

Decision **PROPOSED DECISION OF COMMISSIONER RECHTSCHAFFEN**
(Mailed 2/11/2022)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking
Regarding Policies, Procedures and
Rules for the Self-Generation Incentive
Program and Related Issues.

Rulemaking 20-05-012

**DECISION ESTABLISHING HEAT PUMP WATER HEATER PROGRAM
REQUIREMENTS**

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**Appendix A – Self-Generation Incentive Program (SGIP) Heat Pump Water
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**Appendix B – Minimum Selection Criteria For the Self-Generation Incentive
Program Heat Pump Water Heater Program Administrator /
Program Implementer**

**Appendix C – Non-Jurisdictional HPWH Incentive Programs
As of December 2021**

DECISION ESTABLISHING HEAT PUMP WATER HEATER PROGRAM REQUIREMENTS

Summary

This decision adopts final budgets, incentive levels and other program requirements for the Self-Generation Incentive Program (SGIP) Heat Pump Water Heater (HPWH) program adopted in Decision (D.) 19-09-027 and D.20-01-021. Of the \$44.7 million in SGIP HPWH funds adopted in D.19-09-027 and D.20-01-021, we allocate \$4.7 million towards administration of the program and \$40 million towards HPWH incentives. The \$40 million in HPWH incentive funds is further allocated as follows: \$19 million to each of the general market residential and equity residential customer segments for use towards both residential unitary (serves one household) and residential central (serves two or more households) HPWH incentives and \$2 million in funding for non-residential unitary HPWH incentives, including for small business incentives. This decision allocates an additional \$40 million in 2023 gas Cap-and-Trade allowance proceeds to SGIP HPWH program for a total SGIP HPWH program budget of \$84.7 million.

This decision adopts detailed appliance, installation, and load shifting requirements, and electric panel and electrical service upgrade incentives and requirements for these customer segments. These requirements, along with our adopted sub-budgets, are provided in Appendix A. Customers using SGIP HPWH incentives are required to enroll in a qualified demand response program. We prohibit use of SGIP HPWH program funds towards commercial central HPWH system incentives.

We adopt a single statewide program administrator / program implementor (PA/PI) structure for the SGIP HPWH program. Commission Staff

will select the SGIP HPWH PA/PI through a competitive request for proposal process that will be administered by Southern California Edison (SCE). SCE shall enter into a contract with the vendor for the selected PA/PI and will be responsible for collecting and disbursing funding. The PA/PI shall be solely selected and managed by Commission Staff. Appendix B contains a detailed list of selection criteria for the SGIP HPWH PA/PI.

We require the selected SGIP HPWH PA/PI to develop and implement an eligible contractor list that tracks and prioritizes in search results those contractors with preferred workforce training and development practices or that are located in a disadvantaged community. We adopt additional requirements including those pertaining to measurement and evaluation of the greenhouse gas and other benefits of the SGIP HPWH incentives.

This decision denies a *Motion to Strike Certain Sections of Sierra Club and Natural Resources Defense Council's Reply Comments on the Order Instituting Rulemaking* filed by Southern California Gas Company.

This proceeding remains open.

1. Background

In Decision (D.) 19-09-027, the California Public Utilities Commission (Commission) approved a \$4 million Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) budget for equity budget customers and clarified that HPWHs qualify as eligible SGIP technologies because these systems have the capability to shift load from peak to off-peak periods and can provide California Independent System Operator (CAISO) integrated load drop and ramping services. However, because the Commission has not specifically promoted HPWHs as an eligible SGIP technology, as of December 1, 2021, the SGIP has received no applications for HPWH incentives. In D.17-10-004,

D.19-09-027, and D.20-07-015 the Commission adopted eligibility requirements for equity budget customers.

In D.20-01-021, the Commission established a 2021 to 2025 SGIP budget allocation for general market HPWH technologies of five percent of the total revenue collection for that period, or \$40,699,050.¹ D.19-09-027 and D.20-01-021 together yield a combined SGIP HPWH budget of \$44.7 million for general market and equity customers for the 2021 to 2025 period.

D.19-09-027 allocates SGIP program administrator (PA) and investor-owned utility (IOU) contributions to the \$4 million approved equity HPWH budget as follows:²

Table 1: Equity HPWH Budget Adopted in D.19-09-027

PA / IOU	Budget (in millions)
Pacific Gas and Electric Company (PG&E)	\$1.76
Southern California Electric Company (SCE)	\$1.36
Center for Sustainable Energy (CSE)/ San Diego Gas & Electric Company (SDG&E)	\$0.52
Southern California Gas Company (SoCalGas)	\$0.36
Total	\$4.0

D.20-01-021 adopted a five percent allocation of 2020 to 2025 revenue collections to the general market HPWH program, which results in the following required contributions from the IOUs.

¹ D.20-01-021 at 27, Table 4.

² D.19-09-027 at Ordering Paragraph 5.

Table 2: General Market HPWH Budget Adopted in D.20-01-021³

PA / IOU	Budget (in millions)
PG&E	\$17.91
SCE	\$13.84
CSE / SDG&E	\$5.29
SoCalGas	\$3.66
Total	\$40,699,050

To remove barriers to participation of HPWHs as an eligible SGIP technology, both D.19-09-027 and D.20-01-021 direct Commission Staff to convene a workshop to develop detailed program rules for this new energy storage technology. D.19-09-027 emphasizes the need to remove barriers to HPWH technologies' participation in SGIP while D.20-01-021 emphasizes questions about requiring controls to ensure HPWHs are heating off-peak and result in load shifts. On March 19, 2020, and May 7, 2020, Commission staff convened two HPWH workshops as directed in D.19-09-027 and D.20-01-021.

1.1. Procedural History

The Commission opened this Order Instituting Rulemaking (OIR) *Regarding the Policies, Procedures and Rules for the Self-Generation Incentive Program and Related Issues* on May 28, 2020. Parties filed opening and reply comments on the OIR on June 29, 2020, and July 7, 2020. On July 27, 2020, SoCalGas filed a *Motion to Strike Certain Sections of Sierra Club and Natural Resources Defense Council's Reply Comments on the OIR* (Motion to Strike). SoCalGas's Motion to Strike pertains to HPWH-related information included in the Sierra Club and Natural Resources Defense Council's (Sierra Club/NRDC) reply comments on the OIR and as such is addressed in this decision.

³ Imputed from D.20-01-021, Ordering Paragraph 1 and at 27.

The assigned Administrative Law Judge (ALJ) held a pre-hearing conference (PHC) on July 29, 2020. On August 17, 2020, the assigned Commissioner issued a Scoping Memo and Ruling (Scoping Memo), which included HPWH program requirements as within scope. The Scoping Memo further states that the HPWH record established in the predecessor SGIP rulemaking, Rulemaking (R.) 12-11-005, is incorporated into the record of R.20-05-012.

The Scoping Memo sets forth program issues as they arise as within scope, as well as consideration of program revisions or refinements regarding HPWH technologies. The Scoping Memo directed parties to comment on a series of questions related to HPWHs, including:

- a. Should the Commission consider the requirements for an IOU or other entity to act as PA for HPWH incentives?
- b. What would preclude an IOU or entity from acting as the PA?
- c. Should any IOU be precluded from acting as PA for HPWH technologies?
- d. If an incumbent IOU is not designated as a PA, what alternative should be adopted?

Parties filed opening and reply comments on Scoping Memo HPWH questions on September 16, 2020, and October 23, 2020.

On April 16, 2021, the assigned ALJ issued a *Ruling Providing Proposal, Requesting Comment, and Updating Procedural Schedule* (ALJ Ruling) containing a Staff Proposal on HPWH technologies and requesting comment. Parties filed opening and reply comments on the Staff Proposal on June 3, 2021, and June 8, 2021. Parties filing opening comments on the Staff Proposal include PG&E, SDG&E, SoCalGas, SCE, CSE, A.O. Smith Corporation (A.O. Smith),

Bradford White Corporation (BWC), Harvest Thermal Inc. (Harvest), Rheem Manufacturing Company (Rheem), Tesla Inc. (Tesla), the California Energy Storage Alliance (CESA), the California Solar & Storage Association (CALSSA), Cohen Ventures Inc. d/b/a Energy Solutions (Energy Solutions), The Utility Reform Network (TURN), GRID Alternatives, (GRID), the Small Business Utility Advocates (SBUA), and Sierra Club/NRDC.

On August 3, 2021, the assigned Commissioner issued a *Ruling Requesting Comment on Heat Pump Water Heater Contractor Training and Workforce Issues and Methods to Increase SGIP Technologies' Contributions to Summer Reliability* (Workforce ACR). The Workforce ACR contains a series of questions about potential SGIP HPWH contractor training and workforce development activities. Parties filed opening and reply comments on the Workforce ACR on August 23, 2021, and August 30, 2021. Parties filing opening comments on the Workforce ACR include Tesla, Marin Clean Energy (MCE), SCE, SDG&E, CALSSA, Rheem, PG&E, CESA, the Public Advocates Office (Cal Advocates), SoCalGas, A.O. Smith, the California State Pipe Trades Council (CSPTC), the Joint Committee on Energy and Environmental Policy (JCEEP), the International Brotherhood of Electrical Workers-National Electrical Contractors Association Labor Management Cooperation Committee (IBEW), BWC, Energy Solutions, GRID, CSE, and the California Energy Alliance (CEA). In addition to many of these parties, the Plumbing Heating Cooling Contractors of California (PHCCC) filed reply comments.

On December 23, 2021, the assigned Commissioner issued a *Ruling Providing Proposal to Allocate \$40 Million in Cap-and-Trade Allowance Proceeds to Self-Generation Incentive Program Heat Pump Water Heater Sub-Program and Requesting Comment* (Cap-and-Trade ACR). The Cap-and-Trade ACR presents a

proposal to use 2023 Cap-and-Trade natural gas allowance proceeds to provide \$40 million in additional SGIP incentive funding for load shifting HPWHs and requested party comment. SoCalGas, SDG&E, PG&E, SCE, Energy Solutions, CSE, Sierra Club/NRDC, Cal Advocates, and A.O. Smith filed opening comments on the Cap-and-Trade ACR. SCE, SoCalGas, PG&E, Sierra Club/NRDC, and CSE filed reply comments.

2. Jurisdiction

Public Utilities Code Section 379.6 established the SGIP program in 2001 to increase deployment of distributed generation and energy storage systems to facilitate the integration of those resources into the electrical grid, improve efficiency and reliability of the distribution and transmission system, and reduce greenhouse gas (GHG) emissions, peak demand, and ratepayer costs.⁴ Section 379.6(a)(1) requires the Commission to ensure an equitable distribution of the costs and benefits of the program. Section 379.6(b)(3) requires the Commission to adopt requirements for energy storage systems to ensure that eligible systems reduce GHG emissions. Section 379.6(e)(1) limits eligibility for incentives to resources that shift onsite energy use to off-peak time periods or reduce demand from the grid by offsetting some or all of the customer's onsite energy load, including, but not limited to, peak electric load.

3. Issues Before the Commission

As set forth in the OIR and the Scoping Memo, the HPWH program issues addressed in this decision are:

- a. Budget allocations to incentives and program administration;

⁴ Unless otherwise indicated, all references to code in this decision are to the Public Utilities Code.

- b. Eligible technologies, technology installation requirements, and load shifting requirements;
- c. Incentive structure and value;
- d. Incentive layering;
- e. PA structure;
- f. Training, inspection, and workforce development requirements;
- g. Evaluation methods; and,
- h. SoCalGas's Motion to Strike.

4. HPWH Budget Allocations

4.1. Staff Proposal

Of the \$44.7 million total budget authorized in D.19-09-027 and D.20-01-021 for general market and equity budget HPWH programs, Staff propose allocating five percent (\$2.3 million) of the total HPWH budget towards program administration and 95 percent (\$42.4 million) to incentives (Table 3).

Table 3: Staff's Proposed HPWH Budget Allocation

Activity	Amount
Program Administration:	\$2,233,500
HPWH Incentives:	\$42,436,500
Total SGIP HPWH Budget:	\$44,670,000

The Staff Proposal identifies several distinct customer classes and technology types, which Staff propose to allocate distinct budgets. In addition to residential general market and equity customers, Staff identify commercial customers as potential targets for HPWH incentives. Staff describe both residential and commercial "unitary" and "central" HPWH systems. Staff define residential unitary HPWH as those that serve one household and residential

central HPWS as those that serve more than two households.⁵ Staff describe commercial HPWH serving one business's hot water load as unitary systems and HPWHs serving multiple businesses' hot water load as central HPWH systems.⁶

Staff propose to allocate nearly half (45 percent) of the authorized HPWH incentive budget of \$42.4 million to general market residential unitary HPWH and nearly half (45 percent) to equity residential unitary HPWH systems. Staff would split the remainder, or 10 percent of the incentive budget, between commercial unitary HPWH (five percent), and residential central HPWH (both general market and equity customers). Staff does not propose any budget toward commercial central HPWH incentives (Table 4).

Table 4: Staff's Proposed HPWH Program Allocation

Activity:	Percent:	Amount:
Program Administration:	5 %	\$2,233,500
HPWH Incentives:	95%	\$42,436,500
Customer Class⁷		
General Market Residential Unitary HPWHs	45%	\$19,096,425
Equity Residential Unitary HPWHs only	45%	\$19,096,425
General Market Residential Central HPWHs	2.5%	\$1,060,912
Equity Residential Central HPWHs	2.5%	\$1,060,912
Commercial Unitary HPWHs	5%	\$2,121,825
Total SGIP HPWH Incentive Budget:	100%	\$44,670,000

⁵ This appears to have been a typographical error in the Staff Proposal that should have said "serves two or more" households. We adopt this latter definition in Section 7.1.1.

⁶ Staff Proposal at 13.

⁷ Residential includes multi-family residential properties on commercial rates.

The Staff Proposal describes “integrated” and “split” HPWH systems. Staff describe integrated systems as a HPWH with the compressor system, backup resistance heating elements (if any), a water storage tank, and any other associated components integrated into one appliance. Integrated HPWHs look like standard tank natural gas or electric resistance water heaters but are typically taller due to the heat pump compressor system located on top of the water storage tank. Staff explain that a split HPWH system has a compressor that is separate from the water storage tank. In most split systems, cold and hot water lines circulate water between the compressor system, where heat is transferred from refrigerant to the water, back to the water storage tank.

Staff note that residential integrated HPWH systems are most common at present but most of these systems use the refrigerant R-134a, which has a very high global warming potential (GWP) of 1,430.⁸ Staff explain that residential split HPWH systems available now in the U.S. typically use the refrigerant R-744, which has an extremely low GWP of 1.⁹ Staff state that the refrigerant R-744 operates at a higher efficiency than the refrigerant R-134a in all temperature conditions, including cold weather. Staff state that although residential split unitary HPWH systems are uncommon in the U.S. currently, they are widely available internationally.

Staff state that there is no standard multi-family residential HPWH system type, but split systems are most common in the commercial sector.¹⁰

⁸ Staff Proposal at 10.

⁹ Staff Proposal at 11.

¹⁰ Staff Proposal at 12 – 13.

4.2. Party Comments

Parties generally support Staff's proposed budget allocation, although some parties propose modest changes. A.O. Smith suggests the Commission authorize the HPWH PA(s) to draw upon unspent funds within a given customer class if the funds have not been reserved by a certain date. This would allow PAs to reallocate unspent funds to a customer class that may be oversubscribed, including towards any qualifying technology introduced in the market that was not available at the start of the program.

PG&E encourages the Commission to allow the HPWH PA to shift funds between the equity and general market budgets via advice letter. Energy Solutions recommends making the entire equity budget available on a first-come, first-served basis to unitary or central HPWH systems combined in one budget while adopting a 20 percent floor for the equity residential unitary budget to ensure that funds remain for these less- expensive systems. Energy Solutions suggests that if this 20 percent floor is not subscribed after two years, the HPWH PA should have the ability to make the funding available to all types of equity residential HPWH installations through submission of an advice letter.

SBUA suggests that the Commission authorize small businesses access to the commercial unitary HPWH budget for unitary HPWH incentives, which are similar for small businesses as they are for residential customers.

Sierra Club/NRDC recommend increasing the budget allocated to residential central HPWH from five to 20 percent, stating that these technologies are gaining in popularity. Sierra Club/NRDC further recommend building in protections to ensure smaller developers have equitable access to this budget if the Commission takes this route.

CSE and SCE suggest an administrative budget allocation of five percent is too low and that a 10 percent allocation is needed. CSE recommends dedicating some of Staff's proposed commercial unitary HPWH incentive budget to HPWH evaluation activities and redistributing the remainder between the residential incentive budgets. These parties argue that although deploying a statewide PA structure for the SGIP HPWH program will eventually result in economies of scale that reduce costs, initial set up costs may be higher (see section 9 below). These parties argue that the administrative budget could be reduced over time once the program is better established.

TURN states that given SGIP's statutory GHG emission reductions goals, at least 25 percent of the HPWH budget should be allocated to multi-family residential central HPWH incentives. TURN states this would promote the installation of very low GWP split systems in multi-family buildings. TURN further suggests that the budget allocations should distinguish between split and integrated systems rather than between unitary and central systems. TURN recommends the Commission allocate more funds to split systems than integrated systems due to split systems' lower GWP.

4.3. Discussion

We determine that the residential HPWH equity and general market budgets shall be available on a first-come, first-served basis to *either* unitary or central HPWH systems in one combined budget, with a 20 percent floor of the combined equity budget (\$3.8 million) reserved for residential equity unitary systems and 20 percent floor of the combined residential budget (\$3.8 million) reserved for residential general market unitary systems. We also cap the total percent of these combined budgets that may fund residential central HPWH incentives at 40 percent of each of the residential general market and residential

equity budgets. To add some flexibility, after three years from Commission issuance of this decision, we authorize the HPWH PA¹¹ to submit a Tier 1 advice letter to reallocate the reserved equity unitary and residential general market unitary funds, if not fully subscribed, and any other unspent funds within our adopted budget to any customer class that is oversubscribed, including towards any qualifying technology introduced in the market that was not available at the start of the program.

We cap the total percent of these combined budgets that may fund residential central HPWH incentives at 40 percent of each of the residential general market and residential equity budgets in order to allow for review of the effectiveness of residential central HPWH systems in shifting load before further incentive funds are reserved. If and when applications for residential central HPWH incentives meet or exceed 40 percent of either the residential general market or the residential equity budgets, the SGIP HPWH PA shall take two steps: (1) initiate a waitlist for residential central HPWH applications in the relevant budget until such time as further guidance is provided by this Commission; and, (2) prepare a short summary report of the load shift performance of approved residential central HPWH installations and file the report in this proceeding.

The additional flexibility gained by this approach and by opening both types of residential budgets to a first-come, first-served structure will help the program reach as many customers as possible and will decrease the chance that the funds go unspent. Our approach provides for greater flexibility for participation of multi-family buildings in SGIP's HPWH incentive program,

¹¹ In section 10.3, we adopt a statewide SGIP HPWH PA/PI structure. This decision uses the phases "HPWH PA" and "HPWH PA/PI" interchangeably.

which is particularly appropriate for the equity budget category given that multi-family buildings comprise most equity budget eligible housing in California. Additionally, multi-family HPWH systems are typically composed of integrated central systems using very low GWP refrigerants and we would like to encourage market growth in these types of systems. Further, our approach will allow for early review of the load shift performance of residential central HPWH systems in multi-family buildings to ensure compliance with Section 379.6(e)(1) before authorizing additional funds towards these systems.

Authorizing the SGIP HPWH PA to propose budget reallocations after three years is similar to the approach taken for the Building Initiative for Low-Emissions Development (BUILD) program adopted in D.20-03-027.¹² Allowing the HPWH PA flexibility and discretion will help ensure that SGIP HPWH incentive funds are available where demand exists. We authorize use of a Tier 1 advice letter to minimize delay in making the reallocations recommended by the SGIP HPWH PA, who will be in the best position to determine market demand and need.

We do not adopt a 20 percent floor of the entire SGIP HPWH incentives budget for residential equity unitary systems as suggested by Sierra Club/NRDC because we feel it is sufficient to reserve \$3.8 million each for equity and general market unitary systems as opposed to the \$8 million that would result from applying a 20 percent floor to the entire HPWH incentives budget.

We increase the SGIP HPWH administrative budget for the duration of the program to a cap of 10 percent of the HPWH budget approved in D.19-09-027 and D.20-01-02, or \$4.47 million. To accomplish this, we reduce each combined

¹² D.20-03-027 at 58.

residential equity and residential general market budget by \$1.1 million. Increasing the SGIP HPWH administrative budget is necessary to address additional anticipated costs including initial set up costs for the program, HPWH evaluation costs, and any HPWH marketing, education and outreach costs, which must be taken from the HPWH administrative budget. To ensure sufficient HPWH evaluation budget, approximately 25 percent of the HPWH administrative budget or approximately \$1.12 million, shall be allocated to evaluating the SGIP HPWH program.

A 10 percent administrative cost allocation and cap is consistent with our approach to the Technology and Equipment for Clean Heating (TECH) Initiative, taken in D.20-03-027. As we did in D.20-03-027, we also require the following: If the selected bid to implement the SGIP HPWH program is below the 10 percent cap, the difference between the winning bid amount and the 10 percent administrative costs cap shall be reallocated for program costs.¹³ We discuss the SGIP HPWH PA bidder selection process more in section 9.3

These changes result in our adopted SGIP HPWH budgets as presented in Tables 5 and 6.

Table 5: Adopted SGIP HPWH Budget Allocation by Activity

Activity	Amount
Program Administration	\$4,467,000
HPWH Incentives	\$40,203,000
Total SGIP HPWH Budget	\$44,670,000

¹³ D. 20-03-027 at Sec. 3.1.4.

Table 6: Adopted SGIP HPWH Incentive Budget Allocation by Customer Class

Customer Class	Percent	Amount
General Market Residential Unitary & Central HPWH	47.36%	\$19,040,588
Equity Residential Unitary & Central HPWH	47.36%	\$19,040,587
Commercial Unitary HPWH	5.28%	\$2,121,825
Total SGIP HPWH Incentive Budget	100.0%	\$40,203,000

Small business unitary HPWH incentives shall be funded through the commercial unitary HPWH budget. We discuss this issue more in section 6.

We do not adopt TURN's suggestion to reconfigure the budgets between split and integrated systems as the changes above largely accomplish the same result.

Existing SGIP rules not otherwise modified in this decision apply to the SGIP HPWH budget. In particular, we stress that existing SGIP customer eligibility rules continue to apply. Any retail electric or gas distribution class of customer (industrial, agricultural, commercial, or residential) of PG&E, SCE, SoCalGas, or SDG&E is eligible to be a "Host Customer" that receives incentives through SGIP.

Appendix A summarizes the Staff Proposal as modified by this decision.

5. Gas Cap-and-Trade Allowance Proceeds for HPWHs

5.1. Cap-and-Trade ACR

The Cap-and-Trade ACR proposes a one-time use of \$40 million in Cap-and-Trade allowance proceeds to provide additional funding for load

shifting SGIP HPHW incentives.¹⁴ Under the proposal in the Cap-and-Trade ACR, PG&E, SoCalGas, and SDG&E would withhold the following amounts from their gas Cap-and-Trade allowance proceeds distributed to ratepayers in 2023:

- SoCalGas: \$20,032,000 (50.08 percent of \$40 million)
- PG&E: \$17,216,000 (43.04 percent of \$40 million)
- SDG&E: \$2,752,000 (6.88 percent of \$40 million)

According to the Cap-and-Trade ACR, the use of allowance proceeds would reduce the California Climate Credit (Climate Credit) distributed to gas customers in 2023 as directed in D.15-10-032 and D.18-03-017 by a small amount (an estimated three dollars per customer, on average). However, the Cap-and-Trade ACR states that the average residential customer of each gas IOU would still receive a Climate Credit equal to or greater than the average amount of revenue that the gas IOU collected from the customer over the course of the year for Cap-and-Trade Program compliance costs.

The Cap-and-Trade ACR proposes to use allowance proceeds to provide SGIP HPWH incentives to gas ratepayers residing in the service territory of the contributing IOU. Spending of Cap-and-Trade allowance proceeds with statewide or cross-territory benefits, if any, including any administrative and/or evaluation spending, would be attributed to the gas corporation service

¹⁴ See 17 California Code of Regulations (CCR) § 95893. The California Air Resources Board (CARB) holds quarterly auctions in February, May, August, and November of each year. Each gas corporation must offer for sale at auction a minimum percentage of its allocated allowances within the designated calendar year. The required minimum percentage started at 25 percent in 2015 and increases five percent each year until hitting 100 percent in 2030. Within a given year, the gas corporation can decide at its discretion how to distribute those allowances among the four auctions.

territories in proportion to their original funding contribution.¹⁵ To the extent that there are unspent Cap-and-Trade allowance proceeds allocated for a particular gas corporation's service territory and no remaining eligible projects within that service territory as of January 1, 2026, when SGIP sunsets pursuant to Section 379.6, unspent funds would be returned to the ratepayers of the respective gas corporations as part of the 2027 Climate Credit. The Cap-and-Trade ACR proposes specific direction on how the gas IOUs would implement its proposal.

5.2. Party Comments

Parties largely support the Cap-and-Trade ACR's proposal to allocate Cap-and-Trade allowance proceeds to provide additional funding for load shifting SGIP HPHW incentives, with some exceptions.

A.O. Smith supports the proposal, contending that HPWHs do not have wide-spread adoption in California and will need successful, unique broad-based market transformation programs to be implemented. According to A.O. Smith, consistent and long-term funding for GHG reduction programs and incentives is essential in aiding consumers in understanding how to make different purchasing decisions and accept new technologies. Similarly, Energy Solutions asserts that a sustained commitment to funding for HPWHs is needed to demonstrate to supply chain market actors (appliance manufacturers, suppliers, and contractors) that heat pumps are an important part of their future business planning, and that their business should invest in adapting to the new market.

¹⁵ CCR § 95893(d)(4) provides: "Allocated allowance auction proceeds may be used for administrative costs only in so far as those costs are solely limited to necessary costs to administer the projects and activities funded pursuant to sections 95893(d)(3)(A)-(C)."

Cal Advocates contends that significant funding for HPWHs will be required to rapidly transform the water heating market and decarbonize water heating applications. Cal Advocates also asserts that the provision of incentives for efficient electric water heating to gas ratepayers is an appropriate application for Cap-and-Trade allowance proceeds. Cal Advocates also recommends that all SGIP HPWH funds, including the proposed allocation from gas Cap-and-Trade allowance proceeds, should be administered by an independent statewide program administrator and program implementor (PA/PI). Cal Advocates also support the Cap-and-Trade ACR's proposal to delegate authority to reduce the proposed allocation from Cap-and-Trade allowance proceeds if necessary to ensure that the average residential customer's Climate Credit is at least equal to residential customers' annual Cap-and-Trade program costs.

Sierra Club/NRDC also support the proposal, arguing that the SGIP HPWH Sub-Program primarily and directly benefits gas customers by enabling them to affordably transition to clean water heating technologies in line with California's building decarbonization path. Likewise, SCE supports the proposal to use gas Cap-and-Trade allowance proceeds and considers the amount of funding and the timing to be appropriate. SCE recommends that any additional guidance regarding HPWH be finalized expeditiously so that a HPWH program is in place to utilize these funds in 2023.

CSE also supports the proposal, contending that allocating an appropriate amount of administration funding for marketing, education, and outreach (ME&O) along with evaluation activities will be key to growing HPWH awareness and efficacy. CSE notes that HPWHs represent one of the most promising technologies for both promoting energy efficiency and reducing GHG emissions related to domestic water heating and contends that allocating

Cap-and-Trade allowance proceeds to HPHWs is consistent with the CARB regulations. CSE also strongly encourages the Commission to consider allocating more than the proposed \$40 million if additional Cap-and-Trade allowance proceeds are available.

By contrast, SoCalGas opposes the proposal in the Cap-and-Trade ACR. SoCalGas contends that the legislature has already provided for the amount and source of funding for SGIP, which includes the \$44.7M already allocated to HPHWs. In addition, SoCalGas asserts that the proposal does not meet the requirements of California Code of Regulations (CCR) Section 95893(d)(3), which requires gas Cap-and-Trade allowance proceeds funds to primarily benefit retail natural gas ratepayers. SoCalGas also argues that the proposal to increase funding to HPWH incentives in SGIP is premature because the Commission has not proven the value of HPWHs for GHG reductions and the proposal does not align with the objectives of SGIP.

PG&E also opposes the proposal, though on somewhat different grounds than SoCalGas. According to PG&E, it is inappropriate for the Commission to unilaterally fund HPWH incentives by garnering funds intended to provide the State's gas customers with rate relief from costs created by the Cap-and-Trade program unless a long-term benefit to gas ratepayers can be demonstrated. Though customers able to replace individual appliances will see lower gas bills, those replacements do not lower the cost of the gas system; instead, remaining gas customers will absorb those costs. PG&E instead recommends the Commission support more holistic and comprehensive electrification over single-appliance incentives such as the SGIP HPWH program. PG&E also recommends that the Commission use its current Building Decarbonization rulemaking

(R.19-01-011) as the forum to discuss additional funding for HPWHs in the context of California's overall decarbonization goals and affordability of customer gas rates.

In its comments, SDG&E takes a neutral position on proposal in the Cap-and-Trade ACR. Similar to PG&E, SDG&E prefers that the impacts of further electrification be assessed more widely in the Commission's current Building Decarbonization rulemaking and would prefer a more holistic, comprehensive approach to the consideration of electrification. However, SDG&E notes that its portion of the proposed HPHW funding is small, and it is not clear if the incentives allocated for SDG&E will all be used.

5.3. Discussion

We adopt the Cap-and-Trade ACR's proposal to allocate \$40 million in Cap-and-Trade allowance proceeds to provide additional funding for load shifting SGIP HPHW incentives. We do not at this time believe that any of these funds will be needed for administrative costs and do not authorize their use for that purpose.

Any use of allocated allowance auction proceeds must comply with all applicable CARB regulations. The allocation of Cap-and-Trade allowance proceeds we adopt in this decision is consistent with the regulations governing the allocation of Cap-and-Trade proceeds, which requires that allowance value "must be used for the primary benefit of retail natural gas ratepayers of each natural gas supplier."¹⁶

17 CCR Section 95893(d)(3) requires that gas cap and trade auction proceeds must be used 1) for the primary benefit of retail natural gas ratepayers

¹⁶ 17 CCR Section 95893(d)(3).

of each natural gas supplier, consistent with the goals of Assembly Bill (AB) 32, and 2) to reduce GHG emissions. Accordingly, each utility's portion of the \$40 million in gas Cap-and-Trade allowance proceeds set aside in this decision may only be used to incentivize natural gas customers in the service territory of the funding gas utility. In addition, gas Cap-and-Trade allowance proceeds may not be used to fund HPWH incentives for existing all-electric customers who do not have natural gas service.

SoCalGas asserts that the proposed funding does not comply with this regulation because it contained no explicit requirement that funding flow only to retail natural gas customers and not to existing all-electric customers. SoCalGas' argument is not persuasive. Customers receiving the incentives funded by Cap-and-Trade allowance proceeds will benefit from using a cleaner energy source, and the additional funding will assist in meeting the State's GHG reduction goals. Incentivizing HPWH installation, as an alternative to gas hot water heaters, will reduce GHGs.¹⁷ The benefits will primarily accrue to gas customers receiving incentives because, if they want to install a HPWH, they may do so at a greatly reduced cost.

Participating customers benefit from using a cleaner fuel that avoids combustion of gas for water heating in the residence. All gas ratepayers benefit from accelerating the development of the HPWH market in California such that the technology is more readily available, at lower cost, even after the incentives are exhausted. Further, in Senate Bill (SB) 1477 (2018), the legislature authorized use of natural gas Cap-and-Trade funds for HPWH incentives in the TECH

¹⁷ The overall purpose of Cap-and-Trade allowance proceeds is to reduce GHG emissions. See CCR Section 95801.

Initiative and BUILD programs, indicating that using such funds for HPWHs is consistent with Section 95893(d)(3).¹⁸

PG&E recommends, and SDG&E prefers, that the Commission take up additional funding proposals for HPWHs in the Commission's Building Decarbonization rulemaking, in order to support more holistic and comprehensive electrification over single-appliance incentives such as the SGIP HPWH program. However, we are not persuaded that incentives to replace gas hot water heaters with electric heat pumps are inconsistent with potential future development of a comprehensive plan for transitioning customers entirely off of fossil gas use. Indeed, the installation of HPWHs has the potential to significantly reduce gas combustion indoors and lead to potential improvements in indoor air quality and health outcomes. As such, any delays in authorization of additional funding for the SGIP HPWH program would be counter-productive.

There are no other express restrictions in CARB regulations or the Public Utilities Code on the Commission's authority to determine how best to distribute Cap-and-Trade allowance proceeds. As a matter of policy, we agree with the majority of responding parties, including Sierra Club/NRDC, Cal Advocates, SCE, CSE, A.O. Smith, and Energy Solutions that the use of gas Cap-and-Trade allowance proceeds to augment the SGIP HPWH budget is consistent with the State and Commission decarbonization goals and a prudent use of funds. These funding set-asides will reduce the Climate Credit returned to gas customers in 2023 by a small amount, but the average residential customer of each of the funding utilities will still receive a Climate Credit that will cover at least the full

¹⁸ See Public Utilities Code Section 748.6.

amount of costs that the gas utilities collected from them for Cap-and-Trade program compliance costs.

However, in order to ensure that residential gas ratepayers are “made whole,” we adopt the Cap-and-Trade ACR’s proposal to delegate authority to Energy Division staff to reduce the proposed allocation from 2023 Cap-and-Trade allowance proceeds if necessary to ensure that the average residential customer’s Climate Credit is at least equal to residential customers’ annual Cap-and-Trade program costs.

In response to the Cap-and-Trade ACR, most parties recommended that the Commission authorize use of gas IOU Cap-and-Trade allowance proceeds to increase funding for load-shifting HPWHs. While Cal Advocates and SCE support the Cap-and-Trade ACR’s proposed allocation of \$40 million, CSE, Sierra Club/NRDC, and A.O. Smith would have us go further and authorize additional one-time funds beyond proposed in the Cap-and-Trade ACR and/or authorize annual collections. While we decline to allocate additional Cap-and-Trade funds beyond 2023 at this time, the Commission may revisit the allocation of Cap-and-Trade proceeds in the future if circumstances warrant.

Consistent with precedent established in both D.20-03-027 and D.20-12-031, the additional \$40 million set-aside of Cap-and-Trade allowance proceeds shall be allocated consistent with each IOU’s respective percentage of their combined CARB allocation of Cap-and-Trade allowances, which shall be as follows:

- SoCalGas: \$20,032,000 (50.08 percent of \$40 million)
- PG&E: \$17,216,000 (43.04 percent of \$40 million)
- SDG&E: \$2,752,000 (6.88 percent of \$40 million)

The full annual allocation for each of the funding gas utilities shall be deducted from the 2023 Climate Credit. Each utility shall file a Tier 1 Advice Letter within 30 days of the date of the issuance of this decision establishing a new balancing account to track all Cap-and-Trade allowance proceeds set aside pursuant to this decision, as well as any interest accrued on those proceeds.

The mechanics for the allocation and transfer of funds mirror those adopted in D.20-03-027 and are as follows:¹⁹

- For the purpose of calculating 2023 Climate Credits, in their late 2022 advice letter filings, SoCalGas, PG&E, and SDG&E will modify the table format established by D.15-10-032 (i.e., Table C of Appendix A of that decision) to include below line 9d a new line numbered 9e and titled “SGIP HPWH Incentive Costs.” This line would record each gas utility’s share of the \$40 million in funding authorized by this decision;

- In their late 2022 advice letter filings, SoCalGas, PG&E, and SDG&E will modify line 10 of Table C of Appendix A of D.15 10 032 to equal the following: Subtotal Allowance Proceeds, minus Outreach and Administrative Expenses, minus Senate Bill (SB) 1477 Compliance Costs, minus Renewable Natural Gas Incentive Costs, minus SGIP HPWH Incentive Costs. To reflect this change, SoCalGas, PG&E, and SDG&E will modify the template for Table C by changing the description of Line 10 of Table C of Appendix A of D.15-10-032 to “Net GHG Proceeds Available for Customer Returns (\$) (Line 8 + Line 9 + Line 9b + Line 9c + Line 9d + Line 9e);
- SoCalGas, PG&E, and SDG&E shall, within 30 days of adoption of this decision, file a Tier 1 advice letter with Energy Division formalizing a new sub account in their existing SGIP balancing account to collect and track their respective share of the \$40 million as those funds become available moving forward; and,

¹⁹ D.20-03-027 at Ordering Paragraph 3.

- SoCalGas, PG&E, and SDG&E shall remit their respective SGIP HPWH 2023 Cap-and-Trade funds directly to SCE on a quarterly basis in four equal installments. Quarterly remittances shall be made on or before March 1, 2023, June 1, 2023, September 1, 2023, and December 1, 2023 so as to follow the California Air Resources Board's quarterly auctions in February, May, August, and November. Each payment by PG&E, SoCalGas, and SDG&E will be a single payment to SCE for deposit in the interest-bearing SGIP HPWH PA/PI account (or subaccount) directed in section 10.3 below.

The SGIP HPWH PA/PI shall allocate each gas corporation's Cap-and-Trade allowance proceeds to HPWH customer classes using the same percentages as set forth above in Table 6 for the \$40.2 million incentives budget component of the \$44.7 million in SGIP HPWH funds adopted in D.19-09-027 and D.20-01-021.

If there are unallocated Cap-and-Trade allowance proceeds for a particular gas corporation's service territory and no remaining eligible projects within that service territory as of January 1, 2026, when SGIP sunsets pursuant to Section 379.6(a)(2), the SGIP HPWH PA and SCE shall return the gas companies' respective unallocated funds to PG&E, SoCalGas and SDG&E, and each gas corporation shall return the unallocated funds to its ratepayers as part of the 2026 or 2027 Climate Credit.

6. Residential Unitary HPWH

The Staff Proposal recommends a series of HPWH program requirements organized by customer class and equipment type. This section and those that follow review Staff's recommendations by customer class. Adopted SGIP HPWH program and incentive requirements, including those for residential unitary HPWHs, are summarized in Appendix A.

6.1. Appliance, Installation, and Load Shifting Requirements

6.1.1. Staff Proposal

Staff propose that eligible residential unitary HPWHs be defined to include both integrated and split HPWH systems having a total nominal compressor output power of six kilowatts or less, installed to serve a single household in a single-family building, a duplex, or a multi-family property.

Staff recommend that the Commission additionally require all eligible residential unitary HPWH to meet the following requirements:

Appliance Requirements

- Residential unitary HPWHs must be identified as a California Energy Commission (CEC) Joint Appendix 13 (JA-13) compliant water heater by the CEC (which ensures that they are equipped with a thermostatic mixing valve).
- Residential unitary HPWHs must be identified by Northwest Energy Efficiency Alliance's (NEEA) most recent qualified product list as having a CTA-2045 Compliant Communication Port.

Installation Requirements

- Residential unitary HPWHs must be installed in compliance with the CEC's JA-13 installation specifications.
- Integrated residential unitary HPWHs must be installed at a 135°F tank setpoint and a 120°F thermostatic mixing valve setpoint temperature.
- Split system residential unitary HPWHs must be installed at a 150°F and a 120°F TMV setpoint and a 120°F thermostatic mixing valve setpoint temperature.

Load Shifting Requirements

- Residential unitary HPWHs must be programmed to execute the basic load-up and light shed demand management functionality as defined in JA-13. This demand management functionality will signal the HPWH to store thermal energy

during certain times to avoid electricity usage at different times

- Residential unitary HPWHs must execute basic load-up and light shed demand management response based on the local utility's available SGIP-compliant time-of-use (TOU) rates.
- Customers that install SGIP funded residential unitary HPWHs are permitted to enroll in demand response programs like other energy storage resources.

In the body of their proposal, Staff suggest the Commission revise existing SGIP equity budget eligibility rules to make it easier for otherwise eligible customers to access HPWH equity budget incentives. Specifically, Staff propose waiving the equity budget eligibility requirement that single-family homes be subject to resale restrictions or presumed resale restrictions for purposes of SGIP HPWH incentives.²⁰

6.1.2. Party Comments

Parties generally support the Staff Proposal in this area with some refinements.

A.O. Smith and Sierra Club/NRDC propose that PAs be allowed to propose additional product qualification pathways in the future through the submission of a Tier 2 Advice Letter.

CSE and Energy Solutions propose greater flexibility regarding required communication standards. These parties recommend allowing for alternate compliance to CTA-245, for example that units are certified as a Connected Water Heater or an ENERGY STAR® Connected Water Heater. BWC recommends that the Commission postpone requiring the CTA-2045 compliant communication component until the Air-Conditioning, Heating, and

²⁰ Staff Proposal at 46-47.

Refrigeration Institute (AHRI) Standard 1430 is published, stating that Staff's proposal is too prescriptive.

Several parties comment that requiring specific setpoint temperatures is overly restrictive. Rather than requiring specific setpoint temperatures, Rheem and Sierra Club/NRDC suggest the Commission instead require and enforce that HPWHs using SGIP incentives are sized correctly per JA13's first hour recovery requirements.

Several parties suggest that contractors should not be required to enroll customers on a SGIP-approved TOU rate; instead, the Commission should require contractors to report installation of a HPWH to the relevant utility and require the utility to enroll the customer on the rate.

Energy Solutions comments that HPWH contractors in the field frequently do not program units to follow TOU schedules. Energy Solutions states that this emphasizes the central role of the HPWH PA/PI to coordinate with other HPWH incentive programs to train contractors on the beneficial impact of TOU responsiveness.

SoCalGas and TURN comment on Staff's proposal to remove current equity budget resale restrictions or presumed resale restrictions for single family homes wishing to use SGIP equity budget HPWH incentives. SoCalGas states it is premature to remove this requirement because many host customers may be renters. TURN does not oppose Staff's proposal in this area.

6.1.3. Discussion

We adopt the Staff Proposal for residential unitary HPWH appliance, installation and load shifting requirements with modifications. First, we authorize the SGIP HPWH PA to propose additional product qualification pathways to those proposed by Staff through the submission of a Tier 2 advice

letter. This allows for new product innovation that we are not yet aware of to participate in the program.

Second, we approve an additional eligibility pathway to the CTA-2045 Compliant Communication Port requirement contained in the Staff Proposal. In addition to CTA-2045 compliant devices, we approve products that are certified as a Connected Water Heater under the recently finalized Version 4.0 ENERGY STAR® Product Specification for Residential Water Heaters as eligible technologies.²¹ The Version 4.0 ENERGY STAR® standard will become effective in 2022 and provides a recognizable standard that includes CTA-2045 and has similar requirements. We do not postpone requiring the CTA-2045 Compliant Communication Port requirement as suggested by BWC because this or the additional ENERGY STAR® compliance option is necessary to ensure communication that enables load-shifting, which is the statutory requirement for use of SGIP funds for HPWH incentives. However, we authorize the SGIP HPWH PA to submit a Tier 2 advice letter once the AHRI Standard 1430 is adopted proposing this as a compliant communication port pathway, if the PA believes that the AHRI standard provides an equally reliable and appropriate alternative.

Third, we modify Staff's recommendation that we require specific setpoint temperatures. As suggested by several parties, we feel this could be overly restrictive. Instead, residential unitary HPWH systems shall be sized correctly per the first hour recovery requirements contained in JA-13 and the SGIP HPWH

²¹ Available as of November 18, 2021 at:

https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Version%204.0%20Water%20Heaters%20Final%20Specification%20and%20Partner%20Commitments_0.pdf.

PA shall strictly enforce this requirement.²² The HPWH must be installed and operated using the settings for load-shifting.

Fourth, we retain the requirement that customers receiving residential unitary HPWH incentives must enroll in a TOU rate but clarify that such customers may enroll in any TOU rate, not just SGIP-approved TOU rates. The modelling that informed our adoption in D.19-08-001 of a limited set of SGIP-approved TOU rates was based on the operation of battery storage units only, not HPWHs. In addition, the HPWH market is less developed than the battery storage market in California and we wish to avoid creating a barrier to customer installation of a HPWH by approving only a limited set of TOU rate options for this technology.

We clarify that the participating contractor must inform the customer applying for residential unitary SGIP HPWH incentives of the TOU requirement. The contractor must give the customer information provided by the HPWH PA regarding the rationale for the TOU enrollment requirement, namely that this will help ensure load-shifting for grid reliability and reduce customer electricity costs for water heating. It will then be the HPWH PA's responsibility to notify the IOU about the HPWH installation. It will be the IOU's responsibility to reach out to and enroll the customer on a TOU rate within 30 days of being informed of the installation by the HPWH PA. The IOUs shall each inform the SGIP HPWH PA of their preferred method to inform them of a completed residential unitary HPWH installation. It is preferred but not required that the customer indicate to the utility its preferred TOU rate for enrollment.

²² The JA-13 qualification requirements are available as of December 8, 2021 at https://www.energy.ca.gov/sites/default/files/2020-07/JA13_Qualification_Requirement_HPWH_DM_ADA.pdf.

To ensure these steps occur, the SGIP HPWH PA shall ensure the customer using residential unitary HPWH incentives has been enrolled on a TOU rate prior to issuing an incentive payment. This approach avoids burdening participating contractors with the responsibility of ensuring the customer enrolls on a TOU rate while still ensuring that this enrollment happens in a timely fashion. Additionally, as suggested by Energy Solutions, we direct the HPWH PA to collaborate with other HPWH incentive programs to support training contractors on the beneficial impact of TOU responsiveness.

Fifth, we adopt Staff's proposed changes to eligibility requirements for customers that are otherwise eligible for equity budget incentives. We waive the existing equity budget eligibility requirement that single-family homes be subject to resale restrictions or presumed resale restrictions for purposes of the HPWH budget only. We are concerned that retaining this requirement will unduly limit the participation of lower-income single-family households and feel that removing this requirement is justifiable due to the somewhat larger dollar investment required for electrochemical energy storage when compared to HPWHs.²³ Although HPWHs are a fixed asset and there is risk that ratepayers may provide a higher-level incentive to a low-income customer only to have them subsequently move, the implications of this risk are lower, and warranted by the imperative to accelerate the transition to efficient electric water heating.

Finally, in the final decision, we clarify that if they meet all technology and installation requirements, combination hot water heating/space heating systems, and 120-volt HPWH systems are eligible for the residential unitary HPWH incentives. We also modify Staff's proposal regarding demand response to

²³ D.20-01-021 found that the electrochemical energy storage had a median cost of \$13,500, at 21. See: <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M325/K979/325979689.PDF>

require all customers using SGIP HPWH incentives to enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy. This requirement is discussed more in section 14.

Appendix A contains the adopted Staff Proposal as modified by this decision.

6.2. Incentive Structure and Value

6.2.1. Staff Proposal

Staff propose the following incentive structure and values for residential unitary HPWH systems:

Incentive Structure & Value

- Base the residential unitary HPWH on the energy storage capacity of a 50-gallon tank volume and a temperature setpoint of 135°F.
- Calculate the residential unitary HPWH incentive using an estimated 3.1-kilowatt hour energy storage capacity regardless of tank size to simplify program administration.
- Set the initial SGIP HPWH incentive value for general market residential customers at \$1,000 per kilowatt hour.
- Set the initial SGIP HPWH incentive value for equity residential customers at \$1,350 per kilowatt hour.
- Provide a \$1,500 low GWP kicker incentive for HPWHs that utilize a refrigerant with a GWP less than 150.
- Eligibility for incentives is not dependent on previously installed water heater type (*i.e.*, the “base” technology may be a gas or propane storage water heater, an electric resistance storage water heater, an electric resistance tankless water heater, a gas tankless condensing water heater, or other type).²⁴

²⁴ Staff Proposal at 33 – 35.

6.2.2. Party Comments

Parties generally support Staff's proposed incentive structure and values for residential unitary HPWH systems, with some refinements. CSE and A.O. Smith suggest the PAs be given greater flexibility to adjust incentive levels via advice letter. A.O. Smith also urges the Commission to make incentives available for conversion from electric resistance water heaters to HPWHs as well as from natural gas water heaters to HPWHs.

Energy Solutions suggests that Staff's proposal does not sufficiently account for the cost range for different types of appliances. Energy Solutions states that HPWHs must be upsized from gas hot water heaters, so a 50-gallon HPWH may not be the appropriate size to replace a 50-gallon gas system. Energy Solutions, A.O. Smith, BWC and the Sierra Club/NRDC recommend a two-tiered incentive approach for units greater than and less than 55 gallons. Rheem urges incentive offerings for 65 to 80-gallon HPWH units. A.O. Smith and Rheem request the Commission clarify that incentives are available for HPWH units replacing electric resistance water heaters.

A.O. Smith and BWC oppose Staff's proposed low GWP kicker incentive. However, if it is established, Energy Solutions and A.O. Smith urge the Commission to adopt a higher eligibility threshold for the low GWP kicker incentive, with the former recommending eligibility for the kicker start with refrigerants with a GWP of 750 or less and decline to those with a GWP of 150 or less over a one-year period. PG&E recommends the Commission coordinate with CARB when designing the low GWP kicker and consider allowing flexibility for the kicker to be discontinued in the event changes in CARB requirements render it unnecessary. Harvest Thermal supports Staff's proposed

low GWP kicker, stating that appliances with low GWP refrigerants are widely available in Europe and work well.

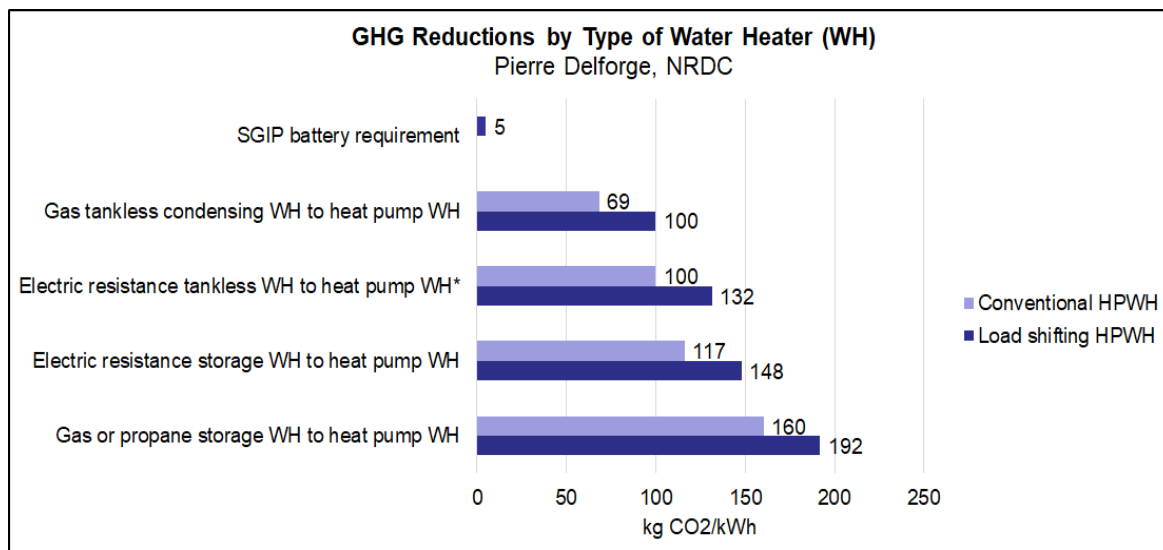
SoCalGas expresses concern over what it claims may be inflated costs guiding the incentive levels and urges the Commission to monitor costs carefully.

6.2.3. Discussion

We adopt the Staff Proposal on residential unitary HPWH incentives with clarifications.

First, we clarify that Staff proposed that eligibility for all HPWH incentives is not dependent on the type of water heater previously installed. Thus, for example, the “base” water heating technology may be a gas or propane storage water heater, an electric resistance storage water heater, an electric resistance tankless water heater, a gas tankless condensing water heater, or other some other type of water heater, as applicable.²⁵ As discussed in the Staff Proposal, the GHG benefits from installing HPWH, including those resulting from fuel switching and load-shifting, are estimated to be significant regardless of the type of base appliance, as indicated in Figure 1 below.

²⁵ Staff Proposal at 33 – 35.

Figure 1: Estimated GHG Reductions by Water Heater Type²⁶

Second, regarding Staff's proposed low GWP kicker incentive, we adopt Staff's proposal without modification, except that the kicker is available for refrigerant with 150 GWP or less (rather than less than 150). However, we direct Commission Staff and the SGIP HPWH PA to monitor CARB and other state agency activities regarding low GWP refrigerant HPWHs and authorize the SGIP HPWH PA to submit a Tier 1 advice letter proposing modifications to the kicker incentive as appropriate, for instance, in the event changes in CARB requirements render it unnecessary. We also direct the SGIP HPWH PA/PI to track the type of refrigerant used in each project so it may be included in the impact evaluation reports, so we can evaluate whether there is a need to set a GWP standard in the future.

²⁶ Staff Proposal at 35, citing May 7, 2020, SGIP HPWH Workshop Part 2, Slide 8. See: https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/Customer_Gen_and_Storage/SGIP.HPWH.Workshop.Part2.pdf. See section 11 for a discussion of SGIP HPWH program evaluation methodologies.

We adopt Staff's proposed \$1,500 per unit low GWP kicker incentive without any changes as this will help create demand for low GWP units. We disagree with parties who suggest we either do not adopt a low GWP kicker incentive or start the low GWP kicker incentive at a higher GWP threshold and decrease this over time. The GHG emission benefits of low GWP refrigerants are substantial. Systems exist in the market currently that would qualify for the kicker incentive as proposed by Staff, and we would like to stimulate the market for low GWP HPWH systems to the greatest extent possible. We provide further discussion of the rationale supporting our adopted low GWP potential kicker incentives in section 8.2.3.

Finally, recognizing the possibility that a 50-gallon natural gas hot water heater may need to be replaced with a HPWH with a larger tank, we adopt a two-tiered residential unitary HPWH incentive approach that would provide a slightly higher incentive amount for HPWHs with storage capacities of 55 gallons or more. For both general market and equity customers, we authorize an additional \$700 incentive for HPWHs with storage capacities of 55 gallons or more. We are persuaded that this additional incentive will help ensure right-sizing of customer HPWH units, which may need to have somewhat larger capacities than the water heater being replaced due to the pre-heating and load-shifting requirements we adopt here. It is critical that units are correctly sized at this nascent stage of market development to ensure customer satisfaction and thus the long-term effectiveness of this program.

Appendix A contains the adopted Staff Proposal as modified by this decision.

6.3. Electric Panel Upgrade, Electric Service Incentives and Maximum Incentive Value

6.3.1. Staff Proposal

Staff propose the following regarding electrical panel upgrade and electrical service incentives and the maximum value that any single residential unitary HPWH system should receive.

Electric Panel Upgrade and Electric Service Incentives

- \$2,800 electrical panel upgrade incentive for general market residential customers.
- \$3,600 electrical panel upgrade incentive for equity residential customers.
- Electrical panel incentive cap at 30 percent of both general market and equity residential budgets.
- If the electric distribution or service line to the electrical meter is not rated for 200-amps and must be upgraded, customer and IOU shall use the “Electric Service Line Allowance” provided for new and permanent loads under Tariff Rule 15 (Distribution Line Extensions) and Rule 16 (Service Line Extension).²⁷
- Electrical IOUs shall categorize any electrical service line upgrade costs required to complete a SGIP funded HPWH installation that exceed the Tariff Rule 15 and Rule 16 Electric Service Line Allowance as “common facility costs” pursuant to D.11-07-029, D.13-06-014, and D.16-06-011.²⁸

Maximum Incentive

- Staff propose the following maximum residential unitary HPWH incentive values by customer class:

²⁷ Staff Proposal at 31. For additional information on Rule 15 and Rule 16 see: <https://www.cpuc.ca.gov/General.aspx?id=6442465113>

²⁸ Staff Proposal at 32.

Table 7: Staff's Proposed Maximum Residential Unitary HPWH Incentives for a HPWH by Customer Class

Customer Class	Unitary HPWH Incentive	Low-GWP Kicker Incentive	Electrical Panel Upgrade Incentive	Max. SGIP HPWH Incentive
General Market Residential	\$3,100	\$1,500	\$2,800	\$7,400
Equity Residential	\$4,185	\$1,500	\$3,600	\$9,285

6.3.2. Party Comments

Parties suggest a variety of modifications to Staff's proposal for residential unitary HPWH electric panel and electric service upgrade incentives. Energy Solutions recommends the Commission disallow panel upgrades over 200 amps but stresses that eligible technologies should include smart load centers²⁹ and "other" behind-the-meter electric work needed to install the panel. TURN concurs with Energy Solutions and further recommends that eligibility for SGIP HPWH panel upgrade incentives be limited to households that have existing panels less than 200 amps, with the incentive only covering incremental costs. TURN suggests the Commission require participants to obtain a quote for a 200-amp panel upgrade, if they choose to upgrade to a larger panel.

TURN and Energy Solutions recommend that electrical panel upgrade incentives cover 100 percent of upgrade costs for equity residential customers (capped at \$4,000) but only 50 percent of upgrade costs for general market

²⁹ Smart load centers are also known as "smart circuit breakers." They are electrical panels that allow for two-way communication and data collection. Examples can be seen at the following site, available as of November 18, 2021:

<https://www.leviton.com/en/products/residential/load-centers/the-leviton-smart-load-center> and <https://support.span.io/hc/en-us/>

customers (capped at \$2,000). They state this would ensure that equity budget eligible customers are able to participate in the program and general market customers can afford to pay a greater percentage of electric panel upgrade costs and should be required to do so.

PG&E disagrees with Energy Solutions and TURN on panel upgrade incentives. PG&E states that the Commission should require that any panel upgrades incentivized by the SGIP program support enough load to eventually electrify the entire home. PG&E states that is more economically efficient and customer-friendly to create an outcome where the customer only needs to replace their panel once, particularly for equity budget participants. In line with this, PG&E recommends the Commission remove Staff's proposed 30 percent cap on panel upgrade incentives for the total residential unitary budget. PG&E states that capping incentives for panel upgrades would mean that submittal of applications would cease once the panel upgrade budget runs out, in turn resulting in the program struggling to meet its installation goals. PG&E suggests that if the Commission feels that funds allocated towards electrical panel upgrades are too high, the Commission could lower the panel upgrade incentive cap while raising the HPWH incentive an equivalent amount to keep the overall incentive offer to the customer consistent. PG&E further encourages the installation of demand responsive panels or breakers and states that TURN's suggestion to require customers to seek a quote for a 200-amp upgrade if they choose to upgrade to a larger panel is impractical and unnecessary.

TURN disagrees with these PG&E recommendations, stating that allowing use of SGIP incentives for panel upgrades beyond 200 amps as suggested by PG&E would violate SGIP's statutory requirement to only fund eligible technologies that shift onsite energy use to off-peak time periods or reduce

demand from the grid. TURN also disagrees with PG&E's recommendation to remove Staff's proposed 30 percent cap on electric panel upgrade incentives, stating that this is a necessary requirement to help contain panel upgrade costs.

SoCalGas questions whether panel upgrades to support even the installed size of an incentivized HPWH system meet SGIP's statutory requirements. SoCalGas recommends applying the current SGIP battery storage design to eligible project costs for HPWH systems, excluding electric panel upgrades, which would result in incentives based on the capacity, not to exceed a certain threshold. TURN opposes this reasoning, stating that from a customer's perspective the cost of a panel upgrade is the same as a required plumbing upgrade. If the Commission must fund panel upgrades, SoCalGas recommends that these be reserved for equity budget customers to remain consistent with D.20-01-021. TURN supports this approach as well.

SDG&E expresses concern that Staff's proposal to reclassify distribution or service line upgrade costs in excess of the Electric Service Line Allowance amounts provided for in Tariff Rule 15 and Rule 16 as common facility costs may pose an administrative burden on utilities.

SBUA disagrees with TURN regarding standardizing a cap for panel upgrade incentives to a 200-amp panel. SBUA states that the latter restriction would inhibit the participation of small businesses.

Commenting parties support Staff's proposed maximum incentive levels.

6.3.3. Discussion

We adopt the Staff Proposal on residential unitary HPWH electric panel and electric service upgrade incentives with modifications. We determine that residential unitary HPWH system electric panel upgrade incentives will not be allowed for panel upgrade costs that exceed the cost to upgrade to 200 amps.

This ensures that SGIP incentive funds will not be used to support other electric equipment such as hot tubs or high electricity users more generally. Similarly, we limit eligibility for SGIP HPWH panel upgrade incentives to households that have existing panels of less than 200 amps at the time of application for SGIP incentives. If participants wish to upgrade to a panel larger than 200 amps, they shall obtain and submit to the PA a quote for a 200-amp panel upgrade. Electric panel incentive shall only pay for incremental costs to upgrade to a 200-amp panel. Residential unitary HPWH system electric panel upgrades are available for customers in single family residences and multi-family residential units with their own water heating system.

We revise Staff's proposed incentives such that the electric panel upgrade incentive may cover 100 percent of equity budget customer's panel upgrade costs (capped at \$4,000) and 50 percent of upgrade costs for general market customers (capped at \$2,000). We update Staff's proposed maximum unitary HPWH incentives table to reflect these modifications, and the \$700 55-gallon capacity incentive adopted in section 6.2.3 above, and include a table summarizing our adopted maximum residential unitary HPWH incentives in Appendix A. This is a reasonable approach that will help ensure equity budget customers can participate in this program. This approach also decreases but does not eliminate electric panel upgrade incentives for general market residential customers. We do not want to eliminate these incentives entirely because we want to grow market participation by this customer class as well as participation by equity customers. However, we feel that general market customers can afford to pay a greater share of panel upgrade costs, as noted by several parties.

We clarify that eligible equipment for electric panel upgrade incentives includes "smart load centers," but does not include generic "other behind-the-

meter electric work” needed to install an electric panel. This is necessary because smart load centers enable two-way communication with the grid, but we cannot accept the more open-ended and undefined category of “other work needed.” However, for residential equity budget customers only, we authorize use of electric panel upgrade incentives for additional eligible costs, not to exceed the incentive levels adopted here. The additional eligible costs we authorize for residential equity budget customers may encompass costs to change the location of the installed water heater within the residence or property to accommodate the larger size of HPWHs and/or plumbing or wiring upgrades needed in the residence for installation of the HPWH.

We adopt Staff’s proposal on electric service line upgrade costs. We clarify that costs associated with distribution or electric service line upgrade costs, if needed to support the HPWH installation, are not eligible for SGIP electric panel upgrade and electrical services incentives. We find that an installed HPWH load is a new and permanent load as defined under Electric Tariff Rule 15 (Distribution Line Extensions) and Rule 16 (Service Extensions). As such any distribution and service line upgrade costs required to serve a 200-amp load for a HPWH system in residential buildings are eligible for and shall be addressed as Electric Service Line Allowance costs under Tariff Rule 15 and Rule 16.

It is reasonable to socialize distribution and/or service line upgrade costs necessary to serve a HPWH rather than require the installing customer to pay for these costs, which the customer bears no responsibility for. Customers can face a highly variable range of these costs through no fault of their own. This approach helps support California’s decarbonization and GHG goals, which the HPWH installations and SGIP HPWH incentives advance.

Staff indicate that there may be a very small fraction of SGIP HPWH residential customers for which the distribution or service line upgrade costs required to serve a 200-amp panel exceed Rule 15 and Rule 16 Electric Service Line Allowance caps.³⁰ For such SGIP HPWH customers, Staff recommend that the IOUs classify building distribution or service line upgrade costs in excess of those provided for under the Rule 15 and Rule 16 Electric Service Line Allowance as common facility costs.

We adopt this Staff recommendation and call this guidance the “Common Treatment for Excess HPWH Costs.” The IOUs are directed to recover Common Treatment for Excess HPWH Costs in the same manner as directed in D.11-07-029, as continued by D.21-12 -033, for Common Treatment for Excess Plug-in Electric Vehicles Charging Costs.

For now, we limit eligibility for Common Treatment for Excess HPWH Costs to customers using SGIP incentives to install HPWH systems in residential buildings. This policy shall sunset with the termination of SGIP HPWH incentives.

Similar to use of the Electric Service Line Allowance, we find it reasonable to require Common Treatment for Excess HPWH Costs in this way given California’s GHG emission reduction and decarbonization goals and the highly unequal impact that differentiated and excessive line upgrade costs can have on individual customers, who bear no responsibility for these costs. Additionally, it is reasonable to limit eligibility for Common Treatment for Excess HPWH Costs

³⁰ Staff Proposal at 31-32. Staff derives this conclusion based on research on electric vehicles, for which very few households encountered costs to upgrade electric service lines or distribution lines in excess of the Electric Service Line Allowance caps included in Tariff Rule 15 and Rule 16.

to customers using SGIP HPWH incentives to install systems in residential buildings, because non-residential building owners and developers typically have access to greater financing opportunities. This approach mirrors that adopted in D.11-07-029 with regards to electric vehicles.³¹

To assess the costs of this policy, which we expect to be *de minimis* to ratepayers, we direct Commission Staff to include an assessment of costs incurred due to the Common Treatment for Excess HPWH Costs approach in the SGIP HPWH measurement and evaluation plan and impact reports.

Commission Staff shall also direct the SGIP evaluator to summarize use of Rule 15 and Rule 16 Electric Service Line Allowance funds towards distribution or service line upgrade costs necessary to support HPWHs using SGIP incentives. Based on this, Commission Staff shall advise the assigned Commissioner to R.20-05-012 or a successor proceeding of the need for the Commission to consider extending the Common Treatment for Excess HPWH Costs policy for customers installing HPWHs but not using SGIP HPWH incentives, as warranted.

We do not remove the 30 percent cap on the total residential general and residential equity budgets that can be used towards electric panel upgrade incentives, as suggested by PG&E. After the cap has been reached, customers who do not need a panel upgrade or who are able to finance the upgrade themselves can still participate, which is a reasonable approach.

Appendix A contains the adopted Staff Proposal as modified by this decision.

³¹ D.21-12-033 at 4 and 9-10, continuing interim policy established in D.11-07-029 at 59.

6.4. Incentive Layering

6.4.1. Staff Proposal

When incentive layering occurs for residential unitary HPWH systems, Staff propose:

Incentive Layering

- Reducing general market residential incentives by 100 percent of the value of other incentives for both ratepayer and non-ratepayer funded programs.
- Reducing equity residential customer incentives only when the total available incentive exceeds the total eligible project costs. When this occurs, the incentive should be reduced by 100 percent for both ratepayer and non-ratepayer funded programs until the sum of the SGIP and other incentives equal the total eligible project costs.
- The existing SGIP rules on incentives not exceeding total eligible project costs remain applicable.
- The existing SGIP rules requiring customers to disclose other incentives remain applicable.

6.4.2. Party Comments

Parties generally oppose Staff's proposed incentive layering proposal. Energy Solutions states that the Commission should not prescribe an incentive layering approach but should instead allow the SGIP HPWH PA to determine the best approach during program planning and implementation. Energy Solutions states this is necessary as it is too difficult to coordinate in advance all communications along the HPWH incentive "supply chain."

Sierra Club/NRDC state that reducing SGIP incentives by 100 percent of the value of other incentives for both ratepayer and non-ratepayer funded programs does not encourage other programs to offer complementary incentives to those offered by SGIP and could even cause other programs to withdraw HPWH incentives. Sierra Club/NRDC encourage the Commission to consider

an incentive approach that includes a base incentive high enough to reduce adoption barriers but lower than currently proposed, complemented by a matching incentive which would match other statewide or local programs.

SoCalGas states that if SGIP nearly fully subsidizes all HPWH equipment and installation costs, an incentive layering design that reduces SGIP incentives 100 percent for every dollar of incentive received from a competing program undermines any motivation for a customer to use incentives from those programs. Instead, SoCalGas states, customers will choose whichever incentive program is presented as the most lucrative, which could result in missed opportunities. SoCalGas recommends the Commission reevaluate the layering approaches presented at the March 19, 2020, and May 7, 2020 SGIP HPWH workshops.

6.4.3. Discussion

In D.21-11-002 we adopted four non-binding guiding principles on HPWH incentive layering, which are: (1) ease of participation, (2) complementary incentives, (3) non-duplicative attribution of program benefits, and (4), ongoing coordination amongst PAs and implementers.³²

Incentive layering for HPWH incentives will be challenging. At minimum we are aware of the following ratepayer and non-ratepayer funded HPWH incentive programs currently offered within IOU service territories:

Table 8: HPWH Incentive Programs as of December 2021

Program Name	PA	Program Type	Budget	Notes
San Joaquin Valley Pilot programs ³³	SCE and PG&E	Residential Low Income	\$47.4 million	Limited to select communities in

³² D.21-11-002 at Appendix A.

³³ More information is available as of December 2, 2021 at <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/infrastructure/identifying-disadvantaged-communities>.

				the San Joaquin Valley
Water Saver ³⁴	PG&E	Residential Low Income	\$6.4 million	Available for control of electric water heaters, including HPWHs
BUILD program ³⁵	CEC	New Residential Low Income	\$80 million	Incentives for new, all-electric homes
Technology and Equipment for Clean Heating (TECH) Initiative ³⁶	CPUC	Market Development	\$120 million	Provides incentives, contractor training, and marketing
Energy Savings Assistance Building Electrification Pilot ³⁷	SCE	Low-income existing construction	\$40.8 million	Offered as part of the Energy Savings Assistance program
Clean Energy Homes Pilot ³⁸	SCE	Low Income new construction	\$10.5 million	New construction program, not limited to HPWHs
Low Income Tenant and Families (LIFT) ³⁹	Marin Clean Energy	Whole building multi-family program	\$3.25 million	Pilot program for existing buildings
Energy Design Assistance All Electric Program ⁴⁰	PG&E	Statewide whole building new construction non-residential program (Energy Efficiency)	\$39.75 million	Will launch in 2023. Incentives are for design and construction of whole building, not just heat pumps.

³⁴ As approved by Resolution E-5073, available as of March 10, 2022 at:

<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M360/K370/360370981.PDF>.

³⁵ Approved in D.20-03-027.

³⁶ Approved in D.20-03-027.

³⁷ Authorized in D.21-06-015.

³⁸ Authorized in D.21-06-015.

³⁹ Authorized in D.21-06-015.

⁴⁰ Implementation plan available as of December 2, 2021 at https://4930400d-24b5-474c-9a16-0109dd2d06d3.filesusr.com/ugd/849f65_3e8b445d77374bc8b33851e3a42f6a14.pdf.

Energy Smart Homes All Electric Residential ⁴¹	PG&E	Statewide residential new construction program (Energy Efficiency)	\$49 million	Will launch in 2023. Incentives are for whole home construction, not just heat pumps.
Comfortably Californian ⁴²	SDG&E	Upstream HVAC program (Energy Efficiency)	\$40 million	Heat pumps are on list of approved measures, but there is no budget allocation specifically for them.
Wildfire and Natural Disaster Resiliency Rebuild (WNDRR) ⁴³	SCE	Residential rebuilding assistance	\$50 million	Program intended for victims of natural disasters. Incentives for all-electric rebuilding.
Subtotal			\$487.1 million⁴⁴	
Publicly owned utilities and community choice aggregators	There are at least 20 local and regional entities offering incentives for heat pumps			A full list is included in Appendix B.

Because of the potential complexity involved, we authorize the future HPWH PA flexibility to determine an appropriate incentive layering approach in consultation with Commission Staff. We concur with Energy Solutions that maximizing the flexibility to the HPWH PA to determine the incentive layering approach based on other HPWH incentives available in the marketplace at the time SGIP incentives become available will result in the best approach. Further,

⁴¹ Implementation plan available as of December 2, 2021 at https://4930400d-24b5-474c-9a16-0109dd2d06d3.filesusr.com/ugd/849f65_769495bcc8824744b904e71895994e51.pdf.

⁴² Implementation plan as of December 2, 2021 at https://4930400d-24b5-474c-9a16-0109dd2d06d3.filesusr.com/ugd/849f65_145ffbed5a6f4336bf9571022d92a598.pdf.

⁴³ Authorized in D.21-11-002.

⁴⁴ Note that not all included funds are specifically allocated to HPWHs.

we require the HPWH PA to refer to the HPWH guidelines adopted in D.21-11-002 as it develops its approach.

Additionally, we adopt the following guidance on incentive layering:

- The SGIP HPWH PA shall maintain or shall, as appropriate, collaborate with other program administrators of HPWH programs to maintain a list of other a list of other HPWH incentives and tax rebates available throughout the IOUs' service territories, shall provide this list to participating contractors and customers via posting on a website or a similar manner, and shall, as appropriate, assist participants in accessing non-SGIP incentives and in understanding the differences and interactions between incentives and tax rebates.
- Customers should generally use other incentives available to them before using SGIP incentives.
- If incentives are available to a customer that have been designed specifically to support replacing an electric resistance water heater with a HPWH, the SGIP HPWH PA shall require the applicant to first use such incentives prior to accessing SGIP HPWH incentives.
- The existing SGIP rules on incentives not exceeding total eligible project costs remain applicable.
- The existing SGIP rules requiring customers to disclose other incentives remain applicable.⁴⁵

We also authorize the SGIP HPWH PA to submit a Tier 2 advice letter proposing reductions to the incentive levels adopted in this decision at any time. This will maximize the effectiveness of the incentive layering approach and

⁴⁵ SGIP Handbook Section 3.2.6, available as of December 9, 2021 at: <https://www.selfgenca.com/>.

incentive coordination work generally. Appendix A contains the adopted Staff Proposal as modified by this decision.

7. Residential Central HPWH

7.1. Appliance, Installation and Load Shifting Requirements

7.1.1. Staff Proposal

Staff propose that the Commission define residential central HPWHs as larger HPWH systems that meet two or more households' hot water demand, including either integrated or split systems. Staff propose the Commission does not establish a strict total nominal compressor output threshold for residential central HPWH systems to allow for a variety of system designs. Staff recommend the Commission require all residential central HPWHs to meet the following requirements, but that otherwise, eligibility is not limited to one type of system:

Appliance Requirements:

- Individually installed or ganged together HPWHs serving two more households must be identified as JA-13 compliant water heaters by the California Energy Commission (CEC) or meet the US Environmental Protection Agency's (EPA) ENERGY STAR® Commercial Water Heater Specifications Version 2.0 requirements.
- Larger central HPWH system designs must be approved and included in the CEC's California Building Energy Code Compliance (CBEC-RES) software.

Installation and Load Shifting Requirements:

- Residential central HPWHs must be installed in a manner that shifts energy from peak to off-peak periods and annually reduces GHG emissions by five kilograms of carbon dioxide (CO₂) per kilowatt hour.

- Customers that install SGIP funded residential central HPWHs are permitted to enroll in demand response programs like other energy storage resources.

7.1.2. Party Comments

Most parties generally support the Staff Proposal for residential central HPWH system appliance, installation, and load shifting requirements. Several suggest the Commission allow greater flexibility, however. Energy Solutions recommends that the Commission not limit the list of qualifying products to those listed by CBEC-RES or ENERGY STAR® 2.0. Instead, Energy Solutions and Rheem suggest that the HPWH PA determine whether a product is qualified using the CBEC-RES and ENERGY STAR® 2.0 requirements as guidelines. Energy Solutions and Sierra Club/NRDC propose the HPWH PA be allowed to propose additional product qualification pathways through the submission of a Tier 2 advice letter.

Sierra Club/NRDC recommend that the Commission direct the HPWH PA to develop prescriptive central HPWH rebate packages that contractors, engineers, or owners can use to develop relatively simple and more standardized residential central HPWH systems, including those without recirculation loops, while also allowing custom designed approaches. A.O. Smith observes that certain sizes of residential central HPWH systems currently lack available commercial systems that utilize load-shifting technology.

Harvest Thermal observes that the Staff Proposal excludes “combi” HPWH systems that provide both water and space heating. Harvest Thermal states that combi systems are very efficient and effective and should be explicitly identified by the Commission as eligible technologies.

A.O. Smith recommends the Commission not offer incentives for this equipment type and customer class. Instead, A.O. Smith recommends the

Commission consider amending SGIP HPWH program incentive design for residential central systems until such time as there are commercially available products that have demonstrated and field-tested load-shifting capabilities. A.O. Smith recommends that if the Commission keeps this customer class and equipment type offering, that we should clarify that eligibility is not limited to one type of system, provide the HPWH PA with greater flexibility on rebate design, provide a more meaningful budget allowance, and be flexible on the load-shifting requirement. In comments on the proposed decision, A.O. Smith recommends clarifying that eligibility is not limited to one type of system so long as the system meets the program requirement.

Regarding residential central HPWH system installation requirements, Energy Solutions recommends the Commission base central multi-family unit installation requirements on the system's achieved load shift in kilowatt hours, rather than reduced GHG emissions. If residential central HPWH installation requirements must be based on reduced GHG emissions, Energy Solutions recommends that the Commission direct the HPWH PA to propose a standard hour-by-hour avoided GHG emissions value that incentive applicants incorporate into their system designs. In short, Energy Solutions proposes that the Commission does not require residential central HPWHs receiving SGIP incentives to annually reduce GHG emissions by five kilograms CO₂ per kilowatt hour.

Regarding load shifting requirements for residential central HPWH systems, Energy Solutions recommends the Commission require the HPWH PA to educate contractors on this requirement.

7.1.3. Discussion

We adopt Staff's proposed residential central HPWH system requirements with some additions. First, we clarify that any type of residential central HPWH or split system is eligible for SGIP incentives if it meets our adopted eligibility and program requirements. We authorize the HPWH PA to determine whether a given product is qualified using the CBEC-RES and ENERGY STAR® Version 2.0 requirements as guidelines. The HPWH PA is not required to submit an advice letter confirming its identification of a qualified product.

Second, we authorize the HPWH PA to propose additional product qualification pathways to those set forth in the Staff Proposal via submission of a Tier 2 advice letter. When developing and submitting such an advice letter proposal, the HPWH PA should use the CBEC-RES and ENERGY STAR® 2.0 requirements as guidelines. We take this approach because this is a dynamic and innovative market. Building in flexibility will help ensure program success while the advice letter process ensures necessary oversight.

Third, we clarify here that combi HPWH's are eligible for residential central HPWH system incentives. Combi HPWH systems are single unit systems that both provide both water and space heating. These systems meet the requirements included in the Staff Proposal. To assist with market development, the SGIP HPWH incentive program should support product innovation to the extent possible, if products meet our adopted guidelines.

Fourth, regarding installation requirements for residential central system HPWH systems, we determine that these shall primarily be based on the system's projected load shift in kilowatt hours and, secondarily, on projected GHG emission reductions. This reflects load shifting as the primary focus of SGIP HPWH incentives, although reduction of GHG emissions is also required.

To accomplish this, we direct the SGIP HPWH PA to propose a standard hour-by-hour avoided GHG emissions value that incentive applicants incorporate into their system designs. Additionally, we modify Staff's proposed requirement as follows:

- Residential central HPWHs must be designed and installed in a manner that shifts to load shift energy from peak to off-peak periods in a manner that is projected to and annually reduce GHG emissions by five kilograms of carbon dioxide (CO₂) per kilowatt hour as compared to non-load-shifting electric water heaters.

The majority of customers will replace fossil gas hot water heaters with electric HPWH. Therefore, we are confident that electric HPWHs that load shift as we require here will also achieve GHG reductions, and those reductions will continue to increase as the percent of renewable electricity on the grid increases. We emphasize as well that new construction projects are not eligible for SGIP HPWH incentives in accordance with existing SGIP Handbook rules; SGIP incentives have thus far been limited to existing buildings. Further, as discussed above in section 4.3, this decision limits use of SGIP funds for residential central HPWH system incentives and establishes a process for early review of the load shifting performance of such installations. Taken together, these safeguards will ensure that residential central HPWH systems using SGIP incentives are load shifting, as required in Section 379.6(e)(1).

Fifth, as suggested by Energy Solutions, we direct the selected HPWH PA to educate contractors regarding SGIP load shifting requirements.

Sixth, the final decision modifies Staff's proposal regarding demand response to require all customers using SGIP HPWH incentives to enroll in a qualified demand response program, defined as a CAISO market-integrated

supply-side demand response program that counts for resource adequacy. This requirement is discussed in section 14.

We reject Energy Solution's recommendation and retain, albeit in a modified form, Staff's proposed requirement that residential central HPWH systems receiving SGIP incentives must annually reduce GHG emissions by five kilograms CO₂ per kilowatt hour. Residential central HPWH systems will be installed in multi-family buildings, which for the purposes of the SGIP GHG rules, are considered as non-residential if they primarily serve the common area load and are on a commercial electric rate.⁴⁶ There is limited information on load shifting capacities and the consequent GHG emission reductions in these types of buildings and water heating configurations. Thus, maintaining this requirement is necessary to ensure that GHG emission reductions occur and are measured. This requirement is also consistent with requirements for non-residential battery systems.

Appendix A contains the adopted Staff Proposal as modified by this decision.

7.2. Incentive Structure and Value

7.2.1. Staff Proposal

Regarding incentive structure and value for residential central HPWHs, Staff propose the following:

⁴⁶ Multi-family buildings are considered residential buildings only if they serve greater than 50 percent tenant load or if the common area is on an approved residential TOU rate. Most multi-family residential building are considered non-residential customers for GHG compliance purposes because their common area meter is on a commercial rate. D.17-10-004 designated multi-family buildings as residential customers only for the purpose of applying for Equity Budget funds.

Incentive Structure & Value

- A single incentive based on the system's thermal energy storage capacity determined through the application process.
- Residential central unitary HPWH applicants are responsible for proposing the energy storage capacity of an individual system.
- The SGIP HPWH PA is responsible for reviewing, approving, or proposing modifications to the thermal energy storage capacity calculations.
- Residential central HPWH systems are subject to performance-based incentive payments.
- The SGIP HPWH PA reduces performance-based incentive payments for residential central HPWH projects by one dollar per kilogram of GHG emissions under the five kilogram of CO₂ per kilowatt hour SGIP GHG reduction threshold, in alignment with rules established D.19-08-001.
- The SGIP HPWH should propose via a Tier 2 advice letter a methodology for establishing a project's non-load shifting baseline, a standard set of normalization factors (*i.e.*, outdoor temperature, etc.), and a methodology for calculating GHG emission reductions.
- Set the initial residential central HPWH Incentive Value at \$900 per kilowatt hour for general market residential and \$1,000 per kilowatt hour for equity residential customers.
- Provide a \$200 per kilowatt hour kicker incentive for HPWHs using low-global GWP refrigerants.
- Establish a \$300,000 per project incentive cap for residential central HPWHs.

7.2.2. Party Comments

Parties raise several concerns about Staff's proposal for performance-based incentives for residential central HPWH systems. CSE, Energy Solutions, and Sierra Club/NRDC oppose performance-based incentives for this technology and customer class. These parties state that a performance-based payment

structure would be unduly burdensome and would unnecessarily discourage program participation.

CSE and Energy Solutions recommend the Commission adopt an upfront incentive payment structure. CSE further recommends the Commission ensure that the HPWH PA either has the technical proficiency to estimate electrical load from the central HPWH system or contracts with someone who can. Energy Solutions recommends that the incentive amount be tied only to the anticipated kilowatt hour of load shift during predefined hourly time periods, with added quality control mechanisms instituted by the HPWH PA.

CSE and Sierra Club/NRDC point to the incentive calculator developed for the California Solar Initiative (CSI) solar thermal program, which has a quality control process to confirm proposed designs match calculator inputs, and field quality control at the time of incentive claim. Sierra Club/NRDC observe that the CSI solar thermal program, the Multi-Family Affordable Solar Homes (MASH), and the Solar on Multi-Family Affordable Homes (SOMAH) all offer (or offered) calculated incentives, not performance-based incentives.

SoCalGas recommends the Commission develop a standardized protocol for calculating a project's capacity to ensure equitable treatment of all projects. SoCalGas recommends the protocol include methods to calculate a project's capacity in amperage, a methodology for establishing a project's non-load shifting baseline, a standard set of normalization factors (*i.e.*, outdoor temperature, etc.), and a methodology for calculating GHG emission reductions. Energy Solutions supports this approach.

7.2.3. Discussion

We adopt the Staff Proposal on residential central HPWH system incentive structure and value with modifications.

Regarding the incentive structure for residential central HPWH systems, we do not adopt performance-based incentives as proposed by Staff as doing so would create a market barrier that could discourage contractors from participating. Instead, we determine that incentive levels shall be tied to the anticipated kilowatt hours of load shift services that the installed technology will provide during predefined hourly time periods, with added quality control mechanisms that are instituted by the SGIP HPWH PA. We do not believe that incentives for residential central HPWH systems should be reduced based on shortcomings in GHG savings for these technologies, as this outcome is not one that the contractor or engineer can fully control given the range of possible customer water use patterns in multi-family buildings. This is a new market, and the more market barriers affecting key market actors like contractors, the less likely we are to succeed. However, as discussed in section 6.1.3 above, this decision adopts safeguards that assure us that SGIP funded residential central HPWH systems will load shift and will reduce GHG emissions as required by statute.

As proposed by Staff, we direct the selected HPWH PA to develop a standardized protocol to estimate incentive levels, which shall include: (1) methods to calculate project's capacity; (2) a methodology for establishing a project's non-load shifting baseline; (3) a standard set of normalization factors (*i.e.*, outdoor temperature, etc.); and (4), a methodology for calculating GHG emission reductions. We also require, as suggested by CSE, that the selected SGIP HPWH PA has either the technical proficiency to estimate electrical load from the central HPWH system or the ability to contract with someone who can. We add this criterion to our list of minimum SGIP HPWH PA bidder criteria, discussed in section 9.3.

We additionally require all residential central HPWH systems receiving SGIP incentives to install equipment that enables data collection through two-way communication. This will enable appropriate oversight of load shifting and GHG emission reduction claims.

Additionally, as with residential unitary systems, we clarify that customers may receive SGIP incentives for residential central HPWH systems regardless of the type of HPWH system previously installed, if all other SGIP requirements are met.

Appendix A contains the adopted Staff Proposal as modified by this decision.

7.3. Electric Panel Upgrade and Electrical Service Incentives

7.3.1. Staff Proposal

Regarding electrical panel upgrade and electrical service incentives, Staff propose the Commission require the following:

Electrical Panel Upgrade and Electrical Service Incentives

- Common area or “whole building” electrical panel upgrades for multi-family buildings are ineligible for the Electrical Panel Upgrade incentive.
- Electrical IOUs categorize any electrical service line upgrade costs required to complete a SGIP funded central residential HPWH installation as common facility costs.

7.3.2. Party Comments

Very few parties commented on this portion of the Staff Proposal. SoCalGas supports Staff’s proposal to disallow electric panel upgrade and electrical service line upgrade incentives for multi-family buildings using residential central SGIP HPWH system incentives. SoCalGas notes that

authorizing panel upgrades and electric service modifications as eligible could result in a significant cost shift from the participating customer to all ratepayers.

SDG&E expresses concern that Staff's proposal to reclassify electrical service costs as common facility costs may pose an administrative burden on utilities because it deviates from existing cost accounting processes. SDG&E also objects to unfunded administrative costs it could have to bear to identify SGIP-related service line costs.

7.3.3. Discussion

We adopt the Staff proposal on residential central HPWH system electric panel and electrical service line upgrades with modifications. We agree that it is inappropriate to provide electric panel upgrade incentives for this customer class and equipment type as such costs could be considerable and should be borne by the project beneficiary.

As with customers using residential unitary HPWH incentives, there may be a very small fraction of customers using residential central SGIP HPWH incentives for which necessary distribution or service line upgrade costs required to serve an installed system exceed Rule 15 and Rule 16 Electric Service Line Allowance cost caps. We agree with Staff that it is reasonable that the IOUs classify excess costs for such customers beyond those addressed via the Electric Service Line Allowance as common facility costs. As discussed in section 5.3.3 with regards to residential unitary incentives, we call this guidance the Common Treatment for Excess HPWH Costs. The IOUs shall recover Common Treatment for Excess HPWH Costs in the same manner as directed in D.11-07-029 for Common Treatment for Excess Plug-in Electric Vehicles Charging Costs.

We clarify that multi-family buildings classified as non-residential buildings are ineligible for the Common Treatment for Excess HPWH Costs

approach.⁴⁷ This is reasonable because non-residential building owners and developers typically have greater access to financing opportunities. Additionally, this approach aligns with previous decisions establishing Common Treatment for Excess Plug-in Electric Vehicles Charging Costs.⁴⁸

We disagree with SDG&E that these policies create unfunded administrative burden for IOUs. These are existing policies that IOUs are required to implement. This decision simply clarifies eligibility for them for certain HPWH customers.

Appendix A contains the adopted Staff Proposal as modified by this decision.

7.4. Incentive Layering

7.4.1. Staff Proposal

When incentive layering occurs for residential central HPWH systems, Staff propose:

Incentive Layering

- Reducing general market residential incentives by 100 percent of the value of other incentives for both ratepayer and non-ratepayer funded programs.
- Reducing equity residential customer incentives only when the total available incentive exceeds the total eligible project costs. When this occurs, the incentive should be reduced by 100 percent for both ratepayer and non-ratepayer funded programs until the sum of the SGIP and other incentives equal the total eligible project costs.
- The existing SGIP rules on incentives not exceeding total eligible project costs remain applicable.

⁴⁷ Multi-family buildings are typically considered residential buildings only if they serve greater than 50 percent tenant load or if the common area is on an approved residential TOU rate.

⁴⁸ See D.11-07-029 and subsequent decisions.

- The existing SGIP rules requiring customers to disclose other incentives remain applicable.

7.4.2. Party Comments

Very few parties commented on this portion of the Staff Proposal. Energy Solutions opposes Staff's proposal in this area, arguing instead that the HPWH PA be given the flexibility to determine the best incentive layering implementation approach during the program implementation planning period.

7.4.3. Discussion

We do not adopt Staff's proposed prescribed incentive layering approach for residential central HPWH systems. Rather, as we did for residential unitary HPWH incentives, we direct the SGIP HPWH PA to propose an incentive layering approach for residential central HPWH incentives as it plans implementation of the program. When doing so, the HPWH PA shall adhere to the HPWH guiding principles adopted in D.21-11-002 and the additional principles we adopt in section 6.4.3, namely:

- The SGIP HPWH PA shall maintain or, as appropriate, shall collaborate with other program administrators of HPWH programs to maintain a list of other HPWH incentives and tax rebates available throughout the IOUs' service territories, shall provide this list to participating contractors and customers via posting on a website or a similar manner, and shall, as appropriate, assist participants in accessing non-SGIP incentives and in understanding the differences and interactions between incentives and tax rebates.
- Customers should generally use other incentives available to them before using SGIP incentives.
- If incentives are available to a customer that have been designed specifically to support replacing an electric resistance water heater with a HPWH, the SGIP HPWH

PA shall require the applicant to first use such incentives prior to accessing SGIP HPWH incentives.

- The existing SGIP rules on incentives not exceeding total eligible project costs remain applicable.
- The existing SGIP rules requiring customers to disclose other incentives remain applicable.

With the many ratepayer and non-ratepayer funded HPWH incentives in California, prescribing specific incentive layering rules could create marketplace complications.

Appendix A contains the adopted Staff Proposal as modified by this decision.

8. Commercial Unitary HPWH

8.1. Appliance, Installation, and Load Shifting

8.1.1. Staff Proposal

Staff propose that commercial unitary HPWHs be defined as individually- or ganged together- integrated or split HPWHs serving a single business's hot water demand, with a total nominal compressor output power of six kilowatts or more. Staff recommend that the Commission additionally require all commercial unitary HPWHs to meet the following requirements:

Appliance Requirements

- Individually installed commercial unitary HPWHs must meet the US EPA's ENERGY STAR® Commercial Water Heater Specifications Version 2.0 requirements.
- Commercial unitary HPWHs ganged together must be identified as JA-13 compliant water heaters by the CEC or meet the US EPA's ENERGY STAR® Commercial Water Heater Specifications Version 2.0 requirements.

Installation and Load Shifting Requirements

- Commercial unitary HPWHs systems must be designed, installed and operated in a manner that shifts energy from

peak to off-peak periods and annually reduces GHG emissions by five kilograms of CO₂ per kilowatt hour, like all other non-residential SGIP energy storage technologies.

- Customers that install SGIP funded commercial unitary HPWHs are permitted to enroll in demand response programs like other energy storage resources.

8.1.2. Party Comments

CSE and A.O. Smith suggest the Commission not approve commercial unitary HPWH systems as eligible technologies at this time, but instead reconsider adding commercial unitary HPWH systems as eligible at such time as there are commercially available products that have demonstrated and field-tested load shifting capabilities. A.O. Smith suggests that if the Commission approves this customer class and technology combination, it should not limit eligibility to one type of system and should allow for more flexible load-shifting requirements.

Energy Solutions strongly recommends that the Commission remove the capacity requirements as recommended by Staff from the adopted definition of commercial unitary HPWHs. Energy Solutions states that not doing so would exclude many commercial systems from eligibility for incentives. This is because, depending on the type and occupancy level of a commercial building, some commercial buildings may have very little daily hot water demand, for instance retail stores or office buildings. Energy Solutions states that eligible commercial unitary HPWH technologies should simply be defined as a single or ganged together integrated or split system HPWH serving a single business's hot water demand.

SBUA recommends the Commission include a small business unitary HPWH technology option in the commercial unitary HPWH budget. SBUA recommends the Commission adopt the same technical characteristics as eligible

residential unitary HPWH systems for the small business unitary HPWH option, except that customer eligibility is limited to customers on a non-residential tariff. SBUA states this would provide simple and more equitable SGIP HPWH program access for small businesses. SBUA also states that because no models with commercial warranties meet CEC's JA-13 specifications, limiting SGIP incentives to commercial unitary systems that meet this criterion could encourage market players to provide warranties, in turn expanding market opportunities.

A.O. Smith and Energy Solutions support SBUA's proposal. Energy Solutions further suggests that participating small businesses that use the same equipment as a residential installation should likewise be offered the same simple application process and provided with a simple and standard incentive amount.

8.1.3. Discussion

We adopt the Staff Proposal regarding appliance, installation and load shifting requirements for commercial unitary HPWH systems with some modifications. We remove the six-kilowatt capacity requirement in the definition of eligible commercial unitary HPWH systems. Instead, we define eligible systems simply as a single or ganged together integrated or split system HPWH serving a single business's hot water demand. As noted by Energy Solutions, many commercial buildings have limited hot water demand and do not need this capacity level.

Additionally, we authorize the SGIP HPWH PA to refine the load shifting requirements proposed by Staff as needed to improve program effectiveness. This flexibility is necessary to accommodate changing technologies and customer participants while still achieving significant GHG emission reductions.

However, we emphasize that we retain and adopt Staff's proposal that commercial unitary HPWHs systems must be designed, installed and operated in a manner that shifts energy from peak to off-peak periods and annually reduces GHG emissions by five kilograms of CO₂ per kilowatt hour, like all other non-residential SGIP energy storage technologies.

We adopt SBUA's proposal to include a small business unitary HPWH technology option in the commercial unitary HPWH budget. We require small business unitary HPWH systems to have the same appliance and installation characteristics that we adopt for residential unitary HPWH systems in section 5.1.3, with the exception that eligible customers must be on a non-residential TOU tariff, of any type (*i.e.*, need not be SGIP-approved as described in D.18-09-001). This ensures that this important customer class is able access SGIP HPWH incentives.

As with residential unitary HPWH systems, the final decision modifies Staff's proposal regarding demand response to require customers using SGIP HPWH incentives to install a residential central HPWH to enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy. This requirement is discussed in section 14.

We do not eliminate eligibility for this customer class and technology, as recommended by CSE and A.O. Smith, because we have allocated limited funds to it and value the opportunity to support market development of technologies for this customers class that have load shifting capacities and to evaluate the resulting GHG emissions reductions performance.

Appendix A contains the adopted Staff Proposal as modified by this decision.

8.2. Incentive Structure and Value

8.2.1. Staff Proposal

Regarding incentive structure and value for commercial unitary HPWH systems, Staff propose the following:

Incentive Structure & Value

- A single incentive based on the system's thermal energy storage capacity determined through the application process.
- Commercial unitary applicant is responsible for proposing the energy storage capacity of an individual system.
- The SGIP HPWH PA is responsible for reviewing, approving, or proposing modifications back to the applicant.
- The unitary commercial HPWH systems are subject to performance-based incentive payments.
- The SGIP HPWH PA reduces performance-based incentive payments for residential central HPWH projects by one dollar per kilogram of GHG emissions under the five kilogram of CO₂ per kilowatt hour SGIP GHG reduction threshold, in alignment with rules established D.19-08-001.
- The SGIP HPWH PA proposes, via a Tier 2 advice letter, a methodology for establishing a project's non-load shifting baseline, a standard set of normalization factors (i.e., outdoor temperature, etc.), and a methodology for calculating GHG emission reductions.
- The initial commercial unitary HPWH incentive value is set at \$700 per kilowatt hour.
- A \$200 per kilowatt hour kicker incentive for HPWHs using low-GWP refrigerants is provided, starting with a threshold of 150.⁴⁹
- A \$50,000 per project incentive cap for commercial unitary HPWHs is set.

⁴⁹ Staff Proposal at 50.

8.2.2. Party Comments

A.O. Smith and CSE recommend the Commission eliminate commercial unitary HPWH systems from eligibility for SGIP HPWH incentives and redistribute funding to the other customer segments. CSE states this would optimize the limited funds available, especially given the complexity required to administer incentives for this customer segment, as discussed in the Staff Proposal. CSE states that the central unitary HPWH market is more advanced than other HPWH technologies in the U.S. and thus less in need of incentives.

As discussed in section 7.1, SBUA recommends the Commission offer a small business unitary HPWH system incentive for systems with the same characteristics of the residential unitary HPWH systems, except that the customer would be on a commercial TOU tariff. SBUA recommends these technologies receive a base incentive of \$3,100 plus a \$1,500 low GWP kicker incentive and that the HPWH PA be authorized to reduce these suggested incentive levels via advice letter.

Sierra Club/NRDC support Staff's proposed low GWP kicker incentive for this technology but suggest that eligibility start with systems using a refrigerant of less than 150 GWP.

Regarding linkages between incentives and load shifting requirements for commercial unitary HPWH systems, SoCalGas recommends that the Commission require the SGIP HPWH PA to develop a standardized protocol for calculating a project's capacity to provide for equitable treatment of all projects. SoCalGas also recommends early evaluation of baseline and cost assumptions used in the Staff Proposal.

8.2.3. Discussion

We adopt the Staff Proposal on commercial unitary system incentives with modifications. First, we do not adopt Staff's proposal for a performance-based incentive that is decremented by one dollar per kilogram of GHG emissions under the five kilogram of CO₂ per kilowatt hour SGIP GHG reduction threshold established D.19-08-001. Commercial unitary HPWH systems will not have a developer overseeing a continuous monitoring system and will not be receiving a GHG signal. Thus, we feel the requirement is potentially problematic in terms of ascertaining the exact level of GHG emission reductions achieved and any related impact on an incentive payment.

Instead, as we did for residential central HPWH systems and as proposed by Staff, we direct the SGIP HPWH PA to develop a standardized protocol to estimate incentive levels for commercial unitary systems. These shall include: (1) methods to calculate project's capacity; (2) a methodology for establishing a project's non-load shifting baseline; (3) a standard set of normalization factors (*i.e.*, outdoor temperature, etc.); and (4), a methodology for calculating GHG emission reductions. We authorize the SGIP HPWH PA, when developing these methods to refine Staff's proposed incentive approach and load-shifting requirements for this customer class and technology, as needed, to maximize flexibility and effective use of the limited funds while maximizing GHG emissions reductions.

Second, we adopt a small business unitary HPWH system base incentive of \$3,100 plus a \$,1500 low GWP kicker incentive with a threshold starting at 150 or less. This is identical to the low GWP incentive we adopted for residential unitary HPWH systems. Both kicker incentives are appropriately sized to drive the market towards low GWP units, thus limiting the associated indirect GHG

emissions, for the following reasons. We also direct the SGIP HPWH PA to monitor regulatory developments regarding HPWH refrigerants and to track the type of refrigerant used in each SGIP HPWH project.

The rationale for these requirements is as follows. First, the kicker incentives are designed to meaningfully lower the upfront cost of purchasing a unitary low GWP HPWH: the appliance models that are currently available cost approximately three times as much as higher GWP HPWHs. Second, low GWP HPWHs, such as those using a R-744 refrigerant, operate at higher temperatures and thus can shift load for extended periods of time as compared to other HPWHs. Third, the kicker incentives provide a signal to HPWH equipment manufacturers to develop HPWHs that utilize low GWP refrigerants. Fourth, the kicker incentives encourage equipment manufacturers that market and sell HPWH using R-744 refrigerants internationally to bring their products to California. Ensuring that small businesses have access to SGIP HPWH incentives allows this market segment to access program benefits and contribute to market development of these technologies. Finally, our requirement that the SGIP HPWH PA/PI track the refrigerants used in HPWH units receiving incentives will help us monitor whether SGIP monies are generally being awarded to units with refrigerants with GWP levels as discussed in the Staff Proposal and, if this is not the case, to take additional steps as needed.

Regarding early evaluation of baseline and cost assumptions, we direct the SGIP HPWH evaluator to consider this SoCalGas suggestion and incorporate it as feasible.

We do not eliminate incentives for this customer class, as recommended by CSE and A.O. Smith, because we have allocated limited funds to it and value the opportunity to support market development and evaluation of this type of

technology. The administrative complexity identified by CSE will be addressed by the single, dedicated SGIP HPWH PA approach that we adopt in section 9.3.

8.3. Other Issues

8.3.1. Staff Proposal

Regarding electrical panel upgrade and electrical service incentives and incentive layering for commercial unitary HPWH systems, Staff propose:

Electrical Panel Upgrade and Electrical Service Incentives

- Commercial unitary HPWH system customers are ineligible for the electrical panel upgrade incentive offered to residential customers.
- Commercial unitary HPWH system customers are ineligible for the electrical service line and associated electrical distribution infrastructure costs classification as common facilities costs.

Incentive Layering

- Staff recommends reducing the unitary commercial HPWHs incentives by 100 percent of their value for both ratepayer and non-ratepayer funded programs when incentive layering occurs.

8.3.2. Party Comments

No party opposed the Staff's proposed electrical panel and electric service upgrade incentives proposal for commercial unitary HPWH systems. However, SBUA recommends the Commission allow panel upgrade incentives for small businesses using HPWH incentives for unitary systems and not cap such incentives at the cost to install a 200-amp panel. SBUA states that this restriction could inhibit the participation of small businesses.

Regarding incentive layering, SoCalGas proposes the Commission consider a more collaborative approach to incentive layering that prioritizes

incentive allocations across any current or future programs but does not provide any specific recommendations.

8.3.3. Discussion

We adopt the Staff Proposal on electrical panel upgrade and electrical service incentives. It is appropriate that commercial unitary HPWH system customers are ineligible for the electrical panel upgrade incentives because commercial customers more readily have financing options for such upgrades than do residential customers. We disagree with SBUA and clarify that small businesses using the small business unitary HPWH system incentives are ineligible for electric panel upgrade incentives. We are concerned that authorizing electric panel upgrade incentives for this customer class could deplete the entire budget allocated for such customers.

It is similarly appropriate that commercial unitary HPWH system customers, including small businesses accessing small business unitary HPWH incentives, are ineligible for the electrical service line and associated electrical distribution infrastructure cost classification as common facilities costs given these customers' generally greater access to financing.⁵⁰

We do not adopt Staff's proposed incentive layering approach. Instead, we adopt the same approach here as we did for residential incentives. We direct the SGIP HPWH PA to propose an incentive layering plan for commercial unitary HPWH incentives as it plans implementation of the program. When doing so, the HPWH PA shall adhere to the HPWH guiding principles adopted in D.21-11-002 and the additional principles we adopt in section 6.4.3, namely:

⁵⁰ Precedent for this treatment of commercial customers can be found with regard to electric vehicle chargers in D.11-07-029 at 59. See here for PG&E's Tariff Rule 15:

https://www.pge.com/tariffs/assets/pdf/tariffbook/ELEC_RULES_15.pdf.

- The SGIP HPWH PA/PI shall maintain, as appropriate, or shall collaborate with other program administrators of HPWH programs to maintain a list of other a list of other HPWH incentives and tax rebates available throughout the IOUs' service territories, shall provide this list to participating contractors and customers via posting on a website or a similar manner, and shall, as appropriate, assist participants in accessing non-SGIP incentives and in understanding the differences and interactions between incentives and tax rebates.
- Customers should generally use other incentives available to them before using SGIP incentives. If incentives are available to a customer that have been designed specifically to support replacing an electric resistance water heater with a HPWH, the SGIP HPWH PA/PI shall require the applicant to first use such incentives prior to accessing SGIP HPWH incentives.
- The existing SGIP rules on incentives not exceeding total eligible project costs remain applicable.⁵¹
- The existing SGIP rules requiring customers to disclose other incentives remain applicable.

With the many ratepayer and non-ratepayer funded HPWH incentives in California, prescribing specific incentive layering rules could create marketplace complications.

Appendix A summarizes the Staff Proposal as modified and adopted by this decision.

⁵¹ See SGIP Handbook section 3.2.6, available as of December 8, 2021 here: <https://www.selfgenca.com/>.

9. Commercial Central HPWH

9.1. Staff Proposal

Staff propose that commercial central HPWHs not be eligible for SGIP incentives given the uncertain ability of this configuration to shift load from peak to off-peak periods.

9.2. Party Comments

No party commented on this portion of the Staff Proposal.

9.3. Discussion

We adopt the Staff proposal regarding commercial central HPWHs. These technologies are not eligible for SGIP HPWH incentives.

10. SGIP HPWH Program Administrator

10.1. Staff Proposal

Regarding the SGIP HPWH PA, Staff propose the following:

- The CPUC selects a single statewide PA/PI to oversee SGIP HPWH incentives.
- The organizational structure for the administration of SGIP HPWH incentives consists of three main actors:
 1. **PA Contract Holder:** The Commission directs SCE to issue a Request for Proposal (RFP) for a competitive bidding process to select a statewide SGIP HPWH PA/PI and contract with the winning entity. SCE would then be responsible for providing ongoing fiscal support through the collection, disbursement, and monitoring of SGIP HPWH funds.
 2. **PA/PI:** A statewide PA/PI is responsible for the execution, coordination, and implementation of the SGIP HPWH budget and program in accordance with the adopted HPWH decision.
 3. **CPUC:** Commission Staff lead the confidential evaluation of PA/PI bids and select the winning bidder. Staff are responsible for managing the PA/PI and coordinating with the TECH Initiative's quarterly

meetings to enable continuous program coordination and market transformation of HPWHs in CA.

Regarding selection criteria for the SGIP HPWH PA/PI, Staff propose:

- Bidders must demonstrate substantial experience overseeing the implementation of statewide programs. Bidders must identify key personnel to be involved in the implementation and describe their relevant experience.
- Bidders must demonstrate that their organization can successfully implement the SGIP HPWH subprogram and properly distribute funding.
- Bidders should explain their familiarity with SGIP and any experience working with the existing SGIP PAs.
- Bidders should explain how they intend to implement a simple, streamlined program application process for each HPWH category. This explanation should include how performance-based incentive HPWH installations, if any, will be reviewed and approved, and incentives administered.
- Bidders should explain how they intend to coordinate the SGIP HPWH incentive application with TECH Initiative's application and other HPWH incentive applications to enable incentive layering.
- Bidders should explain how they intend to reach residential equity customers to support and enhance this customer segment's participation.
- Bidders should explain how they intend to issue incentive payments and communicate the status of these payments to applicants.
- Bidders should explain how they can assist customers with understanding and completing any required electrical panel upgrades.
- Bidders should explain how they will develop a comprehensive SGIP HPWH Program Handbook and integrate stakeholder feedback.

- Bidders should provide a sample of HPWH load shifting signage that can be installed on all residential unitary HPWHs.
- Bidders should provide a program budget that details how program administration funds will be spent.
- Bidders should demonstrate familiarity with the TECH Initiative and any energy efficiency HPWH incentives.
- Bidders should explain how project cost data will be tracked and made available to Staff.
- Bidders should explain how incentive data will be shared with the forthcoming TECH Initiative project database.

10.2. Party Comments

On September 16, 2020, and October 23, 2020, parties commented on the SGIP HPWH program administrative structure in response to questions in the August 17, 2020 Scoping Memo. In these comments, A.O. Smith, CSE, Energy Solutions, Sierra Club/NRDC, Sunrun, and SCE state their support for a single statewide SGIP HPWH PA/PI. Energy Solutions states that to successfully integrate use of SGIP HPWH incentives in existing water heating supply chains and business models, it must be easy for contractors to participate and integrate new practices into their daily workflow. Energy Solutions says that accomplishing this necessitates consistent eligibility requirements and a single, streamlined application process. A.O. Smith suggests the HPWH PA be required to offer a digitized tool to contractors and retailers to capture end user installation data, confirm incentive eligibility and provide timely payment. SCE suggests that the existing PA for the TECH Initiative should also administer SGIP HPWH incentives, stating this would aid coordinating and centralizing the program.

On June 3, 2021, and June 8, 2021, parties filed additional comments on the HPWH program administrative structure as proposed in the Staff Proposal. Sierra Club/NRDC and CSE recommend the Commission select a statewide PA for SGIP as was done with similar ratepayer programs (*i.e.*, the BUILD program, the TECH Initiative, and SOMAH). These parties contend this would reduce administrative complexities and costs, centralize decision-making, allow for economies of scale in operational process development, allow for consistent and streamlined application processing, and provide for ease of coordination with other incentive programs and program stakeholders. In these later comments, SCE suggests it should be the statewide SGIP HPWH PA.

The Joint CCAs observe that seven CCAs are implementing HPWH programs and coordination is critical to ensure deployed resources are integrated CCAs' grid reliability programs. The Joint CCAs recommend the Commission launch a formal collaboration mechanism, *e.g.*, a HPWH working group.

SoCalGas and SDG&E do not support a single statewide HPWH PA. SoCalGas states that a more reasonable approach would be to balance the existing administration with Staff's recommendations by establishing a third-party technical consultant managed by the existing SGIP PAs under a statewide co-funding agreement. SoCalGas states that the SGIP PAs have an intimate knowledge of their service territories and a direct and trusted relationship with the host customers that would be lost with a single third-party PA/PI.

Cal Advocates recommends the Commission prevent any entity that has taken action to hinder or frustrate SGIP goals or that has an adverse self-interest in reducing natural gas use from serving as the SGIP HPWH PA. Cal Advocates states that SoCalGas impeded implementation of technology codes and

standards that would result in fuel-switching from natural gas to electricity, including for HPWHs, and should not serve as a PA for this SGIP elements.

CSE supports Staff's proposed organizational structure and recommends developing a free-standing SGIP HPWH handbook. Energy Solutions recommends the PA be given flexibility to determine on an annual basis which supply chain party receives a given SGIP HPWH incentive. Energy Solutions recommends the HPWH PA be authorized the flexibility to layer SGIP incentives with those of other programs by determining the best downstream incentive disbursement method for the SGIP incentives, such as a forced contractor pass-through requirement.

BWC recommends the Commission authorize the SGIP PA the authority to approve projects that may not meet the explicit requirements adopted in this decision, but that nonetheless meet the intent of the program.

Regarding bidder selection criteria, Sierra Club/NRDC recommend that an additional criterion should be the ability to guarantee rapid and timely payment to contractors, as this is a key factor in contractor participation. In comments on the proposed decision, Energy Solutions and Sierra Club/NRDC recommend the Commission require bidders to propose approaches for how successful layering of SGIP HPWH incentives with other programs will be achieved in practice. In comments on the proposed decision, CSE recommends the Commission require bidders to describe how they would ensure HPWH adoption results in utility bill savings for participants in the residential equity budget customer class.

10.3. Discussion

We adopt the Staff Proposal for single statewide HPWH PA/PI as proposed, with minor modifications. Centralization of SGIP HPWH incentive

administration in a single statewide PA/PI will align well with the existing TECH Initiative and BUILD program single PA approach, as well as with the existing SOMAH program, and is the best approach to streamline the program and coordinate incentive offerings across the many HPWH incentives available (*see* Table 8 and Appendix C). These streamlining and coordination values outweigh the benefits of continuing program administration of the HPWH incentive by the existing SGIP PAs. The unique technologies and requirements of the SGIP HPWH program will benefit from a dedicated PA that can devote its attention only to this aspect of the SGIP program.

We direct SCE to enter into a contract with the selected vendor for the SGIP HPWH PA/PI. SCE will be responsible for collecting and disbursing funding as adopted here, subject to oversight by Commission Staff. As part of this role, SCE shall:

1. Submit a Tier 1 advice letter to establish a SGIP HPWH PA/PI balancing account (or subaccount to its existing SGIP balancing account), with individual tracking and subaccounts as necessary, no later than 30 days from issuance of this decision;
2. Consult with and provide Commission Staff a draft HPWH PA/PPI RFP incorporating the requirements adopted here no later than 30 days from issuance of this decision;
3. Incorporate Commission Staff feedback, ensure the RFP complies with all procurement rules, and widely issue the RFP no later than 45 days from issuance of this decision, including to the service list of this proceeding;
4. After a 60-day bidding period, or longer as directed by Commission Staff, collate and provide bids received to Commission Staff, who shall be solely responsible for selecting the winning bidder;

5. Negotiate, finalize, and sign a contract with the winning bidder approximately five to six months after issuance of this decision;
6. Establish and manage the SGIP HPWH PA/PI balancing account (or subaccount) that shall be interest bearing and that clearly and transparently accounts for:
 - a. The total SGIP HPWH program budget (receipt of \$44.7 million, accumulation of interest, and dispersal of funds for administration and implementation);
 - b. The additional \$40 million SGIP HPWH program budget derived from Cap-and-Trade allowance auction proceeds, as adopted in this decision;
 - c. SCE's costs for entering into a contract with the selected vendor;
 - d. SCE's share of the \$44.7 million SGIP HPWH program budget; and,
7. Execute the SGIP HPWP PA/PI contract, administer the contract, and pay the PA/PI.

In addition, we provide the following guidance:

- Bidders and potential HPWH PA/PI bidders must direct all communications and questions about the solicitation to SCE;
- Bids shall be designated as confidential, market-sensitive information pursuant to D.06-06-066;⁵²
- SCE shall transfer funds received in the SGIP HPWH PA/PI balancing account not needed for SCE's contracting expenses to the PA/PI within 30 days of execution of the contract, or within 30 days of receipt of the funds, whichever occurs last.
- If the SGIP HPWH PA/PI has unallocated funds when the SGIP HPWH incentive program ends on December 31,

⁵² D.06-06-066 at 41 to 43.

2025, it shall return those funds to SCE within 30 days for repayment to ratepayers pursuant to Section 379.6(a)(2).

- SCE shall safeguard the funds, disburse funds only as authorized herein, and provide an audited accounting of the funds;
- SCE shall close its SGIP HPWH PA/PI balancing account (or subaccount) no later than March 1, 2026. The balance of the account at this time should either be zero, or any unallocated funds returned in accordance with their percentage contributions to the SGIP HPWH budget to PG&E, SoCalGas, and SDG&E for return to ratepayers pursuant to Pub. Util. Code section 379.6(a)(2); and,
- SCE shall retain all interest accrued by funds held in the SGIP HPWH PA/PI balancing account within the account and shall transfer these funds on a quarterly basis to the PA/PI with a breakdown of amounts contributed by each utility.

To support the HPWH PA/PI process, we direct PG&E, SoCalGas and SDG&E to each, within 60 days after the effective date of advice letter that establishes SCE's SGIP HPWH PA/PI balancing account (or subaccount), provide to SCE its share of the \$44,670,000 million SGIP HPWH program budget adopted in this decision. Each payment by PG&E, SoCalGas, and SDG&E shall be a single payment to SCE for deposit in the interest-bearing SGIP HPWH program balancing account (or subaccount). PG&E, SoCalGas, and SDG&E shall record their payments to SCE in their existing SGIP balancing accounts. Further, PG&E, SoCalGas, and SDG&E shall each transfer to SCE their share of the \$40 million in 2023 gas Cap-and-Trade allowance proceeds for the SGIP HPWH program authorized here using the method and timing required in section 5.3 and shall record this transfer in the new sub account also required in section 5.3.

To support the success of the SGIP HPWH program, PG&E, SoCalGas, SDG&E, and SCE shall each execute a non-disclosure agreement regarding SGIP

HPWH participating customer's data, and other program issues as needed, with the selected SGIP HPWH PA/PI no later than 60 days after SCE executes its contract with the PA/PI. The selected SGIP HPWH PA/PI is directed to execute non-disclosure agreements regarding customer data, and other program issues as needed, with the implementer entities for the TECH Initiative and the BUILD program, no later than 90 days after SCE executes its contract with the PA/PI. These non-disclosure agreements shall be designed to streamline the sharing of customer data to ensure program success and shall be executed in accordance with all relevant statutes and Commission decisions.

The selected SGIP HPWH PA/PI shall submit a Tier 2 advice letter containing a SGIP HPWH handbook reflecting the requirements adopted in this decision, and additional Commission Staff guidance provided as necessary, no later than 120 days after executing its contract with SCE.

We adopt A.O. Smith's suggestion and require the selected HPWH PA to offer a digitized tool to contractors and retailers to capture end user installation data, confirm incentive eligibility and provide timely payment. This is a common best practice that will facilitate the success of the program.

We adopt the additional bidder selection criterion recommended by Sierra Club/NRDC, which is "the ability to guarantee rapid and timely payment to contractors." This may lead bidders to provide useful information on their lines of credit, organizational structure or other capacities that will enable them to pay out incentives in a timely fashion in accordance with the requirements adopted in this decision. We adopt the additional bidder criteria suggested by Energy Solutions and CSE in comments on the proposed decision, which are: (a) bidders should propose approaches for how successful layering of SGIP incentives with other programs shall be achieved in practice; and (b) bidders should describe

how they intend to ensure HPWH adoption results in utility bill savings for participants in the residential equity customer class. These are valuable additional criteria that will support the SGIP HPWH PA/PI selection process and program success.

We adopt here a criterion discussed in section 6.2.2 that SGIP HPWH PA/PI bidders should demonstrate or describe their technical proficiency to estimate electrical load from the central HPWH system or their ability to contract with someone who can. Further, we delete Staff's proposed bidder criterion regarding performance-based incentives to reflect sections 6.2.3 and 7.2.3. We authorize Commission Staff to develop additional bidder selection criteria as appropriate. Our adopted list of minimum bidder criteria is provided in Appendix B.

In response to Energy Solution's comments, we authorize the SGIP HPWH PA/PI flexibility as to the means to achieve SGIP's traditional downstream incentive requirements, such by implementing a forced contractor pass-through rather than prescribing that the customer directly apply for and receive the incentive. The SGIP HPWH PA/PI shall propose an approach for successful layering SGIP incentives with other programs, including potentially a contractor pass-through incentive for the SGIP incentive. This is a reasonable modification to the traditional SGIP approach that is necessary to allow for successful incentive layering.

Regarding establishment of a HPWH working group, recommended by the Joint CCAs, we do not establish this at this time, but instead we strongly encourage informal information sharing and collaboration between all entities. We note, however, that as directed by D.20-03-027, the TECH Initiative currently hosts quarterly stakeholder meetings that could serve as a venue for

implementer information sharing and collaboration.⁵³ We direct Commission Staff to work with the selected SGIP HPWH PA, the TECH Initiative PA, and the BUILD program PA to determine the best HPWH incentive coordination approach and meeting frequency with the goal of streamlining and optimizing customer use of HPWH incentives across the many that are or will soon become available.

We do not authorize the SGIP HPWH PA/PI the authority to approve projects that may not meet the explicit requirements adopted in this decision, but that nonetheless meet the intent of the program, as suggested by BWC. This presents excessive potential for abuse and pressure on the HPWH PA, in our view.

11. Training, Inspection, and Workforce Development Requirements

11.1. August 2021 Assigned Commissioner's Ruling

The August 3, 2021 Workforce ACR provided background on a memorandum of understanding (MOU) between the California Workforce Development Board (CWDB) and the Commission, provided background on existing ratepayer-funded program training and workforce development requirements, and asked a series of questions. The Workforce ACR also summarized existing HPWH trainings available as of summer 2021:⁵⁴

⁵³ Stakeholder meetings are noticed on the R.19-01-011 service list. Market participants may contact the TECH Initiative implementation team directly at TECH.info@energy-solution.com to discuss collaboration opportunities.

⁵⁴ August 3, 2021 ACR at 8-10.

Table 9: IOU HPWH Trainings Available as of August 2021⁵⁵

Organization	Trainings
Pacific Gas and Electric	<ul style="list-style-type: none"> • Heat Pump Technologies for Space Conditioning and Water Heating • Best Practices in Residential Water Heating • Electric Heat Pumps for Water Heating • Implementing Heat Pump Water Heaters in Replacement Scenarios: Why They Make Sense • Overcoming Installation Challenges for Heat Pump Water Heater Retrofits • Central Heat Pump Water Heating Systems for Multi-Family Buildings
Southern California Edison	<ul style="list-style-type: none"> • Heat Pumps in Retrofit Construction: Space Conditioning and Water Heating • Commercial & Multi-Family Heat Pump Water Heating Engineering and Design Deep Dive (Parts 1 and 2) • Central Heat Pump Water Heating Systems for Multi-Family Buildings • Central Heat Pump Water Heaters (HPWHs): Engineering Deep Dive (Parts 1-2)
San Diego Gas & Electric	<ul style="list-style-type: none"> • Central Heat Pump Water Heater Systems: Design & Maintenance Deep Dive (Parts 1-4) • Central Heat Pump Water Heater Systems for Multi-Family Housing (Parts 1-2)

⁵⁵ PG&E: <https://pge.docebosaas.com/learn>; SCE: <https://www.sce.com/hy/business/consulting-services/energy-education-centers>; SDG&E: <https://www.sdge.com/energy-innovation-center/education-training>

In addition, the Workforce ACR identified the following HPWH manufacturers' installation and service trainings for contractors:⁵⁶

- Rheem Manufacturing Company:
 - Rotating courses and e-learning modules available through www.rheemtraining.com.
- A.O. Smith:
 - Online training that provides a Residential Heat Pump Water Heater Installer Certification is available through <https://www.hotwater.com/service/heat-pump-certification/>.
 - Online trainings and certifications for related products are available through <https://university.hotwater.com/>.
- Bradford White:
 - Online trainings available through the Bradford White International Technical Excellence Center website https://www.bradfordwhite.com/itec-training/#itech_live_webinar.

11.2. Party Comments

Many parties commented on the Workforce ACR questions on training, workforce development and quality installation of HPWHs. The Workforce ACR questions sought the best way to accomplish three goals: (1) ensuring quality installation of HPWHs; (2) promoting job access; and (3) promoting job quality.

Parties were split on most Workforce ACR questions. Regarding quality installations, parties including A.O. Smith, Bradford White, CALSSA, Energy Solutions, PHCCC, Rheem, SCE, and SoCalGas assert that existing CSLB licensing requirements are sufficient to ensure quality installations and provide a

⁵⁶ Available as of summer 2021. In addition, as of summer 2021, the Bay Area Regional Energy Network (BayREN) offers HPWH trainings: <https://www.bayrencodes.org/services/trainings/>.

reasonable threshold for participation in the SGIP HPWH program. Other parties, including CSTPC, JCEEP, and IBEW-NECA, recommend requirements beyond those linked to CSLB licensing, such as minimum training and experience requirements for both installers and contractors, an in-person inspection requirement, requiring closure of permits prior to payment of SGIP incentives, and a requirement that contractors have no labor or consumer protection violations in a specific time period (*e.g.*, 5 years). Parties including A.O. Smith, Bradford White, CSE, and SoCalGas recommend establishing an eligible contractor list as a minimum threshold for contractor participation in the SGIP HPWH program. Energy Solutions recommend making incentive payment conditional on the permit application, not the permit closure, in order to avoid conditioning payment on factors outside the installer's control.

Regarding promoting job access, CSE recommends the Commission adopt a stipend for contractors who employ trainee technicians from disadvantaged communities. GRID opposes this idea, arguing that opportunities should be available to all people from disadvantaged and low-income backgrounds, not just residents of disadvantaged communities. GRID further recommends the SGIP HPWH PA market the program to job training organizations and community-based organizations in disadvantaged communities to support local and targeted hiring.

Regarding post-installation inspection, Energy Solutions, Sierra Club/NRDC, and BWC comment on the proposed decision that requiring use of SGIP's traditional inspection protocols would be burdensome and would create a market barrier. Energy Solutions states that the existing SGIP requirements do not translate well to a HPWH focused program, exceed what is necessary to ensure quality HPWH installations, would not align well with other HPWH

programs with which the SGIP program may layer incentives (*e.g.* the TECH Initiative), and would require an unreasonably large portion of the SGIP administration budget.

Regarding the promotion of job quality, CSTPC, JCEEP, Grid Alternatives, IBEW-NECA, and PAO support a wage floor. CSTPC, JCEEP, GRID, and IBEW-NECA recommend the Commission require participating contractors to provide a minimum level of benefits.

11.3. Discussion

We adopt the use of an eligible contractor list to govern contractor participation in the SGIP HPWH program. The SGIP HPWH PA/PI shall ensure that an eligible contractor list is readily available on a dedicated website, and may, as appropriate, coordinate with other programs to link to this website and list. We adopt three additional requirements:

First, to be included on the SGIP HPWH eligible contractor list, participating contractors must:

- Hold a CSLB license appropriate for installation of HPWHs, which may include the following licenses:
 - C-36 (Plumbing);
 - C-10 (Electrician);
 - C-4 (Boiler, Hot Water Heating and Steam Fitting);
 - C-20 (Warm-Air Heating, Ventilating and Air Conditioning);
 - B (General Contractor); or
 - Some combination of the above;
- Be insured and bonded per California state requirements;⁵⁷

⁵⁷For more information on CSLB insurance and bonding requirements, please see the CSLB publication “Get Licensed to Build: A Guide to Becoming a California Licensed Contractor,”

- Supply two customer references, which the SGIP HPWH PA shall verify, or supply proof that the contractor has had two customer references verified previously in relation to a similar HPWH incentive program, such as the TECH Initiative;
- Have no unresolved CSLB license citations in the previous five years;
- Have no unresolved violations with California Department of Occupational Health and Safety (OSHA) in the previous five years; and,
- Have no unresolved Department of Industrial Relations wage claim violations in the previous five years;

Second, in addition to the minimum requirements listed above, the HPWH PA/PI should ensure that the eligible contractor list broadly tracks participating contractors regarding the following criteria and should, based on this information, prioritize contractors' listings on the eligible contractor list in response to searches. However, the HPWH PA/PI may modify these search criteria if it determines it is appropriate, after consultation with Commission Staff:

- Has been in business for two or more years;
- Certified for inclusion in the Commission's Utility Supplier Diversity Program;⁵⁸
- Has a CSLB registered primary business address located in the top 25 percent of disadvantaged communities in a given

available as of November 29, 2021:

<https://www.cslb.ca.gov/Resources/GuidesAndPublications/GetLicensedToBuild.pdf> or Section VI of the CSLB publication "California Contractors License Law and Reference Book," available as of November 29, 2021 at: <https://www.cslb.ca.gov/Resources/GuidesAndPublications/LawReferenceBook2021.pdf>.

⁵⁸ For more information on the Commission's Utility Supplier Diversity Program, please see the following, available as of November 29, 2021 at: <https://www.cpuc.ca.gov/about-cpuc/divisions/news-and-public-information-office/business-and-community-outreach/utility-supplier-diversity-program/clearinghouse>

IOUs service territory according to the most current version of CalEnviroScreen;⁵⁹ and,

- Offers a low income or disadvantaged community resident trainee program;
- Is a contractor for whom 50 percent of installers have at least three years' experience or have completed a relevant state-certified apprenticeship program.

Third, prior to payment of SGIP incentives, participating contractors must:

- Provide proof that the installers of the HPWH system(s) have completed a relevant state-certified apprenticeship program or have completed one or more appropriate HPWH installation trainings deemed by the HPWH PA/PI as providing satisfactory training and provided by an IOU, a HPWH manufacturer, a California community college, or another program-approved HPWH installation training; and,
- Provide proof of application for a permit from the Authority Having Jurisdiction for HPWH installations.

Fourth, for SGIP HPWH post-installation inspections, we adopt the existing TECH Initiative post-installation protocol, which includes a permit for each HPWH installation, and the requirement that contractors upload photo documentation of the installation. If there are serious or repeated issues with an individual contractor, the SGIP PA must conduct additional on-site inspections and follow-up to ensure quality installation.

Finally, we clarify that all HPWH projects receiving SGIP incentives must provide proof of permit closure with the Authority Having Jurisdiction for HPWH installations. This may be provided after incentives are paid due to the possibility of delayed action by the Authority Having Jurisdiction.

⁵⁹ For more information on CalEnviroScreen, including the CalEnviroScreen map, please see the following, available as of November 29, 2021:

<https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-40>.

An eligible contractor list and the accompanying requirements provides a reasonable compromise to the positions given in party comments. Our approach includes search criteria that will help promote job quality, ensure quality installations, and improve job access for those residing in disadvantaged communities. We do not deem existing California state CSLB licensure requirements to be sufficient for ensuring quality installations as these represent the lowest threshold to operate as a contractor in California.

Due to the overriding need to ensure effective incentive layering, we modify SGIP's traditional inspection requirements to align with those used in the TECH Initiative. This will prevent mismatched inspection requirements from creating a barrier that deters contractor participation while still ensuring SGIP HPWH units are correctly and safely installed.

Due to the overriding need to maximize deployment of HPWHs we do not adopt parties' recommendations to require SGIP HPWH contractors to offer a minimum wage or benefits package. At this early stage of developing the HPWH market in California, we do not want to deter contractors from offering this alternative technology to customers seeking a new hot water heater. We find parties comments in this area compelling but fear that if we require minimum wage or benefits packages at this stage, potential participating contractors will simply not encourage customers to install HPWH.

Regarding calls from parties for the SGIP HPWH PA to track workforce data beyond what is already captured in SGIP, we recognize the scarcity of workforce data in the water heater sector. However, in D.20-03-027 we established a rigorous evaluation framework for the TECH Initiative and BUILD program, that will include, at a minimum, (1) cost per metric ton of avoided GHG emissions; (2) projected annual and lifetime utility bill savings; (3) number

of low-emission systems installed (BUILD program only); and (4) market share for eligible technologies (TECH Initiative only).⁶⁰ In addition, D.20-03-027 lists many other optional metrics, which may, in the future, include workforce data.⁶¹ It is most appropriate, we feel, for the smaller SGIP HPWH program to build on any workforce data collection efforts developed for the larger TECH Initiative and BUILD program.

We direct the SGIP HPWH PA and evaluator to assess what information is already being collected regarding SGIP contractors and to determine, in consultation with Commission Staff, what might be appropriate additional workforce and training information to collect. The HPWH evaluator and/or the SGIP HPWH PA are directed to then undertake a “low-touch” method (*i.e.*, an online survey, requiring submittal of basic information the time of application or incentive payment, or similar) to collect additional appropriate information. The selected low-touch method may include a role for the SGIP HPWH PA in collecting workforce information, or this may be entirely undertaken by the HPWH evaluator. Additionally, the SGIP HPWH PA and evaluator shall cooperate with any larger workforce data tracking efforts undertaken using GHG emission allowance auction revenues, any TECH Initiative and/or BUILD program evaluation, and/or any similar umbrella evaluation effort. The SGIP HPWH evaluator shall also provide a minimal review of the effectiveness of the eligible contractor list approach and any recommended improvements.

⁶⁰ D.20-03-027, Sec. 3.2.4, at 39.

⁶¹ *Ibid*, Appendix A.

12. Program Evaluation

12.1. Staff Proposal

Because so many ratepayer and non-ratepayer funded HPWH incentive programs currently exist, the Staff Proposal recommends methods to estimate the GHG performance and/or the grid impacts of adopted SGIP HPWH incentives. To evaluate the SGIP HPWH program's benefits, Staff proposed the following:

- The SGIP evaluator should summarize all the benefits achieved by a SGIP funded HPWH. These benefits should include, but are not limited to, the total GHG reductions achieved by the SGIP funded load shifting HPWH, which includes reductions in therms or kilowatt hours, and the peak reduction benefits compared to a non-load shifting HPWH;
- When layering of SGIP HPWH incentives and other incentives towards a single HPWH system occurs, the non-load shifting benefits (*i.e.*, the efficiency benefits) of SGIP funded HPWHs should be attributed to those other programs; similarly, the load shifting benefits achieved by SGIP funded HPWHs should not be attributed to other incentive programs; and,
- The program year 2021-2025 SGIP Measurement and Evaluation Plan should include a dedicated HPWH impact evaluation report.

12.2. Party Comments

CSE comments that there is no clear budget available for evaluation of the SGIP HPWH program. CSE notes the important potential insights from the SGIP HPWH incentive program because of the mandatory load-shifting requirement. Other key evaluation areas, according to CSE, are impacts on customer utility bills and the effectiveness of the JA-13 standards. CSE recommends that the Commission allocate funding for HPWH evaluation purposes from within the overall SGIP program budget or, alternatively, that the Commission eliminate the commercial unitary HPWH system incentive budget and allocate these funds

for HPWH evaluation purposes. In comments on the proposed decision, CSE requests clarification regarding costs to update the existing SGIP database to track the \$44.7 million in SGIP HPWH funding within the database. CSE asks whether these costs should be taken from the SGIP HPWH PA/PI administrative budget approved here or from the existing SGIP PAs' administrative budgets as approved in D.20-01-021. Similarly, CSE requests clarification on the appropriate funding sources for a market assessment of HPWHs.

Energy Solutions recommends the Commission require the HPWH PA to collect a variety of data during the incentive application process to support evaluation:

- Site information (customer name, address, phone number and e-mail);
- Equipment information (manufacturer, model and serial number);
- Invoice number and project cost;
- Permit number (if permit required by law given installation scenario)
- Whether a panel upgrade was required;
- Confirmation that the HPWH is programmed to follow TOU schedules;
- Equipment performance information if model is not included on existing qualified product list;
- Equipment performance calculator for central HPWH applications; and,
- Pre-install and post-install photos that show pre-existing unit fuel type, newly installed HPWH and evidence that unit is setup to follow TOU schedules.

12.3. Discussion

In D.21-11-002, we adopted four non-binding guiding principles on HPWH incentive layering and program evaluation, which are: (1) ease of participation, (2) complementary incentives, (3) non-duplicative attribution of program benefits, and (4), ongoing coordination amongst PAs and implementers.⁶²

As discussed above, a primary challenge, and opportunity, for the SGIP HPWH program is that so many other ratepayer and non-ratepayer funded HPWH incentive programs exist. The challenge this multiplicity of programs creates is the need for strategic incentive layering and design of an evaluation approach that is fair and that avoids duplicative attribution of benefits.

To address some of this complexity, the non-binding guiding principles regarding HPWHs adopted in D.21-11-002 distinguish between claiming or “attributing” benefits and “reporting” or summarizing benefits. Regarding claiming or attributing benefits, the non-binding HPWH principles suggest that, in the case that just one ratepayer-funded program targets a particular benefit as its *primary* goal, that program should claim *all* credit for *all* achievement of that benefit, even if an installed HPWH system draws on multiple incentives. An example of this is that only the ratepayer funded energy efficiency program has as a primary goal kilowatt hour and therm energy savings targets.

Regarding reporting on or summarizing benefits from HPWH systems using multiple incentives, our D.21-11-002 guiding principles suggest that program reports and evaluations addressing HPWH incentive benefits should “acknowledge the existence of other programs that may also be contributing to

⁶² D.21-11-002 at Appendix A.

adoption levels and note that the metric being reported is also found in other program reports.”⁶³ As we state in D. 21-11-002, “[t]his reporting will promote transparency around potentially duplicative goals and metrics without disrupting programs that are largely not duplicative.”⁶⁴

We adopt the Staff Proposal’s first two recommendations for evaluation of SGIP HPWH benefits and the non-binding HPWH principles adopted in D.21-11-002. We direct the SGIP HPWH PA and Commission Staff to implement Staff’s recommendations and the non-binding principles when planning and performing SGIP HPWH evaluations.

The Staff proposal states that “[t]he SGIP evaluator should summarize *all* the benefits achieved by a SGIP funded HPWH. These benefits should include, but are not limited to, *the total GHG reductions achieved by the SGIP funded load shifting HPWH.*”⁶⁵ We clarify here that the baseline for estimating benefits from HPWHs using SGIP incentives and the total GHG reductions reported in SGIP impact evaluations from such installations shall include the GHG benefits from avoiding the installation of a natural gas water heater, i.e. the fuel switching benefits, as well as the load shifting benefits and, if applicable, any energy efficiency benefits. The evaluation shall present these estimated benefits as both total benefits and as benefits broken out by the estimated constituent contributions. Further, the evaluation report summarizing program benefits shall summarize at a high level the non-SGIP incentives available and used by customers using SGIP incentives, including the best estimates feasible at the time the evaluation is written of the incentive amounts offered and used. The SGIP

⁶³ D.21-11-002 Appendix A at A-3.

⁶⁴ *Ibid.*

⁶⁵ Staff Proposal, Appendix A at 6, emphasis added.

HPWH evaluator shall take other steps as appropriate to summarize and place in context the benefits of SGIP HPWH incentives, when considered on a standalone basis and when considered alongside other non-SGIP incentive offerings and tax rebates.

Further, we concur with Energy Solutions that collecting key information upfront in the SGIP HPWH incentive application process will assist in subsequent evaluation efforts. We direct the SGIP HPWH PA/PI to collect the information suggested by Energy Solutions, summarized in section 11.2 of this decision, with the addition of the type of refrigerant used in each HPWH project receiving incentives, as discussed in section 8.2.3. The SGIP HPWH PA/PI shall also track installations using 120-volt HPWHs and HPWH evaluation efforts should assess any associated cost savings, as feasible. We clarify that Commission Staff and the HPWH PA/PI may augment or modify the details of this list if they find it necessary.

Regarding Staff's proposal that the program year 2021-2025 SGIP Measurement and Evaluation Plan include a dedicated HPWH impact evaluation report and in response to comments from CSE on the proposed decision, we clarify the following. The HPWH evaluation funds authorized here shall supplement the larger SGIP evaluation budgets adopted in D.20-01-021. Evaluation activities for SGIP HPWH shall be grouped with the other SGIP evaluation activities under the same contract. Commission Staff shall take all necessary steps to ensure this, including adding the HPWH evaluation questions adopted here into the 2021 – 2025 SGIP measurement and evaluation plan and/or into the selected SGIP evaluator's detailed work plan. Commission Staff may integrate the HPWH evaluation requirements we adopt here into the

broadier SGIP evaluation advice letter process directed in D.19-09-027.⁶⁶

However, we do not require an advice letter approval process for this additional SGIP HPWH evaluation work.

As discussed in D.16-06-055, Commission staff direct SGIP evaluation work.⁶⁷ The advice letter process we adopted in D.19-09-027 for approval of the SGIP evaluation plan did not change this direction. As such, and within the evaluation budgets adopted here and in D.20-01-021, Commission Staff are authorized to modify the SGIP 2021 – 2025 evaluation plan at any time to advance the goals of a complete and efficient evaluation process, including modifying the timing and scope of individual SGIP evaluation reports.

If, given this direction, there are additional means to coordinate evaluation of the SGIP HPWH program with evaluation of the benefits of the TECH Initiative, the BUILD program and/or other relevant HPWH programs, Commission Staff should explore and, if appropriate, undertake such coordination if this serves to avoid duplication of evaluation efforts, and/or leverage personnel, database, and other resources.

Regarding CSE's question about the budget that should fund modifications to the SGIP database to accommodate the HPWH program, we clarify that the HPWH administrative budget we adopt here shall fund any such changes needed. The SGIP database will be key to ensuring a smooth interface between the SGIP HPWH program and the rest of SGIP. Using funds from the HPWH admin budget to update the SGIP database will give the HPWH PA/PI the flexibility to best implement needed database changes.

⁶⁶ D.19-09-027 at Ordering Paragraph 7(h) and page 101.

⁶⁷ D. 16-06-055 at Conclusion of Law 46(1) and page 47.

We repeat here guidance on the content of the SGIP HPWH evaluation adopted elsewhere in this decision:

- Section 4.3: Approximately 25 percent of the HPWH administrative budget or approximately \$1.12 million, shall be allocated to evaluating the SGIP HPWH program.
- Section 5.3.3: Commission Staff shall direct the SGIP evaluator to summarize costs incurred due to the Common Treatment for Excess HPWH Costs approach and the Rule 15 and Rule 16 Electric Service Line Allowance for distribution or service line upgrades.
- Section 7.2.3: The SGIP HPWH evaluator shall consider the need for early evaluation of residential unitary HPWH system baseline and cost assumptions and undertake this as feasible.
- Section 10.3: The smaller SGIP HPWH program shall build on workforce data efforts developed for the TECH Initiative and BUILD program. The SGIP HPWH PA and evaluator shall assess what information is already being collected regarding SGIP contractors and determine, in consultation with Commission Staff, what might be appropriate additional workforce and training information to collect. The HPWH evaluator and/or the SGIP HPWH PA shall then undertake a “low-touch” method (*i.e.*, an online survey, requiring submittal of basic information the time of application or incentive payment, or similar) to collect additional appropriate information. The selected low-touch method may include a role for the SGIP HPWH PA in collecting workforce information, or this may be entirely undertaken by the HPWH evaluator. The SGIP HPWH PA and evaluator shall cooperate with any larger workforce data tracking efforts undertaken using GHG emission allowance auction revenues, through the TECH Initiative and/or the BUILD program, and/or any similar umbrella evaluation effort. The SGIP HPWH evaluator shall provide a minimal review of the effectiveness of the eligible contractor list approach and any recommended improvements.

13. SoCalGas Motion to Strike Sierra Club/NRDC Attachments to Comments on OIR

On July 27, 2020, SoCalGas filed a Motion to Strike, requesting that certain portions of Sierra Club/NRDC's reply comments on the OIR be removed from the record. SoCalGas alleges that Sierra Club/NRDC's reply comments on the OIR are procedurally deficient because they fail to address a legitimate issue raised in SoCalGas's opening comments on the OIR, namely the appropriate baseline to estimate GHG emission reductions from HPWHs receiving SGIP incentives. SoCalGas argues that Sierra Club/NRDC's reply comments are (1) speculative, irrelevant, inflammatory, and outside the scope of this proceeding; (2) improperly attack SoCalGas's conduct as a prudent PA; and (3) seek to effectively prohibit SoCalGas's speech, which is protected under the First Amendment.⁶⁸ SoCalGas states that the information provided by Sierra Club/NRDC has no bearing on whether SoCalGas could act as a prudent PA for the SGIP HPWH program.

In its response, Sierra Club/NRDC state that the comments that SoCalGas seeks to strike are relevant to the question of whether SoCalGas should have a role in administering the SGIP HPWH incentives because they disclose a "conflict of interest between SoCalGas' business interests and widespread electrification."⁶⁹ Further, Sierra Club/NRDC state that their comments regarding SoCalGas are not "speculative," but instead are based on a published Commission decision⁷⁰ and published Los Angeles Times editorials and articles

⁶⁸ SoCalGas's "Motion to Strike Certain Sections of Sierra Club /NRDC's Reply Comments on the SGIP OIR," July 27, 2020 at 2.

⁶⁹ Sierra Club/NRDC, "Response to SoCalGas' Motion to Strike," August 11, 2020 at 1.

⁷⁰ D.18-05-041, Decision Addressing Energy Efficiency Business Plans, June 5, 2018, at 139, 141-144.

that describe SoCalGas's activities organizing Californian for Balanced Energy Solutions (C4BES) and filing lawsuits against new clean energy rules that would reduce use of natural gas in California.⁷¹ Sierra Club/NRDC observe that SoCalGas's assertion that it has been a prudent PA for SGIP battery storage systems does not predict how SoCalGas might act as a PA for HPWH, which generally will reduce natural gas consumption (if replacing a natural gas water heater), as opposed to SGIP funded electric battery systems and renewable energy projects, which will not.

In its reply to Sierra Club/NRDC's response, SoCalGas again asserts that "the use of irrelevant information seeks to chill SoCalGas's protected speech."⁷²

13.1. SoCalGas's Motion to Strike is Denied

We deny SoCalGas's Motion to Strike. We do not see a compelling reason to grant a party's motion to strike testimony or comments of another party that the first party deems irrelevant. Indeed, many comments we receive may be less than relevant, but that does not warrant their being scrubbed from the record. Instead, this Commission accords great to no weight to parties' comments and/or testimony as we deem applicable in varying contexts.

Moreover, in this instance, we find the information provided in Sierra Club/NRDC's comments potentially relevant to the question of the appropriate PA to administer SGIP HPWH incentives because it identifies actions taken by SoCalGas that seek to avoid reductions in natural gas usage in California. Unlike electric batteries using SGIP incentives, HPWH systems that replace natural gas

⁷¹ Sierra Club/NRDC, "Response to SoCalGas' Motion to Strike," August 11, 2020 at

⁷² SoCalGas's Reply to Sierra Club/NRDC's Response to Its Motion to Strike, August 21, 2020 at 3.

water heaters will reduce natural gas usage, which SoCalGas may see as a business threat.

Thus, we regard Sierra Club/NRDC's comments as potentially relevant and not improper, as SoCalGas alleges. However, we have accorded the information little to no weight because, as discussed in section 9.3, we adopt a single statewide SGIP HPWH PA for other reasons. These other reasons relate primarily to the need to streamline the program and coordinate incentive administration across multiple HPWH programs, including the TECH Initiative and BUILD program.

SoCalGas makes a third point, that Sierra Club/NRDC's "use of irrelevant information seeks to chill SoCalGas's protected speech."⁷³ However, there is nothing chilling or restrictive about Sierra Club/NRDC's inclusion of the contested information in their reply comments to the OIR. Further, as private entities, the Sierra Club and the NRDC do not have any obligation to preserve SoCalGas's free speech. SoCalGas filed both a Motion to Strike and reply comments to Sierra Club's response to its Motion to Strike and has the opportunity to comment on the proposed decision addressing its motion. SoCalGas's free speech rights have in no way been curtailed or impacted by Sierra Club/NRDC's OIR reply comments.

14. Comments on Proposed Decision

The proposed decision of Commissioner Clifford Rechtschaffen in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed by CSE, BWC, PG&E,

⁷³ *Ibid.*

SCE, Rheem, Sierra Club/NRDC, TURN, JCEEP, SoCalGas, A.O. Smith, Harvest, Energy Solutions, and SBUA on March 3, 2022. Reply comments were filed by SDG&E, CSE, Harvest, CSPTC, JCEEP, A.O. Smith, SoCalGas and Sierra Club/NRDC on March 8, 2022.

Demand Response: In response to comments by TURN, the final decision requires customers using SGIP HPWH incentives to enroll in a qualified demand response program, which we define as a CAISO market-integrated supply-side demand response program that counts for a load-serving entity's resource adequacy obligations. This approach modifies our approach in the proposed decision, where we permitted but did not require HPWHs to enroll in demand response programs. Although Sierra Club/NRDC and SDG&E reply comments suggest that IOU demand response programs targeting HPWHs with installed CTA-2045 ports and communication modules do not exist currently, we find, given the generous incentives we adopt here, that it is reasonable to require customers receiving SGIP HPWH incentives to enroll in a qualified demand response program even if the program does not employ communication with the installed HPWH.

All customers are eligible to apply to participate in a qualified demand response program. Adding this requirement takes advantage of a one-time interaction with early adopter customers and will facilitate awareness about the benefits of and need for demand response programs, including offerings targeting CTA-2045 ports and modules installed in HPWH when these become available. Further, enrolling customers using SGIP HPWH incentives in a qualified demand response program provides immediate and additional grid support.

This requirement, triggered at the moment a customer makes a decision to install a HPWH using SGIP incentives, is an important opportunity to start making demand response participation more ubiquitous. It is not an onerous requirement. Customers enrolled in demand response programs typically receive additional incentives when they participate in a demand response event.

Currently available qualified demand response programs include those involving customer enrollment via third-party demand response providers active in the Demand Response Auction Mechanism (DRAM) and aggregators active in the residential and non-residential IOU Capacity Bidding Program or in IOU-led programs such as SCE's Smart Energy Program and Summer Discount Program, SDG&E's AC Saver Program, or PG&E's SmartAC demand response program. This list of qualified demand response programs is not exhaustive and will be updated as new offerings are established. Also eligible are market integrated demand response resources managed by third-parties and contracted by IOU and non-IOU load serving entities to meet resource adequacy obligations. To make the requirement meaningful, customers receiving SGIP HPWH incentives should stay enrolled in the demand response program for a minimum of three years.

To facilitate expansion of demand response offerings for customers installing HPWH, the final decision adopts this additional guidance:

- The Commission should consider the need for additional demand response pilots or programs involving or targeting grid-supporting HPWH, including HPWH with installed

CTA-2045 ports and communication modules, in the upcoming demand response application proceeding.⁷⁴

- The SGIP HPWH PA/PA shall describe in its implementation plan its proposed method to implement this requirement, which may, but is not required to, include the following approaches: (a) adding a statement to the SGIP application where the customer acknowledges the requirement (“by submitting this application I understand that I must enroll in a qualified demand response program for a minimum of three years as a condition of receiving SGIP HPWH incentives”); (b) including in the SGIP application an opportunity for customers to verify that they have already or simultaneously enrolled in a demand response program; (c) for residential unitary HPWH system customers, requesting that the relevant IOU verifies (and/or ensures) a customer’s enrollment in a demand response program concurrent with the IOU placing the customer on a TOU rate; (d) for residential central and commercial unitary HPWH systems, withholding issuance of incentive payments until the IOU verifies the customer is enrolled in demand response program.
- The SGIP HPWH PA/PI shall, in collaboration with Commission Staff, offer an optional training and/or networking opportunity for contractors on demand response opportunities involving communication with HPWHs as these become available. Wide participation of contractors and third-party demand response aggregators and providers shall be solicited for this training or networking event. The purpose of this event shall be to educate contractors regarding demand response opportunities involving communication with HPWH and allow opportunities for the development of partnerships. The event may be promoted by and held in conjunction

⁷⁴ See D.17-12-003 at Ordering Paragraph 61; See also Executive Director letter dated September 30, 2021, extending the date for IOUs to file their 2023-2027 demand response portfolio applications to May 1, 2022.

with the SGIP Technical Working Group and/or the TECH Initiative working group as appropriate.

- The SGIP HPWH PA/PI shall include in customer application forms a question allowing customers to express interest in future demand response opportunities that target and/or communicate directly with HPWHs and that may provide additional bill savings.
- The SGIP HPWH PA/PI shall provide contractors with information regarding qualified demand response programs and third-party aggregator offerings and shall update this information regularly. Information on available qualified demand response programs and third-party aggregator offerings should be integrated into SGIP HPWH incentive application materials and program websites.

In addition to these changes regarding our adopted demand response requirement, we have modified the final decision in response to party comments on the proposed decision as follows:

- Eligible Technologies: In response to comments by Harvest and Rheem, the final decision clarifies that combination hot water heating/space heating systems and 120-volt HPWH systems are eligible for residential unitary incentives.
- Additional Incentive for Larger Units: In response to comments by A.O. Smith, Energy Solutions, Sierra Club/NRDC, and CSE, the final decision adds an additional \$700 incentive for residential unitary HPWH systems with storage capacities of 55 gallons or more. Party comments persuaded us that this additional incentive is necessary to help ensure right-sizing of customer units, which may need to have somewhat larger capacities than the water heater being replaced due to the pre-heating and load-shifting requirements we adopt in this decision. It is critical in this nascent stage of market development of HPWH in California that units are

- correctly sized to ensure customer satisfaction and thus the long-term effectiveness of this program.
- Eligible Costs for Equity Budget Panel Upgrade Incentives: In response to comments from A.O. Smith, Energy Solutions, Sierra Club/NRDC and CSE, the final decision modifies eligible costs for panel upgrade incentives for equity budget customers only. For residential equity budget customers only, we authorize use of electric panel upgrade incentives for additional eligible costs, not to exceed the incentive levels adopted here. The additional eligible costs we authorize for residential equity budget customers may encompass costs to change the location of the installed water heater within the residence or property to accommodate the larger size of HPWHs and/or plumbing or wiring upgrades needed in the residence for installation of the HPWH. Party comments persuaded us that excluding these additional cost categories from panel upgrade incentives for equity resiliency budget customers could present a barrier preventing these customers from participating.
 - SCE Execution of SGIP HPWH PA/PI Contract: In response to comments from SCE about our adopted statewide SGIP HPWH PA/PI structure, the final decision modifies and clarifies requirements pertaining to SCE's role. Similarly, in response to comments from CSE, the final decision requires an upfront incentive funds transfer process from SCE to the SGIP HPWH PA/PI to ensure that monies are continuously available to the PA/PI to pay incentives to customers in a timely fashion.
 - Process for Customer Enrollment on TOU Rate: In response to comments from A.O. Smith, Energy Solutions, BWC, and CSE, the final decision includes changes to the process by which IOUs place participating customers on a TOU rate. The final decision requires the SGIP HPWH PA/PI to provide information to participating contractors regarding the rationale for the TOU enrollment requirement, namely that this will help ensure load-

shifting for grid reliability and reduce customer electricity costs for water heating. The participating contractor must inform the customer applying for residential unitary SGIP HPWH incentives of the TOU requirement and must give the customer information provided by the SGIP HPWH PA/PI. It is then the SGIP HPWH PA/PI's responsibility to notify the IOU about the HPWH installation and the IOU's responsibility to reach out to and enroll the customer on a TOU rate within 30 days of being informed of the installation by the SGIP HPWH PA/PI. The parties presented compelling arguments that placing the requirement to report an installation to the IOU on the contractor could be a barrier to contractor participation.

- Contractor Eligibility and Prioritization Criteria: In response to comments from Sierra Club/NRDC and Energy Solutions, the final decision reduces the number of contractor customer references required to be an eligible contractor in the SGIP HPWH program from three to two or allows the contractor to demonstrate that it has had two customer references verified previously in relation to a similar HPWH incentive program, such as the TECH Initiative. The final decision provides flexibility for the SGIP HPWH PA/PI to modify our recommended SGIP HPWH contractor search engine criteria as necessary to best achieve the goals set out in this decision. Energy Solutions comments persuaded us these changes would better promote program success.
- State-Certified Apprenticeship Programs: In response to comments by JCEEP and CSPTC, the final decision modifies contractor search engine criteria to include prioritization of contractors for which 50 percent of installers have at least three years' experience and/or have completed a relevant state-certified apprenticeship program. The final decision does not require all participating contractors to meet these criteria, however, as we believe this could reduce contractor participation, and expanding contractor awareness and participation at this stage is a central aim.

- Contractor and Installer Training Requirements: In response to comments by A.O. Smith, Sierra Club/NRDC Energy Solutions, Rheem, JCEEP, CSPTC, and BWC, the final decision modifies contractor training requirements to state that completion of a relevant state-certified apprenticeship program, or completion of manufacturer, community college and other training courses meets our training requirements, in addition to completion of relevant IOU courses. The final decision requires the SGIP HPWH PA/PI to maintain a list of appropriate HPWH training courses and state-certified apprenticeship programs that provide satisfactory training. We were persuaded by these parties that the proposed decision had too narrowly defined eligible training.
- Installation Inspection Requirements: In response to comments by BWC, Sierra Club/NRDC and Energy Solutions, the final decision modifies SGIP HPWH installation inspection requirements to align them with those approved for the TECH Initiative, which allows remote inspections. Party comments persuaded us that remote inspections are more appropriate for HPWH installations than the more detailed inspection requirements for SGIP behind-the-meter renewable generation and energy storage units and will be sufficient to ensure that SGIP HPWHs are correctly and safely installed.
- Timing of Incentive Payments: In response to comments from Sierra Club/NRDC and Energy Solutions, the final decision modifies the timing of incentive payment to the contractor to place this prior to rather than after permit closure. These parties comments persuaded us that delaying incentive payment until after permit closure would deter contractor participation and is aligned with other ratepayer incentive programs.
- Statewide SGIP HPWH PA/PI Bidder Criteria: In response to comments by Energy Solutions, Sierra Club/NRDC and CSE, the final decision adds two additional bidder criteria

for the statewide HPWH PA/PI RFP process as follows: (a) bidders should propose approaches for how successful layering of SGIP incentives with other programs shall be achieved in practice; and (b) bidders should describe how they intend to ensure HPWH adoption results in utility bill savings for participants in the residential equity customer class. These are valuable additional criteria that will support the SGIP HPWH PA/PI selection process and program success.

- Thermostatic Mixing Valve Requirement: In response to comments from Energy Solutions, the final decision clarifies that thermostatic mixing valves are required as part of JA13 compliance and that apartment panels for single apartments are eligible for upgrade incentives.
- Use of HPWH Evaluation and Administrative Budgets: In response to comments from CSE, the final decision in section 12.3 clarifies that the HPWH evaluation funds authorized here shall supplement the larger SGIP evaluation budgets adopted in D.20-01-021. Evaluation activities for SGIP HPWH shall be grouped with the other SGIP evaluation activities under the same contract. Commission Staff shall take all necessary steps to ensure this. We do not require an advice letter approval process for this additional SGIP HPWH evaluation work. We clarify that Commission staff direct SGIP evaluation work. As such, and within the evaluation budgets adopted here and in D.20-01-021, Commission Staff are authorized to modify the SGIP 2021 – 2025 evaluation plan at any time to advance the goals of a complete and efficient evaluation process, including modifying the timing and scope of individual SGIP evaluation reports. If, given this direction, there are additional means to coordinate evaluation of the SGIP HPWH program with evaluation of the benefits of the TECH Initiative, the BUILD program and/or other relevant HPWH programs, Commission Staff should explore and, if appropriate, undertake such coordination if this serves to avoid duplication of evaluation efforts, and/or leverage personnel, database, and other resources.

Regarding CSE's question about the budget that should fund modifications to the SGIP database to accommodate the HPWH program, we clarify that the HPWH administrative budget we adopt here shall fund any such changes needed. The SGIP database will be key to ensuring a smooth interface between the SGIP HPWH program and the rest of SGIP. Using funds from the HPWH admin budget to update the SGIP database will give the HPWH PA/PI the flexibility to best implement needed database changes.

- Non-Disclosure Agreements: In response to comments from SCE, the final decision limits required non-disclosure agreements between the selected SGIP HPWH PA/PI and other HPWH programs to the TECH Initiative and BUILD program.
- Authorized Uses of Cap-and-Trade Allowance Proceeds: In response to comments from TURN and SoCalGas, the final decision provides greater detail regarding authorized uses of Cap-and-Trade allowance proceeds as included in CCR Section 95893(d)(3).

We decline to make other modifications requested by parties for the following reasons:

- GWP Kicker Incentive: The final decision declines to modify the low GWP kicker incentive as requested by several manufacturers but clarifies that the kicker applies to refrigerants with a GWP of 150 or less.

15. Assignment of Proceeding

Clifford Rechtschaffen is the assigned Commissioner and Cathleen A. Fogel is the assigned Administrative Law Judge in this proceeding.

Findings of Fact

1. Residential integrated HPWH systems are common in the U.S. but mostly use the refrigerant R-134a, which has a very high GWP of 1,430. Residential split HPWH systems are in limited use in the U.S. but common internationally; these

systems typically use the extremely low GWP refrigerant R-744 and operate at a high efficiency in a range of temperature conditions.

2. Multi-family buildings comprise most housing eligible for the equity budget in California.

3. Multi-family HPWH systems are typically composed of integrated central systems using very low GWP refrigerants.

4. Flexibility is gained by combining Staff's proposed residential HPWH technology budgets into a general market and an equity budget, with both providing incentives for residential unitary and residential central HPWHs on a first-come, first-served basis. Combining the budgets this way will help the program reach as many customers as possible, will decrease the chance that the funds go unspent, and allows for greater flexibility for participation of multi-family buildings.

5. Capping incentives for residential central HPWH systems at 40 percent of each of the residential general and residential equity budgets until such time as a preliminary review of these technologies' load shifting performance is completed supports development of HPWH technologies in this customer class while ensuring compliance with statute.

6. Increasing the HPWH administrative budget to a cap of 10 percent of the \$44.7 million in HPWH program funds adopted in D.19-09-027 and D.20-01-021 is necessary to address additional anticipated costs including initial set up costs for the program, HPWH evaluation costs, and any HPWH marketing, education and outreach costs, and is consistent with our approach to the TECH Initiative.

7. To ensure sufficient HPWH evaluation budget, it is reasonable to allocate approximately 25 percent of the HPWH administrative budget, or approximately \$1.12 million, to evaluating the SGIP HPWH program.

8. Authorizing gas Cap-and-Trade allowance proceeds to fund additional SGIP HPWH incentives will primarily benefit residential gas ratepayers. The benefits will primarily accrue to gas customers receiving incentives because, if they want to install a HPWH, they may do so at a greatly reduced cost.

9. Gas customers utilizing SGIP HPWH incentives funded using gas Cap-and-Trade allowance proceeds will benefit from avoidance of combustion of gas for water heating in the residence, with potential improvements in indoor air quality and health outcomes.

10. All gas ratepayers benefit from accelerating the development of the HPWH market in California through use of gas Cap-and-Trade allowance proceeds for SGIP HPWH incentives because SGIP incentives will help ensure HPWH technologies is more readily available, at lower cost, even after the incentives are exhausted.

11. Incentivizing HPWH installations as an alternative to gas hot water heaters will reduce GHGs.

12. In SB 1477 (2018), the legislature authorized use of natural gas Cap-and-Trade funds for HPWH incentives in the TECH Initiative and BUILD program.

13. Allocating \$40 million of 2023 gas Cap-and Trade allowance proceeds reduces the Climate Credit returned to gas customers in 2023 by a small amount, but it is expected that the average residential customer of each of the funding utilities will still receive a Climate Credit that will cover at least the full amount of costs that the gas utilities collected from them for Cap-and-Trade program compliance costs.

14. Delegating authority to Energy Division staff to reduce the SGIP HPWH allocation from 2023 Cap-and-Trade allowance proceeds if necessary to ensure

that the average residential customer's Climate Credit is at least equal to residential customers' annual Cap-and-Trade program costs is reasonable.

15. The fund allocation and transfer processes for 2023 Cap-and-Trade allowance proceeds are reasonable.

16. Authorizing the SGIP HPWH PA to propose via advice letter budget shifts between customer classes, new residential unitary and central system product qualification pathways, changes to the residential unitary system GWP kicker incentive, and use of AHRI communication device standards for residential unitary systems adds flexibility and helps ensure program success.

17. Authorizing an additional \$700 incentive for residential unitary HPWH with storage capacities of 55 gallons or more will help ensure right-sizing of customer HPWH units, which may need to have somewhat larger capacities than the water heater being replaced due to the pre-heating and load-shifting requirements adopted here. It is critical at this nascent stage of HPWH market development that units are correctly sized to ensure customer satisfaction and thus the long-term effectiveness of this program.

18. Authorizing the SGIP HPWH PA to propose via a Tier 2 advice letter reductions to the incentive levels adopted in this decision at any time will maximize the effectiveness of incentive layering and incentive coordination work generally.

19. Requiring a range of appropriate connected communication devices as part of residential unitary HPWH appliance requirements and requiring customers to enroll in a TOU rate helps ensure that load shifting will occur.

20. Requiring customers using residential unitary HPWH incentives to enroll in any TOU rate, not just an SGIP-approved TOU rate, avoids creating an additional barrier for this less developed market and is reasonable given that the

modelling that informed adoption of SGIP-approved TOU rates in D.19-08-001 was based on the operation of battery storage units only, not HPWHs.

21. It is reasonable to require the SGIP HPWH PA/PI to provide information to participating contractors regarding our adopted TOU requirement and to report to the utility the installation of a residential unitary HPWH system using SGIP incentives; it is similarly reasonable for the IOU to then enroll the customer on a TOU rate within 30 days, and for the HPWH PA to disburse incentive payments to the contractor only after these steps have occurred.

22. Waiving the existing equity budget eligibility requirement that single-family homes be subject to resale restrictions or presumed resale restrictions for the purposes of the SGIP HPWH budgets removes a barrier that could unduly limit the participation of lower-income single-family households and is justifiable due to the somewhat larger dollar investment required for electrochemical energy storage as compared to HPWHs.

23. The GHG benefits from installing a HPWH system are estimated to be significant regardless of the type of appliance previously installed.

24. Limiting eligibility for SGIP HPWH panel upgrade incentives for residential unitary systems to households with existing panels of less than 200 amps and prohibiting incentives for panel upgrade costs that exceed the cost to upgrade to 200 amps ensures that SGIP incentive funds will not be used to support other electric equipment such as hot tubs or high electricity users more generally.

25. Adopting electric panel upgrade incentives that cover 100 percent of equity customer panel upgrade costs and 50 percent of general market customer costs helps ensure that equity budget customers can participate in HPWH

incentive offerings while still supporting general market customer participation and market growth.

26. An installed HPWH comprises a new and permanent load as defined under Electric Tariff Rule 15 (Distribution Line Extensions) and Rule 16 (Service Extensions).

27. Distribution or service line upgrade costs to ensure the necessary amperage to support a HPWH system may exceed Rule 15 and Rule 16 Electric Service Line Allowance caps for a very small percentage of customers. It is reasonable to require the IOUs to implement a Common Treatment for Excess HPWH Costs approach in these limited cases, for residential buildings, given California's GHG emission reduction and decarbonization goals and the unequal impact that differentiated line upgrade costs can have on individual customers, who bear no responsibility for these costs.

28. Over twenty ratepayer and non-ratepayer HPWH incentive programs exist in California or will soon.

29. Providing some general guidance on incentive layering but then authorizing the SGIP HPWH PA the flexibility to determine, in collaboration with Commission Staff, the final incentive layer approaches across technologies and customer classes, including a contractor pass-through incentive if deemed necessary, will have the best results.

30. There is limited information available on the load shifting capacities and the consequent GHG emission reductions of central HPWH systems in multi-family buildings.

31. Adopting installation requirements for residential central system HPWH systems based primarily on the system's projected load shift in kilowatt hours

and, secondarily, on projected GHG emission reductions reflects load shifting as the primary focus of SGIP HPWH incentives.

32. Requiring residential central HPWHs to be designed and installed to load shift energy from peak to off-peak periods in a manner that is projected to annually reduce GHG emissions by five kilograms of CO₂ per kilowatt hour as compared to non-load-shifting electric water heaters helps ensure load shifting and GHG emission reductions will occur, but provides flexibility, which is necessary due to potential variability in multi-family building residents' use of hot water.

33. Adopting performance-based incentives for residential central HPWH systems would create a market barrier and could discourage contractors from participating.

34. Linking residential central HPWH system incentive levels to the anticipated kilowatt hours of load shift services that the system will provide, with added quality control mechanisms, is reasonable because it is difficult for developers or engineers to fully control the variability of water use patterns, and resulting achieved GHG emission reductions, amongst residents of multi-family buildings.

35. Requiring all residential central HPWH systems using SGIP incentives to install equipment that enables data collection through two-way communication will help enable appropriate oversight of load shifting and GHG emission reduction claims.

36. It is inappropriate to provide electric panel or electric service upgrade incentives for residential central HPWH installations in multi-family buildings or commercial unitary HPWH systems as such costs could be considerable and

should be borne by the project beneficiaries, who generally have access to other financing.

37. Many commercial buildings have limited hot water demand and do not need a six-kilowatt capacity nominal compressor output level.

38. Authorizing the SGIP HPWH PA the flexibility to refine Staff's proposed residential central and commercial unitary HPWH incentive approaches and load shifting requirements when developing standardized protocols helps ensure the program's success and effectiveness.

39. Commercial unitary HPWH systems typically will not have a developer overseeing a continuous monitoring system and will not be receiving a GHG signal, so adopting a performance-based incentive approach is potentially problematic in terms of ascertaining the exact level of GHG emission reductions achieved and any related impact on an incentive payment.

40. Ensuring that small businesses have access to SGIP HPWH incentives allows this market segment access to program benefits and contributes to market development of relevant technologies.

41. Both the residential unitary and small business unitary HPWH GWP kicker incentives are appropriately sized to drive the market towards low GWP units, thus limiting the associated indirect GHG emissions.

42. Requiring the SGIP HPWH PA/PI to monitor regulatory developments regarding HPWH refrigerants and to track the type of refrigerant used in each SGIP HPWP project ensures inclusion of this information in SGIP evaluation report(s).

43. It is appropriate that commercial unitary HPWH system customers are ineligible for the electrical service line and associated electrical distribution

infrastructure cost classification as common facilities costs given these customers' greater access to financing.

44. It is appropriate that commercial central HPWHs are ineligible for SGIP incentives given the uncertain ability of this configuration to shift load from peak to off-peak periods.

45. Centralization of SGIP HPWH incentive administration in a single statewide PA/PI aligns well with the existing TECH Initiative and BUILD program single PA approach, as well with the existing SOMAH program, and best provides for the streamlining and coordination of incentive offerings across the many HPWH incentives available.

46. The unique technologies and requirements of the SGIP HPWH program will benefit from a dedicated PA/PI that can devote its attention only to this aspect of the SGIP program.

47. The SGIP HPWH PA/PI bidder selection criteria proposed by Staff are reasonable, with some modifications.

48. An eligible contractor list will help promote job quality, ensure quality installations, and improve job access for those residing in disadvantaged communities if it includes tracking and prioritization of the criteria listed in section 11.3 in response to customer searches and if the SGIP HPWH PA/PI is authorized the flexibility to modify the recommended search criteria as deemed necessary to support program success.

49. Authoring the SGIP HPWH PA/PI to implement a post-installation inspection protocol that differs from SGIP's traditional inspection protocol will ensure units are correctly and safely installed, will support effective incentive layering, and will ensure that differing inspection protocols across programs do not create a barrier to contractor participation.

50. Requiring SGIP HPWH contractors to offer a minimum wage or benefits package at this early stage of developing the HPWH market in California could deter contractors from offering this alternative technology to customers seeking a new hot water heater.

51. We do not deem existing California state CSLB licensure requirements to be sufficient for ensuring quality SGIP-funded HPWH installations as these requirements represent the lowest threshold to operate as a contractor in California.

52. There is limited workforce data available about HPWHs, but the SGIP program should collect only limited amounts of such data in conjunction with similar efforts anticipated for the TECH Initiative and BUILD program.

53. A challenge for the SGIP HPWH program is that so many other ratepayer and non-ratepayer funded HPWH incentive programs exist. This creates a need for strategic incentive layering and a benefits evaluation approach that is fair and that avoids duplicative attribution.

54. It is reasonable that SGIP impact evaluations report on the total GHG reduction benefits installed from HPWHs, including GHG benefits from fuel switching and from energy efficiency, if applicable, but that the credit or attribution of energy efficiency benefits from such units, if any, are claimed only by IOU energy efficiency programs.

55. We do not see a compelling reason to grant a party's motion to strike testimony or comments of another party that the first party deems irrelevant.

56. SoCalGas's free speech rights have in no way been curtailed or impacted by Sierra Club/NRDC's OIR reply comments.

57. Given the generous incentives we adopt here, it is reasonable to require customers receiving SGIP HPWH incentives to enroll in a qualified demand response program.

58. All customers are eligible to apply to participate in a qualified demand response program.

59. Requiring customer receiving SGIP HPWH incentives to enroll in a qualified demand response program takes advantage of a one-time interaction with early adopter customers and will facilitate awareness about the benefits of and need for demand response programs, including offerings targeting CTA-2045 ports and modules installed in HPWH when these become available.

60. Enrolling customers using SGIP HPWH incentives in a qualified demand response program provides immediate and additional grid support.

61. The moment a customer makes a decision to install a HPWH is an important opportunity to start making demand response participation more ubiquitous.

62. Requiring customers receiving SGIP HPWH incentives to enroll in a qualified demand response program is not an onerous requirement because customers typically receive additional incentives for participation in the program.

63. Currently available qualified demand response programs include those involving customer enrollment via third-party demand response providers active in the DRAM and aggregators active in the residential Capacity Bidding Program or IOU-led programs such as SCE's Smart Energy Program and Summer Discount Program, SDG&E's AC Saver Program, or PG&E's SmartAC demand response program. Also eligible are market integrated demand response resources managed by third-parties and contracted by IOU and non-

IOU load serving entities to meet resource adequacy obligations. This list is not exhaustive and will be updated as new offerings are established.

64. It is reasonable to adopt guidance that will facilitate expansion of demand response offerings for customers installing HPWH.

Conclusions of Law

1. The Commission should adopt the SGIP HPWH budget allocations, incentives and program requirements contained in Appendix A.

2. The Commission should adopt Staff's proposed single statewide SGIP HPWH PA/PI approach as described in section 9.

3. The Commission should direct SCE to enter into a contract with the selected vendor for the SGIP HPWH PA/PI as described in section 9.

4. The Commission should cap the SGIP HPWH administrative budget at 10 percent of \$44,670,000, or \$4,467,000 million, approximately 25 percent of which, about \$1.12 million, should be allocated to evaluating the SGIP HPWH program.

5. The Commission should require, if the selected bid to administer and implement the SGIP HPWH program is below the 10 percent cap, after deducting the funds authorized for evaluating SGIP HPWH incentives, that the difference is reallocated equally across incentive budgets.

6. The Commission should cap the total percent of the residential general market and residential equity budgets that may fund residential central HPWH incentives at 40 percent of each of these budgets and should require the SGIP HPWH PA to take two steps if and when applications for residential central HPWH incentives meet or exceed 40 percent of either of these budgets:

(1) initiate a waitlist for residential central HPWH applications in the relevant budget until such time as further guidance is provided by this Commission; and,

(2) prepare a short summary report of the load shift performance of approved residential central HPWH installations and file the report in this proceeding.

7. The Commission should direct SoCalGas, PG&E, and SDG&E to reserve \$40 million in 2023 Cap-and-Trade allowance proceeds to augment funding for the SGIP HPWH subprogram consistent with each IOU's respective percentage of their combined CARB allocation of Cap-and-Trade allowances.

8. 17 CCR Section 95893(d)(3) requires that gas Cap-and-Trade allowance proceeds must be used 1) for the primary benefit of retail natural gas ratepayers of each natural gas supplier, consistent with the goals of AB 32, and 2) to reduce GHG emissions.

9. Consistent with CCR Section 95893(d)(3), Cap-and-Trade allowance proceeds set aside in this decision should only be used to incentivize customers in the service territory of the funding gas utility.

10. Consistent with CCR Section 95893(d)(3), Cap-and-Trade allowance proceeds should not be used to fund HPWH incentives for existing all-electric customers who do not have natural gas service.

11. The Commission should direct SoCalGas, PG&E, and SDG&E to each file a Tier 1 Advice Letter within 30 days of the date of the issuance of this decision establishing a new balancing account to track all Cap-and-Trade allowance proceeds set aside pursuant to this decision, as well as any interest accrued on those proceeds.

12. The Commission should direct SoCalGas, PG&E, and SDG&E to transfer Cap-and-Trade allowance proceed funds to SCE as described in this decision.

13. The Commission should direct the statewide SGIP HPWH PA/PI, in cooperation with SCE to allocate each gas corporation's contributed Cap-and-

Trade allowance proceeds funds to HPWH customer classes using the percentages set forth in Table 6 of this decision.

14. The Commission should direct SCE to return to any Cap-and-Trade allowance proceeds that have not been allocated as of January 1, 2026 to the respective gas corporations contributing these funds (PG&E, SoCalGas, and SDG&E), and should direct these gas corporations to return those unspent funds to their respective ratepayers as part of the 2026 or 2027 Climate Credit.

15. The Commission should delegate authority to Energy Division staff to reduce a gas utility's SGIP HPWH allocation from 2023 Cap-and-Trade allowance proceeds if necessary to ensure that the average residential customer's Climate Credit is at least equal to residential customers' annual Cap-and-Trade program costs.

16. The Commission should direct the SGIP HPWH PA/PI to undertake all necessary actions to develop and implement the SGIP HPWH program in accordance with this decision including to:

- a. Execute non-disclosure agreements regarding customer data and program issues with the implementer entities for the TECH Initiative and the BUILD program no later than 90 days after it has executed its contract with SCE;
- b. Submit a Tier 2 advice letter containing a SGIP HPWH Handbook reflecting the requirements adopted here, and reflecting additional Commission Staff guidance as necessary, no later than 120 days after executing its contract with SCE;
- c. Offer a digitized tool to contractors and retailers to capture end user installation data, confirm incentive eligibility and provide timely payment;
- d. Determine an appropriate SGIP HPWH incentive layering approach, including potentially a contractor pass-through incentive, in consultation with Commission Staff;

- e. Adhere to the guiding principles adopted in D.21-11-002 when developing the incentive layering approach;
- f. Adhere to the additional guidance on incentive layering adopted in this decision;
- g. Develop a standardized protocol to estimate residential central and commercial unitary HPWH system incentives, which shall include: (1) methods to calculate project's capacity; (2) a methodology for establishing a project's non-load shifting baseline; (3) a standard set of normalization factors (i.e., outdoor temperature, etc.); and (4), a methodology for calculating greenhouse (GHG) emission reductions, refining the incentive and load-shifting approaches proposed by Staff when doing so, as needed;
- h. Develop and implement a protocol to ensure that each gas utility's portion of the \$40 million in gas Cap-and-Trade allowance proceeds authorized in this decision for the SGIP HPWH program is only used to incentivize natural gas customers in the service territory of the funding gas utility, including developing a method to ensure that these monies are not used to fund HPWH incentives for existing all-electric customers who do not have natural gas service;
- i. Propose a standard hour-by-hour avoided GHG emissions value that residential central HPWH incentive applicants must incorporate into their system designs;
- j. Provide participating contractors installing residential unitary HPWH systems using SGIP incentives with information regarding the rationale for the TOU requirement, ensure that the contractors inform the customer of this requirement, and notify the relevant IOU about the HPWH installation;
- k. Ensure that customers installing residential unitary HPWH systems have been enrolled on a TOU rate prior to issuing the incentive payment;

- l. Return any unallocated funds as of December 31, 2025 to SCE within 30 days for repayment to ratepayers pursuant to Section 379.6(a)(2);
 - m. Collaborate with other HPWH incentive programs to support training contractors on the beneficial impact of TOU responsiveness.
 - n. In collaboration with Commission Staff, offer an optional training and/or networking opportunity for contractors on demand response opportunities involving HPWHs as these become available, as discussed in section 14;
 - o. Include in customer application forms a question allowing customers to express interest in future demand response opportunities that target HPWHs and that may provide additional bill savings;
 - p. Describe in its implementation plan its proposed method to implement the demand response requirement adopted in this decision, as discussed in section 14; and,
 - q. Provide contractors with information regarding qualified demand response programs including third-party aggregator offerings as discussed in section 14.
17. The Commission should authorize the SGIP HPWH PA to:
- a. Submit a Tier 1 advice letter to reallocate the reserved equity unitary and residential general market unitary funds, if not fully subscribed within three years after issuance of this decision, and any other unspent funds within our adopted budget to any customer class that is oversubscribed, including towards any qualifying technology introduced in the market that was not available at the start of the program;
 - b. Submit a Tier 2 advice letter to propose additional residential unitary and central HPWH system product qualification pathways to those adopted here, using, for any additional residential central pathways, the CBEC-RES and ENERGY STAR® 2.0 requirements as guidelines;

- c. Submit a Tier 2 advice letter once the AHRI Standard 1430 is adopted to propose this as a residential unitary HPWH system communication port pathway, if the PA believes this is appropriate;
 - d. Submit a Tier 1 advice letter proposing modifications to the residential unitary HPWH system kicker incentive, as appropriate; and,
 - e. Submit a Tier 2 advice letter at any time proposing reductions to the incentive levels adopted in this decision.
18. The Commission should clarify that distribution and service line upgrade costs required to serve installed HPWH systems are ineligible for SGIP HPWH incentives.
19. The Commission should direct the IOUs to:
- a. Address costs related to distribution and service line upgrades required to serve installed HPWH systems as Electric Service Line Allowance costs under Tariff Rule 15 and Rule 16;
 - b. Classify distribution or service line upgrade costs to support SGIP HPWH installations in residential buildings in excess of those provided for under the Rule 15 and Rule 16 Electric Service Line Allowance as common facility costs, referring to this as Common Treatment for Excess HPWH Costs;
 - c. Recover Common Treatment for Excess HPWH Costs in the same manner as directed in D.11-07-029 for Common Treatment for Excess Plug-in Electric Vehicles Charging Costs, sunseting this treatment with the termination of the SGIP HPWH program;
 - d. Each provide to the SGIP HPWH PA/PI information regarding the method for contractors installing HPWH systems using residential unitary incentives to communicate to the utility that such a system has been installed;

- e. Each ensure that customers installing HPWH systems using residential unitary incentives are enrolled in a TOU rate no later than 30 days after the utility has been notified by the contractor of the installation; and,
 - f. Undertake the fund transfers and other steps outlined in section 9.3 to establish the SGIP HPWH PA/PI and to ensure the swift sharing of customer data needed to ensure program success.
20. The Commission should make commercial central HPWH systems ineligible for SGIP incentives.
21. The Commission should waive the existing equity budget eligibility requirement that single-family homes be subject to resale restrictions or presumed resale restrictions for purposes of SGIP HPWH incentives.
22. The Commission should adopt the four non-binding guiding principles on HPWH incentive layering adopted in D.21-11-002 for application to SGIP HPWH incentives.
23. The Commission should direct the SGIP HPWH PA/PI to take the following actions regarding training and workforce development:
- a. Educate contractors about the SGIP load shifting requirements;
 - b. Develop and implement an eligible contractor list as described in section 11.3;
 - c. Require contractors to provide the following before issuing an incentive payment:
 - i. Proof that the installers of the HPWH system(s) have completed a relevant state-certified apprenticeship program or appropriate HPWH installation trainings as discussed in section 11.3;
 - ii. Proof of permit application with the Authority Having Jurisdiction for HPWH installations;

- d. Work with the SGIP evaluator to assess what workforce information is already being collected regarding SGIP contractors and determine, in consultation with Commission Staff, what might be appropriate additional workforce and training information to collect;
- e. Undertake, as determined appropriate in consultation with the SGIP HPWH evaluator and Commission Staff, a “low-touch” method to collect additional appropriate SGIP workforce information; and,
- f. Cooperate with any larger HPWH workforce data tracking efforts undertaken using GHG emission allowance auction revenues, any TECH Initiative and/or BUILD program evaluation, and/or any similar umbrella evaluation effort.

24. The Commission should adopt the following guidance for evaluation of the SGIP HPWH program:

- a. The SGIP evaluator should summarize all benefits achieved by a SGIP funded HPWH. These benefits should include, but are not limited to, the total GHG reductions achieved by load shifting, including reductions in therms or kilowatt hours, and the peak reduction benefits compared to a non-load shifting HPWH;
- b. When layering of SGIP HPWH incentives and other incentives towards a single HPWH system occurs, the non-load shifting benefits (*i.e.*, the efficiency benefits) of SGIP funded HPWHs should be attributed to those other programs; similarly, the load shifting benefits achieved by SGIP funded HPWHs should not be attributed to other incentive programs;
- c. The SGIP HPWH PA should collect the information listed in section 11.2, as well as the type of refrigerant used in each project, to assist with evaluation of the program, modified as deemed necessary in consultation with Commission staff;
- d. The HPWH evaluation funds authorized in this decision should supplement the larger SGIP evaluation budgets

adopted in D.20-01-021. Evaluation activities for SGIP HPWH should be grouped with the other SGIP evaluation activities under the same contract. Commission Staff should take all necessary steps to ensure this. Within the evaluation budgets adopted here and in D.20-01-021, Commission Staff should be authorized to modify the SGIP 2021 – 2025 evaluation plan at any time to advance the goals of a complete and efficient evaluation process, including modifying the timing and scope of individual SGIP evaluation reports. If, given this direction, there are additional means to coordinate evaluation of the SGIP HPWH program with evaluation of the benefits of the TECH Initiative, the BUILD program and/or other relevant HPWH programs, Commission Staff should explore and, if appropriate, undertake such coordination if this serves to avoid duplication of evaluation efforts, and/or leverage personnel, database, and other resources; and,

- e. The SGIP evaluator shall undertake the other actions regarding evaluation summarized in section 12.3.

25. The Commission should authorize a SGIP HPWH program post-installation inspection protocol that requires permits for each HPWH installation, that contractors upload photo documentation of the installation, and, if there are serious or repeated issues with an individual contractor, that ensures that the SGIP HPWH PA/PI conducts additional on-site inspections and follow-up to ensure quality installation.

26. The Commission should deny SoCalGas's Motion to Strike.

27. The Commission should require all customers receiving SGIP HPWH incentives to enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy. Customers should remain enrolled in the qualified demand response program for a minimum of three years.

28. The Commission should consider the need for additional demand response pilots or programs involving or targeting grid-supporting HPWH, including HPWH with installed CTA-2045 ports and communication modules, in the upcoming demand response application proceeding.

O R D E R

IT IS ORDERED that:

1. The Self-Generation Incentive Program heat pump water heater budgets, incentives and program requirements contained in Appendix A are adopted.
2. The Staff Proposal for a single statewide Self-Generation Incentive Program heat pump water heater program administrator/program implementer described in section 9.1 is adopted.
3. The Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program administrative budget is capped at 10 percent of the SGIP HPWH budget, or \$4,467,000 million. If the selected bid to administer and implement the SGIP HPWH program is below the 10 percent cap, after deducting the budget authorized for SGIP HPWH evaluation in this decision, the difference shall be reallocated equally across incentive budgets.
4. The percent of the Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) residential general market and residential equity budgets that may fund residential central HPWH incentives is capped at 40 percent of each of these budgets.
5. Southern California Edison Company is directed to enter into a contract with the selected vendor for the Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program as outlined in this decision and as such is directed to:

- a. Submit a Tier 1 advice letter to establish a SGIP HPWH program administrator / program implementer (PA/PI) balancing account (or subaccount to its existing SGIP balancing account), with individual tracking and subaccounts as necessary, no later than 30 days from issuance of this decision;
- b. Consult with and provide Commission Staff a draft HPWH PA/PI Request for Proposals (RFP) incorporating the minimum bidder criteria contained in Appendix B and requirements adopted here no later than 30 days from issuance of this decision;
- c. Incorporate Commission Staff feedback, ensure the RFP complies with all procurement rules, and widely issue the RFP no later than 45 days from issuance of this decision;
- d. After a 60-day bidding period, or longer as directed by Commission Staff, collate and provide bids received to Commission Staff, who shall be solely responsible for selecting the winning bidder;
- e. Negotiate, finalize, and execute a contract with the winning bidder approximately six to seven months after issuance of this decision;
- f. Establish and manage the SGIP HPWH PA/PI balancing account (or subaccount) that shall be interest bearing and that clearly and transparently accounts for:
 - i. The SGIP HPWH program budget authorized in Decisions (D.) 19-09-027 and D.20-01-021 (receipt of \$44.7 million, accumulation of interest, and dispersal of funds for administration and implementation);
 - ii. The additional \$40 million SGIP HPWH program budget derived from Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric Company (SDG&E) 2023

Cap-and-Trade allowance auction proceeds, as adopted in Ordering Paragraph 7 of this decision;

iii. SCE's costs for entering into a contract with the selected vendor;

iv. SCE's share of the \$44.7 million SGIP HPWH program budget; and,

- g. Transfer funds received in the SGIP HPWH balancing account (or subaccount) not needed for SCE's contracting expenses to the SGIP HPWH PA/PI within 30 days of execution of SCE's contract with the PA/PI, or within 30 days of receipt of the funds, whichever occurs last;
- h. Execute the SGIP HPWH PA/PI contract, administer the contract, and pay the PA/PI;
- i. Safeguard the SGIP HPWH funds, disburse funds only for authorized program activities as described here, and provide an audited accounting of the funds; and,
- j. Close its SGIP HPWH PA/PI balancing account (or subaccount) no later than March 1, 2026 . The balance of the account at this time should either be zero, or:
 - i. Any unallocated funds originating from the \$44.7 million HPWH program funds authorized in D.19-09-027 and D.20-01-021 shall be returned in accordance with their percentage contributions to the SGIP HPWH budget to PG&E, SoCalGas, and SDG&E for return to ratepayers pursuant to Public Utility Code Section 379.6(a)(2); and,
 - ii. Any unallocated funds originating from PG&E, SoCalGas and SDG&E 2023 Cap-and-Trade allowance proceeds as authorized in this decision returned to those utilities in proportion to their respective contributions, for return to

ratepayers as part of the 2026 or 2027
California Climate Credit.

6. Pacific Gas and Electric Company (PG&E), Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) are each directed to, no later than 60 days after the effective date of the advice letter that establishes Southern California Edison (SCE's) Self-Generation Incentive Program (SGIP) heat pump water heater program (HPWH) program administrator / program implementer (PA/PI) balancing account (or subaccount), provide to SCE its share of the \$44,670,000 million SGIP HPWH program budget adopted in this decision and indicated below:

Investor-Owned Utility	Equity HPWH Budget Approved in D.19-09-027	General Market HPWH Budget Approved in D.20-01-021	Total
PG&E	\$1.76	\$17.91	\$19.67
SoCalGas	\$0.36	\$3.66	\$4.02
SDG&E	\$0.52	\$5.29	\$5.81
Subtotal	\$2.64	\$26.86	\$29.50
SCE	\$1.36	\$13.84	\$15.20
Total HPWH Budget	\$4.00	\$40.70	\$44.70

7. Each payment by PG&E, SoCalGas, and SDG&E will be a single payment to SCE for deposit in the interest-bearing SGIP HPWH PA/PI program balancing account (or subaccount). PG&E, SoCalGas, and SDG&E shall record their payments to SCE in their existing SGIP balancing accounts.

8. Southern California Gas Company (SoCalGas), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) shall

reserve \$40 million from their 2023 Cap-and-Trade Program allowance auction proceeds to augment funding for the Self-Generation Incentive Program heat pump water heater program. The amounts each utility shall reserve are as follows: SoCalGas: \$20,032,000; PG&E: \$17,216,000; and SDG&E: \$2,752,000.

9. Southern California Gas Company (SoCalGas), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) shall each, within 30 days of issuance of this decision, file a Tier 1 advice letter with Energy Division formalizing a new subaccount in their existing Self-Generation Incentive Program balancing account to collect and track the disposition of their respective share of the \$40 million in 2023 gas Cap-and-Trade Program allowance auction proceeds as those funds become available moving forward, and any interest on those proceeds.

10. Southern California Gas Company (SoCalGas), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) shall remit their respective Self-Generation Incentive Program (SGIP) Heat Pump Water Heater (HPWH) 2023 Cap-and-Trade funds directly to Southern California Edison Company (SCE) on a quarterly basis in four equal installments. Quarterly remittances shall be made on or before March 1, 2023, June 1, 2023, September 1, 2023, and December 1, 2023 so as to follow the California Air Resources Board's quarterly auctions in February, May, August, and November. Each payment by PG&E, SoCalGas, and SDG&E will be a single payment to SCE for deposit in the interest-bearing SGIP HPWH PA/PI balancing account (or subaccount) required in Ordering Paragraph 5(a). Should any unallocated 2023 Cap-and-Trade funds be returned to PG&E, SoCalGas and/or SDG&E by SCE in 2026 pursuant to Ordering Paragraph 5(j)(ii) of this decision, the respective gas

corporation shall return these funds to their ratepayers as part of the 2026 or 2027 California Climate Credit.

11. Southern California Gas Company (SoCalGas), Pacific Gas and Electric Company (PG&E), and San Diego Gas & Electric Company (SDG&E) shall reflect this decision, in their 2022 advice letter filings addressing the calculation of 2023 Climate Credits, as follows: (A) Modify the table format established by Decision (D.) 15-10-032 (*i.e.*, Table C of Appendix A of that decision) to include below line 9d a new line numbered 9e and titled “Self-Generation Incentive Program (SGIP) Heat Pump Water Heater (HPWH) Incentive Costs.” This line shall record each gas utility’s share of the \$40 million in funding authorized by this decision; and (B) Modify line 10 of Table C of Appendix A of D.15 10 032 to equal the following: “Subtotal Allowance Proceeds, minus Outreach and Administrative Expenses, minus Senate Bill (SB) 1477 Compliance Costs, minus Renewable Natural Gas Incentive Costs, minus SGIP HPWH Incentive Costs.” To reflect this change, SoCalGas, PG&E, and SDG&E shall modify the template for Table C by changing the description of Line 10 of Table C of Appendix A of D.15- 10-032 to “Net greenhouse gas (GHG) Proceeds Available for Customer Returns (\$) (Line 8 + Line 9 + Line 9b + Line 9c + Line 9d + 9e).”

12. Pacific Gas and Electric Company, Southern California Gas Company, San Diego Gas & Electric Company, and Southern California Edison Company are directed to:

- a. Each execute a non-disclosure agreement regarding Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program participating customer’s data, and other program issues as needed, with the SGIP HPWH program administrator / program implementer (PA/PI) no later than 60 days after SCE executes its contract with the PA/PI;

- b. Each provide to the HPWH PA/PI information regarding the method for contractors installing HPWH systems using residential unitary incentives to communicate that such a system has been installed to the utility;
- c. Each ensure that customers installing HPWH systems using residential unitary incentives are enrolled on a time-of-use rate no later than 30 days after having been notified by the contractor of the installation; and,
- d. Classify distribution or service line upgrade costs to support HPWH systems using SGIP funds in residential buildings in excess of those provided for under the Rule 15 and Rule 16 Electric Service Line Allowance as common facility costs, referring to this approach as the Common Treatment for Excess HPWH Costs, and recovering Common Treatment for Excess HPWH Costs in the same manner as directed in Decision 11-07-029 for Common Treatment for Excess Plug-in Electric Vehicles Charging Costs, until such time as the SGIP HPWH program sunsets.

13. The Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program administrator / program implementer (PA/PI) is directed undertake all necessary actions to develop and implement the SGIP HPWH program in accordance with this decision and is specifically directed to:

- a. Execute non-disclosure agreements regarding customer data, and program issues as needed, with the implementer entities for the Technology and Equipment for Clean Heating (TECH) Initiative and the Building Initiative for Low-Emissions Development (BUILD) program no later than 90 days after it has executed its contract with Southern California Edison Company;
- b. Submit a Tier 2 advice letter containing a SGIP HPWH Handbook reflecting the requirements adopted here, and additional Commission Staff guidance as deemed necessary, no later than 120 days after executing its contract with Southern California Edison Company;

- c. Offer a digitized tool to contractors and retailers to capture end user installation data, confirm incentive eligibility and provide timely payment;
- d. Waive the existing equity budget eligibility requirement that single-family homes be subject to resale restrictions or presumed resale restrictions for purposes of the SGIP HPWH program;
- e. Determine an appropriate HPWH incentive layering approach in consultation with Commission Staff, including potentially a contractor pass-through incentive for the SGIP incentive, in accordance with the direction provided in this decision;
- f. Adhere to the guiding principles adopted in Decision (D.) 21-11-002 when developing the incentive layering approach;
- g. Adhere to the additional guidance on incentive layering adopted in this decision;
- h. Develop a standardized protocol to estimate residential central and commercial unitary HPWH system incentives, which shall include: (1) methods to calculate project's capacity; (2) a methodology for establishing a project's non-load shifting baseline; (3) a standard set of normalization factors (*i.e.*, outdoor temperature, etc.); and (4), a methodology for calculating greenhouse (GHG) emission reductions, refining the incentive and load shifting approaches adopted in this decision when doing so, as needed;
- i. Develop and implement a protocol to ensure that each gas utility's portion of the \$40 million in 2023 gas Cap-and-Trade allowance proceeds authorized in this decision for the SGIP HPWH program are only used to incentivize natural gas customers in the service territory of the funding gas utility and that these amounts are not used to fund HPWH incentives for existing all-electric customers who do not have natural gas service;

- j. If and when applications for residential central HPWH incentives meet or exceed 40 percent of either of these budgets: (1) initiate a waitlist for residential central HPWH applications in the relevant budget until such time as further guidance is provided by this Commission; and, (2) prepare a short summary report of the load shift performance of approved residential central HPWH installations and file the report in this proceeding;
- k. Collaborate with other HPWH incentive programs to educate contractors about the beneficial impact of TOU responsiveness and SGIP load shifting requirements;
- l. Develop and implement an eligible contractor list and the additional contractor and inspection requirements described in section 11.3, including instituting an SGIP HPWH post-installation inspection protocol that includes permits for each HPWH installation, requires that contractors upload photo documentation of the installation, and, if there are serious or repeated issues with an individual contractor, undertakes additional on-site inspections and follow-up to ensure quality installation;
- m. Require contractors to provide the following before issuing incentive payments:
 - i. Proof that the installers of the HPWH system(s) have completed a relevant state-certified apprenticeship program or appropriate HPWH installation trainings as described in section 11.3; and,
 - ii. Proof of permit application with the Authority Having Jurisdiction for HPWH installations;
- n. Verify that residential unitary HPWH incentive recipients have been placed on a TOU rate prior to issuing the incentive payment to the contractor;
- o. Work with the SGIP HPWH evaluator to assess what workforce information is already being collected regarding

- SGIP contractors and determine, in consultation with Commission Staff, what might be appropriate additional workforce and training information to collect;
- p. Undertake, as determined appropriate in consultation with the SGIP HPWH evaluator and Commission Staff, a “low-touch” method to collect additional appropriate SGIP workforce information;
 - q. Cooperate with any larger HPWH workforce data tracking efforts undertaken using GHG emission allowance auction revenues, any TECH Initiative and/or BUILD program evaluation, and/or any similar umbrella evaluation effort;
 - r. Monitor regulatory developments regarding HPWH refrigerants and track the type of refrigerant used in each SGIP HPWH project so that this information may be included in SGIP impact evaluation report(s);
 - s. Cooperate with SCE as established in Ordering Paragraph 5 of this decision, to allocate the \$40 million in 2023 gas Cap-and-Trade allowance proceeds authorized for the SGIP HPWH program in Ordering Paragraph 7 of this decision to customer classes according to the percentages identified in Table 6 of this decision;
 - t. Return any unallocated funds as of December 31, 2025, when the SGIP HPWH incentive program ends, to Southern California Edison company within 30 days, for repayment to ratepayers pursuant to Section 379.6(a)(2);
 - u. In collaboration with Commission Staff, offer an optional training and/or networking opportunity for contractors on demand response opportunities involving HPWHs as these become available, as discussed in section 14;
 - v. Include in customer application forms a question allowing customers to express interest in future demand response opportunities that target HPWHs and that may provide additional bill savings;
 - w. Describe in its implementation plan its proposed method to implement the demand response requirement adopted in this decision, as discussed in section 14; and,

- x. Provide contractors with information regarding qualified demand response programs including third-party aggregator offerings as discussed in section 14.

14. The Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program administrator / program implementer (PA/PI) is authorized to:

- a. Submit a Tier 1 advice letter to reallocate the reserved equity unitary and residential general market unitary funds, if not fully subscribed after three years from issuance of this decision, and any other unspent funds within our adopted budget to any customer class that is oversubscribed, including towards any qualifying technology introduced in the market that was not available at the start of the program;
- b. Submit a Tier 2 advice letter to propose additional residential unitary and central HPWH system product qualification pathways to those adopted here, using, for any additional residential central pathways, the California Building Energy Code Compliance (CBEC-RES) and ENERGY STAR® 2.0 requirements as guidelines;
- c. Submit a Tier 2 advice letter once the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) Standard 1430 is adopted to propose this as a residential unitary HPWH system communication port pathway, if the PA believes this is appropriate;
- d. Submit a Tier 1 advice letter proposing modifications to the residential unitary HPWH system kicker incentive, as appropriate; and,
- e. Submit a Tier 2 advice letter at any time proposing reductions to the incentive levels adopted in this decision.

15. Distribution and service line upgrade costs required to serve installed heat pump water heater (HPWH) systems are ineligible for Self-Generation Incentive

Program (SGIP) incentives. Commercial central HPWH systems are ineligible for SGIP incentives.

16. Distribution and service line upgrade costs required to serve installed heat pump water heater systems are eligible for and shall be addressed as Electric Service Line Allowance costs under Tariff Rule 15 and Rule 16.

17. The four non-binding guiding principles on heat pump water heater (HPWH) incentive layering adopted in Decision 21-11-002 are adopted for application to Self-Generation Incentive Program HPWH incentives.

18. The following guidance for evaluation of the Self-Generation Incentive Program (SGIP) heat pump water heater (HPWH) program is adopted:

- a. The SGIP HPWH program evaluator shall summarize all the benefits achieved by a SGIP funded HPWH. These benefits should include, but are not limited to, the total greenhouse gas reductions achieved by the SGIP funded load shifting HPWH, including reductions in therms or kilowatt hours, and the peak reduction benefits compared to a non-load shifting HPWH;
- b. When layering of SGIP HPWH incentives and other incentives towards a single HPWH system occurs, the non-load shifting benefits (*i.e.*, the efficiency benefits) of SGIP funded HPWHs should be attributed to those other programs; similarly, the load shifting benefits achieved by SGIP funded HPWHs should not be attributed to other incentive programs;
- c. The SGIP HPWH program administrator / program implementer (PA/PI) shall collect the information listed in section 11.2, and the type of refrigerant used in each HPWH project, to assist with evaluation of the program, augmented or modified as deemed necessary;
- d. The HPWH evaluation funds authorized in this decision shall supplement the larger SGIP evaluation budgets adopted in Decision 20-01-021. Evaluation activities for SGIP HPWH shall be grouped with the other SGIP

evaluation activities under the same contract. Commission Staff shall take all necessary steps to ensure this. Within the evaluation budgets adopted here and in D.20-01-021, Commission Staff are authorized to modify the SGIP 2021 – 2025 evaluation plan at any time to advance the goals of a complete and efficient evaluation process, including modifying the timing and scope of individual SGIP evaluation reports. If, given this direction, there are additional means to coordinate evaluation of the SGIP HPWH program with evaluation of the benefits of the TECH Initiative, the BUILD program and/or other relevant HPWH programs, Commission Staff should explore and, if appropriate, undertake such coordination if this serves to avoid duplication of evaluation efforts, and/or leverage personnel, database, and other resources; and,

- e. The SGIP evaluator shall undertake the other actions regarding HPWH evaluation summarized in section 12.3.

19. Existing Self-Generation Incentive Program (SGIP) Handbook rules not otherwise modified in this decision apply to the SGIP heat pump water heater program.

20. Southern California Gas Company's Motion to Strike Certain Sections of Sierra Club and Natural Resources Defense Council's Reply Comments on the Order Instituting Rulemaking is denied.

21. Rulemaking 20-05-012 remains open.

This order is effective today.

Dated _____, at San Francisco, California.

APPENDIX A

**SELF-GENERATION INCENTIVE PROGRAM HEAT PUMP WATER HEATER
ADOPTED BUDGETS AND PROGRAM REQUIREMENTS**

Self-Generation Incentive Program Heat Pump Water Heater Budget and Program Requirements

1. Budget Allocations

The adopted sub-budgets for the \$44,670,000 SGIP HPWH budget adopted in D.19-09-027 and D.20-01-021 are shown in the tables below. In addition, twenty percent of each of the general market residential and equity residential budgets (\$3.8 million for each budget) is reserved for unitary system incentives. Incentives for residential central HPWH systems are capped at 40 percent of each residential budget until such time as a preliminary review of these technologies' load shifting performance is completed. Electrical panel incentives are capped at 30 percent of both the general market and equity residential budgets (\$5,728,927 each).

SGIP HPWH Budget Allocation by Activity

Activity	Amount
Program Administration:	4,467,000
HPWH Incentives:	\$40,203,000
Total SGIP HPWH Budget:	\$44,670,000

SGIP HPWH Incentive Budget Allocation by Customer Class

Customer Class	Percent	Amount
General Market Residential Unitary & Central HPWHs	47.4	\$19,040,588
Equity Residential Unitary & Central HPWHs	47.4	\$19,040,587
Commercial Unitary HPWHs (including small business unitary HPWH systems)	5.3	\$2,121,825
Total SGIP HPWH Incentive Budget	100.0	\$40,203,000

Existing SGIP rules not modified here continue to apply to the SGIP HPWH program. Any retail electric or gas distribution class of customer (industrial, agricultural,

commercial, or residential) of PG&E, SCE, SoCalGas, or SDG&E is eligible to be a Host Customer that receives incentives through SGIP.

2. Residential Unitary HPWHs

Residential unitary HPWHs are defined as both integrated and split HPWHs with a total nominal compressor output power of six kilowatt or less installed to serve a single household in a single-family, duplex, or multi-family property. Eligible residential unitary HPWHs must meet the following requirements:⁷⁵

2.1 Appliance Requirements

- Residential unitary HPWHs must be identified as a CEC JA-13 compliant water heater by the CEC (which ensures that they are equipped with a thermostatic mixing valve).
- Residential unitary HPWHs must be identified by NEEA's most recent qualified product list as having a CTA-2045 Compliant Communication Port or must be certified as a Connected Water Heater product under the Version 4.0 ENERGY STAR® Product Specification for Residential Water Heaters.⁷⁶

2.2 Installation Requirements

- Residential unitary HPWHs must be installed in compliance with the CEC's JA-13 installation specifications and must be correctly sized according to JA-13 first hour recovery requirements.
- Installers are required to report all HPWH installations using SGIP incentives to the appropriate utility, which is required to enroll the participant on a TOU rate within 30 days.⁷⁷

⁷⁵ If they meet all technology, installation and load shifting requirements, combination hot water heating/space heating systems, and 120-volt HPWH systems are eligible for the residential unitary HPWH incentives.

⁷⁶ Available as of November 18, 2021 at:

https://www.energystar.gov/sites/default/files/ENERGY%20STAR%20Version%204.0%20Water%20Heaters%20Final%20Specification%20and%20Partner%20Commitments_0.pdf.

⁷⁷ Customers installing a residential unitary HPWH using SGIP incentives may enroll in any TOU rate, not just an SGIP-approved rate (see D.19-09-001).

2.3 Load Shifting Requirements

- Residential unitary HPWHs must be programmed to execute the basic load-up and light shed demand management functionality as defined in JA-13. This demand management functionality will signal the HPWH to store thermal energy during certain times to avoid electricity usage at different times
- Residential unitary HPWHs must execute the basic load-up and light shed demand management response based on the local utility's TOU rates.
- Customers that install SGIP funded residential unitary HPWHs shall enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy.

2.4 Incentive Structure & Value

- Residential unitary HPWH incentives are based on the energy storage capacity of a 50-gallon tank volume and a temperature setpoint of 135°F.
- Residential unitary HPWH incentive are calculated using an estimated 3.1-kilowatt hour energy storage capacity regardless of tank size to simplify program administration.
- The initial SGIP HPWH incentive value for general market residential customers is set at \$1,000 per kilowatt hour.
- The initial SGIP HPWH incentive value for equity residential customers is set at \$1,350 per kilowatt hour.
- A \$1,500 low GWP kicker incentive for HPWHs that utilize a refrigerant with a GWP of 150 or less is provided.
- An additional \$700 incentive is provided for HPWH with storage capacities of 55 gallons or more.
- Customers may receive SGIP incentives regardless of the type of HPWH system previously installed, if all other SGIP requirements are met.

2.5 Electrical Panel Upgrade and Electrical Service Incentives

- General market residential customers may access an electrical panel upgrade incentive that covers 50 percent of general market customer costs, capped at \$2,000.
- Equity residential customers may access an electric panel upgrade incentive that covers 100 percent of electric panel upgrade costs, capped at \$4,000.

2.6 Maximum Residential Unitary HPWH Incentive Values by Customer Class

Maximum Unitary HPWH Incentives for a HPWH by Customer Class⁷⁸

Customer Class	Unitary HPWH Incentive	Low-GWP Kicker Incentive	55 Gallon Capacity Incentive	Electrical Panel Upgrade Incentive	Max. SGIP HPWH Incentive
General Market Residential	\$3,100	\$1,500	\$700	\$2,000	\$7,300
Equity Residential	\$4,185	\$1,500	\$700	\$4,000	\$10,385

3. Common Requirements Across Customer Classes

3.1 Incentive Layering:

- The SGIP HPWH incentive layering approach must adhere to the guiding principles adopted in D.21-11-002.
- Customers should use other incentives available to them before using SGIP incentives.
- If incentives are available to a customer that have been designed specifically to support replacing an electric resistance water heater with a HPWH, the SGIP applicant must first use such incentives prior to accessing SGIP HPWH incentives.
- SGIP Handbook Section 3.2.6 requirements regarding incentives not exceeding total eligible project costs is applicable.⁷⁹
- SGIP Handbook Section 3.2.6 requirements requiring customers to disclose other incentives is applicable.⁸⁰

⁷⁹ 2021 SGIP Handbook v.4, p. 31 – 32, available as of December 8, 2021 here: <https://www.selfgenca.com/>.

⁸⁰ *Ibid.*

3.2 Electric Panel Upgrade and Electrical Service Incentives

- Common area or “whole building” electrical panel upgrades for multi-family buildings are ineligible for electrical panel upgrade incentives.
- Costs associated with distribution or electric service line upgrade costs, if needed to support the HPWH installation, are not eligible for SGIP incentives.
- If the electric distribution or service line to the electrical meter must be upgraded to support a HPWH, the customer and utility must utilize the Electric Service Line Allowance provided for new and permanent loads under Tariff Rule 15 (Distribution Line Extensions) and Rule 16 (Service Line Extension).
- Electrical investor-owned utilities must categorize any distribution or service line upgrade costs required to complete a SGIP funded HPWH installation in a residential building that exceeds the Tariff Rule 15 and 16 Electric Service Line Allowance as common facility costs, calling this the Common Treatment for Excess HPWH Costs.
- Commercial and non-residential customers (multi-family buildings) are ineligible for the electrical service line and associated electrical distribution infrastructure cost classification as common facilities costs.
- Panel upgrade incentives are not available for panels that are already 200 amps or larger.
- Panel upgrade incentives are not allowed for panel upgrade costs that exceed the cost to upgrade to 200 amps. Participants that wish to upgrade to a panel larger than 200 amps shall obtain and submit to the PA a quote for a 200-amp panel upgrade.
- Residential unitary HPWH system electric panel upgrade incentives are available for customers in single family residences and multi-family residential units with their own water heating system.
- Commercial unitary HPWH system customers, including small businesses using unitary HPWH system incentives, are ineligible for the electrical panel upgrade panel incentive offered to residential customers.
- Electric panel upgrade incentives may cover the cost of installation of a “smart load center,”⁸¹ but, with the exception of equity budget customers, must not reimburse for generic “other” behind the meter electrical work needed to install the panel. Eligible costs for equity budget customers may encompass costs to change the location of the installed water heater within the residence or property to accommodate the larger size

⁸¹ Smart load centers are also known as “smart circuit breakers.” They are electrical panels that allow for two-way communication and data collection. Examples can be seen at the following site, available as of November 18, 2021: <https://www.leviton.com/en/products/residential/load-centers/the-leviton-smart-load-center> and <https://support.span.io/hc/en-us/>

of HPWHs and/or plumbing or wiring upgrades needed in the residence for installation of the HPWH.

4. Residential Central HPWHs

Eligible residential central HPWHs include integrated and split design systems that meet two or more households' hot water demands. Any type of residential central HPWH system is eligible for SGIP incentives if it meets the below program requirements.

4.1 Appliance Requirements:

- Individually installed or ganged together HPWHs serving two more households must be identified as JA-13 compliant water heaters by the CEC (which ensures that they are equipped with a thermostatic mixing valve) or meet the US Environmental Protection Agency's ENERGY STAR® 2.0 Commercial Water Heater Specifications requirements.
- Larger central HPWH system designs must be approved and included in the CEC's CBEC-RES software.
- "Combi" units that can provide both water and space heating are eligible technologies.
- The HPWH PA is responsible for determining whether a product is qualified using the CBEC-RES and ENERGY STAR® 2.0 requirements as guidelines.

4.2 Installation and Load Shifting Requirements:

- Residential central HPWHs must be designed and installed to load shift energy from peak to off-peak periods in a manner that is projected to annually reduce GHG emissions by five kilograms of CO₂ per kilowatt-hour as compared to non-load-shifting electric water heaters.
- Customers that install SGIP funded residential central HPWHs shall enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy.
- The HPWH PA must educate contractors about load shifting requirements.

4.3 Incentive Structure & Value

- The HPWH PA must offer a single incentive based on the system's thermal energy storage capacity as determined through the application process.
- Residential central unitary HPWH applicants are responsible for proposing the energy storage capacity of an individual system.
- The HPWH PA must review and approve or, as warranted, propose modifications to the thermal energy storage capacity calculations.
- Residential central HPWH system incentive amounts are tied the anticipated kWh of load shift during predefined hourly time periods with added quality control mechanisms instituted by the HPWH PA.
- The initial residential central HPWH incentive value is \$900 per kilowatt hour for general market residential and \$1,000 per kilowatt hour for equity residential customers.
- There is a \$200 per kilowatt hour kicker incentive for HPWHs using low-global GWP refrigerants.
- There is a \$300,000 per project incentive cap for residential central HPWHs.
- Residential central HPWH systems receiving SGIP incentives must install equipment that enables data collection through two-way communication.
- Customers may receive SGIP incentives regardless of the type of HPWH system previously installed, if all other SGIP requirements are met.

5. Commercial Unitary HPWHs

Eligible commercial unitary HPWHs are individually- or ganged together- integrated and split HPWHs serving a single business's hot water demand that meet the following requirements:

5.1 Appliance Requirements

- Individually installed commercial unitary HPWHs must meet the US EPA's ENERGY STAR® Commercial Water Heater Specifications requirements Version 2.0.
- Commercial unitary HPWHs ganged together must be identified as JA-13 compliant water heaters by the CEC (which ensures that they are equipped with a thermostatic mixing valve) or meet the US EPA's ENERGY STAR® Commercial Water Heater Specifications Version 2.0.

- Small business unitary HPWH systems that meet the requirements for an eligible residential unitary system, except that the customer is on a non-residential TOU tariff.

5.2 Installation and Load Shifting Requirements

- Commercial unitary HPWHs applications must be installed and operated in a manner that shifts energy from peak to off-peak periods and annually reduces GHG emissions by five kilograms of CO₂ per kilowatt hour.
- Customers that install SGIP funded commercial unitary HPWHs shall enroll in a qualified demand response program, defined as a CAISO market-integrated supply-side demand response program that counts for resource adequacy.

5.3 Incentive Structure & Value

- A single commercial unitary incentive based on the system's thermal energy storage capacity, determined through the application process, will be offered.
- Commercial unitary applicants must propose the energy storage capacity of an individual system.
- The HPWH PA must review and approve or, as warranted, propose modifications back to the applicant.
- The initial commercial unitary HPWH incentive value is set at \$700 per kilowatt hour.
- There is a \$200 per kilowatt hour kicker incentive for HPWHs using low-GWP refrigerants.
- There is a \$50,000 per project incentive cap for commercial unitary HPWHs.
- For eligible small business unitary HPWH systems, base incentives are set at \$3,100 for all units and a low GWP kicker incentive is set at \$1,500 per kilowatt hour.

6. Commercial Central HPWHs

- Commercial central HPWHs are not eligible for SGIP incentives.

(END OF APPENDIX A)

APPENDIX B**MINIMUM SELECTION CRITERIA FOR SGIP HPWH PA / PI**

- Bidders must demonstrate substantial experience overseeing the implementation of statewide programs. Bidders must identify key personnel to be involved in the implementation and describe their relevant experience.
- Bidders must demonstrate that their organization can successfully implement the SGIP HPWH program and properly distribute funding.
- Bidders should explain their familiarity with SGIP and any experience working with the existing SGIP PAs.
- Bidders should explain how they intend to implement a simple, streamlined program application process for each HPWH category.
- Bidders should explain how they intend to coordinate the SGIP HPWH incentive application with the TECH Initiative's application and other HPWH incentive applications to enable incentive layering.
- Bidders should explain how they intend to reach residential equity customers to support and enhance this customer segment's participation.
- Bidders should explain how they intend to issue incentive payments and communicate the status of these payments to applicants.
- Bidders should explain how they can assist customers with understanding and completing any required electrical panel upgrades.
- Bidders should explain how they will develop a comprehensive SGIP HPWH Program Handbook and integrate stakeholder feedback.
- Bidders should provide a sample of HPWH load shifting signage that can be installed on all residential unitary HPWHs.

- Bidders should provide a program budget that details how program administration funds will be spent.
- Bidders should demonstrate familiarity with the TECH Initiative and any energy efficiency HPWH incentives.
- Bidders should explain how project cost data will be tracked and made available to Staff.
- Bidders should explain how incentive data will be shared with the forthcoming TECH Initiative project database.
- Bidders should demonstrate the ability to guarantee rapid and timely payment to contractors.
- Bidders should explain how they will offer digitized tool to contractors and retailers to capture end user installation data, confirm incentive eligibility and provide timely payment.
- Bidders should demonstrate or describe their technical proficiency to estimate electrical load from the central HPWH system or their plan to contract with someone who can
- Bidders should propose approaches for how successful layering of SGIP incentives with other programs shall be achieved in practice.
- Bidders should describe how they intend to ensure HPWH adoption results in utility bill savings for participants in the residential equity budget customer class.

(END OF APPENDIX B)

APPENDIX C**NON-JURISDICTIONAL HPWH INCENTIVE PROGRAMS
AS OF DECEMBER 2021**

Incentive Type	Incentive		Program Administrator
	Level	Fuel type	
Water Heating	\$ 2,500	Gas-Electric	Sacramento Municipal Util Dist
Water Heating	\$ 500	Electric-Electric	Sacramento Municipal Util Dist
Electrical Panels	\$ 2,500		Sacramento Municipal Util Dist
Water Heating	\$ 3,000	Gas-Electric	Marin Clean Energy
Water Heating	\$ 4,000	Gas-Electric	Marin Clean Energy
Water Heating	\$ 1,000	Gas-Electric	Monterey Bay Community Power
Water Heating	\$ 2,000	Gas-Electric	Peninsula Clean Energy Authority
Water Heating	\$ 500	Electric-Electric	Peninsula Clean Energy Authority
Water Heating	\$ 3,000	Gas-Electric	Peninsula Clean Energy Authority
Electrical Panels	\$ 750		Peninsula Clean Energy Authority
Water Heating	\$ 2,000	Gas-Electric	Silicon Valley Clean Energy Authority
Water Heating	\$ 1,000	Electric-Electric	Silicon Valley Clean Energy Authority
Water Heating	\$ 3,500	Gas-Electric	Silicon Valley Clean Energy Authority

Water Heating	\$ 2,500	Electric-Electric	Silicon Valley Clean Energy Authority
Electrical Panels	\$ 1,500		Silicon Valley Clean Energy Authority
Water Heating	\$ 2,500	Gas-Electric	Silicon Valley Power
Electrical Panels	\$ 2,000		Silicon Valley Power
Electrical Panels	\$ 3,000		Silicon Valley Power
Water Heating	\$ 1,700	Gas-Electric	Sonoma Clean Power Authority
Water Heating	\$ 2,000	Gas-Electric	Sonoma Clean Power Authority
Water Heating	\$ 2,000	Gas-Electric	East Bay Community Energy
Water Heating	\$ 1,500	Gas-Electric	City of Alameda
Electrical Panels	\$ 2,500		City of Alameda
Water Heating	\$ 1,500	Gas-Electric	City of Palo Alto
Water Heating	\$ 1,000	Gas-Electric	CleanPowerSF
Water Heating	\$ 1,000	Gas-Electric	San Jose clean Energy
Water Heating	\$ 750	Gas-Electric	City of Redding
Water Heating	\$ 750	Electric-Electric	City of Redding
Water Heating	\$ 625	Gas-Electric	City of Shasta Lake
Water Heating	\$ 350	Electric-Electric	City of Shasta Lake
Water Heating	\$ 500	Electric-Electric	Modesto Irrigation District

Water Heating	\$	500	Gas-Electric	San Diego Gas & Electric Co
Water Heating	\$	500	Electric-Electric	San Diego Gas & Electric Co
Water Heating	\$	500	Gas-Electric	City of Azusa
Water Heating	\$	500	Electric-Electric	City of Azusa
Water Heating	\$	500	Gas-Electric	City of Santa Monica
Water Heating	\$	500	Electric-Electric	City of Santa Monica

(END OF APPENDIX C)