

## PUBLIC UTILITIES COMMISSION

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TO: Greenhouse Gas Reduction Fund Program

FROM: Rachel Peterson  
Executive Director  
California Public Utilities Commission

Leuwam Tesfai  
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California Public Utilities Commission

DATE: March 8, 2024

SUBJECT: GREENHOUSE GAS REDUCTION FUND:  
California Public Utilities Commission

EXPENDITURE RECORD FOR FISCAL YEAR 2023-2024:  
Technology and Equipment for Clean Heating Initiative

This Attestation Memorandum documents that the Energy Division of the California Public Utilities Commission completed the attached Expenditure Record on March 8, 2024, for the Technology and Equipment for Clean Heating Initiative. The Expenditure Record is consistent with the statutory requirements of California Government Code Section 16428.9 to support expenditures from the Greenhouse Gas Reduction Fund. This Attestation Memorandum and Expenditure Record will be submitted to the California Air Resources Board for public posting on the California Air Resources Board website at <https://ww2.arb.ca.gov/our-work/programs/california-climate-investments>.

Questions on this Attestation Memorandum or Expenditure Record may be directed to Sebastian Sarria ([sebastian.sarria@cpuc.ca.gov](mailto:sebastian.sarria@cpuc.ca.gov), 619-363-7258).

Signed:

Handwritten signature of Rachel Peterson in black ink.

Rachel Peterson  
Executive Director  
California Public Utilities Commission

Handwritten signature of Leuwam Tesfai in black ink.

Leuwam Tesfai  
Deputy Executive Director for  
Energy and Climate Policy  
California Public Utilities Commission

Attachment: Expenditure Record

## Greenhouse Gas Reduction Fund: Expenditure Record

California Public Utilities Commission (CPUC)  
Technology and Equipment for Clean Heating (TECH) Initiative

**Authorizing legislation:** Assembly Bill (AB) 102 (Ting, 2023), Section 247, Item 8660-101-3228, authorized the Fiscal Year (FY) 2023-2024 Budget Act to appropriate \$95,000,000 for the TECH Initiative, created pursuant to Section 922 of the California Public Utilities Code.

**Element (1) A description of each expenditure proposed to be made by the administering agency pursuant to the appropriation.**

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***Agency that will administer funding:***

California Public Utilities Commission

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***Amount of proposed expenditure and appropriation reference:***

The total expenditure is \$95 million, as appropriated by AB 102 upon adding Item 8660-101-3228 to Section 2.00 of the Budget Act of 2023. Per Section 247 of AB 102, the funds shall be available for encumbrance or expenditure by the CPUC until June 30, 2026, and shall be available for liquidation until June 30, 2028.

This appropriation will extend funding to the TECH Initiative, which already has a program implementer and program evaluator, and guidelines that are in line with California Air Resources Board (CARB) funding guidelines, per CPUC Decision ([D.\) 20-03-027](#) and [D.23-02-005](#).

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**Estimated amount of expenditures for administering agency administrative costs**

Southern California Edison Company (SCE), serving as the CPUC's Contracting Agent for the TECH Initiative, as required by D.20-03-027,<sup>1</sup> hired Energy Solutions after a competitive solicitation process to become the third-party implementer that was overseen by a CPUC-led selection committee. The TECH Implementer's administrative costs are capped at 10 percent of the appropriated amount per D.20-03-027 and D.23-02-005.<sup>2</sup> Limits on the TECH Implementer's administrative costs will be specified in contract language. Similarly, SCE, serving as the CPUC's Contracting Agent for the TECH Initiative, hired Opinion Dynamics after a separate competitive solicitation

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<sup>1</sup> D.20-03-027, Ordering Paragraph 4.

<sup>2</sup> For the original \$120 million provided by D.20-03-027, the TECH Implementer's administrative costs are capped at 10 percent, or \$12 million. For the augmented \$50 million provided by D.23-02-005, the TECH Implementer's administrative costs are also capped at 10 percent, or \$5 million.

process to become the third-party evaluator that was also overseen by a CPUC-led selection committee. The TECH Evaluator's administrative costs are capped at 2.5 percent of the appropriated amount per D.20-03-027 and D.23-02-005.<sup>3</sup> As the contracting agent, SCE also has administrative costs capped at 1 percent per D.20-03-027 and D.23-02-005.<sup>4</sup> Limits on the TECH Evaluator's administrative costs will also be specified in contract language. The CPUC will continue to oversee the funding and implementation of the program, while Energy Solutions and Opinion Dynamics will handle the actual implementation and evaluation.

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**If applicable, identify laws or regulations that govern how funds will be used**

- [Senate Bill \(SB\) 1477 \(Stern, 2018\)](#) directed the creation of two pilot programs aimed at reducing greenhouse gas (GHG) emissions in California buildings. The first pilot program, the Building Initiative for Low-Emissions Development (BUILD) Program, focused on new construction. The second pilot program, the TECH Initiative, focused on existing buildings. SB 1477 directed that gas Investor-Owned Utility (IOU) Cap-and-Trade auction proceeds should fund the two pilot programs, allocating \$50M annually over four years (\$200M total).
  - [D.20-03-027](#) (2020) established the rules for the TECH Initiative, including requirements for project eligibility and program implementation. The Decision allocated 60 percent (\$120M) of the total funding provided from SB 1477 for the TECH Initiative.
  - [AB 179 \(Ting, 2022\)](#) allocated \$50M from California's General Fund to augment the existing TECH Initiative budget and authorized the new funding to be spent statewide rather than remain restricted exclusively to gas IOU service territory customers.
  - [D.23-02-005](#) (2023) implemented AB 179 by authorizing additional funding to the Building Decarbonization Pilot Program Balancing Account (BDPPBA) to allocate an additional \$50M funding to the TECH Initiative statewide. The Decision further authorized any additional monies appropriated in the FY 2023-2024 Budget Act to augment the TECH Initiative to be distributed without the need for a new CPUC Decision.
  - [AB 102 \(Ting, 2023\)](#) allocated \$95M from the Greenhouse Gas Reduction Fund (GGRF) to further augment the existing TECH Initiative budget.
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<sup>3</sup> For the original \$120 million provided by D.20-03-027, the TECH Evaluator's administrative costs are capped at 2.5 percent, or \$3 million. For the augmented \$50 million provided by D.23-02-005, the TECH Evaluator's administrative costs are also capped at 2.5 percent, or \$1.25 million.

<sup>4</sup> For the original \$120 million provided by D.20-03-027, the TECH Contracting Agent's administrative costs are capped at 1 percent, or \$1.2 million. For the augmented \$50 million provided by D.23-02-005, the TECH Evaluator's administrative costs are also capped at 1 percent, or \$50,000.

## **Continuation of existing Expenditure Record**

The TECH Initiative is an existing program that will be receiving GGRF funding for the first time and does not have an existing Expenditure Record.

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### **Project Type(s)**

- Heat Pump (HP) HVAC installation
  - Heat Pump Water Heater (HPWH) installation
  - Regional Pilots deployment
  - Quick Start Grant Projects deployment
  - Workforce Education and Training
  - Market Development Activities
  - Data Analysis and Infrastructure
  - Project Financing Options
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### **Describe the projects and/or measures that will be eligible for funding**

- Single-family HP HVAC and HPWH incentives available for properties with up to four dwelling units. These incentives are primarily focused on residential HPWHs, unitary HP HVAC, mini/multi-split heat pumps, and building electrification upgrades to facilitate installation.
- Multi-family HP HVAC and HPWH incentives available for properties with five or more dwelling units. Multi-family HP HVAC and HPWH incentives cover a wide range of equipment, including central and unitary HPWHs, central and unitary HP HVAC, systems serving common spaces, pool/spa heating equipment, and building decarbonization upgrades to facilitate installation.
- Regional pilots enable targeted strategies for unique customer segments—such as low-income households or multi-family housing— as well as targeted regions such as those with high air conditioning demand. Many of the regional pilots build on other ongoing or planned activities by leveraging Energy Solutions' existing relationships and activities to enable seamless integration with TECH Clean California.
- Quick Start Grant projects support open solicitations for innovative, short- to medium-term projects that can rapidly test and refine additional ideas to accelerate HP HVAC and HPWH deployment, in partnership with local communities and implementers.
- Workforce Education and Training offers training programs to contractors to provide an understanding of the value of low-emission space and water heating technologies necessary to transform the market. The TECH Initiative leverages existing relationships with workforce education and training entities, market actors, employers, and other key industry stakeholders to maximize impact, reduce barriers, and decrease costs to attain the goals set through the Initiative.

- Develop large data sets comprising building decarbonization products like heat pumps, and to include locations, costs, installation, participant satisfaction, energy consumption, and market information to form a representative sample of the California population. This data can be leveraged to guide implementation activities, support program administration and evaluation, and drive market transformation. Data will also include what is acquired from supply chain market actors, such as manufacturers and distributors.
  - Project financing options to customers include low-interest consumer financing for single-family and affordable multi-family customers, Inclusive Utility Investment, and other financing mechanisms to support building decarbonization measures.
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### **Intended recipients**

- Consumers
  - Contractors
  - Supply chain market actors
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### **Program structure and process for selecting projects for funding**

- For any equipment installation projects, the process is first-come, first-served incentives for contractors with qualifying products, which can include HP HVAC, HPWHs, electrification readiness measures (smart splitters, new circuit install costs, installation barriers, etc.).
  - For Quick Start Grants, competitive solicitation, evaluation, and selection of projects according to program guidelines.
    - Applicants must use the Quick Start Grant Applications to apply and meet the requirements outlined for the solicitation period. The solicitation for project grants is held and funding will be awarded to multiple projects, each in the range of \$50,000 – \$350,000. Each year a solicitation focus area is selected (e.g., low-income and energy-burdened households in historically underserved areas). A scoring rubric is used in the selection of grantees.
  - For regional pilots, projects will be selected based on defined criteria which can include that of existing or future programs, such as those targeting low-income customers.
  - For Workforce Education and Training, projects will be selected based on potential to support existing contractors and contractors entering the field in their ability to install building decarbonization equipment and upgrades.
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**Element (2) A description of how a proposed expenditure will further the regulatory purposes of Division 25.5 (commencing with Section 38500) of the Health and Safety Code, including, but not limited to, the limit established under Part 3 (commencing with Section 38550) and other applicable requirements of law.**

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**How the expenditure is consistent with the Investment Plan and the Scoping Plan**

The TECH Initiative aligns with Section 38501(f) by:

- AB 1532 (Chapter 807, Statutes of 2012) requires that monies from the GGRF be appropriated in a manner that is consistent with the three-year Investment Plan, the “Cap-and-Trade Auction Proceeds Fourth Investment Plan: Fiscal Years 2022-23 through 2024-25” which recommends support for zero-emission technologies wherever possible, and consumer-faced incentives and financial assistance for building electrification at existing buildings as appropriate, funded through new or existing programs.<sup>5</sup> As mentioned in D.20-30-027, California Public Utilities Code Section 922(b) requires the TECH Initiative to “give consideration to technologies that have the greatest potential to reduce greenhouse gas emissions in California.” The TECH Initiative is further required to target “key low-emission space and water heating equipment technologies that are in an early stage of market development and would assist the state in achieving the state’s greenhouse gas emissions reduction goal for 2030 and other long-term greenhouse gas emissions reduction goals established by the Legislature.”<sup>6</sup>
- California’s 2022 Climate Change Scoping Plan identified key strategies and recommendations to continue reducing GHG emissions and achieve the goals and purposes of AB 32 and related statutes. Per Decision 20-30-027, Ordering Paragraph 34, “the TECH implementer shall in coordination with the Commission and the CEC, develop guidelines and select eligible technologies with a performance-based approach on greenhouse gas emission reduction potential and other program goals, and ensure that any performance evaluation needs are embedded in the program design.”

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**Element (3) A description of how a proposed expenditure will contribute to achieving and maintaining greenhouse gas emission reductions pursuant to Division 25.5 (commencing with Section 38500) of the Health and Safety Code.**

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<sup>5</sup> Cap-and-Trade Auction Proceeds Fourth Investment Plan: FY 22-23 through 24-25, at viii and 29.

<sup>6</sup> California Public Utilities Code Section 922(b).

**Describe how expenditures will facilitate the achievement of GHG emission reductions in the State**

Expenditures will facilitate GHG reductions by targeting low-emission space and water-heating equipment technologies that have the greatest potential to reduce greenhouse gas emissions in California. Other expenditures will achieve GHG emission reductions by funding building decarbonization projects and research through workforce enhancement, market transformation research, and consumer education and outreach.

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**Explain when GHG emission reductions and/or co benefits are expected to occur and how they will be maintained**

Heat pump technology retrofits began to reduce GHG emissions and criteria toxic pollutant reductions in 2021 following the adoption of D.20-03-027. D.23-02-005 will continue to provide funding for the TECH Initiative to help further encourage clean energy and long-term GHG emission reductions for an expected quantification period for the remainder of the useful life of installed equipment<sup>7</sup> incentivized through the Initiative. Under the GGRF appropriation, the same will continue.

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**Element (4) A description of how the administering agency considered the applicability and feasibility of other non-greenhouse gas reduction objectives of Division 25.5 (commencing with Section 38500) of the Health and Safety Code.**

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**Expected co-benefits, particularly environmental, economic, public health and safety, and climate resiliency**

Building decarbonization measures will yield economic, environmental, and public health co-benefits. These projects will provide California jobs and job training for disadvantaged community residents through targeted recruitment and training programs. The measures will also cut energy costs for low-income residents and improve building comfort. Replacing older systems with newer, cleaner models will benefit public health by reducing exposure to indoor air pollutants, such as carbon monoxide, associated with very old or poorly maintained gas heating units, and the HPWH systems will offer the ability to provide grid benefits through potential load shifting functionality. Additionally, D.20-03-027 encourages the adoption of lower Global Warming Potential (GWP) refrigerants.

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<sup>7</sup> The California Electronic Reference Manual (eTRM) estimates that HP HVACs have a useful life of 15 years, and 10 years for HPWHs. <https://www.caetrm.com/login/?next=/>

## **How the project will support other objectives of AB 32 and related statutes**

This project will demonstrate how electrifying homes through installing heat pump technology can transform the clean heating market and motivate the supply chain by making installation a core part of contractor businesses (training and participation). This will build consumer demand through a consumer inspiration campaign and educational resources. Additionally, the TECH Initiative is demonstrating scalable solutions to key market barriers via a series of regional pilots. This will continue to include pilots replacing older HVAC systems with newer, cleaner models that will benefit public health by reducing exposure to indoor air pollutants, such as carbon monoxide, associated with very old or poorly maintained heating units. Lastly, leveraging all this information, informs California's long-term building decarbonization framework by incorporating sales, meter data, and lessons learned into a public reporting site, with both downloadable datasets and rigorous analysis quantifying the decarbonization impacts. Electrification readiness, subsidizing installation costs, smart splitters, and new circuits, and encouraging zero-to-low GWP refrigerants are areas for research within the TECH Initiative. California has committed to investing in building decarbonization, and these decisions need to be based on the best available data possible.

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## **Percentage of total funding that will be expended for projects that are located in and benefit priority populations<sup>8</sup> per CARB guidance**

For the purposes of TECH's GGRF allocation, the CPUC has established a target to expend at least 35 percent of the total project funds received under this fiscal year appropriation to fund projects that provide benefits to CARB's priority populations defined as disadvantaged or low-income communities or low-income households.

Additionally, per D.23-02-005, the CPUC mandates that an additional 5 percent be expended to service equity customers for a total combined benefit of at least 40 percent. Equity customers are defined by the TECH program administrator as those residing in a DAC per CalEnviroScreen 4.0, a household using a California Alternate Rates for Energy (CARE) or Family Electric Rate Assistance (FERA) gas or electricity rate and/or participated in an Energy Savings Assistance Program, residing in a CPUC Hard-to-Reach Community<sup>9</sup>, or living in an affordable housing unit, which is defined as at least 66% of living units are <80% area median income (AMI) or deed-restricted housing; or subsidized deed-restricted housing.<sup>10</sup>

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<sup>8</sup> Priority populations include residents of: (1) census tracts identified as disadvantaged by California Environmental Protection Agency per SB 535 (De Leon, 2012); (2) census tracts identified as low-income per AB 1550; or (3) a low-income household per AB 1550 (Gomez, 2016). See Section VII.B Funding Guidelines for more information on the definitions of priority populations.

<sup>9</sup> [D.18-05-041](#).

<sup>10</sup> [TECH Public Reporting Equity and budget spending \(techcleanca.com\)](#).



### **Describe the benefits to priority populations per CARB guidance**

- Projects will provide incentives for heat pump technology installation and building electrification upgrades in consumer households. Motivating contractors to identify opportunities for heat pump installations and address customer concerns about the technology are essential to building market demand and driving sales volume.
  - Workforce education and training initiatives benefit contractors. Providing relevant and consistent training has proven to increase sales for businesses.
  - Project financing options offer consumers access to fund installations.
  - Projects will provide improved indoor air quality in consumer homes located in disadvantaged or low-income communities.
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### **Explain strategies the administering agency will use to maximize benefits to disadvantaged communities**

- Projects will provide incentives for heat pump technology that targets equity communities defined by incorporating elements of the [CPUC Environmental and Social Justice Action Plan's](#) Disadvantaged Community and Hard-to-Reach definitions.
- Workforce education and training initiatives serve equity communities by preferentially choosing training locations in high unemployment areas (HUA). Additionally, track participation in trainings by contractors residing in HUAs and provide no-cost equipment and curriculum development to organizations focused on training incoming workforce in marginalized communities.
- Quick Start Grant projects with an 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 substitution and 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 households
    - Disadvantaged communities
    - 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 financing options for consumers to have access and use financial products to fund installation.

**Explain how the administering agency will avoid potential substantial burdens to disadvantaged communities and low-income communities or, if unknown, explain the process for identifying and avoiding potential substantial burdens**

The project will use metered-based customer targeting to avoid potential burdens to disadvantaged communities and low-income communities. Furthermore, the CPUC and the Program Implementer will consult directly with communities through various means including stakeholder meetings on program guidelines to identify potential burdens. The CPUC and the Program Implementer will make programmatic adjustments to incentive design and eligibility as necessary to avoid potential substantial burdens to disadvantaged and low-income communities.

The CPUC, via the Program Implementer and Evaluator, has and will continue to receive feedback from the TECH Initiative's Low-Income Advisory Panel on program design, goals, and methods. The CPUC will evaluate and consider these measures in project criteria selection.

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**Element (5) A description of how the administering agency will document the result achieved from the expenditure to comply with Division 25.5 (commencing with Section 35800) of the Health and Safety Code.**

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**How the administering agency will track / report progress to make sure projects are implemented per requirements in statute and CARB guidance**

The CPUC, via the Program Implementer and Evaluator, will require funding recipients to maintain records and submit annual status reports. All data derived from projects will be anonymized and shared publicly via the TECH Initiative's data reporting website: <https://techcleanca.com/public-data/>.

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**Describe the approach that will be used to document GHG emission reductions and/or other benefits before and after project completion**

The CPUC, via the Program Implementer and Evaluator, will calculate the GHG emissions reductions and co-benefits expected and achieved from projects using a CARB-developed method and/or tool.

The Program Implementer and Evaluator will estimate GHG savings in the incentive clearing house using deemed energy savings designated by the Ex-Ante Database (EAD) table of the appropriate measure in the California Technical Reference Manual (CA TRM). TECH measures include workpaper IDs as listed in the CPUC Database for Energy Efficient Resources (DEER) database SWWH025, SWHC004, and SWHC045. After assigning an ex-ante annual electricity and fuel savings estimate to each claim,

the TECH Initiative Program Implementer estimates GHG savings using technology- and climate zone-specific annual averages of the hourly emissions factors used to support development of new Title 24 building codes.<sup>11</sup> Ex-post GHG savings will be determined based on the results of an independent, third-party evaluation of the program.

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**Type of information that will be collected to document results, consistent with CARB guidance**

The CPUC, via the Program Implementer and Evaluator, will collect data on project location, baseline and estimated energy usage, energy costs, type of upgrade that was installed, expected quantification period, and other data, as applicable and as specified in CARB guidance.<sup>12</sup>

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**How the administering agency will report on program status**

The CPUC, via the Program Implementer and Evaluator, will report to CARB consistent with CARB guidance as specified in its Funding Guidelines for Administering Agencies<sup>13</sup> and provide regular updates on the program, including expenditure amounts, GHG emission reductions, and other benefits, as applicable (e.g., jobs supported, vouchers issued, units retrofitted, etc.).

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<sup>11</sup> <https://efiling.energy.ca.gov/getdocument.aspx?tn=233345>.

<sup>12</sup> Data collected will be consistent with D.20-03-027, D.23-02-005, and CARB's Funding Guidelines.

<sup>13</sup> The CPUC will use the most current version of the Funding Guidelines as noted by CARB: <https://ww2.arb.ca.gov/resources/documents/funding-guidelines-agencies-administer-california-climate-investments>