonstrated several successful solutions to overcoming heat pump market adoption barriers, they also highlighted several systemic challenges that still need to be addressed. Though some projects have expanded since completing their grant period, not all promising strategies have achieved natural market growth. This result is, to some degree, expected: Adoption of new products and practices in nascent markets often waxes and wanes in the face of complex and interdependent challenges around product availability, quality and standardization, workforce capacity, and market perceptions. In addition, the skills to bring projects to scale differ from developing and implementing innovative ideas.

As a next step, TECH Clean California plans to launch the Quick Start Grant Scaling Fund, which is intended to provide additional funding and technical assistance to help promising, completed Quick Start Grant projects take the next step towards statewide scale. The Scaling Fund will fund activities that broaden impacts, combine concepts, or address ongoing barriers from the existing portfolio of Quick Start Grants projects — for example, by funding a new program that expands a successful solution to a new population or context, or by supporting targeted distribution of best practices or project approaches to policymakers and program administrators.

The Quick Start Grant team has been excited to see other organizations and efforts, such as by the Denver Regional Council of Governments and the New England Heat Pump Accelerator, mention the program in their adoption of similar small grant initiatives. The implementation team believes these programs can offer a dynamic approach to addressing complex market and community needs by supporting innovation, maintaining the flexibility to adjust to changing circumstances, and empowering local organizations. This approach can foster an inclusive and equitable path to decarbonization by helping small organizations participate in the clean energy transition, and we are excited to see it continue to spread.

Appendix A: 2021 Quick Start Grant Solicitation and Scoring Rubric



QSG Implementation Plan / Solicitation Outline

Program Description

TECH

The Technology and Equipment for Clean Heating (TECH) initiative is a \$120 million program aimed at driving adoption of low-emission space and water heating technologies in homes across California, advancing the state's mission to achieve carbon neutrality by 2045. The initiative was created as part of California Senate Bill 1477 and is funded by revenues collected through California's Cap-and-Trade program. TECH is administered by Energy Solutions and a team of expert partners with oversight and management from the CPUC. Through a combination of financial incentives, outreach and education, collecting and analyzing market data, and pilot programs, TECH will serve as a national model for accelerating the adoption of heat pump technologies for space and water heating.

Quick Start Grant Overview

TECH will be providing Quick Start Grants (QSG) to fund localized, vanguard approaches to accelerate deployment of heat pump space and water heating technologies in single family and multifamily homes. The goal of the QSG program is to test market transformation strategies and approaches, support technology development, and leverage high-impact opportunities to increase the installed base of heat pump technologies. QSG funding will help facilitate rapid integration of promising concepts into TECH and will ensure that innovative approaches have a funding source to scale deployment or refine strategic ideas.

QSG Funding Categories & Eligibility

The focus of the QSG program is to fund projects and partnerships that accelerate heat pump space and water heating deployment and could be scaled to statewide approaches in the future. Target areas include:

- Scalable project finance solutions

- Initiatives serving low-income households, disadvantaged communities (DACs),¹ hard-to-reach customers,² environmental and social justice communities,³ households with high energy burdens, multifamily buildings, or renters
- Approaches that support whole home electrification
- Innovative outreach, marketing, service delivery strategies, or business models
- Projects that demonstrate ways to reduce total installed project costs
- Demonstration of emerging technologies with potential to scale
- Projects that test strategies to improve the customer or installer experience
- Programs that can influence purchasing or management decisions for large groups

Awards will be made in the amount of \$50,000-\$250,000 with 6-12 grants likely. Projects must be completed within 16 months of contract award. The attached evaluation criteria are designed to prioritize grants that:

- Result in heat pump or heat pump water heater installations
- Show a clear pathway to scaling heat pump adoption
- Demonstrate initial or final results within 1 year of award
- Provide cost sharing or other in-kind contributions to maximize impact relative to budget
- Demonstrate the unique need for QSG funding
- Demonstrate qualifications and planning that support rapid project rollout and a high likelihood of success
- Support decarbonization in low-income or other historically excluded customer groups
- Are submitted by or include partnerships with diverse business enterprises (DBEs) in California, non-profits, or community-based organizations (CBOs). The QSG program follows Southern California Edison’s DBE policy and recognizes certification from:
 - o The Supplier Clearinghouse (CPUC) - www.thesupplierclearinghouse.com;
 - o Central Contractor Registration (SBA 8A Program only) - www.dol.gov/general/business-ccr
 - o California Department of General Services (DVBE only) - <https://www.dgs.ca.gov/PD>

¹ CalEPA designates the highest scoring 25% of census tracts from CalEnviroScreen 3.0 as disadvantaged communities, as well as 22 census tracts that score in the highest 5% of CalEnviroScreen’s Pollution Burden, but do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data. <https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf>

² CPUC defines hard-to-reach customers in the Statewide Deemed Workpaper Rulebook 3.0, available here: https://static1.squarespace.com/static/53c96e16e4b003bdba4f4fee/t/5dfd68a171e0665b4c4c5adf/1576888489519/SW+Deemed+Workpaper+Rulebook_Verion+3.0.pdf

³ The CPUC defines Environmental and Social Justice (ESJ) communities in its ESJ Action Plan, available here: <https://www.cpuc.ca.gov/news-and-updates/newsroom/environmental-and-social-justice-action-plan>

In awarding proposals, the QSG program will strive to allocate 40% of funds to projects that benefit low-income households, disadvantaged communities (DACs), or other hard to reach customers. The final percentage of awards will be dependent on proposals received.

Projects with promising results after year 1 could be eligible for renewal in future grant cycles.

Applicants must use the form attached to this solicitation to apply. Applicants will be expected to provide regular updates and a final report on their work.

Selected projects will be subject to terms and conditions within the Quick Start Grant Recipient Agreement in the Appendix of this solicitation.

Timeline

Date	Deadline
Sept. 1, 2021	2022 Quick Start Grant solicitation open
Sept. 8, 2021	Applicant's conference
Sept. 20, 2021	Applicant questions due by 5:00 PM PDT
Oct 1, 2021	Applications due by 5:00 PM PDT
Nov. 1, 2021	Application decisions are announced
Dec. 17, 2021	All contracts must be finalized

Application Form Questions

Instructions

To receive communications during the application period, submit your intent to bid via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants - Intent to bid."

Direct all questions via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants – Q&A" before 5:00 PM PDT September 20, 2021. Questions and answers will be added on a rolling basis to the QSG website <https://energy-solution.com/tech-qsg/>.

Review the information on the TECH website and the QSG page, which provide resources on the broader TECH initiative and other funding resources.

Fill in the following application form and attach additional information as needed.

Submit final proposals via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants - [Company Name]" by 5:00 PM October 1, 2021.

Contact Info

Lead organization/business name, primary point of contact, POC email and phone:

Mailing Address:

Subcontractors (list):

Does the proposal team include a DBE, non-profit or community based organization based in California?

No

If your company is a DBE, non-profit, or CBO please provide a description and attach certification, if applicable.

Does the proposal team accept the contractor T&Cs? If not, please attach an explanation.

No

Proposed Project/Scope

Please provide a brief summary of your project. The summary should include a detailed description of heat pump space or water heating equipment to be installed and/or approaches to be implemented. Please clearly describe where and/or with whom the work will take place and indicate if a specific housing type (e.g., single family, multifamily, regulated affordable, naturally occurring affordable, etc.) or community type (e.g., urban, rural) is being targeted. (1 page, ~500 words)

Describe how your project fits into the goals of TECH and the quick start grants program (e.g., scalable, transformative, high-impact, innovative) and provide any market research you have conducted. (1 page, ~500 words)

Describe the unique role for QSG funding in supporting this project. For example, explain how QSG funding complements without duplicating sources of funding included as cost share. Or explain how this project is not eligible for other available sources of funding. (1/2 page, ~250 words)

In the following table, provide SMART (specific, measurable, achievable, realistic, and time-bound) key performance indicators (KPIs) for your project, metrics for evaluating success, a description of how you will gather the necessary data, and any analytical methods (if applicable) in the following table. Be quantitative where possible (e.g., emissions reduced, # of customers, # of units). Attach additional pages for KPIs if more space is needed.

KPI/Goal	Metric	Data Collection and/or Analysis Approach

Does your program have potential to provide direct or indirect benefits to low-income customers or historically excluded communities?

No

If yes, describe in detail factors such as whether the benefits will be direct or indirect, how the results of the project will address the distinct needs of these groups, the estimated percentage of project resources that will be directed to these communities, and/or your organization's or project team's experience working in any specific locations/communities targeted in the project (1/2 page, ~250 words)

Please provide an implementation plan and timeline for the project (½ page, ~250 words)

Describe how the qualifications and expertise of the applicants will support the success of the project. If multiple organizations are applying, describe the specific role of each partner.
(1 page, ~500 words)

Please supply 3 references (name, company/organization, email, phone number)

Please attach any supporting materials that strengthen your proposal (e.g. links to similar projects completed, letters of support, results from other pilots/projects). Proposals seeking funding over \$100,000 are strongly encouraged to add supporting materials.

Budget

Itemized budget table. If more space is needed, attach a separate document

'Cost per unit' and 'total units' refer to the line item. For example, unit cost could represent labor rates (e.g. \$/hour or \$/FTE) or actual or estimated costs of heat pump equipment, M&V equipment, software, or other intellectual property.

Attach quotations for price estimates where applicable.

Line Item (equipment, labor, etc.)	Cost Per Unit (\$)	Source for Price Estimate	Total Units	Cost (\$)
				0
				0
				0
				0
				0
				0
Total Cost of Project				0
Leveraged Funds (if applicable)				
Total Funding Requested				0

Propose your **milestone-based payment structure**. Project initiation/mobilization is an acceptable milestone if upfront funds are needed at the outset of the project.

Please use the following table. If more space is needed, attach a separate document.

Milestone	% of Total Requested Budget	Amount (\$)	Expected Date

Cost share / in-kind contribution detail

Please provide a description of your cost share funding or in-kind contribution and what is excluded. It should be clear from this table and the rest of the application why Quick Start Grant funding is needed to support the project. If more space is needed, attach a separate document. Attach documentation.

Cost Share / In-Kind Source	Description	Amount (\$)
Total		0

Scoring Rubric

Criteria	Available Points per Criteria	Total Points Available
Program Value & Scalability		55
<ul style="list-style-type: none"> The proposal fits with the goals of TECH and the QSG program and is testing or demonstrating a deployment approach with potential to scale 	30	
<ul style="list-style-type: none"> The proposal demonstrates high impact (based on proposed KPIs) relative to the proposed budget 	20	
<ul style="list-style-type: none"> The proposal will demonstrate results within 1 year 	5	
Feasibility		35
<ul style="list-style-type: none"> Clear and reasonable implementation plan 	10	
<ul style="list-style-type: none"> Funding request appropriate to proposal 	5	
<ul style="list-style-type: none"> Clearly defined audience & geography 	5	
<ul style="list-style-type: none"> Applicant has qualifications/expertise to carry out proposal 	5	
<ul style="list-style-type: none"> The project leverages funding from another source 	10	
Equity		20
<ul style="list-style-type: none"> The proposal will or has the potential to benefit LMI customers/a historically excluded market 	15	
<ul style="list-style-type: none"> The applicant is a DBE, non-profit, or CBO 	5	
Firm is able to accept terms and conditions (Y/N)		
TOTAL MAXIMUM POINTS		110

Appendix B: Quick Start Grant Solicitation

2022 Quick Start Grant Solicitation

Program Description

TECH Clean California

TECH Clean California (TECH) is a statewide midstream incentive and heat pump market transformation initiative to help put California on the path to carbon-free homes by 2045. Through a combination of financial incentives, outreach and education, data collection and analysis, and pilot programs, TECH aims to reduce adoption barriers and aspires to be a national model for accelerating heat pump uptake. TECH was created by California Senate Bill 1477 and is funded by revenues collected through California's Cap-and-Trade program. It is administered by Energy Solutions and a team of expert partners, with oversight and management from the CPUC.

TECH Quick Start Grant Program

A key initiative of TECH is to deploy pilot programs that test solutions to market barriers impeding the adoption of heat pump space and water heating in single- and multifamily homes. The Quick Start Grant (QSG) program aims to find and fund targeted, innovative pilots testing approaches to overcome these barriers – for example projects that help contractors find suitable customers, that make installations easier, cheaper, or faster, or that otherwise improve the customer value proposition and contractor business model of installing heat pumps. In testing these approaches, the QSG program aims to promote the development and refinement of interventions that can be scaled into statewide solutions.

Successful applications will demonstrate that the proposed project:

- Clearly tests a solution to a barrier to residential building decarbonization
- Has the potential to expand into a statewide approach
- Is feasible within the budget proposed and can be implemented within one (1) year

In 2021, TECH awarded the first round of Quick Start Grants to eleven recipients. Descriptions of these current projects, which will be implemented throughout 2022, can be found on the QSG website at <https://energy-solution.com/tech-qsg/>.

Funding Focus Areas and Project Eligibility

Solicitation Focus Areas

This second year of grants is seeking to engage more deeply in investigating ongoing challenges deploying heat pumps in low-income and energy burdened households and in historically underserved areas. While the solicitation is open to all types of projects and approaches to grow the market for heat pump space and water heating, this year's solicitation will place particular emphasis on identifying projects that fit into the following focus areas:

- Using heat pumps to lower household energy burden
- Innovative financing models and deployment approaches

- Holistic approaches using heat pumps to improve habitability or resident health
- Improving the customer experience and satisfaction with heat pumps
- Helping customers plan for future fuel switching
- Targeted approaches to outreach, education, or marketing
- Projects taking place in market segments that face formidable barriers to building electrification or that have been historically underserved by clean energy or energy efficiency programs, for example:
 - Low-income households¹
 - Disadvantaged communities²
 - Renters or multi-family housing, especially naturally-occurring affordable housing
 - Customers on unregulated fuels (e.g., wood or propane)
 - Mobile or manufactured housing
 - Customers whose primary language is not English
 - Rural or remote communities

Project Budget

Awards will be made in amounts up to \$350,000, with 6-12 grants likely. Project work should begin in January 2023 and must be completed within 16 months of contract award.

Budgets should include all project expenses, and may include communications expenses such as translating marketing materials, developing case studies, and disseminating project learnings. If funding for the heat pump appliances themselves is necessary to finance your project, please include these incentives in your budget.

Eligibility

QSG projects must occur in PG&E, Southwest Gas or SoCalGas service territory, but individual project sites do *not* need to be current gas customers to be eligible.³

Eligible implementing organizations include nonprofit, private, and local government organizations. Proposals may have subcontractors. The application should stipulate who program partners are and be submitted by the lead organization. Organizations that are, or are partnered with, diverse business enterprises (DBEs) in California, non-profits, or community-based organizations (CBOs) are encouraged to apply. Previous recipients of Quick Start Grants are also eligible to apply for a new project.

¹ For purposes of this solicitation, low income households are defined as those qualifying for California Alternative Rates for Energy (CARE) or the Federal Electric Rate Assistance Program (FERA). See <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/care-fera-program>

² Disadvantaged communities are defined using the CalEPA CalEnviroScreen 4.0 tool, which designates the highest scoring 25% of census tracts from as disadvantaged communities, as well as 22 census tracts that score in the highest 5% of for Pollution Burden, but do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data. See <https://calepa.ca.gov/wp-content/uploads/sites/6/2017/04/SB-535-Designation-Final.pdf>

³ Unfortunately, SDG&E territory is no longer eligible for TECH incentives due to budget allocations set by the authorizing legislation. For more information on what zip codes are eligible, see the “Customer Qualification” section of the TECH Clean California website: <https://energy-solution.com/tech-incentives/>

In awarding proposals, the QSG program aims to allocate at least 75% of funds to projects that directly benefit low-income households, disadvantaged communities (DACs), or other historically underserved groups of customers.

Application Requirements

Applicants must use the **Quick Start** Grant Application to apply and meet the requirements outlined below. Applicants will be expected to provide regular updates and a final report on their work. Applicants must agree to the standard contract terms and conditions.

Applications must meet the following minimum requirements for review:

- The Applicant organization(s) is eligible for grant;
- The Application is complete and responsive to questions asked;
- The Application is submitted by the required deadline;
- The Applicant is in good standing with the TECH program for any other current grants received (if applicable).

Contract Terms

Selected projects will be subject to terms and conditions within the Quick Start Grant Recipient Agreement in the Appendix of this solicitation.

Timeline

Date	Deadline
May 31, 2022	2022 Quick Start Grant solicitation open
June 15, 2022	Informational webinar for potential applicants
June 30, 2022	Bidder questions due by 5:00 PDT
July 31, 2022	Applications due by 5:00 PM PDT
August 31, 2022	Finalist Applicants notified
September 19, 2022	Finalists Pitch to TECH QSG Selection Team
September 30, 2022	Final award decisions are announced
December 9, 2022	Finalized Contracts Due
January 1, 2023	Estimated start date for all grant work

Scoring Rubric

Eligible applications will be evaluated based on criteria as outlined in the Scoring Rubric.

Table 1: Scoring Rubric

Criteria	Total Points Available
Program Impact	50
<p>Pertinence and value: The proposal clearly articulates the barrier(s) to heat pump market deployment addressed by the project, and how the proposed solution may overcome this barrier.</p> <p>The proposal clearly articulates the ideas or hypothesis being tested, what success would look like and what it would mean for heat pump market deployment.</p> <p>The proposal formulates a powerful narrative around expected impacts and why lessons learned from the pilot would be important.</p> <p>Scalability: The proposal clearly articulates how the project has the potential to scale for statewide impact.</p> <p>Focus area: The proposal addresses a QSG Focus Area.</p>	
Feasibility	40
<p>Implementation plan: The proposal articulates a clear and reasonable implementation plan, with program implementation within one year. The proposal addresses foreseen risks and challenges, as well as the steps taken to ensure the project will result in lesson learned.</p> <p>Budget: The Project is feasible within proposed budget.</p> <p>Audience & geography: The project with target a defined audience and/or geography.</p> <p>Qualifications: Applicant has qualifications, expertise, and experience within the target community to successfully carry out project</p>	
Equity	20
<p>Equitable benefits: The project directly benefits market segments that face formidable barriers to building electrification or that have been historically underserved by clean energy or energy efficiency programs.</p> <p>Inclusive processes: Community-based organizations, project beneficiaries or other groups with experience in the target community are either on the implementation team or participate meaningfully in the pilot design.</p>	
Firm is able to accept terms and conditions	Y/N
TOTAL MAXIMUM POINTS	110

Finalists will receive feedback on their written proposals and will be asked to present at a virtual interview to a panel of judges before final selection. The project’s score based off the written application will be adjusted based on any changed assessment or understanding of the project gained during the pitch session.

Quick Start Grant Application

Application Form Instructions

1. To receive communications during the application period, submit your intent to bid via email to TECH.pilots@energy-solution.com with the subject line “Quick Start Grants – Intent to bid”
2. Direct all questions via email to TECH.pilots@energy-solution.com with the subject line “Quick Start Grants – Q&A” before 5:00 PM PDT June 30, 2022. Questions and answers will be added on a rolling basis to the QSG website, <https://energy-solution.com/tech-qsg/>
3. Review the information on the TECH website and the QSG page, which provide resources on the broader TECH initiative and other funding resources.
4. Fill in the attached application form.
5. Submit final proposals via email to TECH.pilots@energy-solution.com with the subject line “Quick Start Grants - [Company Name]” by 5:00 PM PDT on July 31, 2022.



TECH CLEAN CALIFORNIA

Quick Start Grant Application Form

Instructions

1. To receive communications during the application period, submit your intent to bid via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants – Intent to bid"
2. Direct all questions via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants – Q&A" before 5:00 PM PDT June 30, 2022. Questions and answers will be added on a rolling basis to the QSG website, <https://energy-solution.com/tech-qsg/>
3. Review the information on the TECH website and the QSG page, which provide resources on the broader TECH initiative and other funding resources.
4. Fill in the following application form.
5. Submit final proposals via email to TECH.pilots@energy-solution.com with the subject line "Quick Start Grants – [Company Name]" by 5:00 PM PDT on July 31, 2022.

Contact Info

Project name:	
Lead organization name & primary point of contact:	
Mailing Address:	
Subcontractors (list):	
Is your company a DBE or non-profit in the state of California?	

If your company is a DBE, please provide the type and attach certification:	
Does the proposal team accept the contractors Terms & Conditions? If no, please attach an explanation.	

Applicant Eligibility:

Are you a current recipient of a Quick Start Grant?	No
In which gas IOU service territories will your project take place?	<input type="checkbox"/> PG&E <input type="checkbox"/> SoCalGas <input type="checkbox"/> SDG&E <input type="checkbox"/> SW Gas
Please indicate which focus area(s) your proposed project fulfills (see Solicitation Focus Areas on page 1). List all that apply:	

Proposed Project

1. Please provide a brief summary of your project. Please clearly describe the barrier(s) to heat pump deployment addressed by the project, how project approach will address these barrier(s), where and/or with whom the work will take place, and if a specific housing type (e.g., single family, multifamily, regulated affordable, naturally occurring affordable, etc.) or community type (e.g., urban, rural) is being targeted. (1 page, ~500 words)

-
2. How will you define success for your project, and how will you know if your intervention was successful in contributing to the expansion of the heat pump market? If your project is successful, how could it be scaled statewide or incorporated into the overall approach of the TECH program after the end of the grant period? (1 page, ~500 words)

3. Describe the need for QSG funding for this project. For example, explain how QSG funding will contribute to existing sources of funding (cost share). Or, explain how this project is not eligible for other available sources of funding. (1/2 page, ~250 words)

5. In the following table, provide SMART (specific, measurable, achievable, realistic, and time-bound) goals (column 1) and the associated indicator of success or metrics (column 2). In column 3, enter a description of how you will gather the necessary data and any analytical methods you will use, if applicable. Indicators of success may be qualitative (e.g., change in attitude toward heat pumps) or quantitative (e.g., emissions reduced, # of customers, # of units). Attach additional pages if more space is needed.

SMART goal or objective	Indicator of success	Data Collection and/or Analysis Approach
<i>e.g., Increase low-income households' trust in HPWH within 6 months</i>	<i>Percentage of pilot participants in outreach activities reporting an increase in their level of trust of HPWH</i>	<i>Surveys, interviews, focus group, etc.</i>
<i>e.g., Increase low-income households HPWH adoption within 1 year</i>	<i>Number of units installed</i>	<i>Program monitoring tool</i>

6. Does your program have the potential to provide direct or indirect benefits to low-income customers or historically excluded communities?

No

7. If yes, describe whether the benefits will be direct or indirect, how the results of the project will address the distinct needs of these groups, and the estimated percentage of project resources that will be directed to these communities.

8. If applicable, please indicate how your pilot design process has included or will meaningfully include community-based organizations, project beneficiaries, or other groups with experience in the community (e.g. focus groups, surveys, co-design, workforce development, nonprofit partnerships, etc.). Please refer to [The Initiative for Energy Justice](#) or the [Justice40 Initiative](#) websites for insights on advancing energy equity and inclusive program design.

9. Please provide an implementation plan and complete the proposed milestone table with timeline for the project. Please describe your proposed activities under each milestone/task. The final task should include program deliverables including a final report documenting the work done to date and findings related to the pilot research questions or demonstration objectives. Selected grantees will also be expected to discuss successes, challenges and lessons learned throughout the project. Attach additional pages if more space is needed.

Milestone/ Task Number	Activities	Deliverables	Timeline
1	<ul style="list-style-type: none"> • <i>o.g. Kickoff meetings with TECH</i> • <i>Market assessment focus groups</i> 	<i>Agenda, meeting notes, focus group notes, etc.</i>	<i>January – February 2023</i>

10. Describe how the qualifications and expertise of the applicants will support the success of the project. If multiple organizations are applying, describe the specific role of each partner. Describe your organization's or project team's relationship with or experience working in any specific locations/communities targeted in the project.

11. Please supply three (3) references (name, company/organization, email, phone number)

Reference 1	
Reference 2	
Reference 3	

12. Please attach any supporting materials that strengthen your proposal (e.g., links to similar projects completed, letters of support, results from other pilots/projects). Proposals seeking funding over \$100,000 are strongly encouraged to add supporting materials.

Budget

13. Itemized budget table. If more space is needed, attach a separate document. Attach quotations for price estimates where applicable.

Note: 'Cost per unit' and 'total units' refer to the line item. For example, unit cost could represent labor rates (e.g., \$/hour or \$/FTE) or actual or estimated costs of heat pump equipment, M&V equipment, software, or other intellectual property.

Line Item (equipment, labor, etc.)	Cost Per Unit (\$)	Source for Price Estimate	Total Units	Cost (\$)
Total Cost of Project				
Leveraged Funds				
Total Funding Requested				

14. Propose your milestone-based payment structure. Project initiation/mobilization is an acceptable milestone if upfront funds are needed at the outset of the project. Please use the following table. If more space is needed, attach a separate document.

Milestone	% of Total Requested Budget	Amount (\$)	Expected Date

15. Funding match/leveraged funds detail. Please provide a description of what is covered by this funding and what is excluded. It should be clear from this table and the rest of the application why Quick Start Grant funding is needed to support the project. If more space is needed, attach a separate document. Attach documentation.

Funding Source	Description of Funding	Amount (\$)
Total		

Appendix C: Stakeholder Feedback Summary

The stakeholder engagement process combined targeted outreach with snowball sampling to gather diverse input on the solicitation and program design. Targeted outreach involved directly engaging stakeholders with relevant expertise or perspectives, ensuring that feedback was focused and aligned with the program's objectives. Snowball sampling complemented this by leveraging the networks of initial stakeholders to identify additional participants, particularly those serving underrepresented or hard-to-reach groups. This approach ensured a broad range of perspectives were considered, enhancing the inclusivity, relevance, and practical applicability of the program. In addition to internal contributions, the VEIC team received input on the solicitation and program design from 23 organizations across the building decarbonization and electrification industry. These sessions improved the clarity of the solicitation, strengthened information gathering, and refined the evaluation and funding allocations, particularly with respect to equitable practices.

Feedback has been consolidated into the following thematic areas:

1. Program Clarity and Scope Definition

Stakeholders identified several areas where enhanced clarity in the program description and solicitation materials would benefit potential applicants:

- **Quick Start Grant intent:** Explicitly state that Quick Start Grants are intended for projects lacking access to other available funding sources.
- **Payment structure:** Clearly articulate that, while progress payments are milestone-based, an initial upfront payment is permissible.
- **Project timeline:** Define the expected project duration, e.g., demonstrating results within one year, the possibility of second-year funding, and the maximum project term, e.g., 16 months.
- **Serving underserved communities:** Provide more detailed guidance and specific examples of criteria applicants should meet to demonstrate service to low- to moderate-income and/or historically excluded communities.
- **Funding priorities:** To mitigate potential intimidation from a lengthy list of priorities, clarify that applications are welcome and will be considered even if they do not address every listed factor.
- **Technical assistance:** Specify if and how the associated TECH Clean California initiative will provide technical support or guidance to grantees throughout their project lifecycle.
- **Eligible housing stock:** Confirm that the program is open to projects serving both single family and multifamily residential properties.
- **Disadvantaged Business Enterprise definition:** Address whether U.S. Small Business Administration-defined categories, such as women-owned small businesses and economically disadvantaged women-owned small businesses, are encompassed within the program's definition of Disadvantaged Business Enterprises.
- **General eligibility:** The intentionally broad scope of eligible projects led to numerous questions regarding the eligibility of specific project ideas. Providing clearer parameters or illustrative examples could help applicants better assess their potential for success.

2. Application Information Requirements

Feedback suggested requesting additional information from applicants to strengthen the evaluation process:

- **Applicant qualifications:** Request supplementary documentation to verify qualifications. Consideration should be given to implementing tiered documentation requirements based on the requested funding amount, e.g., more rigorous requirements for projects exceeding \$100,000.
- **Performance metrics:** Require applicants to specify the performance metrics they intend to use to measure project success.
- **Impact methodology:** Request a description of the methodology used to derive figures presented as demonstrating “high impact.”
- **Target housing types:** Ask applicants to detail the specific housing type(s) their project aims to serve. This information can inform equitable funding allocation and allow for monitoring the diversity of housing stock reached by the grants.

3. Scoring Criteria, Equity Considerations, and Allocation

Significant discussion focused on refining the scoring process to better emphasize equity and transparency:

- **Low- to moderate-income/disadvantaged community focus:** While initial feedback favored a specific funding carve-out for projects serving low- to moderate-income communities or disadvantaged communities, subsequent discussions indicated positive reception towards framing this commitment as a target aligned with the principles of the Justice 40 initiative.
- **Equity scoring mechanisms:** As an alternative or supplement to targets, suggestions included increasing the point allocation for equity criteria, e.g., additional points for DBE participation, or prioritizing projects that specifically target customers experiencing high energy burdens.
- **Criteria wording:** Recommend removing potentially subjective phrasing, such as “has the potential,” from equity criteria to enhance objectivity.
- **Community partnerships:** Consider requiring or incentivizing applicants working in disadvantaged communities to partner with established community-based organizations.
- **Portfolio diversity:** Incorporate consideration for the diversity of applicant types being awarded grants and the range of housing types being served into the overall scoring and final review process.
- **Scoring transparency:** Multiple stakeholders expressed a desire for greater detail on how points are assigned, particularly concerning the evaluation of different types and levels of leveraged funding and the assessment of project impact metrics.
- **Pay equity:** Evaluate proposals for pay equity, ensuring fair compensation, particularly concerning potential underestimation of full-time equivalent costs within community-based organization applications.

4. Program Parameters and Logistics

Feedback also touched on specific program rules and operational aspects:

- **Funding cap:** It was noted by one stakeholder that the \$250,000 maximum grant amount might be insufficient for certain larger-scale or high-impact projects.
- **Prevailing wage:** Stakeholders recommend including language clarifying the need for compliance with prevailing wage requirements, especially if mandated by leveraged funding sources, potentially as a note in the Terms and Conditions.
- **Workforce readiness:** Address stakeholder questions regarding the eligibility of grant applications focused primarily on workforce readiness initiatives.
- **Outreach strategy:** Enhance solicitation outreach by engaging Low Income Home Energy Assistance Program (LIHEAP) administrators, leveraging their established connections within low- to moderate-income communities.

5. Overarching Programmatic Considerations

Broader concerns were raised regarding the program’s structure and focus:

- **Deployment focus:** Some stakeholders expressed concern that the solicitation might be overly focused on immediate deployment. This was viewed through an equity lens, i.e., a potential lack of foundational systems in disadvantaged communities, and an emerging technology lens, i.e., the need to fund preparatory work like technical guidance that enables future deployment. Addressing activities that build capacity for future deployment may be beneficial.

Table 5: Participating Organizations in Stakeholder Feedback Sessions

First Solicitation	Stakeholder Type/Area of Focus
Los Angeles Better Buildings Challenge (LA-BBC)	Affordable housing
California Housing Partnership Corporation (CHPC)	Affordable housing
Turnbull Energy	Emerging technologies
Sense	Emerging technologies
East Bay Community Energy (EBCE)	Utility
Redwood Energy	Energy consultant
Gridworks	Solar
BlocPower	Building electrification
Advanced Water Heating Initiative (AWHI)	Industry network
Energy Foundation	Policy

First Solicitation	Stakeholder Type/Area of Focus
Network for Energy, Water, and Health in Affordable Buildings (NEWHAB)	Industry network
Harvest Thermal	Emerging technologies
YellowTin	Emerging technologies
The Energy Coalition	Nonprofit
Self Help Enterprises	Affordable housing
Second Solicitation	Stakeholder Type/Area of Focus
Quick Start Grant Recipients	Industry network
Central Coast Energy Services (CCES)	Nonprofit
Rural Hard-to-Reach Working Group	Industry network
Strategic Action for a Just Economy (SAJE)	Community-based organization
National Resources Defense Council (NRDC)	Policy
Blue Lake Rancheria	Tribal organization
Low-Income Oversight Board	Industry network
Opower	Energy consultant

Appendix D: Quick Start Grant Project Summaries and Updates

Table 6: Quick Start Grant Project Summaries - Cohort 1

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
AESC	Initially planned to install heat pump water heater in 10 manufactured homes in a high-poverty area and collect data on cost and interactive energy impact on HVAC load. However, after recruitment and design, California Department of Housing & Community Development blocked installations due to policy restrictions on external heat pump water heaters.	The final report provides energy and GHG impact modeling, assessed the market potential, and made recommendations for policy and technological solutions to adoption barriers. The team has conducted outreach activities to educate stakeholders on the changes needed.	Heat pump water heater	Manufactured housing	Statewide
Barnett Plumbing	Addressed the critical barrier of emergency water heater replacements, where customers need immediate hot water and are put off by the lengthy retrofit process required for fuel switching. With loaner gas water heaters to restore hot water immediately, Barnett increased conversion rates from <1% to 17.1%, then to 52% with 120V heat pump options. 149 heat pump water heaters were installed.	The concept has expanded into multiple CalNEXT research projects and has been offered by 3CREN and MCE as contractor incentive programs. Grantee recommends that scaling this model would require stable funding, streamlined incentive programs, and expanded technician training.	Heat pump water heater	Single family	Contra Costa and Alameda Counties
Bloc Power and City of San Luis Obispo	Aimed to complete water heating and HVAC fuel-switching in 10–12 affordable multifamily units and foster market transformation through a Community Advisory Board. Due to recruitment challenges, no installations occurred during the grant period.	After conclusion of the grant period, one 21-unit affordable housing multifamily project — for which the grant team assisted with program design — proceeded with electrification.	Heat pump water heater and air-source heat pump	Multifamily deed-restricted affordable housing	San Luis Obispo
Franklin Energy	Funded home repairs preventing electrification for moderate-income homeowners, exceeding its initial goals by installing heat pumps in 47 homes instead of the projected 20.	A key insight of this project is the value of a single, experienced contractor with a tiered pricing system, which kept costs low and streamlined the process. Grantee recommends supporting equity by expanding funding to cover preinstallation repairs. Since completion of the Quick Start Grant project, the concept has been scaled into a CalNEXT Focus Pilot further exploring the potential application of a “heat pump readiness assessment” to reduce barriers for electrification. Grantee will apply Quick Start Grant lessons to a Transformative Climate Communities grant in Richmond’s Iron Triangle and pursue similar grants for Contra Costa County.	Heat pump water heater and air-source heat pump	Single family low-income	Northern Bay Area (MCE service area)

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
IHACI	Developed and piloted Visual Service, a diagnostic tool enabling real-time virtual collaboration between master technician and field installers. IHACI successfully deployed the software to positive user feedback and supported successful triage evaluations.	Grantee recommends further development of this software, including expansions to support Title 24 compliance, multiple languages, and to articulate clearer financial benefits for contractors. Visual Service is now integrated into two additional pilots and DOE PATHS workforce training.	Heat pump HVAC	All	Statewide
New Buildings Institute	Conducted a statewide field test on the performance and market viability of 120V heat pump water heater. Successfully installed 20 120V heat pump water heater and published a comprehensive report on the field test results.	120V heat pump water heaters are gaining market share statewide. This project highlighted their energy efficiency and cost-effectiveness, while noting challenges in design, training, and code compliance. It provided key performance and cost data that is now published by the DOE. Additionally, the field study has been used to launch several CalNEXT research projects to further contextualize the market segments this technology presents the greatest opportunity to serve.	Heat pump water heater	All	Statewide
Redwood Coast Energy Authority	Promoted heat pump adoption in rural Humboldt County, where many rely on unregulated fuels. RCEA collaborated with contractors, offered layered rebates, and conducted outreach, leading to 20 installations. This represents a significant share of the county's 29 total installations by the end of 2024, underscoring the value of their involvement.	This project emphasizes the importance of incentive program simplicity and reliability when engaging rural contractors, who have a lower profit margin and more spread-out customer base. RCEA recommends increased and sustained funding along with dedicated local staff to support long-term impact.	Mini-split air-source heat pump and heat pump water heater	Single family low-income	Humboldt County
Revalue.io Green and Healthy Homes	Electrified 65 low- to moderate-income homes while addressing home health hazards and code violations, using layered funding to make repairs at no cost to residents. Designed and led inclusive electrification training 26 contractors and 46 trainees.	The project highlighted the value of partnering with housing rehabilitation programs, although electrification was unfamiliar to many program administrators. Revalue.io emphasized the value of culturally relevant workforce training for minority contractors and shifting outreach to focus on health and comfort benefits. Revalue received seed funding and technical assistance from the Turner Center for Housing Innovation at University of California – Berkeley to support the continuation of their work through the Quick Start Grant.	Heat pump water heater and air-source heat pump	Multifamily affordable housing	West Oakland

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
Small Planet Supply	Performed first field test of WaterDrop, a modular, prepackaged central heat pump water heater that allows easier, cost-effective retrofits in small multifamily buildings. Five pilot installations at a 40-unit complex demonstrated its feasibility, cost savings, and emissions reductions.	WaterDrop is now commercially available at plumbing houses across California. The system received the AWHI Commercial Heat Pump Water Heater Market Transformer award in 2024.	Central heat pump water heater	Multifamily affordable housing	Delano
The Energy Coalition	Installed solar, storage, heat pump water heaters, and other efficient electric equipment at no cost to homeowners by layering multiple funding sources. Performed 50 water heater tune-up assessments and 20 complete home energy assessments, and installed heat pump water heater in 20 low-income, disadvantaged single family homes. The team noted over 8,000 outreach touchpoints with residents.	Key successes stemmed from combining outreach and education with proactive water heater assessments. Grantee recommends flexible funding mechanisms to facilitate broader equitable decarbonization efforts. The Energy Coalition plans to integrate Quick Start Grant pilot insights in other existing and future work, including a Transformative Climate Communities (TCC) Grant in Pomona, California.	Heat pump water heater	Single family	Bassett and Avocado Heights
USGBC-CA	Incorporated heat pumps into their ongoing Green Affordable Housing program by performing electrification feasibility assessments for 16 properties, holding resident engagement sessions at 11 buildings, and performing 11 heat pump space and water heating retrofits across 3 NOAH MF properties.	Grantee expanded their work in this grant project by using heat pump installation data in a second project in collaboration with Climate Resolve, described below.	Heat pump water heater and air-source heat pump	Multifamily naturally occurring affordable housing	Eastern San Fernando Valley

Table 7: Quick Start Grant Project Summaries - Cohort 2

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
350 Bay Area	Provided a portable heating and cooling heat pump system and an air purifier to 26 households, to test a fast path approach to heat pump deployment for low-income renters in an urban area heavily burdened by particulate matter. Grantee provided ongoing support in the use and maintenance of the equipment, while monitors tracked indoor air quality and temperature.	The solution of supplying window heat pump air conditioners to renters was selected by the California Market Transformation Administrator (CalMTA) program as a market transformation initiative and will advance to market deployment in 2025. The CalMTA program estimates this approach to have a Total System Benefit of \$521 million.	Portable heat pump and air purifier	Multifamily affordable housing	San Mateo County

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
Bright Power	Investigated barriers to heat pump adoption in subsidized multifamily housing caused by existing utility allowances (UAs), where current calculation methods disincentivize heat pumps. The project installed 101 packaged thermal heat pumps and 1 central heat pump water heater at JCI Gardens in Torrance, California, a community for low-income seniors. In addition, the team created 3 public-facing resources and conducted 3 webinars with more than 100 attendees. Residents were surveyed to provide insight into resident experiences with their new heating and cooling.	Key recommendations from this project include using more accurate UA calculation methods, providing robust capital incentives and technical assistance to property owners, and proactively engaging residents to address concerns. Through their findings, Bright Power articulates a need for policy changes to make utility allowances more supportive of electrification and improve transparency surrounding UA calculations.	In-unit heat pump	Regulated affordable multifamily	SoCalGas territory
City of Sacramento and SMUD	Leveraging existing partnerships and multiple funding sources, the project team installed 22 heat pump HVAC systems and 11 heat pump water heaters, exceeding initial targets. Created a scalable model for electrifying and repairing homes to maximize household benefits and mitigate displacement risks for low-income residents.	SMUD secured \$3 million from the DOE to fund a neighborhood-based approach to home electrification in the Meadowview neighborhood, applying lessons from this Quick Start Grant project on recruitment, communication, and budget expectations. The City of Sacramento has used Quick Start Grant lessons as part of their Existing Building Electrification Strategy and Climate Action Plan to promote an equitable transition toward carbon neutrality.	Heat pump water heater and heat pump HVAC	Single family	Sacramento
Climate Resolve and USGBC-CA	Investigated data needed to validate heat pump GHG savings and enable participation in green finance market. Installed 7 heat pump HVAC systems and 14 heat pump water heaters across 16 homes. Using data from these installations plus those from a previous Quick Start Grant, created a lifecycle assessment calculator and consulted with stakeholders to understand how this tool could support measurement and verification requirements for green financing.	USGBC-CA plans to continue engaging both single and multifamily owners around heat pump deployments under its Green Homes California initiative. USGBC-CA will draw on the results of the analysis performed under this grant to holistically assess the impact of clean technology deployments on future program participants with regards to both GHG savings as well as occupant health and household affordability.	Heat pump water heater and heat pump HVAC	Multifamily affordable housing	Disadvantaged communities near the Port of Los Angeles

Primary Implementer	Project Description and Results	2025 Update	Technology	Housing or Audience	Location
Diversity Coalition & Bloc Power	Engaged over 1,500 community members in Black, Indigenous, and People of Color (BIPOC) and low-income communities in San Luis Obispo County through outreach events and feedback mechanisms to understand their awareness, interests, and perceived barriers to heat pump adoption. The project created and iterated on tailored outreach and educational materials that address the specific concerns, cultural contexts, and financial realities of these communities.	The grantee will be applying insights gained from this grant to a new project in partnership with the City of San Luis Obispo and local nonprofit and will be assisting with outreach to residents and community organizations to support the City of San Luis Obispo's mobile home electrification program.	N/A	BIPOC communities	San Luis Obispo County
Goodwill Southern California	Planned to support workforce placement and preparation efforts in the HVAC trades, with a focus on heat pump technologies, by offering instruments to qualified participants in the DOE's PATHS Initiative.	Grantee experienced challenges coordinating with the intended community college, and the project ended early.	N/A	Community college students	Inland Empire (Southwest Gas territory)
RHA	Generated, with a panel of industry experts, a set of agreed-upon best practices to improve heat pump water heater installations. Developed two resources: a Best Practices Guide, intended for instructors to use in developing their curricula and training to standardize the installation process, and Job Aids, a visual checklist for heat pump water heater installation that can be used by trainers or by installers in the field. The resources address common installation challenges and aim to boost contractor confidence and consistency.	The project's involvement of industry experts resulted in readily adopted tools, with plans for future development including app-based accessibility and multilingual versions. The documents have been used in training organized by TECH Clean California and reproduced for a national audience by the DOE Building Science Education Solution Center. The resources produced by this Quick Start Grant project will also be used in a CalNEXT study examining the feasibility of quality "do-it-yourself" heat pump water heater installations. RHA has since gone on to run SDG&E's LEARN Program and has integrated the resources from their Quick Start Grant into the new workforce development initiative.	N/A	Contractors	SoCalGas territory
Viridis Consulting	Worked with the homeowner's association (HOA) for Heather Village, a 404-unit multifamily complex in California, to replace gas water heaters with electric heat pumps and conduct a feasibility study identifying a pathway to community-wide electrification. Successfully installed a WaterDrop heat pump water heater at one complex.	The project highlights best practices for other HOAs seeking to electrify, stressing the importance of proactive board engagement, a multidisciplinary project team, and transparent communication with residents to build trust. Viridis Consulting and the Heather Village HOA have entered into a partnership to fully decarbonize the community, including engaging with SCE to decommission existing natural gas infrastructure.	Central heat pump water heater	Multifamily housing governed by an HOA	Fox Hills neighborhood, Culver City

Appendix E: Equity Evaluation and Assessment

Table 8: Evaluation Approach and Changes Between Solicitations

Equity Evaluation	2021 Solicitation	2022 Solicitation
Equity Evaluation — Grantee	Project applicant or partners include a Disadvantaged Business Enterprise or community-based organization that is based in the community where the project is taking place	Community-based organizations, beneficiaries, or other groups with experience in the target community (1) are on the implementation team or (2) participate meaningfully in the pilot design: <ul style="list-style-type: none"> • consulted to collect “customer insights” • at the table for the pilot design and evaluation • on the implementation team
Equity Evaluation — Beneficiary	Project specifically targets low- and moderate-income customers or historically excluded markets as a primary beneficiary of outcomes. If applicable, project has a clear plan for preserving housing affordability and includes local partners. Direct benefits: <ul style="list-style-type: none"> • takes place in low- and moderate-income/ historically excluded community • community buy-in • if applicable, for projects occurring in affordable housing, project includes plan to preserve affordability • indirect benefits include: <ul style="list-style-type: none"> • lower-cost products • DIY install options • increased access to heat pump tech 	The proposal directly benefits market segments that (1) face formidable barriers or (2) have been historically underserved. Project clearly describes how it may benefit low- and moderate-income and underserved communities indirectly Project benefits some low- and moderate-income and underserved communities directly Low- and moderate-income and underserved communities are the primary targets of the pilot

Table 9: Equity Assessment by Grant Project

Grantee	Equity Assessment — Project Team	Equity Assessment — Beneficiaries
AESC	Subcontractor ASK Energy is a Minority Business Enterprise and Woman-Owned Business Enterprise	Manufactured and mobile homes located in high poverty region (>16% as defined by the California Poverty measure)
Barnett Plumbing	N/A	Indirect / not specifically targeting equity customers

Grantee	Equity Assessment — Project Team	Equity Assessment — Beneficiaries
Bloc Power and City of San Luis Obispo	Minority Business Enterprise	Affordable multifamily housing
Franklin Energy	Subcontractor MCE is a nonprofit subcontractor Enso 2 is a minority-owned small business	Hard-to-reach customers or disadvantaged communities in conjunction with MCE HSE direct install program (MCE income-eligible customers)
IHACI	Nonprofit	Indirect per IHACI application: targeting contractors and service technicians who will serve equity customers
New Buildings Institute	Nonprofit	Goal of 40% installations in low-income households per NBI application
Redwood Coast Energy Authority	N/A	100% low-income and historically excluded communities. Nonstandard fuel users in rural and remote areas historically excluded from fuel substitution initiatives. Per RCEA application, many of these areas in Humboldt County are home to an extensive Native American population.
Revalue.io Green and Healthy Homes	Disadvantaged Business Enterprise	50% of project to benefit low-income customers considered hard-to-reach, per application. 50% of project to benefit workforce development.
Small Planet Supply	N/A	Affordable housing. Project taking place in low-income farmworker family community
The Energy Coalition	The Energy Coalition is a nonprofit. Team includes organizations that are nonprofit community-based organizations and/or Disadvantaged Business Enterprises	Project taking place in four East Los Angeles census tracts above the 75th percentile of CalEnviroScreen. All participants are income-eligible to CARE or FERA.
USGBC-CA	Nonprofit	Affordable housing in disadvantaged communities, as defined by CalEnviroScreen. Participants are eligible to the Green Affordable Housing Program.
Bright Power	Subgrantee Climate Action Campaign is a nonprofit	Affordable housing (100%)

Grantee	Equity Assessment — Project Team	Equity Assessment — Beneficiaries
Viridis Consulting	Woman-Owned Business Enterprise and Minority Business Enterprise certifications	Per Viridis' application "Heather village is a highly diverse community within a historically excluded neighborhood". Estimate 25% of residents are elderly on fixed incomes and an additional 25% of residents are renters. Census track data: CalEnviroScreen: 48; Pollution burden percentile: 90; 65.4% non-white
Climate Resolve and USGBC-CA	Nonprofit	Affordable housing in communities designated as disadvantaged communities per CalEnviroScreen (100%)
Diversity Coalition and Bloc Power	Nonprofit/community-based organization	Low- to moderate-income households, homeowners in manufactured/mobile homes, agricultural workers, and households of color in San Luis Obispo (100%)
350 Bay Area	Nonprofit/community-based organization	Renters in low-income urban area. Disadvantaged communities disproportionately impacted by air pollution (100%).
Goodwill Southern California	Nonprofit	Beneficiaries from DOE PATH program: non-traditional workforce in disadvantaged communities (100%)
City of Sacramento and SMUD	Nonprofit	Low-income single family homeowners in conjunction with the City of Sacramento's anti-displacement and home rehabilitation program (100%)
RHA	Nonprofit	Deliverables are targeted toward contractors for the low-income weatherization program (LIWP), Farmworker Housing Program, DOE Weatherization Assistance Program, and Energy Saving Assistance program. In its application RHA estimated that "70 percent of project benefits will be experienced by low-income communities" (70%)

Appendix F: Quick Start Grant Program Framework

Market Barrier and Context

Statewide initiatives and large-scale pilots can bring about broad market transformation of proven technologies. These large programs create consistent market signals, achieve economies of scale, and build extensive networks of participants. When it comes to encouraging the spread of heat pump technologies, however, traditional large-scale programs may lack the flexibility to address the nuanced and numerous barriers slowing widespread adoption. These include barriers that are distinct from energy efficiency, such as those related to fuel-switching, as well as those connected to heat pump technologies, e.g., physical requirements or the replacement of separate heating and cooling systems. These barriers vary across different communities and demographics and are often complex and interconnected.

The Quick Start Grant program was conceptualized as a means to support and test multiple innovative solutions to accelerate heat pump adoption, particularly in cases where traditional programs provide insufficient support.²⁶ The program offered a competitive, open solicitation for quick-deploying pilot ideas to transform the market for heat pumps. It sought to test whether relatively small, strategic investments could provide outsized returns, meaningfully expanding heat pump adoption in unique market segments. Focusing on smaller-scale interventions was intended to build replicable models that could later be scaled statewide without significant upfront investments. This strategy enabled the program to invest in promising but untested ideas that complemented existing initiatives and might not have otherwise received funding. Because the Quick Start Grant program was part of the larger TECH Clean California initiative, the concepts and refined strategies developed through grant projects had a pathway to scale. The program was guided by a twofold vision:

1. To identify, refine, and validate effective, scalable strategies that significantly accelerate heat pump adoption, particularly within California's hard-to-reach communities, informing statewide market approaches and long-term decarbonization frameworks; and
2. To establish the Quick Start Grant program as a replicable model for fostering energy innovation equitably outside of California.

Recognizing that effective solutions require diverse perspectives, the Quick Start Grant program was intentionally designed to be inclusive. Through extensive stakeholder feedback across 23 sessions, the program crafted two grant solicitations aimed at attracting non-traditional applicants — including community-based organizations, diverse business enterprises, and small businesses — alongside established market actors. This approach sought innovative ideas from voices often overlooked, avoiding expertise bias and centering the needs of target communities. Success was envisioned as contributing to a mature, thriving, and equitable market for heat pump technologies and building decarbonization, ensuring all communities benefit.

Theory of Change

The program operated on the hypothesis that targeted support for innovative pilot projects, coupled with structured learning and evaluation, can unlock pathways to equitable market transformation. This theory of change rests on several key assumptions:

- Significant barriers beyond cost exist and are addressable through innovative approaches in hard-to-reach markets.

²⁶ See D. 20-0-027, Decision Establishing Building Decarbonization Programs, at pp. 12, 85 (April 6, 2020), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M331/K772/331772660.PDF>.

- Understanding specific community needs and building trust is paramount; participation cannot be assumed, even with no-cost offerings.
- Grantees, including non-traditional ones, possess or can develop the capacity to implement innovative projects and are willing to collaborate and share learnings openly, facilitated by a supportive program structure that embraces learning from failure.
- Evidence generated can influence policy and market practices, but requires dedicated effort in translation, dissemination, and advocacy.
- Scaling effective strategies is a complex process necessitating ongoing capacity building, financial support, and amplification of grantee voices, not just simple replication.
- Learnings on trust-building and community engagement will translate into improved professional practices across the sector.
- Heat pump technology is generally ready, but targeted demonstrations and workforce development aligned with contractor business models are crucial for widespread, quality deployment.
- The broader policy and economic environment will remain generally supportive of decarbonization efforts.

The table below describes the sections that comprise the Quick Start Grant learning framework that was applied at the pilot project and programmatic levels.

Table 9: The Quick Start Grant Learning Framework

Sections	Example of Questions to Reflect On to Build a Framework
Learning objectives and questions	Why should we learn and what are our learning questions based on our (1) research questions, (2) theory of change or program logic, (3) and organizational goals?
Data collection	<p>What data do we need to collect — and when — to answer our learning questions?</p> <p>What are the plans/tools in place to document what is happening during the pilot and how adjustments are made?</p> <p>How is the pilot collecting and using data to inform adjustments to be made to pilot activities?</p>
Learning process	<p>How does the project team act on its learning throughout the implementation process?</p> <p>How does the team reflect on its work as it's happening? How does it create space to intentionally take a step back and reflect while going through the implementation process?</p> <p>How will monitoring activities contribute to learning?</p> <p>With whom should the project team work to identify lessons learned?</p>
Sharing lessons learned	<p>What are our preliminary plans to share knowledge and experience acquired through the implementation process?</p> <p>Are we sharing only at the end of the project or is their value in sharing “intermediary” lessons? Why? With whom?</p> <p>How and when will the project team identify with whom to share lessons learned?</p>

Inputs and Activities

To implement this theory, the Quick Start Grant program team undertook a series of core actions: conducting extensive stakeholder outreach (23 sessions); designing and releasing inclusive solicitations (2 released); managing the full grant cycle including proposal review (>60 applications) and award selection (19 projects); executing and managing grant agreements; providing ongoing grantee support and technical assistance (via monthly check-ins); facilitating structured collaborative learning among grantees (via quarterly convenings); implementing evaluation frameworks and overseeing the collection of pilot data; and actively synthesizing program findings for dissemination.

These program activities directly produced the following key tangible results by early 2025:

- A funded portfolio of 19 diverse pilot projects testing novel strategies, including 15 focused on low-income or historically underserved communities.
- The disbursement of \$3.85 million in grant funding to these implementing organizations.
- Established and used platforms for structured grantee support (monthly check-ins) and peer learning (quarterly convenings).
- A collected body of evidence, comprising 17 final grantee reports and associated performance data documenting pilot implementation and outcomes.
- Disseminated synthesis materials, including webinars and summary reports, making key findings accessible to broader audiences.

GUIDING FRAMEWORK FOR SCALING GRANT PROJECTS

The Quick Start Grant project team used the following guiding framework for assessing the scaling potential. The framework was leveraged internally as well as in discussions with grantees to gauge their capacity and willingness to take the concept further.

Relevance of the proposed solution

- Tackles confirmed market barrier(s)
- Solving this issue or market barrier(s) is a priority from the targeted audience's perspective
- Addresses a high priority on the policy agenda
- Proposed solution or learning provides clear added value over, or in addition to, the existing practice

Credibility of the proposed solution

- Confirmed value of the proposed solution based on sound evidence and credible results out of pilot project
- External validity: understanding of the extent to which results are applicable to a specific or large segment
- Proposed solution has the support of key players

Ease of adoption of the proposed solution

- The model or solution avoids becoming too value-laden, process intensive, sophisticated or difficult to understand, or challenging to add within the existing landscape
- The proposed solution can be easily tested by targeted audience before full adoption

Scaling up strategy and planning is in place

- Clear understanding of what is being scaled up, e.g., technology, service delivery, model, learnings
- Vision for scaling has been defined
 - » The appropriate “scale” is defined, e.g., market size
 - » The time horizon for scaling is defined
- Approach of interest to scaling up has been identified (several may apply):
 - » *Expansion*: growth
 - » *Replication*: policy adoption, diffusion, “grafting”
 - » *Collaboration*: via formal partnerships, alliances

Drivers for scaling

- Drivers expected to be the engine of the scaling effort are identified and leveraged
 - » Either “what” and “who” as applicable. Examples include policy change, financial incentives, market forces, and leadership from key “champions.”

Organizational capacity and other enabling factors

- **Funding.** The organization in charge of scaling up has the financial resources needed to support scaling and-or scaling can happen within existing funding context.
- **Staffing and leadership.** The organization in charge of scaling has the necessary skillset and human resources available.
- **Organizational capacity.** Monitoring and evaluation in place can be harnessed for sharing and promoting; evaluation and learnings are at a level sufficient for stakeholders identified as driver of change; feedback loops are in place to feed innovation-learning-scale up cycle.
- **Policy.** Existing policy framework allows for scaling to happen or can be adapted to allow for scaling.
- **Accessibility.** The organization is connected with the following:
 - » Partners needed for diffusion and dissemination of idea, results, and learnings
 - » Partners needed to support scaling up (funding, capacity building, technical assistance)
 - » Key stakeholders identified as “drivers for scale”

Obstacles and risks

- Factors that may be barriers to scaling up the proposed solution are identified and proactively mitigated
 - » Cost of adopting the proposed solution for the targeted audience(s), e.g., time, bandwidth, monetary
 - » Attitude and perception of target audience
 - » Attitude and perception of key players and potential scaling drivers

Short-Term Outcomes

Evaluation and final reporting indicated several key short-term outcomes resulting from these outputs:

- **Enhanced grantee capacity and understanding:** Increased grantee understanding of barriers and effective strategies was observed, alongside valuable self-assessment regarding scaling capacity. Grantee reports documented significant learning through experimentation.
- **New knowledge and insights:** Documented evidence was generated on novel approaches, with clearer identification of non-cost systemic barriers. Insights into effective cross-sector partnerships and the roles of diverse organizations were captured.
- **Strengthened networks:** Collaborative relationships among grantee cohorts were reported, alongside strong grantor-grantee relationships fostered through regular interaction. Connections were initiated between innovators and policymakers via dissemination activities.
- **Initial community benefits and trust building:** Pilot participants in several projects gained access to new technology and reported benefits. Critically, the pilots provided learnings on effective community engagement and initial steps towards building trust, though challenges remained.

Intermediate Outcomes

While the program's timeframe primarily captured short-term outcomes, early indicators suggested progress towards intermediate outcomes:

- **Strategy adoption and refinement:** Several grantees began integrating successful pilot strategies into their core operations post-grant period. Findings were presented in various forums, beginning the process of influencing broader market strategies. Some projects successfully leveraged Quick Start Grant results for additional funding.
- **Market actor and ecosystem evolution:** Learnings began circulating among contractors and program implementers. The program contributed to ecosystem evolution by demonstrating the capabilities of diverse actors and highlighting workforce development needs.
- **Policy and program influence:** Dissemination efforts initiated the process of influencing policy, with Quick Start Grant findings being shared with TECH Clean California program administrators and state agencies to inform future program design and policy discussions around systemic barriers.
- **Increased equitable adoption:** Measurement of significant shifts in adoption rates requires longer-term tracking, but the pilots provided proofs-of-concept and laid groundwork for future efforts in specific hard-to-reach segments.

Long-Term Impacts

The program was designed so that these cumulative outcomes would ultimately contribute to the long-term vision of a transformed, equitable heat pump market in California. The strategies tested and learnings generated during the Quick Start Grant program provided valuable contributions towards achieving that scaled impact and informing future statewide decarbonization efforts.

Figure 4 on the next page depicts the Quick Start Grant program framework visually.

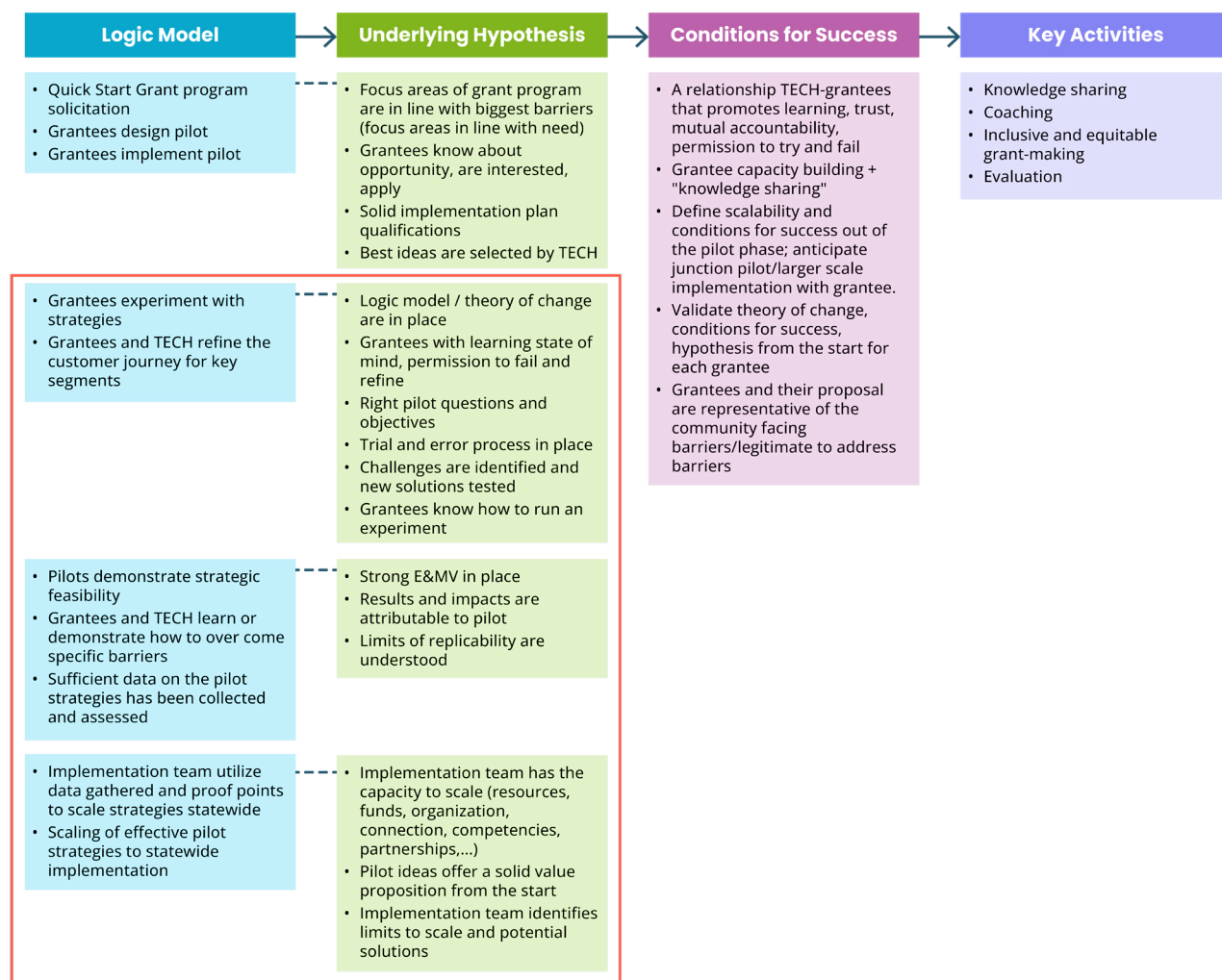


Figure 4: The Quick Start Grant program framework.

In red: activities that occurred after proposal selection that bolster the learning strategy embedded within the program.

In retrospect, the TECH Clean California Quick Start Grant program employed an intentional strategy of funding diverse innovators to tackle complex barriers to equitable heat pump adoption. By fostering experimentation, facilitating learning, evaluating results, and disseminating findings, the Quick Start Grant experience demonstrates the value of flexible, targeted innovation funding within larger market transformation efforts. The program provided crucial learnings about systemic barriers, effective strategies, the capacities of diverse organizations, and the complexities of scaling. It contributed valuable insights and tested approaches essential for achieving a more inclusive and effective transition to heat pump adoption and building decarbonization in California.



TECH
CLEAN CALIFORNIA

California's award-winning heat pump program, TECH Clean California, has allocated \$80.2 million in funds for heat pump water heater installations, designed to help accelerate the market for heat pump technology across the state through incentives, workforce training, and consumer education to create a pathway for achieving California's targets of six million heat pumps by 2030 and carbon-free, climate-ready homes by 2045.

TECH Clean California is funded by California ratepayers and taxpayers and administered by Southern California Edison Company under the auspices of the California Public Utilities Commission.

The TECH Clean California team is led by Energy Solutions and partners with Ardena Energy, Association of Energy Affordability, Building Decarbonization Coalition, Electrify My Home, Frontier Energy, National Comfort Institute, Energy Outlet, Recurve Analytics, The Ortiz Group, Tre' Laine Associates, and VEIC.