

Docket No.: A.26-01-003 et al.
Exhibit No.: SC-01
Date: September 14, 2026
Witnesses: Chinyere Osuala
Rebecca Barker

**DIRECT TESTIMONY OF
REBECCA BARKER AND CHINYERE OSUALA
ON BEHALF OF SIERRA CLUB
ON THE IOUs' 2028–2033 INCOME-QUALIFIED PROGRAM APPLICATIONS**

September 14, 2026

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1 **I. INTRODUCTION AND SUMMARY OF RECOMMENDATIONS**

2 This testimony is submitted on behalf of Sierra Club and focuses on evaluating the
3 investor-owned utilities’ (“IOUs”) applications for approval of their income-qualified
4 programs (“IQPs”) for Program Years (“PYs”) 2028–2033. The testimony provides
5 recommendations to better align the Energy Savings Assistance (“ESA”) Program with
6 California’s climate, public health, environmental and social justice (“ESJ”), and energy
7 affordability policies.

8 The testimony is sponsored by Rebecca Barker, Senior Attorney at Earthjustice, and
9 Chinyere Osuala, Senior Attorney at Earthjustice. Ms. Barker has practiced before the
10 California Public Utilities Commission (“CPUC” or “Commission”) for over 6 years and
11 has submitted testimony in A.22-05-015/16 (Semptra TY 2024 General Rate Case) and
12 A.25-05-009 (PG&E TY 2025 General Rate Case). She has also represented
13 environmental and environmental justice groups as counsel in a wide range of
14 Commission proceedings, including the Energy Efficiency Rulemakings (R.13-11-005
15 and R.25-04-010), the Building Decarbonization Rulemaking (R.19-01-011), the Long-
16 Term Gas Planning Rulemakings (R.20-01-007 and R.24-09-012), the 2022 proceeding
17 considering energy efficiency program administrators’ business and portfolio plans
18 (A.22-02-005 et al.), and both applications of the California Market Transformation
19 Administrator (A.24-12-009 and A.26-07-004), among others. Ms. Osuala has practiced
20 before state Public Utility Commissions (“PUCs”) for over 11 years and has represented
21 environmental and environmental justice groups in regulatory proceedings in New York,
22 Michigan, Indiana, West Virginia, Arizona, Missouri, Maryland, Louisiana, and the
23 District of Columbia regarding utility ratemaking and energy efficiency, including low-
24 income energy efficiency programs. For the last 7 years, Ms. Osuala has been actively
25 advocating for geographic targeting of income-qualified energy efficiency programs in
26 Michigan for the purpose of reducing disconnections and high bills for highly energy-
27 burdened communities and limited income ratepayers. The individual witness sponsoring
28 each section of testimony is noted at the beginning of each section. The witnesses’
29 qualifications and resumes are included at the end of this testimony as Attachment 1.

30 **Q. Please summarize your findings and recommendations in this case. (Barker)**

31 **A.** Since the 2021–2026 cycle, the Commission has recognized the need to evolve the ESA
32 program in alignment with California policy and shift its focus from providing high
33 quantities of light-touch treatments (e.g., lightbulbs and power strips) to providing deeper
34 household treatments.¹ In this cycle, the Commission must continue to move ESA into

¹ See D.21-06-015, *Decision On Large Investor-Owned Utilities’ And Marin Clean Energy’s California Alternate Rates For Energy (CARE), Energy Savings Assistance (ESA), And Family Electric Rate Assistance (FERA) Program Applications For Program Years 2021-2026*, at 468, Conclusion of Law (“COL”) #22, 483–484, Order #57 (June 7, 2021), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M387/K107/387107687.PDF>.

1 alignment with California’s climate and public health policies, and should do so by
2 refocusing ESA dollars and program designs on electrification and away from continued
3 investment in polluting appliances.

4 Specifically, we recommend that the Commission:

- 5 1. Make an express determination that ESA prioritize low-income electrification;
- 6 2. Require the IOUs to provide efficient, electric heat pump measures as the only authorized
7 space and water heating equipment replacements within ESA beginning in PY 2028. To
8 the extent continued installation of polluting appliances is permitted, it should be limited
9 to narrowly-defined infeasibility conditions, with the ESA Working Group tasked with
10 setting clear infeasibility criteria that are limited to structural, physical, or infrastructure-
11 related infeasibility and updated regularly to reflect advances in availability and design of
12 electric space and water heating technologies as well as panel optimization and other
13 electrification-enabling products;
- 14 3. Authorize gas IOUs to provide electrification measures for space and water heating in
15 accordance with Recommendation #2;
- 16 4. Reform the current treatment of remediation, minor home repairs, and electric auxiliary
17 measure costs to allow greater costs per household on work needed to enable
18 electrification and greater flexibility to program administrators and implementers to find
19 treatment options for higher-need homes;
- 20 5. Retire like-for-like central air conditioner (“AC”) replacements and require AC-to-Heat
21 Pump replacements with limited potential exceptions;
- 22 6. Approve the Southern Region IOUs’ request to return to local administration of their
23 Multifamily Whole Building (“MFWB”) Programs; and
- 24 7. Consider requiring all four IOUs to provide air purifiers to need state customer segments
25 without Property Owner Authorization (i.e., as basic measures within those need state
26 segments).

27 To implement these overarching recommendations, we recommend the following specific
28 actions for each IOU’s proposals:

29 **Southern California Edison Company (“SCE”)**

- 30 1. Approve SCE’s increased focus on electrification in ESA Main;
- 31 2. Require AC-to-Heat Pump conversion measures rather than like-for-like Central AC
32 Replacement measure beginning in PY 2028, with limited potential exceptions;
- 33 3. Approve SCE’s request for increased, dedicated funding for electrification-enabling
34 work, with implementation guidance based on the TECH Low-Income Leveraging Pilot
35 that is applicable to all IOUs;

4. Approve SCE’s proposal to return to local administration of the MFWB Program. As discussed more fully in Section IV, the Commission should limit ESA misalignment with California’s policy objectives and conflicting customer experiences by prohibiting SoCalGas from offering gas appliances as part of its MFWB program, which will avoid creating competition between gas and electric space and water heating appliance replacements; and
5. Consider requiring provision of air purifiers as a Basic Tier measures to customers in the Medically Vulnerable and Seniors, Tribal and Rural Communities, and Extreme Heat Areas need state segments.

Pacific Gas and Electric Company (“PG&E”)

1. Transition the Furnace and Water Heating Repair and Replacement (“R&R”) services within ESA Main and MFWB to provide electrification measures for space and water heating across the entirety of PG&E’s service territory beginning in PY 2028, rather than approving PG&E’s proposed multi-year rollout. To the extent continued installation of polluting appliances is permitted, limit installations to scenarios where electric appliance installation is infeasible;
2. Require AC-to-Heat Pump conversion measures rather than like-for-like Central AC Replacement measure beginning in PY 2028 with limited potential exceptions;
3. Consider requiring provision of air purifiers as a Basic Tier measure to customers in the Medical Baseline, Disadvantaged Community (“DAC”), Tribal, Rural, and High Heat Areas need state segments.

San Diego Gas & Electric Company (“SDG&E”)

1. Provide efficient, electric heat pump measures as the only authorized space and water heating equipment replacements within ESA beginning in PY 2028, with new gas appliance replacements. To the extent continued installation of polluting appliances is permitted, limit installations to scenarios where electric appliance installation is infeasible;
2. Require AC-to-Heat Pump conversion measures rather than like-for-like Central AC Replacement measure wherever feasible beginning in PY 2028;
3. Fold the proposed activities and budgets of the Electrification Pilot into ESA Main to support electrification access there, or redesign the pilot to target fuel-switching customers, while incorporating fuel substitution into ESA Main;
4. Consider requiring provision of air purifiers as a Basic Tier measure to customers in the Medical Baseline, DAC, Tribal, and Heat Health Event Areas need state segments.

1 **Southern California Gas Company (“SoCalGas”)**

- 2 1. Provide efficient, electric heat pump measures as the only authorized space and water
3 heating equipment replacements within ESA beginning in PY 2028. To the extent
4 continued installation of polluting appliances is permitted, limit installations to scenarios
5 where electric appliance installation is infeasible;
- 6 2. To the extent that any gas-burning appliance measures continue to be provided by ESA,
7 then the Commission should also:
- 8 a. Restrict SoCalGas from spending ratepayer funds on furnace early replacement
9 measures;
- 10 b. Restrict funding for building upgrades whose sole purpose is enabling the
11 installation of a gas-burning appliance (i.e., plumbing upgrades for tankless water
12 heaters); and
- 13 c. Require SoCalGas to classify its baseline-efficiency furnace replacements as core
14 ESA measures rather than health, comfort, and safety (“HCS”) measures, subject
15 to all reporting requirements.
- 16 3. Consider requiring provision of air purifiers as a Basic Tier measure to customers in the
17 Medical Baseline, DAC, Tribal, and Rural need state customer segments, as well as all
18 “Respiratory” customer segments over 50%.

19 **II. BACKGROUND: CURRENT AND PROPOSED ESA SPENDING ON POLLUTING**
20 **APPLIANCES (OSUALA)**

21 **Q. How much have the IOUs spent on gas appliances in the 2021–2026 ESA cycle?**

22 **A.** In PYs 2021–2025, SoCalGas, SDG&E, and PG&E collectively spent over \$195 million
23 on gas appliance measures in ESA.²

24 SoCalGas spent over \$119 million on polluting appliances for low-income customers, of
25 which more than \$53 million was spent on gas furnace measures, including repair and
26 replace (“R&R”) services, furnaces it categorizes as HCS measures, wall furnaces, and
27 High Efficiency Forced Air Unit (“HE FAU”) measures; \$11 million funded gas boiler
28 heating; and \$55 million funded gas water heater measures, including R&R, HCS,
29 tankless, and storage water heater measures.

² All calculations and inputs are sourced from data included in PG&E, SCG&E, and SoCalGas’ Low Income Annual Reports with the exception of SoCalGas spending on the 2025 “Furnace Repair/Replacement” measure in ESA Main and 2024 “Wall Furnace” measure in ESA Main, which it does not include in its Annual Reports and Sierra Club obtained through a data request. Calculations with a complete list of measures and values are provided in Attach. 2.

SDG&E spent over \$16 million on polluting appliances for low-income customers, of which over \$9.7 million was on gas furnaces, \$2.4 million was on boilers, and \$4.4 million was on gas water heaters.

PG&E spent over \$58 million on polluting appliances for low-income customers, of which over \$35 million was on gas furnaces, about \$2 million was on boilers, and \$20 million was on gas water heaters.

Q. Do the IOUs propose to continue spending ESA dollars on gas-burning measures?

A. Yes. As set forth in more detail in Section IV, SoCalGas, SDG&E, and PG&E collectively plan to spend approximately \$240 million for polluting gas appliances in low-income households in their plans for the upcoming 2028–2033 ESA cycle.

SoCalGas’ ESA Application contemplates spending over \$178 million on gas appliances, with over \$36 million for gas furnace installations and more than \$141 million for gas water heaters across ESA Main and ESA MFWB programs.³

SDG&E proposes to spend more than \$30 million on gas appliances. The company proposes to spend a little over \$29 million⁴ in ESA Main and approximately \$1.6 million in ESA MFWB on gas appliance measures.⁵

³ Budget summations were made using values sourced from the “Budget” column of tables “Southern California Gas Company PY2028-2033 ESA Table A-1, Planning Assumptions ESA Main Program” and “Southern California Gas Company PY2028-2033 ESA Table A-1A, Planning Assumptions ESA MFWB Program,” provided in SoCalGas’ Notice of Correction to Application of Southern California Gas Company for Approval of its Energy Savings Assistance and California Alternate Rates for Energy programs and Budgets for Program Years 2028–2033, filed August 11, 2026. The measures referenced for these calculations are “Tankless Water Heater – NEW,” “Tankless Water Heater,” “Water Heater Repair/Replacement,” “Water Heater Repair/Replacement – HC&S,” “Central Domestic Hot Water Boiler – CAM,” “Furnace Repair/Replacement,” “Furnace Replacement – HC&S,” “High Efficiency Forced Air Unit (HE FAU),” and “High Efficiency Forced Air Unit (HE FAU) – On Burnout.” Calculations and sources are provided in Attach. 3.

⁴ Attachment G, Table A-1 “Planning Assumptions ESA Main Program,” Application of San Diego Gas & Electric Company (U 902-M) for Approval of Low-Income Assistance Programs and Budgets for Program Years 2028-2033. Calculated with gas measure values sourced from corresponding measure and budget columns. The measures referenced for these calculations are “Tankless Water Heater,” “Water Heater Repair,” “Water Heater Replacement,” “Water Heater Repair/Replacement,” “Furnace Repair/Replacement,” “Furnace Repair,” “Furnace Replacement.” Calculations and sources are provided in Attach. 3.

⁵ Attachment G, Table A-1a “Planning Assumptions ESA MFWB Program” Application of San Diego Gas & Electric Company (U 902-M) for Approval of Low-Income Assistance Programs and Budgets for Program Years 2028-2033. Calculated with gas measure values sourced from corresponding measure and budget columns. The measures referenced for these calculations are “Tankless Water Heater – CAM,” “Water Heater Replacement,” “Water Heater Replacement – CAM,” “Water Heater Repair,” “Central Domestic Hot Water Boiler (CAM),” “Condensing Domestic Hot Water Boiler – CAM,” “Non-Condensing Domestic Hot Water Boiler – CAM,” “Furnace Repair,” “Furnace Replacement – CAM,” “Furnace Replacement,” and “Space Heating Boiler – CAM.” Calculations and sources are provided in Attach. 3.

1 PG&E plans to spend approximately \$30 million on gas appliances, with over \$25.5
2 million⁶ on ESA Main gas appliance offerings, including water heater (storage and
3 tankless) and furnace R&R, prior to their electrification phase-in.⁷ PG&E plans to offer
4 the same measures in its MFWB program, proposing to spend more than \$4.8 million,
5 with the addition of central boiler system measures.⁸

6 **III. TO ALIGN WITH CALIFORNIA’S CLIMATE, AIR QUALITY, PUBLIC HEALTH AND**
7 **EQUITY OBJECTIVES, ESA MUST NO LONGER FUND POLLUTING**
8 **TECHNOLOGIES AND MUST PRIORITIZE LOW-INCOME ELECTRIFICATION AND**
9 **SUPPORTING MEASURES (BARKER)**

10 **Q. Please summarize your opinion regarding the role of ESA in equitably achieving**
11 **California’s climate, air quality and public health policies.**

12 **A.** California’s climate, air quality, and public health policies require widespread
13 electrification of the buildings sector.⁹ Building electrification advances California’s
14 policy goals both by reducing greenhouse gas emissions and by eliminating sources of
15 other health-harming air pollutants, such as nitrogen oxides (“NO_x”).¹⁰ Residential
16 buildings are often the most straightforward building type to electrify (compared to
17 commercial, agricultural, or industrial buildings) because residential end use equipment
18 “can be fully electrified with technologies such as heat pumps for space and water
19 heating and clothes drying and induction stoves.”¹¹ A substantial portion of California’s
20 residential buildings are located in Environmental and Social Justice (“ESJ”)
21 Communities. These communities are also the same areas that are the highest priority for

⁶ All calculations and inputs are sourced from data included in Exh. PG&E-01E, Pacific Gas and Electric Company California Alternate Rates for Energy (CARE), Family Electric Rate Assistance (FERA), and Energy Savings Assistance (ESA) Programs and Budgets Application for the 2028–2033 Program Years (PYs): Errata to Prepared Testimony, at Appendix A, Table A-1a, Planning Assumptions ESA Main Program. Calculations and sources are provided in Attach. 3.

⁷ Exh. PG&E-01E, Pacific Gas and Electric Company California Alternate Rates for Energy (CARE), Family Electric Rate Assistance (FERA), and Energy Savings Assistance (ESA) Programs and Budgets Application for the 2028–2033 Program Years (PYs): Errata to Prepared Testimony, at Chapter 4, Attachment 3, *Proposed ESA Main Measures, 2028-2033* (June 30, 2026) (“Exh. PG&E-01E, Errata Testimony”).

⁸ See Exh. PG&E-01E, Errata Testimony at Chapter 4, Attachment 4, *Proposed MFWB Measures, 2028-2033*.

⁹ California Energy Commission (“CEC”), *California Building Energy Action Plan*, at 1 (Aug. 2026) (“CEC, 2026 Building Energy Action Plan”), <https://www.energy.ca.gov/sites/default/files/2026-08/CEC-400-2025-001.pdf>.

¹⁰ R.20-01-007, *2024 Joint Agency Staff Paper: Progress Toward a Gas Transition*, at 17 (Feb. 22, 2024) (“2024 Joint Agency Report”), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M525/K660/525660391.PDF>; CEC, *Final 2021 Integrated Energy Policy Report*, Vol. 1, at 15–16 (Feb. 2022) (“CEC, 2021 IEPR Vol. I”), <https://efiling.energy.ca.gov/GetDocument.aspx?tn=241599>.

¹¹ 2024 Joint Agency Report at 14.

1 public health actions related to air quality, extreme heat, and healthy homes. Without a
2 strategy to electrify these buildings, California cannot achieve its climate and public
3 health goals, let alone achieve them equitably.

4 ESA is a critical tool to equitably advance California's buildings sector toward the state's
5 climate and public health targets. Households in California's ESJ Communities face
6 disproportionate burdens from legacy energy systems, infrastructure disinvestment, and
7 climate change.¹² These burdens include energy affordability challenges; health impacts
8 (and the associated medical costs) of indoor and outdoor air pollution; and financial,
9 ownership, and infrastructure barriers to accessing zero-emissions home appliances. The
10 Commission has recognized that if California policymakers fail to address these barriers,
11 low-income households will likely be the ones left bearing increasing costs to maintain
12 the legacy gas system while wealthier households electrify.¹³ Continued investment in
13 polluting technologies like gas space and water heating perpetuates these harms. ESA
14 should therefore move away from funding fossil fuel dependency for low-income
15 households and redirect those funds to enable ESJ households to electrify, providing no-
16 cost access to energy savings; bill savings; and substantial health, comfort, and safety
17 ("HCS") co-benefits for Californians who need them the most.

¹² For further discussion of low-income barriers to electrification, see Section III.B.

¹³ D.22-09-026, *Phase III Decision Eliminating Gas Line Extension Allowances, Ten-Year Refundable Payment Option, And Fifty Percent Discount Payment Option Under Gas Line Extension Rules*, at 16 (Sept. 20, 2022) <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M496/K987/496987290.PDF> (summarizing Energy Division Staff Proposal regarding elimination of gas line extension allowances, and stating: "Any new gas infrastructure is likely to become a stranded asset. The maintenance and operational costs associated with gas infrastructure will need to be paid for by a shrinking number of future gas customers, which will be reflected in higher rates. These customers are likely to be low-income customers as they face the greatest barriers to electrification."); *see also* California Air Resources Board ("CARB"), *2022 Scoping Plan Appendix F: Building Decarbonization*, at 15 (Nov. 2022) ("CARB, 2022 Scoping Plan App'x. F"), <https://ww2.arb.ca.gov/sites/default/files/2022-11/2022-sp-appendix-f-building-decarbonization.pdf> ("Finally, as more households move away from using fossil gas, those remaining on the fossil gas system are likely to pay an increasingly larger share of systemwide costs, which could further widen the affordability gap between households that are able to decarbonize early and those that are not."); CEC, *The Challenge of Retail Gas in California's Low-Carbon Future*, at iii (Apr. 2020), <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf> ("The potential for large reductions in gas demand creates a new planning imperative for the state. Without a gas transition strategy, unsustainable increases in gas rates and customer energy bills could be seen after 2030, negatively affecting customers who are least able to switch away from gas, including renters and low-income residents.").

1 **A. California Cannot Meet its Climate, Public Health, and Energy Equity Goals**
2 **Without Electrifying Low-Income Homes.**

3 **1. California’s Climate Goals Require Electrification of Low-Income**
4 **Homes.**

5 **Q. What are California’s relevant climate goals?**

6 **A.** California’s climate policies call for statewide, economy-wide carbon neutrality by
7 2045.¹⁴ As the Legislature has found, scenarios in which California achieves its climate
8 goals require both “direct greenhouse gas emission reductions” and “almost complete
9 transition away from fossil fuels.”¹⁵ On the way to 2045 carbon neutrality, within the
10 buildings sector, Assembly Bill (“AB”) 3232 set a goal to reduce greenhouse gas
11 emissions from buildings to 40% below 1990 levels by 2032.¹⁶

12 In furtherance of these goals, in 2022, Governor Newsom also established a goal to
13 deploy 6 million heat pumps statewide by 2030, with at least 50% of the funding to
14 achieve that goal directed to DACs.¹⁷

15 **Q. Is widespread building electrification necessary to achieve California’s climate**
16 **goals?**

17 **A.** Yes. For years, California’s policymakers have unambiguously articulated that
18 widespread building electrification is the best—and perhaps only effective—strategy to
19 achieve California’s buildings sector climate goals. For example:

- 20 • In its *Final 2021 Integrated Energy Policy Report* (“IEPR”), the California
21 Energy Commission (“CEC”) found that electrification is the “perfect pathway to
22 decarbonize buildings,” highlighting reductions in direct emissions from
23 electrifying gas end uses as well as reductions in grid emissions due to the
24 superior energy efficiency of technologies like heat pumps.¹⁸ The 2021 IEPR

¹⁴ Cal. Exec. Order B-55-18, at 2 (Sept. 10, 2018), <https://archive.gov.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf>; Cal. Pub. Util. Code § 454.53(a) (codifying SB 100 (2018) and setting forth “the policy of the state” that “100 percent of all retail sales of electricity to California end-use customers by December 31, 2045” will be supplied by eligible renewable energy resources and zero-carbon resources.); Cal. Health and Safety Code § 38562.2(c)(1) (stating that it is the policy of the state to “[a]chieve net zero greenhouse gas emissions as soon as possible, but no later than 2045, and to achieve and maintain net negative greenhouse gas emissions thereafter.”).

¹⁵ Assemb. B. No. 1279, 2021-2022 Reg. Sess. § 1 (Cal. 2022), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB1279.

¹⁶ Assemb. B. No. 3232, 2017-2018 Re. Sess. (Cal. 2018), https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201720180AB3232.

¹⁷ Letter from Gavin Newsom, Governor of Cal., to Liane Randolph, Chair, CARB, Regarding the 2022 Scoping Plan (July 22, 2022), <https://www.gov.ca.gov/wp-content/uploads/2022/07/07.22.2022-Governors-Letter-to-CARB.pdf>.

¹⁸ CEC, 2021 IEPR Vol. I at 15–16.

1 specifically cautioned against continued efficiency investments in gas appliances,
2 explaining that “the limited time frames to accomplish deep [greenhouse gas]
3 reductions creates a need to be strategic with gas efficiency investments gas
4 equipment efficiency investments have a growing likelihood over time of
5 becoming stranded assets, becoming a liability for carbon offsets, or causing the
6 state to miss its goals.”¹⁹

- 7 • In its *2021 California Building Decarbonization Assessment*, the CEC examined a
8 range of scenarios for reducing greenhouse gas emissions from residential and
9 commercial buildings. The “Aggressive Electrification” scenario is the only one
10 that aligns with California’s climate goals.²⁰ The Aggressive Electrification
11 scenario envisioned 100% electrification of new construction, 90% electrification
12 of end-use equipment replaced on burnout, and 70% electrification of end-use
13 equipment through “early retirement” (i.e., retirement of equipment before the
14 end of its useful life).²¹
- 15 • In its *2022 Scoping Plan for Achieving Carbon Neutrality*, the California Air
16 Resources Board (“CARB”) found that “[a]chieving carbon neutrality *must*
17 include transitioning away from fossil gas in residential and commercial
18 buildings, and will rely primarily on advancing energy efficiency while replacing
19 gas appliances with non-combustion alternatives.”²²
- 20 • In their *2024 Joint Agency Staff Paper: Progress Toward a Gas Transition*, the
21 Commission, the CEC, and CARB found that “[e]lectrification is the best fit for
22 decarbonizing homes and commercial buildings, where gas infrastructure can be
23 fully electrified with technologies such as heat pumps for space and water heating
24 and clothes drying and induction stoves.”²³ As joint agency staff noted, “[t]he
25 long lifetime of home appliances makes timely action imperative, as each new
26 building and appliance replacement presents an opportunity to achieve long-term
27 energy efficiency and [greenhouse gas] savings and provide important co-benefits
28 for occupants.”²⁴
- 29 • In its *2026 California Building Energy Action Plan*, the CEC reiterated that “[t]he
30 primary technological pathway to achieve the necessary [greenhouse gas]
31 reductions in the building sector is clear – efficient, electric heat pumps that

¹⁹ *Id.* at 22.

²⁰ CEC, *Final Commission Report: California Building Decarbonization Assessment*, at 13–14 (Aug. 2021) (“CEC, 2021 Building Decarbonization Assessment”), <https://efiling.energy.ca.gov/GetDocument.aspx?tn=239311>.

²¹ *Id.* at xiii (defining “early retirement”), 45–46 (defining “Aggressive Electrification” scenario).

²² CARB, *2022 Scoping Plan for Achieving Carbon Neutrality*, at 212 (Dec. 2022) (emphasis added), <https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf> (“CARB, 2022 Scoping Plan”).

²³ 2024 Joint Agency Report at 14.

²⁴ *Id.* at 17

1 leverage carbon-free electricity must replace fossil fuel equipment as the primary
2 means of providing space and water heating.”²⁵ Specifically, the CEC noted, its
3 updated modeling “confirms that aggressive, efficient electrification” is “the only
4 scenario that will achieve [greenhouse gas] emission reductions from buildings
5 consistent with the state’s 2045 climate and efficiency goals.”²⁶

6 **Q. Can California sufficiently electrify its building stock to achieve its climate goals**
7 **without electrifying buildings in ESJ Communities?**

8 **A.** No. The “Aggressive Electrification” scenario identified in the CEC’s 2021 California
9 Building Decarbonization Assessment requires electrification of the vast majority of
10 California’s existing building stock.²⁷ Similarly, CARB’s Scoping Plan scenario for the
11 building sector assumes “almost 90 percent of energy demand is electrified by 2045” in
12 buildings statewide, where “all new buildings constructed include non-combustion
13 appliances, and appliances in existing buildings are replaced at the end of their useful life
14 with non-combustion alternatives.”²⁸ The scenario assumes 100 percent of residential
15 appliance sales would be all-electric by 2035, with precipitous drops in sales of gas
16 appliances between 2025 and 2030.²⁹ For example, CARB provided this illustrative
17 figure regarding residential space heating appliance sales in its Scoping Plan Scenario,
18 noting that it would expect “a similar transition” for other residential appliance types:³⁰

²⁵ CEC 2026 Building Energy Action Plan at 2.

²⁶ *Id.* at 3.

²⁷ CEC 2021 Building Decarbonization Assessment at 45–46 (describing the Aggressive Electrification scenario as electrification of 100% of new construction, 90% of equipment replaced on burnout, and 70% of equipment retired early).

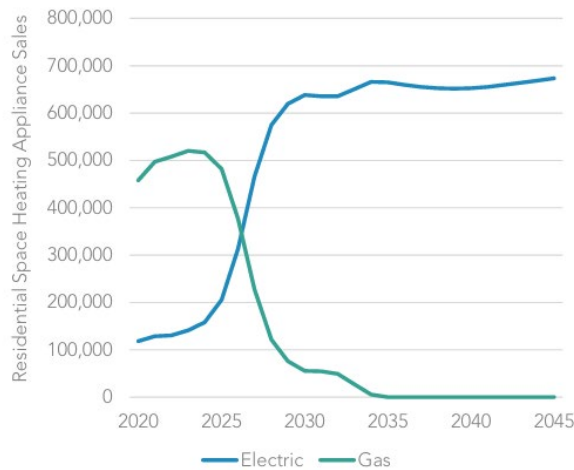
²⁸ CARB, 2022 Scoping Plan at 213.

²⁹ *Id.*

³⁰ *Id.* at 213–214.

Figure 1: CARB Illustrative Scoping Plan Scenario Residential Space Heating Appliance Sales

Figure 4-9: Residential space heating appliance sales in the Scoping Plan Scenario



Residences in ESJ Communities are a substantial portion of California’s existing building stock. According to CalEnviroScreen 5.0 data, more than 9.7 million Californians live in areas the California Environmental Protection Agency (“CalEPA”) has designated as DACs.³¹ In its Preliminary 2026 Designation, CalEPA defines DACs as:

- Census tracts with the highest 25 percent of CalEnviroScreen 5.0 overall scores;
- Census tracts with the highest 5 percent of CalEnviroScreen 5.0 pollution burden scores;
- Census tracts that overlap at least 25 percent with a 2022 DAC-designated census tract based on CalEnviroScreen 4.0; and
- Lands under the control of federally recognized tribes.³²

Additionally, the Commission has defined ESJ Communities as:³³

³¹ This sum was derived from CalEPA’s CalEnviroScreen 5.0 Excel File by adding up the populations of all census tracts in the top 25% of CalEnviroScreen 5.0 overall scores. The Excel file is available at <https://data.ca.gov/dataset/calenviroscreen-5-0>. This calculation is provided for illustrative purposes as it inherently undercounts the total number of Californians living in DACs. While top 25% Overall CalEnviroScreen Score is the largest category that qualifies census tracts as DACs, it is only one of the four categories. The 2026 DAC Designations Map indicates there are additional census tracts that qualify as DACs under the other three categories referenced above. The map is available at <https://calepa.ca.gov/programs/dac2026/>. However, CalEPA’s 2026 DAC Designations Map’s underlying data is not downloadable at the time of this writing, and thus deriving the exact, all-inclusive number from the CalEnviroScreen data would require more extensive analysis.

³² CalEPA, *Preliminary 2026 Designation of Disadvantaged Communities Pursuant to Senate Bill 535*, at 1–2 (July 2026), https://calepa.ca.gov/wp-content/uploads/2026/07/2026-Preliminary-DAC-Designation_English1.pdf.

³³ CPUC, *Environmental & Social Justice Action Plan 2.0*, at 2 (Apr. 7, 2022) (“ESJ Action Plan 2.0”), <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/news-and-outreach/documents/news-office/key-issues/esj/esj-action-plan-v2jw.pdf>.

- DACs;³⁴
- All Tribal lands (defined as land within any Indian reservation as defined in 18 U.S.C. 1151(a));
- Low-income households (defined as household incomes below 80 percent of the area median income (“AMI”)); and
- Low-income census tracts (defined as census tracts where aggregated household incomes are less than 80 percent of area or state median income).

Achieving the near-total rates of residential electrification needed to reach California’s climate goals will not be possible without dedicated attention to the barriers affecting the millions of California households in ESJ Communities.

2. California’s Public Health Goals Require Electrification of Low-Income Homes.

Q. What public health policies does California have that are relevant to the buildings sector?

A. California’s public health objectives intersect with the buildings sector in at least two ways. First, with regard to air quality and its related health impacts, California is both required by the federal Clean Air Act and seeking of its own accord to control health-harming ground-level ozone, PM2.5, and nitrogen oxides (“NO_x”) emissions.³⁵ As discussed more fully below, since NO_x is a precursor to ground-level ozone and PM2.5, and also a health-harming pollutant in its own right, the state’s strategies for reducing ozone and PM2.5 overlap with strategies to reduce NO_x. NO_x is one of many health-harming pollutants emitted by combustion of methane gas.³⁶ Both outdoor and indoor air quality present public health hazards that can be mitigated by building electrification.

Second, California has policy goals regarding protecting Californians from extreme heat.³⁷ In 2022, Governor Newsom’s office released a *State Action Plan to Build*

³⁴ The ESJ Action Plan was last updated in 2022 and refers to an older version of CalEnviroScreen. Footnote 2 of the ESJ Action Plan notes that “[t]he definition in the ESJ Action Plan will be subsequently updated” to reflect version updates of CalEnviroScreen once they are in effect. Accordingly, I assume for purposes of my testimony that the Commission’s definition of “ESJ Communities” includes DACs, as most currently defined by CalEPA, referencing current versions of the CalEnviroScreen tool.

³⁵ See Section III.A.2.a.

³⁶ See CARB, 2022 Scoping Plan App’x. F at 2 (“Combustion of fossil gas for space and water heating, cooking, clothes drying, and other end uses in residential and commercial buildings contributes about five percent of Statewide oxides of nitrogen (NO_x) emissions, and produces carbon monoxide (CO), ultrafine particles (UFPs, particles with diameters smaller than 0.1 micron) and fine particulate matter (PM2.5, particles with diameters smaller than 2.5 micron), and formaldehyde, which are harmful to human health and the environment.”).

³⁷ Office of the Governor, *Protecting Californians from Extreme Heat: A State Action Plan to Build Community Resilience* (Apr. 2022) (“2022 Extreme Heat State Action Plan”), <https://resources.ca.gov/-/media/CNRA-Website/Files/Initiatives/Climate-Resilience/2022-Final-Extreme-Heat-Action-Plan.pdf>.

1 *Community Resilience* that set strategies for addressing extreme heat and its health
2 impacts statewide.³⁸ Among other strategies, the state action plan established goals to
3 “[r]eview and improve access to and use of air conditioning,” and to “[a]ddress obstacles
4 to the use of air conditioning and other cooling strategies for vulnerable populations.”³⁹
5 California’s Legislature has also enacted state laws regarding extreme heat and access to
6 cooling, which I discuss in more detail below.

7 *a. Air Quality*

8 **Q. What health-protective federal air quality standards is California striving to attain?**

9 **A.** California is home to some of the most polluted air basins in the United States, including
10 areas of nonattainment of federal health-based National Ambient Air Quality Standards
11 (“NAAQS”) for ozone and fine particulate matter (“PM2.5”).⁴⁰ Compliance with
12 NAAQS is not optional; California is required to submit State Implementation Plans
13 (“SIPs”) to the U.S. EPA that demonstrate the steps the state will take to attain the federal
14 health-protective standards for each criteria pollutant.⁴¹

15 CARB is tasked with preparing and administering such SIPs.⁴² In its 2022 State SIP
16 Strategy, CARB identified strategies for attaining the ozone NAAQS.⁴³ As of July 31,
17 2026, U.S. EPA reported the following areas in California with nonattainment
18 classifications for the ozone NAAQS:

³⁸ *Id.* at 1–3.

³⁹ *Id.* at 39.

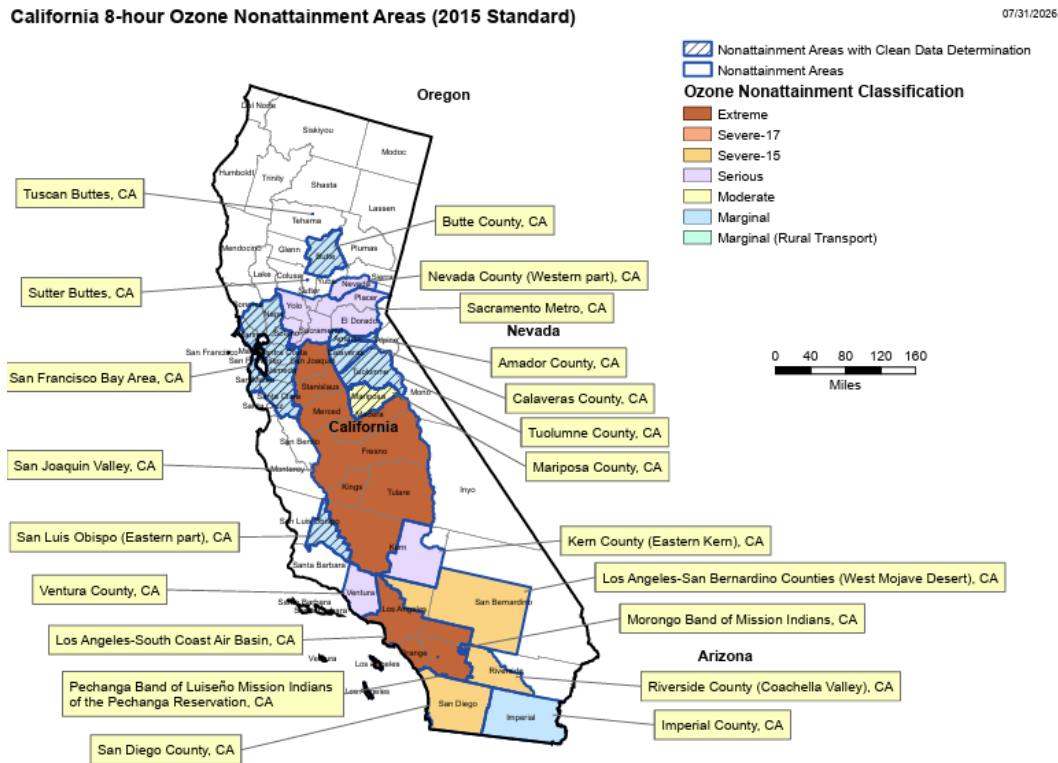
⁴⁰ U.S. Environmental Protection Agency (“U.S. EPA”), *Green Book: 8-Hour Ozone Nonattainment Areas (2015 Standard)* (Aug. 31, 2026), https://www3.epa.gov/airquality/greenbook/map8hr_2015.html (map of the United States indicating large portions of California’s Central Valley and South Coast Air Basin in “extreme” nonattainment of the 8-Hour Ozone NAAQS); U.S. EPA, *Green Book: PM-2.5 Nonattainment Areas (2012 Standard)* (Aug. 31, 2026), https://www3.epa.gov/airquality/greenbook/mappm25_2012.html (map showing “serious” nonattainment of PM2.5 2012 standard in California’s Central Valley and South Coast Air Basin).

⁴¹ 42 U.S.C. § 7410.

⁴² Cal. Health and Safety Code § 39602.

⁴³ CARB, *2022 State Strategy for the State Implementation Plan*, at 1 (Sept. 22, 2022) (“CARB, 2022 State SIP Strategy”), https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf. See also CARB, *2026 State Implementation Plan Revisions for the California Extreme Ozone Nonattainment Areas* (Apr. 17, 2026), <https://ww2.arb.ca.gov/sites/default/files/2026-04/2026%20Extreme%20Ozone%20SIP%20Revision.pdf>.

Figure 2: U.S. EPA Map of California Ozone Nonattainment Areas



2

3

4 CARB is currently developing a SIP for the 2024 PM_{2.5} NAAQS, which it has identified
 5 it plans to submit to the U.S. EPA by November 2027.⁴⁴ California already has
 6 nonattainment areas for the 2012 PM_{2.5} NAAQS,⁴⁵ and the U.S. EPA set an even more
 7 stringent standard in February 2024, reducing the federal primary annual PM_{2.5} standard
 8 from 12.0 µg/m³ to 9.0 µg/m³.⁴⁶ CARB identified nine areas to recommend for
 9 nonattainment designation for the more stringent 2024 PM_{2.5} standard, which include

⁴⁴ CARB, *SIPs for 9 µg/m³ PM_{2.5} Standard* (“CARB, *SIPs for PM_{2.5}*”), <https://ww2.arb.ca.gov/our-work/programs/california-state-implementation-plans/statewide-efforts/sips-9-mgm3-pm2-5> (last accessed Sept. 4, 2026); CARB, *PM_{2.5}* (last accessed Sept. 4, 2026) (“CARB, *PM_{2.5}*”), <https://ww2.arb.ca.gov/our-work/programs/state-and-federal-area-designations/federal-area-designations/pm2-5>.

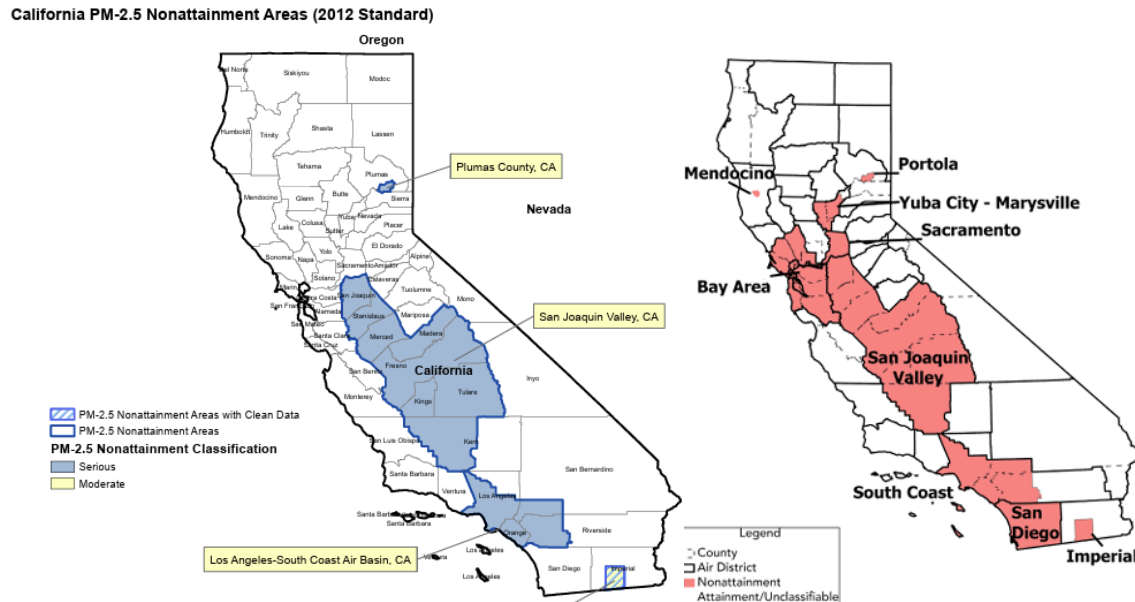
⁴⁵ U.S. EPA, *Green Book: PM-2.5 (2012) Nonattainment Area State/Area/County Report* (Aug. 31, 2026), <https://www3.epa.gov/airquality/greenbook/kncs.html#CA>.

⁴⁶ CARB, *SIPs for PM_{2.5}*; Reconsideration of the National Ambient Air Quality Standards for Particulate Matter, 89 Fed. Reg. 16202 (Mar. 6, 2024), <https://www.govinfo.gov/content/pkg/FR-2024-03-06/pdf/2024-02637.pdf> (codified at 40 C.F.R. pts. 50, 53, and 58).

1 areas that failed to attain the 2012 standards, plus significant expansions into areas like
2 San Diego County, Sacramento County, Yuba City-Marysville, and the Bay Area.⁴⁷

3 The following figure shows the pre-existing nonattainment areas (2012 standard), as
4 mapped by the U.S. EPA, compared with CARB's recommended nonattainment areas
5 (2024 standard):⁴⁸

6 *Figure 3: Comparison of 2012 Standard Nonattainment Areas for PM_{2.5} (left) and CARB's*
7 *Recommended 2024 Standard Nonattainment Areas (right)*



10 Attainment of federal air quality standards in these areas is a public health priority—
11 indeed, mandate—for the state.⁴⁹

12 **Q. Does California have state-level health-protective air quality standards as well?**

13 **A.** Yes. In addition to the NAAQS, California maintains its own California Ambient Air
14 Quality Standards (“CAAQS”).⁵⁰ California “does not require that CAAQS be met by
15 specified dates as is the case with NAAQS. Rather it requires incremental progress

⁴⁷ CARB, *Staff Report: PM_{2.5} Area Designation Recommendations for the 2024 Annual PM_{2.5} National Ambient Air Quality Standard*, at 7, Figure 1 (Dec. 13, 2024) (“CARB PM_{2.5} Designations Staff Report”), https://ww2.arb.ca.gov/sites/default/files/2024-12/Staff_Report_PM2.5_Area_Designation_Recommendations_2024_Annual_PM2.5_NAAQS.pdf.

⁴⁸ U.S. EPA, *California PM-2.5 Nonattainment Areas (2012 Standard)*, https://www3.epa.gov/airquality/greenbook/map/ca25_2012.pdf (Aug. 31, 2026); CARB PM_{2.5} Designations Staff Report at 7, Figure 1.

⁴⁹ 42 U.S.C. § 7409(b) (stating that attainment of NAAQS is “requisite to protect the public health.”); 42 U.S.C. § 7410 (directing states to develop state implementation plans to implement NAAQS).

⁵⁰ 17 Cal. Code. Regs. § 70200.

toward attainment.”⁵¹ The NAAQS and CAAQS are largely similar in value for ozone, PM2.5, and nitrogen dioxide, although the PM2.5 NAAQS and 1-hour NO₂ NAAQS are more stringent than the CAAQS, and the annual NO₂ CAAQS is more stringent than the annual NO₂ NAAQS.⁵² Given that the NAAQS for these pollutants are mostly equal or more stringent, as well as more binding, I focus primarily on the NAAQS here.

Q. What detrimental health impacts result from ozone and PM2.5 exposure?

A. CARB has found that ozone “can cause irritation and damage lung tissue, worsen asthma and chronic illnesses including obstructive pulmonary disease and reduce lung function.”⁵³ These findings are consistent with those of the U.S. EPA, who note that these effects “may lead to increased school absences, medication use, visits to doctors and emergency rooms, and hospital admissions.”⁵⁴ According to the American Lung Association, long-term ozone exposure “is associated with increased respiratory illnesses, metabolic disorders, nervous system issues, reproductive issues (including reduced male and female fertility and poor birth outcomes), and also increased respiratory—and cardiovascular—related mortality, which are the main drivers of total mortality.”⁵⁵

PM2.5 also presents substantial risks to human health. PM2.5 “contributes to more fatalities than other air pollutants, and can lodge deep in the lungs or pass through the lungs to enter the blood stream and affect the heart, brain, and other organs.”⁵⁶ CARB has found that even short-term exposure to PM2.5 “is associated with increased hospitalizations and emergency room visits for heart and lung illnesses,” and long-term exposure risks “include increased risk of heart attacks and heart disease, impaired lung development in children, the development and exacerbation of asthma, and premature death.”⁵⁷

Q. How does building electrification relate to reducing ground-level ozone and PM2.5?

A. Building electrification reduces ground-level ozone and PM2.5 emissions by eliminating emissions from gas combustion, which include NO_x. NO_x is a precursor to both ground-

⁵¹ CARB, *California Ambient Air Quality Standards: Attainment of Air Quality Standards (CAAQs)*, <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards> (last accessed August 4, 2026).

⁵² CARB, *Table of Ambient Air Quality Standards*, https://ww2.arb.ca.gov/sites/default/files/2024-08/AAQS%20Table_ADA_FINAL_07222024.pdf (last accessed Aug. 4, 2026) (comparing CAAQS to NAAQS).

⁵³ CARB, 2022 State SIP Strategy at 16.

⁵⁴ U.S. EPA, *Health Effects of Ozone Pollution* (Feb. 24, 2026), <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>.

⁵⁵ American Lung Ass’n, *Ozone: How Ozone Pollution Harms Your Health* (June 9, 2025), <https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone#how>.

⁵⁶ CARB, 2022 State SIP Strategy at 16.

⁵⁷ *Id.*

1 level ozone and PM_{2.5}.⁵⁸ As CARB explained in its 2022 State SIP Strategy,
2 “[c]ontrolling ozone precursor emissions, in particular oxides of nitrogen (NO_x), is key to
3 attaining the federal ozone standards.”⁵⁹ CARB found that “[r]esidential and commercial
4 buildings in California are the source of about 66 tpd NO_x statewide due to natural gas
5 combustion,” with “[n]early 90 percent of building NO_x emissions” coming from space
6 and water heating and “the remaining 10 percent[] due to cooking, clothes drying, and
7 other miscellaneous end uses.”⁶⁰

8 **Q. Are NO_x emissions concerning for any reason beyond their status as a precursor to**
9 **ozone and PM_{2.5}?**

10 **A.** Yes. In addition to being a precursor to other criteria pollutants when vented outdoors,
11 NO_x is itself a health-harming air pollutant. NO_x primarily consists of NO (nitric oxide)
12 and NO₂ (nitrogen dioxide).⁶¹ Like ozone and PM_{2.5}, NO_x is a criteria pollutant regulated
13 pursuant to the federal Clean Air Act, and is measured for compliance purposes by
14 measuring levels of NO₂.⁶² California has no current nonattainment areas for the federal
15 NO₂ NAAQS, which are measured in ambient, outdoor air.⁶³ However, NO_x emissions
16 from gas-burning appliances like stoves are detrimental to indoor air quality, especially
17 when they are in smaller, enclosed spaces lacking adequate ventilation.⁶⁴ Studies have
18 observed that “[w]hen cooking with gas, peak concentrations of NO₂ in the kitchen can
19 reach levels far in excess of the CAAQS 1-hour NO₂ threshold.”⁶⁵

20 **Q. What are the detrimental health impacts of NO_x or NO₂ exposure?**

21 **A.** Short-term NO_x exposure is associated with a range of health impacts, including
22 exacerbating respiratory conditions like asthma, increasing risk of respiratory infections,

⁵⁸ See, e.g., Chao He et al., *Synergistic PM_{2.5} and O₃ Control to Address the Emerging Global PM_{2.5}-O₃ Compound Pollution Challenges*, *Eco-Environment & Health* 3 at 1 (Sept. 2024), <https://doi.org/10.1016/j.eehl.2024.04.004> (“PM_{2.5} is composed of directly emitted primary PM_{2.5} and secondary PM_{2.5}, which is formed from gaseous precursors, including SO₂, nitrogen oxides (NO_x), volatile organic compounds (VOCs), and NH₃. [Surface ozone (O₃)] generation, beyond that originating from stratospheric transport, primarily occurs through complex photochemical reactions between NO_x and VOCs under sunlight.”).

⁵⁹ CARB, 2022 State SIP Strategy at 2.

⁶⁰ CARB, 2022 State SIP Strategy at 30.

⁶¹ Yifang Zhu et al., *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California*, UCLA Fielding Sch. of Pub. Health, at 26 (Apr. 2020), <https://ucla.app.box.com/s/xyzt8jclixnetiv0269qe704wu0ihif7> (“Zhu et al., *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California*”).

⁶² 40 C.F.R. § 50.11.

⁶³ U.S. EPA, *Green Book Nitrogen Dioxide (1971) Area Information* (July 23, 2026), <https://www.epa.gov/green-book/green-book-nitrogen-dioxide-1971-area-information>.

⁶⁴ Zhu et al., *Effects of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California*, at 6–7, 11–16.

⁶⁵ *Id.* at 26.

1 and increasing stroke risk.⁶⁶ Long-term, chronic NO_x exposure “is suspected to be a
2 driver of air-pollution-related mortality and is associated with premature death,” with
3 observed relationships “between chronic NO₂ exposure and all-cause, cardiovascular,
4 respiratory, and lung cancer mortalities,” as well as increased risk of lung and breast
5 cancers.⁶⁷

6 **Q. Are there any other relevant air pollutants whose emissions are mitigated by**
7 **building electrification?**

8 **A.** Yes. Although California is not in danger of noncompliance with ambient air quality
9 standards for carbon monoxide or for toxic air contaminants like benzene and
10 formaldehyde, state regulators have recognized the hazards that these air pollutants pose
11 to human health.⁶⁸ Reducing Californians’ exposure to health-harming pollutants
12 generally serves the state’s public health objectives.⁶⁹ Because these pollutants are
13 emitted by gas appliances—either through leakage or through gas combustion—
14 electrification of those appliances eliminates them entirely.⁷⁰

⁶⁶ *Id.* at 26–27.

⁶⁷ *Id.* at 27.

⁶⁸ See CARB, *Formaldehyde*, <https://ww2.arb.ca.gov/resources/fact-sheets/formaldehyde> (last accessed Aug. 4, 2026) (“Formaldehyde is a common indoor air pollutant. It is a gas that can irritate a person’s eyes, nose, throat, and lungs, or trigger an asthma attack, even at low concentrations. Prolonged exposure to formaldehyde can cause cancer.”); CARB, *Report to the Scientific Review Panel on Benzene*, at 3–4 (Nov. 27, 1984), <https://ww2.arb.ca.gov/sites/default/files/classic/toxics/id/summary/benzeneparta.pdf> (identifying benzene as a carcinogenic toxic air contaminant); CARB, *Carbon Monoxide & Health*, <https://ww2.arb.ca.gov/resources/carbon-monoxide-and-health> (last accessed Aug. 4, 2026) (“Carbon monoxide is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body’s organs. The most common effects of CO exposure are fatigue, headaches, confusion, and dizziness due to inadequate oxygen delivery to the brain.”).

⁶⁹ See, e.g., CARB, Res. 20-32 at 1–2 (Nov. 19, 2020), <https://ww2.arb.ca.gov/sites/default/files/barcu/board/res/2020/res20-32.pdf> (“CARB, Res. 20-32”)

⁷⁰ See Zhu et al., *Effect of Residential Gas Appliances on Indoor and Outdoor Air Quality and Public Health in California* at 6 (“Gas appliances emit a wide range of air pollutants, such as carbon monoxide (CO), nitrogen oxides (NO_x), including nitrogen dioxide (NO₂), particulate matter (PM), and formaldehyde, which have been linked to various acute and chronic health effects, including respiratory illness, cardiovascular disease, and premature death.”); Anchal Garg et al., *Exposure and Health Risks of Benzene from Combustion by Gas Stoves: A Modelling Approach in U.S. Homes*, 492 *Journal of Hazardous Materials*, at 2 (Mar. 16, 2025), <https://doi.org/10.1016/j.jhazmat.2025.137986> (“Numerous sources of indoor air pollution are found in homes, with combustion-based cooking from gas and propane stoves being one of the largest contributors.”); *Id.* at 10 (“Evidence-based strategies to decrease exposure to benzene emissions attributable to gas stoves in the home include switching gas stoves to cleaner electric or induction stoves, [or ventilation measures] . . . most people lack access to high-capture efficiency hoods and may not even own an outdoor venting hood. For those living near traffic or industrial areas, outdoor benzene levels are sometimes higher than concentrations indoors.”); CARB, *Carbon Monoxide & Health* (“There are a number of potential sources of CO indoors, including gas stoves, malfunctioning or improperly vented gas appliances (i.e., water heaters, furnaces, clothes dryers), space heaters, fireplaces, tobacco smoke, and car or truck exhaust that enters from garages. WARNING.

1 **Q. Does California have indoor air quality policy goals?**

2 **A.** California’s state and local agencies have recognized the impacts of poor indoor air
3 quality on Californians’ health.⁷¹ For example, CARB adopted a resolution finding that
4 “Californians spend an average of 87 percent of their time indoors and that indoor air
5 pollutants from numerous sources can cause health effects, including cancer, premature
6 death, asthma, and other respiratory and cardiovascular diseases.”⁷² The resolution
7 specifically identified indoor NO_x, formaldehyde, carbon monoxide, PM₁₀, PM_{2.5}, volatile
8 organic compounds (“VOCs”), semivolatile organic compounds, and perfluoroalkyl and
9 polyfluoroalkyl substances (“PFAS”) as indoor air pollutants hazardous to human
10 health.⁷³ CARB submitted a Comprehensive Indoor Air Quality Report to the California
11 Legislature in 2005, and is currently in the process of developing an updated report.⁷⁴ In
12 a July 2026 seminar presenting research that will inform CARB’s updated report,
13 researchers identified the number one future policy priority of developing
14 “comprehensive statewide [indoor air quality] performance guidelines,” defined as
15 “science-based, enforceable [indoor air quality] standards for homes, buildings, and
16 communities across California.”⁷⁵

17 **Q. Can California achieve its air quality goals without electrifying low-income**
18 **households?**

19 **A.** No. California’s achievement of its ambient air quality goals is inextricably tied to low-
20 income electrification because low-income and ESJ Communities are collocated with
21 California’s worst air pollution. In its 2022 State SIP Strategy for ozone, CARB noted
22 that “over 99 percent of the disadvantaged communities in the State” are located in ozone
23 nonattainment areas and that “[m]any low-income and disadvantaged communities within
24 the nonattainment areas, and across the State, continue to experience disproportionately
25 high levels of air pollution and the resulting detrimental impacts to their health.”⁷⁶

26 The South Coast Air Quality Management District (“SCAQMD”) has determined that
27 “there is no viable pathway to achieve the needed reductions [for achieving health-based

During the cold season CO poisoning cases tend to increase. These are most often related to elevated indoor CO levels resulting from use of improperly vented space heaters and use of gas ranges to heat the house.”).

⁷¹ CARB, Res. 20-32 at 1; *see also, e.g.*, Los Angeles County Chief Executive Office, *Indoor Air Quality Sensitivity (IAQS) Index* (“LA County, IAQS Index”), <https://ceo.lacounty.gov/2026/05/11/ardi-latest-news/indoor-air-quality-sensitivity-iaqs-index/>.

⁷² CARB, Res. 20-32.

⁷³ *Id.* at 1–2.

⁷⁴ *See* Attach. 14, Yifang Zhu et al., *Indoor Air Quality in California: New Evidence and Environmental Justice: Final Seminar*, at 4 (July 10, 2026) (“Zhu et al, *Indoor Air Quality in California*”).

⁷⁵ *Id.* at 33.

⁷⁶ CARB, 2022 State SIP Strategy at 2.

air quality standards] without widespread adoption of zero emissions (ZE) technologies across all mobile sectors and stationary sources, large and small.”⁷⁷

California’s indoor air quality goals also depend on low-income electrification. In the 2026 research seminar for CARB’s updated Comprehensive Indoor Air Quality Report, researchers highlighted socioeconomic drivers of indoor air pollution inequities that place lower-income Californians at higher risk of exposure to indoor air pollution at home and at work.⁷⁸ The authors of the report identified “source control” as an important way to improve indoor air quality, including “replac[ing] fossil fuel combustion appliances with zero-emission alternatives” that “reduce combustion-related emissions, including NO₂, CO₂, benzene, and PM_{2.5}.”⁷⁹ Further, the authors list expanding access to appliance replacements through “incentive and rebate programs that make healthy indoor air solutions affordable and accessible” as a policy priority.⁸⁰ Much like with ambient air pollution, lower-income households are more exposed to indoor air pollution and have fewer resources to mitigate it, meaning solutions must reach these homes to have a meaningful impact on the issue.

Q. What buildings-sector strategies has the state identified for achieving its air quality objectives?

A. CARB and the regional air districts have identified strategies for widespread building electrification as critical to achievement of the state’s air quality goals, particularly in the context of reducing or eliminating NO_x emissions.⁸¹ In its 2020 resolution, CARB recognized that “100 percent electrification of natural gas appliances in California would result in significant health benefits and reductions of greenhouse gas (GHG) emissions from natural gas combustion in residential buildings.”⁸²

The Bay Area Air District (“BAAD”) has advanced zero-NO_x standards for residential appliances sold within its jurisdiction.⁸³ For example, BAAD Rules 9-4 and 9-6 phase in zero-NO_x standards for water heaters less than 75,000 BTU/hr beginning in 2027 and furnaces beginning in 2029.⁸⁴

⁷⁷ South Coast Air Quality Management District, *2022 Air Quality Management Plan*, at ES-5 (Dec. 2, 2022) (“SCAQMD 2022 Air Quality Management Plan”), <https://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2022-air-quality-management-plan/final-2022-aqmp/final-2022-aqmp.pdf?sfvrsn=16>.

⁷⁸ Attach. 14, Zhu et al., *Indoor Air Quality in California*, at 21.

⁷⁹ *Id.* at 29.

⁸⁰ *Id.* at 33.

⁸¹ *See, e.g.*, SCAQMD 2022 Air Quality Management Plan at ES-5.

⁸² CARB Res. 20-32 at 2.

⁸³ BAAD, *Rules 9-4 and 9-6 Building Appliances* (Sept. 3, 2026), <https://www.baaqmd.gov/rules-and-compliance/rule-development/building-appliances>.

⁸⁴ *Id.*; *see also* BAAD, *Regulation 9 Inorganic Gaseous Pollutants Rule 4 Nitrogen Oxides from Natural Gas-Fired Furnaces* (2023), <https://www.baaqmd.gov/~media/dotgov/files/rules/reg-9-rule-4-nitrogen->

1 SCAQMD has also considered zero-NO_x standards. Most recently, SCAQMD’s zero-
2 NO_x rule for large water heaters and small boilers and process heaters (Rule 1146.2) was
3 upheld by the Ninth Circuit Court of Appeals against industry challenges.⁸⁵ As discussed
4 further below, SCAQMD also considered—but ultimately did not adopt—zero-NO_x rules
5 for residential furnaces and water heaters under 75,000 BTU/hr, which would have been
6 consistent with the findings of its Air Quality Management Plan.⁸⁶

7 In its 2022 State SIP Strategy, CARB identified “zero-emission standards for space and
8 water heaters sold in California” that would “rely heavily on heat pump technologies
9 currently being sold to electrify new and existing homes” as a measure that could reduce
10 NO_x emissions from buildings by 13.5 tpd statewide by 2037 if adopted in 2030.⁸⁷

11 **Q. Is CARB currently pursuing a 2030 zero-emission standard for space and water**
12 **heater sales?**

13 **A.** No. In December 2025, CARB released a revised proposal for “emissive sales limits” for
14 manufacturers and distributors, rather than a zero-emissions appliance sale rule.⁸⁸ The
15 emissive sales limit framework essentially creates a cap-and-trade program for units of
16 polluting equipment sold.⁸⁹ The proposed emissive sales limits are significantly less

[oxides-from-fan-type-residential-central-furnaces/2021-amendments/documents/20230315_rg0904-
pdf.pdf?rev=fd4b39bc0c834bcbba8b76646526afc6&sc_lang=en](https://www.scaqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121).

⁸⁵ *Rinnai Am. Corp. v. S. Coast Air Quality Mgmt. Dist.*, No. 25-5129 (9th Cir. July 2, 2026).

⁸⁶ See SCAQMD, Proposed Amended Rules (PAR) 1111 and 1121, <https://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/proposed-rules/rule-1111-and-rule-1121> (last accessed Sept. 8, 2026).

⁸⁷ CARB, 2022 State SIP Strategy at 101–103.

⁸⁸ CARB, *Zero-Emission Space and Water Heater Standards: Public Workshop*, at 10 (Dec. 11, 2025), https://ww2.arb.ca.gov/sites/default/files/2025-12/December_2025_Workshop_Slides_ADA.pdf.

⁸⁹ *Id.* at 8, 11–17.

1 stringent than the initially-proposed zero-emissions appliance sales rule, and no category
2 reaches zero by 2045.⁹⁰

3 *Figure 4: Proposed Emissive Sales Limits from CARB December 2025 Workshop*

Proposed Statewide Emissive Sales Limit			
Year	Space Heating	Water Heating	Pool Heating
2030	40%	60%	60%
2031	39%	59%	40%
2032	37%	58%	40%
2033	36%	57%	40%
2034	34%	56%	40%
2035	33%	55%	40%
2036	31%	54%	40%
2037	30%	53%	40%
2038	28%	52%	40%
2039	27%	51%	40%
2040	25%	50%	40%
2041	25%	50%	40%
2042	25%	50%	40%
2043	25%	50%	40%
2044	25%	50%	40%
2045	25%	50%	40%

4
5 Even CARB’s “more stringent” alternative emissive sales limits would allow 10% of
6 space heating equipment, 35% of water heating equipment, and 30% of pool heaters sold
7 in 2045 to be “emissive.”⁹¹

8 **Q. Did CARB explain why it chose not to adopt a statewide zero-emissions appliance**
9 **sales standard?**

10 **A.** Yes. In addition to industry pressure, CARB cited equity concerns about leaving
11 “communities facing barriers” behind.⁹² During its outreach stages, CARB received
12 feedback from its Environmental Justice Advisory Committee (“EJAC”) and from
13 environmental justice organizations regarding potential economic equity impacts of the
14 rule.⁹³ These concerns stemmed from the barriers that environmental justice communities
15 face to electrifying, and how households in those communities could be impacted by the
16 rule without realistic pathways to electrify.⁹⁴

⁹⁰ *Id.* at 11.

⁹¹ *Id.* at 14.

⁹² *Id.* at 10 (noting that “[m]anufacturers requested CARB incorporate exemptions and flexibility” as well as feedback that “[e]xemptions slow progress toward equitable decarbonization if communities facing barriers are left behind.”)

⁹³ Attach. 4, CARB Environmental Justice Advisory Committee, *Building Decarbonization EJAC Resolution* (Aug. 14, 2025) (“EJAC Resolution”), <https://ww2.arb.ca.gov/sites/default/files/2025-08/8-14-2025%20EJAC%20Building%20Decarbonization%20Resolution.pdf>.

⁹⁴ See generally, Attach. 5, Letter from Building Energy, Equity and Power (BEEP) Coalition to CARB (Mar. 27, 2024) (“March 2024 Letter from BEEP Coalition to CARB”), <https://drive.google.com/file/d/1wlZ8y5jfEEHdBd8xxtQamnGP7iH5Kn7I/view>.

1 **Q. Have the regional air districts considered similar concerns?**

2 **A.** Yes. Citing similar concerns regarding barriers to compliance, BAAD has proposed
3 “flexibility amendments” in the form of broad exemptions to its 2027 zero-NO_x water
4 heater rule (Rule 9-6).⁹⁵ The flexibility amendments purportedly aim to ease compliance
5 burdens by exempting broad swaths of properties from the rule. For example, multifamily
6 properties of five or more units and properties with low-income or housing-cost-burdened
7 property owners can receive exemption certificates, among others.⁹⁶ Additionally,
8 properties with certain space or electrical constraints can receive “one time only”
9 exemptions under the proposed amendments.⁹⁷

10 Similarly, the SCAQMD Governing Board rejected its staff’s proposed zero-NO_x
11 standards for furnaces and residential water heaters in a hotly contested 5-7 vote.⁹⁸ In the
12 voting meeting, Board members broadly acknowledged the clean air and public health
13 benefits of the rules, but ultimately seven members voted against their adoption, citing
14 concerns about customer affordability of heat pump technologies and grid reliability.⁹⁹

15 **Q. Do broad exemptions and delays remedy the equity concerns raised regarding zero-**
16 **NO_x standards?**

17 **A.** No. The EJAC Resolution highlighted that “broad exemptions from beneficial standards”
18 do not advance energy equity.¹⁰⁰ In one of EJAC’s cited letters from environmental
19 justice organizations to CARB on the proposed statewide rule, the coalition expressly
20 warned that exemptions would deprive ESJ Communities of the health and resilience
21 benefits of zero-emission technologies.¹⁰¹

22 We caution that exempting communities who face these barriers and
23 risks from the standard will not be acceptable as that would leave these
24 communities behind in the clean energy transition to pick up the
25 increased costs of staying on the gas system, and the benefits of public
26 health and resilience will not reach these communities.

⁹⁵ BAAD, *Updated Regulatory Overview: Rule 9-6 Draft Flexibility Amendments*, (July 2026), https://www.baaqmd.gov/~media/dotgov/files/rules/reg-9-rule-4-nitrogen-oxides-from-fan-type-residential-central-furnaces/2021-amendments/documents/20260713_rule_9_6_regulatory_overview_updated_july_draft_amendment_package-pdf.pdf?rev=f4c5f70f25674a2787eed4d39abc97ab&sc_lang=en.

⁹⁶ *Id.* at 16–17.

⁹⁷ *Id.* at 17, 18.

⁹⁸ SCAQMD, *June 6, 2025, Governing Board Meeting Minutes*, at 18 (June 6, 2025) (“SCAQMD June 6, 2025 Governing Board Meeting Minutes”), https://www.aqmd.gov/docs/default-source/agendas/governing-board/2025/2025-aug1-001.pdf?sfvrsn=5ec16e7e_9.

⁹⁹ *Id.* at 14–17.

¹⁰⁰ Attach. 4, EJAC Resolution at 1.

¹⁰¹ Attach. 5, March 2024 Letter from BEEP Coalition to CARB at 2.

1 With regard to the BAAD Rule 9-6 proposed flexibility amendments, environmental
2 justice organizations cautioned the Air District that “without additional resources to
3 vulnerable households the compliance gap will surely widen.”¹⁰² The coalition urged
4 BAAD to “forcefully continue efforts to reduce the need for income-based flexibility” by
5 allocating resources to programs that help low-income households electrify.¹⁰³

6 **Q. How does ESA relate to zero-NO_x appliance standards?**

7 **A.** The likelihood of zero-NO_x rule adoption, rule effectiveness, and the degree of their
8 acceptance by customers are impacted by the extent to which upfront cost and other
9 barriers are effectively addressed through Commission programs and policies.
10 Particularly given the significant potential for effective air quality regulations to drive
11 deployment of electric heat pump space and water heating, the Commission should be
12 intentional about how programs and policies in its purview can be designed to support air
13 district regulations.

14 ESA is one important way the Commission can help address the equity concerns in the
15 implementation and adoption of zero-NO_x appliance standards by enabling electrification
16 for low-income households who have the starkest need for clean air and the highest
17 barriers to access. Actions recommended by the environmental justice organizations in
18 the implementation of zero-NO_x emission standards included identifying “significant
19 funding sources” to enable low-income electrification—including funding for “the
20 necessary upgrades to accommodate electric appliances”—and prioritizing funding for
21 low-income direct install programs rather than inaccessible rebate programs.¹⁰⁴ ESA is
22 precisely the type of low-income direct install program that can facilitate zero-NO_x
23 appliance standards’ equitable implementation by focusing resources on ensuring low-
24 income customers are able to meet compliance requirements, or to the extent they are
25 exempted, are not left behind in the electrification transition. Conversely, continuing to
26 allow ESA funds to be used for polluting appliances impedes achievement of California’s
27 air quality objectives and squanders critical funds that could better be used to enable
28 electrification and its corresponding public health benefits.

¹⁰² Attach. 6, BEEP, *Equity Considerations and Implementation Concerns for Flexibility Measures Outlines in Concepts for Rule 9-6 Amendments: Affordability and Availability Considerations for Nero NO_x Small Water Heaters*, at 2 (Nov. 24, 2025), https://www.baaqmd.gov/~/media/dotgov/files/rules/reg-9-rule-4-nitrogen-oxides-from-fan-type-residential-central-furnaces/2021-amendments/comments/20251208_bEEP-pdf.pdf?rev=9fdd2bfebefe42d69c4f43fae52c5e9d&sc_lang=en.

¹⁰³ *Id.* at 2–3.

¹⁰⁴ Attach. 5, March 2024 Letter from BEEP Coalition to CARB at 3.

1 b. Extreme Heat

2 **Q. What are California’s relevant public health goals related to extreme heat and**
3 **access to cooling?**

4 **A.** California has been recognized by researchers as having “the most extensive state-level
5 heat policy framework in the country.”¹⁰⁵ In 2022, Governor Newsom’s Office issued a
6 state action plan to address extreme heat.¹⁰⁶ The action plan recognized that “[h]eat ranks
7 among the deadliest of all climate-driven hazards in California,” and that “[c]limate
8 vulnerable communities will experience the worst of these effects, as heat risk is
9 associated and correlated with physical, social, political, and economic factors.”¹⁰⁷ To
10 begin to address extreme heat impacts on Californians, the action plan established the
11 Extreme Heat and Community Resilience Program and set forth a range of state goals and
12 strategies.¹⁰⁸ These goals include, among other things:

- 13 • Evaluating energy and cost-efficient strategies that could provide protection
14 against heat and air pollution for vulnerable populations;¹⁰⁹
- 15 • Building resilience through workforce training partnerships and
16 apprenticeships in jobs that address extreme heat, including jobs in “building
17 decarbonization,” “climate-smart Heating Ventilation and Air Conditioning,
18 building weatherization,” and “energy efficiency retrofits;”¹¹⁰
- 19 • Incorporating climate resilience measures that “ensure thermal comfort and
20 healthful indoor air quality” into building codes, and “driv[ing] residential
21 heat resilience through building code updates;”¹¹¹
- 22 • Improving “access to and use of air conditioning and other indoor cooling
23 strategies” and addressing “obstacles to the use of air conditioning and other
24 cooling strategies for vulnerable populations,” including specifically through
25 ESA;¹¹²
- 26 • Supporting communities in “expanding energy assurance” through energy
27 efficiency, solar, and weatherization programs;¹¹³

¹⁰⁵ Julee Snyder et al., *Heat Legislation in California: Gaps, Innovations, and Opportunities*, Duke University Nicholas Institute for Energy, Environment & Sustainability, at 1 (July 2026), <https://nicholasinstitute.duke.edu/sites/default/files/publications/heat-legislation-california-gaps-innovations-opportunities.pdf>.

¹⁰⁶ 2022 Extreme Heat State Action Plan.

¹⁰⁷ *Id.* at 2.

¹⁰⁸ *Id.* at 29.

¹⁰⁹ *Id.* at 12.

¹¹⁰ *Id.* at 26.

¹¹¹ *Id.* at 38, 41.

¹¹² *Id.* at 39–40.

¹¹³ *Id.* at 46.

- Developing and implementing “a program to accelerate protection of low-income households in [DACs] across the state that are impacted by extreme heat,” by providing for “the direct installation of new heat pump HVAC equipment and retrofits of existing air-conditioning systems, and complementary efficiency measures where needed, in existing residential single family or multifamily buildings;”¹¹⁴
- Providing “funding for additional heat pump HVAC equipment to low-income Californians as part of the Technology and Equipment for Cool Heating (TECH) Initiative;”¹¹⁵ and
- Streamlining permitting and inspection processes for heat pumps.¹¹⁶

Pursuant to Senate Bill (“SB”) 306 (Caballero 2023), the Extreme Heat Action Plan was updated in 2026 and will be every three years thereafter.¹¹⁷ The goals listed above are renewed in the 2026 Extreme Heat Action Plan.¹¹⁸

In SB 655 (Stern 2025), the Legislature declared the policy of the state that dwelling units be required to “attain and maintain a safe maximum indoor temperature” in addition to the longstanding code requirements for safe *minimum* indoor air temperatures.¹¹⁹ SB 655 also requires “all relevant state agencies,” among which the Commission is named, to consider that declared state policy “[w]hen revising, adopting, or establishing policies, programs, and criteria, including grant criteria, that are relevant to achieving this state policy.”¹²⁰

Q. How does building electrification advance these extreme heat goals?

A. Building electrification advances California’s extreme heat resilience and mitigation goals by deploying heat pumps, which provide energy-efficient cooling in addition to decarbonizing a household’s heating loads.¹²¹ The 2022 Extreme Heat Action Plan and the 2026 Extreme Heat Action Plan call out building electrification—and specifically, low-income building electrification—as a key strategy to achieve many of their goals. Indeed, the 2026 Extreme Heat Action Plan specifically identifies ESA as a pathway to achieve its goals of evaluating energy and cost-efficient strategies to protect vulnerable

¹¹⁴ *Id.* at 47.

¹¹⁵ *Id.* at 47.

¹¹⁶ *Id.* at 48.

¹¹⁷ Cal. Pub. Res. Code § 71361(a).

¹¹⁸ Governor’s Office of Land Use and Climate Innovation, *California’s Extreme Heat Action Plan: A State Strategy for Protecting Californians from Extreme Heat* (Aug. 2026) (“2026 Extreme Heat Action Plan”), <https://lci.ca.gov/wp-content/uploads/California-Extreme-Heat-Action-Plan-2026.pdf>.

¹¹⁹ Cal. Health and Safety Code § 17914(a).

¹²⁰ Cal. Health and Safety Code § 17914(b)(1).

¹²¹ Building Decarbonization Coalition, *Why Cooling is Key: How to Decarbonize Buildings with One Weird Trick*, at 5 (June 2023), https://buildingdecarb.org/wp-content/uploads/Heat-Pump-Shipment-Report-Spring-2023_V4.pdf.

1 populations from heat and air pollution, supporting high-performance building envelopes
2 and HVAC heat pumps in “all buildings” and particularly “communities most vulnerable
3 to extreme heat events,” and supporting communities in expanding energy assurance.¹²²
4 In contrast, like-for-like gas furnace replacements do nothing to protect households from
5 extreme heat because unlike a heat pump, these units only serve as a polluting, inefficient
6 heat source.

7 **Q. Can California achieve its extreme heat resilience goals without electrifying low-**
8 **income households?**

9 **A.** No. Extreme heat as a public health threat does not affect all populations equally. In
10 general, extreme heat exposure poses severe acute health risks, including heatstroke,
11 heart attacks, kidney failure, and exacerbation of chronic illnesses.¹²³ However, exposure
12 risk reflects existing inequities, as heat is “something that people with more resources and
13 privilege can insulate themselves from – literally.”¹²⁴ The California Environmental
14 Protection Agency’s Office of Environmental Health Hazard Assessment (“CalEPA
15 OEHHA”) has explained:

16 The health impacts of extreme heat are not felt equally across
17 communities. Social determinants of health—such as income, access to
18 resources, and living conditions—play a critical role in how well
19 individuals can cope with rising temperatures. The impact of extreme
20 heat is further compounded by long-standing systemic inequities,
21 including racial and environmental injustices, that leave certain
22 communities more exposed and less resilient.¹²⁵

23 For example, analysis by the L.A. Times found that Black Californians were more likely
24 than those of any other race to die from heat.¹²⁶ And CalEPA OEHHA has found that heat
25 waves “are expected to last up to two weeks longer in regions like the Central Valley”
26 than elsewhere in the state by mid-century, while “[i]n urban centers, heat-related deaths
27 are projected to triple, disproportionately affecting vulnerable and marginalized
28 populations.”¹²⁷ Accordingly, mitigation and resilience measures like increased access to

¹²² 2026 Extreme Heat Action Plan at 27, 65, 67.

¹²³ See World Health Org. (“WHO”), *Heat and Health* (July 31, 2026), <https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health>; Harvard T.H. Chan Sch. of Pub. Health, *The Dangers of Extreme Heat*, (July 26, 2022), <https://hsph.harvard.edu/news/the-dangers-of-extreme-heat/>.

¹²⁴ Anna M. Phillips et al., *California Extreme Heat Deaths Show Climate Change Risks*, L.A. Times (Oct. 7, 2021) (“Phillips et al., *California Extreme Heat Deaths*”), <https://www.latimes.com/projects/california-extreme-heat-deaths-show-climate-change-risks/> (quoting Elizabeth Rhoades, Director of Los Angeles County Health Department’s Climate Change and Sustainability Program).

¹²⁵ CalEPA OEHHA, *About Heat and Its Impact on Communities*, <https://calheatscore.calepa.ca.gov/about-heat-and-its-impact-communities> (last accessed August 4, 2026) (“CalEPA OEHHA, *About Heat*”).

¹²⁶ Phillips et al., *California Extreme Heat Deaths*.

¹²⁷ CalEPA OEHHA, *About Heat*.

1 cooling cannot meaningfully address the public health implications of extreme heat
2 unless they are targeted at the populations that are most vulnerable to impacts.

3 **3. California’s Energy Equity Policies Require Electrification of Low-**
4 **Income Homes.**

5 **Q. What are California’s energy equity policies?**

6 **A.** California’s state laws and policies prioritize energy accessibility and affordability for
7 low-income residents. For example, the Legislature has recognized that energy services
8 are “a basic necessity, and that all residents of the state should be able to afford essential
9 electricity and gas supplies.”¹²⁸ State law requires the Commission to “ensure that low-
10 income ratepayers are not jeopardized or overburdened by monthly energy
11 expenditures.”¹²⁹ In its most recent update of the ESJ Action Plan, the Commission
12 highlighted “considerations of rate burdens on low-income customers” as a “critical topic
13 for consideration.”¹³⁰ The Commission underscored “the risk of a smaller number of
14 households, likely lower income households who cannot afford to upgrade their existing
15 household appliances to energy efficient and/or all electric, becoming increasingly
16 financially responsible for maintaining legacy infrastructure,” and reiterated that
17 assessing “the cumulative impacts of rates on households and working to mitigate these
18 impacts on the most burdened households will remain a priority in all actions the CPUC
19 takes.”¹³¹

20 **Q. Why is low-income electrification needed to advance these policies?**

21 **A.** California policymakers have cautioned for years that low-income households are those
22 most likely bearing the stranded asset risk of continued gas system investment.¹³² As
23 wealthier customers electrify, the fixed costs of maintaining gas infrastructure will be
24 spread over fewer and fewer customers, and low-income customers face the wide range

¹²⁸ Cal. Pub. Util. Code § 382(b).

¹²⁹ *Id.*; see also Cal. Pub. Util. Code § 739.1(b)(1).

¹³⁰ ESJ Action Plan 2.0 at 18, 22.

¹³¹ *Id.* at 22.

¹³² See, e.g., 2024 Joint Agency Report at 15 (identifying equity risk of overinvestment in gas infrastructure when demand is shrinking, which “could lead to rising gas transportation rates that create a feedback loop” and noting that “[l]ow-income customers could end up bearing a disproportionate share of the cost burden” of this risk.); CEC, *The Challenge of Retail Gas in California’s Low-Carbon Future*, at iii, 58 (Apr. 2020), <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf> (summarizing that “[t]he potential for large reductions in gas demand creates a new planning imperative for the state. Without a gas transition strategy, unsustainable increases in gas rates and customer energy bills could be seen after 2030, negatively affecting customers who are least able to switch away from gas, including renters and low-income residents,” and identifying “initiatives . . . to enable adoption of electric equipment for low-income homeowners and renters” as a key element of a gas transition strategy, “particularly given the relative vulnerability of these groups to the bill impacts” of remaining on the gas system).

of barriers to electrification described in Section III.B, meaning they are more likely to be the last customers stuck on the gas system bearing those costs.¹³³

This predicted rate shock is reflected in the CEC’s 2025 IEPR modeling, which projected gas rates under business-as-usual (“base case”) and Additional Achievable Fuel Substitution (“AAFS”) scenarios.¹³⁴ The AAFS scenarios are “demand-side forecasting modifier[s] that represent[] additional shifts from fossil-fuel end uses to cleaner or more efficient alternatives,” as “California’s climate goals have made building decarbonization a priority.”¹³⁵

Under the AAFS 2 scenario, which assumes “gradual, statewide adoption of zero-emission technologies,” the CEC projects startling increases in gas rates over the coming decades:¹³⁶

Table 1: CEC 2025 IEPR Gas Rate Projections Under AAFS 2 Scenario

Utility	AAFS 2 2025 Gas Rate	AAFS 2 2050 Gas Rate
SoCalGas	\$1.76/therm	\$43.17/therm
PG&E	\$2.57/therm	\$90.19/therm
SDG&E	\$2.75/therm	\$68.12/therm

Notably, the CEC describes the AAFS 2 scenario as the “more conservative” of its AAFS scenarios, and it does not account for proposed zero-NO_x rules like the “more optimistic” AAFS 3 and 4 scenarios.¹³⁷ Thus, AAFS 2 is not an unreasonable or unlikely outcome for California—if the state is to come anywhere near achieving its policy goals, AAFS 2 is more like a floor than a ceiling.

And even under a “business-as-usual forecast,” the CEC found significant increases in gas customer rates.¹³⁸

Table 2: CEC 2025 IEPR Gas Rate Projections Under Base Case Scenario

Utility	Base Case 2025 Gas Rate	Base Case 2050 Gas Rate
SoCalGas	\$1.74/therm	\$5.50/therm
PG&E	\$2.52/therm	\$8.32/therm
SDG&E	\$2.70/therm	\$7.43/therm

In contrast, IEPR modeling for the IOUs’ electric rates projects largely stable rates, as “continued utility investments to address climate risks and support decarbonization” are

¹³³ See D.22-09-026 at 16.

¹³⁴ CEC, 2025 IEPR at D-3–D-4 (June 2026) (“CEC 2025 IEPR”), <https://efiling.energy.ca.gov/GetDocument.aspx?tn=271454&DocumentContentId=108996>.

¹³⁵ *Id.* at D-3.

¹³⁶ *Id.* at 43.

¹³⁷ *Id.* at D-3–D-4.

¹³⁸ *Id.* at 43.

1 moderated by “increased electricity sales from building and transportation electrification
2 and data centers.”¹³⁹

3 Thus, long-term advancement of equity-based policies related to energy affordability and
4 energy burden reductions for California’s most vulnerable residents is served by low-
5 income electrification. Further, because gas space and water heating appliances have
6 effective useful lives of over twenty years, electrifying low-income households in the
7 immediate term is critical to avoid exposing these households to gas rate shock, as
8 installation of new gas equipment locks the customer into gas reliance for the life of the
9 appliance.¹⁴⁰

10 **B. ESA’s Significant and Stable Funding Makes it a Critical Program for**
11 **Furthering Equitable Electrification**

12 **Q. Why is it important for the Commission to focus ESA on enabling electrification and**
13 **moving away from continued investment in polluting gas technologies?**

14 **A.** Existing programs to help ESJ households electrify are extremely limited. As set forth
15 below, efforts thus far to enable California’s ESJ Communities to electrify have been a
16 patchwork of pilots or initiatives that are smaller in scope or reach, and whose funding
17 has been inadequate or too insecure to facilitate stable, consistent program access. As a
18 result, ESJ Communities across the state are largely stuck behind the same barriers that
19 researchers and policymakers have been talking about for the last ten-plus years. ESA
20 provides a critically needed stable funding source to help low-income households gain
21 the health, safety and comfort benefits on non-polluting appliances and assist in the
22 equitable transition off polluting fuels.

23 Conversely, to the extent ESA is used to install like-for-like gas appliance replacement, it
24 deprives those customers of the health and safety benefits of an equitable transition away
25 from fossil fuels. Under federal appliance standards, the effective useful life (“EUL”) of a
26 gas furnace is 20.2 to 22.5 years.¹⁴¹ Similarly, a gas tankless water heater’s EUL is 20
27 years.¹⁴² Locking low-income customers onto the gas system for 20 years is contrary to
28 the goals of the ESA Program and works at cross-purposes to California’s policy goals,
29 which demand deep investment in widespread low-income electrification.

¹³⁹ *Id.* at 41.

¹⁴⁰ *See infra*, fn. 141, 142.

¹⁴¹ Energy Conservation Program: Energy Conservation Standards for Oil, Electric, and Weatherized Gas Consumer Furnaces, 89 Fed. Reg. 84028, 84052 (Oct. 18, 2024), <https://www.govinfo.gov/content/pkg/FR-2024-10-18/pdf/2024-23906.pdf>.

¹⁴² Energy Conservation Program: Energy Conservation Standards for Consumer Gas-fired Instantaneous Water Heaters, 89 Fed. Reg. 105188, 105201 (Dec. 26, 2025), <https://www.govinfo.gov/content/pkg/FR-2024-12-26/pdf/2024-30369.pdf>; Energy Conservation Program: Energy Conservation Standards for Consumer Gas-fired Instantaneous Water Heaters, 90 Fed. Reg. 21390 (May 20, 2026), <https://www.govinfo.gov/content/pkg/FR-2025-05-20/pdf/2025-09030.pdf> (final rule withdrawn).

1 **Q. Would expanding general market programs and interventions be sufficient to**
2 **include ESJ Communities in the energy transition?**

3 **A.** No. Widespread electrification in low-income communities cannot be achieved through
4 general market programs that aim to influence wealthier households' consumer choices.
5 ESJ Communities face disproportionate and well-researched barriers to electrifying their
6 homes.¹⁴³ Breaking through those barriers will require dedicated programs designed to
7 serve the specific needs of ESJ Communities, administered by entities trusted by those
8 communities, with substantial and consistent funding.¹⁴⁴

9 **Q. What are some of the barriers that prevent low-income households and ESJ**
10 **Communities from electrifying?**

11 **A.** ESJ households and communities face a range of barriers to electrification, including but
12 not limited to:¹⁴⁵

- 13 • Property ownership barriers (i.e., split incentive between landlord and low-income
14 renter and risks of eviction or rent increases following upgrades);¹⁴⁶
- 15 • Lack of financial resources to cover up-front costs of equipment and necessary
16 make-ready work (i.e., remediation, wiring and structural repairs or upgrades);¹⁴⁷
- 17 • Higher than average per-household costs for make-ready work since “naturally
18 occurring affordable housing” is older, and residents often lack funds to keep up
19 with regular maintenance and upgrades (or, for renters, their landlords lack funds
20 or choose not to maintain the buildings);¹⁴⁸
- 21 • Infrastructure barriers, such as lower grid capacity in ESJ Communities due to
22 legacies of environmental racism and disinvestment;¹⁴⁹

¹⁴³ See TECH, *Low-Income Leveraging Pilot Final Report*, at 12 (Dec. 15, 2025) (“TECH Low-Income Leveraging Pilot Final Report”), <https://techcleanca.com/pilots/low-income-fuel-switching/> (click “Read Now” under “Final Report”).

¹⁴⁴ See CEC 2026 Building Energy Action Plan at 3 (“A sustained, multiyear investment in California’s low-income housing will be required to ensure that the benefits of building decarbonization are distributed equitably.”).

¹⁴⁵ See Yael Nidam et al., *Equitable Housing Decarbonization: Implementation Approaches* (June 21, 2026) (“Nidam et al., *Equitable Housing Decarbonization*”), https://ww2.arb.ca.gov/sites/default/files/2026-07/22STC018%20Equitable%20Housing%20Decarbonization_Final%20Report_6_28_2026.pdf.

¹⁴⁶ See Chelsea Kirk, *Tenants at the Center: An Equitable Path to Building Decarbonization*, at 9 (Mar. 2025), <https://www.saje.net/wp-content/uploads/2025/03/Tenants-at-the-Center-Equitable-Decarbonization-Report-2025.pdf>; CEC 2026 Building Energy Action Plan at 52; Marin Clean Energy, *Evaluation Report for MCE Low-Income Families and Tenants Pilot Program*, at 1 (Aug. 5, 2021), https://pda.energydataweb.com/api/view/2529/MCE_LIFT_Final%20EMV%20Report_August2021.pdf.

¹⁴⁷ CEC, 2021 California Building Decarbonization Assessment at 12; 2024 Joint Agency Report at 18.

¹⁴⁸ TECH Low-Income Leveraging Pilot Final Report at 2; CARB, 2022 Scoping Plan Appx. F at 15; Nidam et al., *Equitable Housing Decarbonization* at 11.

¹⁴⁹ Anna Brockway, Jennifer Conde & Duncan Callaway, *Inequitable Access to Distributed Energy Resources Due to Grid Infrastructure Limits in California*, 6 Nature Energy, at 7 (Sept. 2021),

- 1 • Higher than average household energy burdens with fewer household financial
2 resources to cover fluctuations;¹⁵⁰ and
3 • Awareness and communication inequities such as language barriers, lack of
4 internet access, and lack of trusted community messengers regarding benefits of
5 electrification and how to optimally use electric equipment.¹⁵¹
6 California policymakers, community-based organizations, program administrators, and
7 researchers have been flagging these barriers for at least the last ten years.¹⁵²

8 **Q. Are there programs other than ESA targeting ESJ Communities for electrification**
9 **or addressing the barriers you identified?**

10 **A.** Yes. For example, the CEC is currently administering the Equitable Building
11 Decarbonization (“EBD”) Program, and the IOUs recently completed electrification
12 pilots in DACs in the San Joaquin Valley. There are also some smaller programs
13 administered by other entities, like Regional Energy Networks (“RENs”) or public health
14 organizations. But those programs are not enough.

15 **Q. What is the CEC’s EBD Program?**

16 **A.** EBD is a program of the CEC with two subprograms: a direct install program (with two
17 subprograms for general low-income targeting and Tribal targeting) and one low-cost
18 green financing program.¹⁵³ EBD was established pursuant to AB 209 (2022).¹⁵⁴ In the
19 Statewide Direct Install Program, EBD is explicitly electrification-focused—under

https://s3.documentcloud.org/documents/21061599/uc-berkeley-study.pdf?utm_id=41257&sfmc_id=3109884.

¹⁵⁰ TECH Low-Income Leveraging Pilot Final Report at 2.

¹⁵¹ TECH Low-Income Leveraging Pilot Final Report at 12; Nidam et al., *Equitable Housing Decarbonization* at 12.

¹⁵² See CEC, *Low-Income Barriers Study, Part A: Overcoming Barriers to Energy Efficiency and Renewables for Low-Income Customers and Small Business Contracting Opportunities in Disadvantaged Communities*, at 2, 29–43 (Dec. 2016),

[https://www.google.com/goto?url=CAEScAHuR6pNrSaEaUFcjRo_i_ypmvvKDnC7AwYAOppj_VapsbzXMH7mED06jUz-g-xUV6l5IDouNpS-JgvOkDD3juVIGh-od7Tb0-L4CYayoCvMPYQYY37beWhRtW641fDiGXjp_Hyg3rJJF6JXIRN1g0=](https://www.google.com/goto?url=CAEScAHuR6pNrSaEaUFcjRo_i_ypmvvKDnC7AwYAOppj_VapsbzXMH7mED06jUz-g-xUV6l5IDouNpS-JgvOkDD3juVIGh-od7Tb0-L4CYayoCvMPYQYY37beWhRtW641fDiGXjp_Hyg3rJJF6JXIRN1g0=;); see also CEC, Final 2021

IEPR, at 94 (“Low-income households face additional barriers to decarbonization compared to middle- and high-income households. These barriers include greater energy burden, poorer housing conditions, lack of access to capital, potential lack of access to programs, and lack of control of the decision if they rent.”); CARB, 2022 Scoping Plan App’x. F, at 25–27; CEC, 2021 California Building Decarbonization Assessment at 116–121; 2024 Joint Agency Report at 18; Cal. Heat Pump Partnership, *California Heat Pump Partnership Blueprint*, at 31 (Mar. 2025) (“CAHPP Blueprint”), https://heatpumppartnership.org/wp-content/uploads/2025/03/CAHPP_Blueprint_2025.pdf (identifying accessibility of electrification benefits to “all communities” as a priority and noting that “[t]his includes designing programs that address financial barriers, increase technology access, protect renters, and deliver direct economic benefits to historically underserved groups.”).

¹⁵³ CEC, *Equitable Building Decarbonization Program*, <https://www.energy.ca.gov/programs-and-topics/programs/equitable-building-decarbonization-program> (last accessed Sept. 9, 2026).

¹⁵⁴ Cal. Pub. Res. Code § 25665 et seq.

1 program guidelines, “all building retrofits conducted by the program” must include, at a
2 minimum, replacing existing gas-fired heating equipment with a heat pump for space
3 heating and cooling,” or replacing “an existing gas-fired water heater with a heat pump
4 water heater.”¹⁵⁵ Further, at the conclusion of the retrofit, “at least two of the following
5 four end uses in the building must be electric: space heating, water heating, cooking, and
6 clothes drying.”¹⁵⁶ While full building electrification is not required, it is
7 “encouraged,”¹⁵⁷ and new gas-burning equipment is ineligible for program funds.¹⁵⁸

8 Program guidelines allow for average maximum remediation and safety costs, including
9 costs of electrical upgrades as well as structural changes needed to enable electrification;
10 roof and envelope repairs; remediation of lead, asbestos, and mold; and “other work
11 needed to bring [the] property up to code.”¹⁵⁹ EBD funded projects are beginning to be
12 implemented, with the 2026–2027 State Budget Summary noting that by June 2026, EBD
13 had completed retrofits of 60 homes.¹⁶⁰

14 **Q. Is EBD enough to address ESJ Communities’ barriers to electrification?**

15 **A.** No. EBD is limited in size and its ongoing funding is uncertain. The Statewide Direct
16 Install Program was granted initial funding through a combination of General Fund and
17 Greenhouse Gas Reduction Fund (“GGRF”) dollars and augmented by the CEC using
18 federal funds from the Inflation Reduction Act Home Efficiency Rebates (“HOMES”)
19 Program.¹⁶¹ Including both state and federal funds, the Statewide Direct Install Program’s
20 authorized budget thus far is \$493.5 million, split between the Northern, Central, and
21 Southern regional implementation hubs and spread out over several implementation
22 years.¹⁶² State budgets since EBD’s creation have not allocated any additional funding for
23 the program, leaving it with no clear, ongoing funding source.¹⁶³ Inadequate and/or

¹⁵⁵ CEC, *EBD Direct Install Program Guidelines*, at 13 (Oct. 2023) (“EBD Program Guidelines”), <https://efiling.energy.ca.gov/GetDocument.aspx?tn=252682&DocumentContentId=87762>.

¹⁵⁶ *Id.*

¹⁵⁷ *Id.*

¹⁵⁸ *Id.* at 17.

¹⁵⁹ *Id.* at 17, 20.

¹⁶⁰ State of California, *California State Budget 2026–27*, at 13 (2026) (“2026–2027 California Budget Summary”), <https://ebudget.ca.gov/2026-27/pdf/Enacted/BudgetSummary/FullBudgetSummary.pdf>

¹⁶¹ CEC, *EBD Statewide Direct Install Program: Frequently Asked Questions*, (“CEC, EBD FAQ”), <https://www.energy.ca.gov/programs-and-topics/programs/equitable-building-decarbonization-program/ebd-statewide-direct> (last accessed Sept. 10, 2026); EBD Program Guidelines at 3;

¹⁶² CEC, EBD FAQ.

¹⁶³ See CARB, *California Climate Investments Funded Programs*, <https://ww2.arb.ca.gov/our-work/programs/california-climate-investments/california-climate-investments-funded-programs> (last accessed Sept. 10, 2026) (displaying information on GGRF appropriations as of October 2025, which reflects no appropriations for EBD in fiscal year 2025–26); see also generally 2026–2027 California Budget Summary (acknowledging EBD in the “Accomplishments” section but not identifying any further appropriations for the program elsewhere in the budget); see also CEC, *Assembly Bill 209 Clean Energy Programs 2025 Annual Report*, at 14 (Sep. 2026),

1 inconsistent funding can create disruptions to workflows, contractors’ planning processes,
2 and program enrollment.¹⁶⁴ Accordingly, while EBD is an important program, significant
3 additional investment and interventions are needed in ESJ Communities to achieve
4 equitable electrification.

5 **Q. What are the San Joaquin Valley pilots?**

6 **A.** In D.18-12-015, the Commission directed SoCalGas, SCE, and PG&E to each implement
7 pilot projects in San Joaquin Valley DACs pursuant to AB 2672 (2014).¹⁶⁵ The pilots
8 replaced propane or wood-burning appliances with gas or electric appliances.¹⁶⁶ The
9 Commission approved eleven electrification pilot projects and one gas pilot project—the
10 host communities were among 178 eligible communities identified in earlier phases of
11 the proceeding.¹⁶⁷ In addition to the direct home treatment purpose of the pilots, they
12 were also intended to “collect data for use in Phase III of this proceeding,”¹⁶⁸ where pilot
13 data would then be analyzed to assess the economic feasibility of expanding to reach
14 more communities.¹⁶⁹

15 **Q. Why aren’t the San Joaquin Valley electrification pilots enough to address ESJ**
16 **Communities’ barriers to electrification?**

17 **A.** The San Joaquin Valley electrification pilots also had limited budget and scope. The
18 eleven electrification pilots had a cumulative approved budget of \$56 million.¹⁷⁰ As noted

<https://www.energy.ca.gov/publications/2026/assembly-bill-209-clean-energy-programs-2025-annual-report> (noting that the EBD Program’s overall \$432.5 million 2025–2026 budget for all subprograms combined already represents a reduction “from a previous total of \$525.5 million because this Budget Act removed all future-year GGRF funding, including \$93 million allocated to EBD from FY 2027–2028,” and noting that of its state funding, \$359.3 million of project funds are already encumbered for EBD, with “remaining unencumbered balance of \$10,000 from the General Fund allocation and \$30 million from the GGRF allocation for the Tribal Direct Install Program.”).

¹⁶⁴ See, e.g., TECH, *TECH Clean California Best Practices Draft Report*, at 50 (Mar. 2026) (“TECH Best Practices Draft Report”),

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M602/K997/602997593.PDF> (“Periodic disruptions to incentive availability have been cited repeatedly as sources of transaction friction, confusion, increased cost and complexity, and contractor reluctance to engage”); CAHPP Blueprint at 20 (identifying “lack of consistent incentive funding” as a major barrier to the success of heat pump programs, and noting that “[f]uture incentives from initiatives such as the federal IRA and California’s EBD program appear vulnerable to the same dynamic” of funding interruptions and “unpredictability” for “contractors and other market actors.”).

¹⁶⁵ D.18-12-015, *Decision Approving San Joaquin Valley Disadvantaged Communities Pilot Projects*, at 2 (Dec. 19, 2018), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M252/K052/252052725.PDF>.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.* at 2, 157.

¹⁶⁸ *Id.* at 3.

¹⁶⁹ See Cal. Pub. Util. Code § 783.5(b); see also R.15-03-010, *Assigned Commissioner’s Scoping Memorandum and Ruling*, at 3, 7 (Dec. 6, 2017),

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M199/K979/199979978.PDF>.

¹⁷⁰ D.18-12-015 at 2–3.

1 above, even within the scope of the pilots—DAC households in the San Joaquin Valley
2 reliant on propane or wood—these pilots only touched a fraction of the 178 eligible
3 communities.¹⁷¹ And those 178 eligible communities are, themselves, only a subset of
4 ESJ Communities statewide. Further, because the active stage of the pilots is complete
5 and the Commission has declined to perform a feasibility study for expansion, they are no
6 longer directly serving households.¹⁷²

7 **Q. What other programs are addressing low-income barriers to electrification in**
8 **California?**

9 **A.** A variety of smaller programs and pilots exist, with more limited scopes and budgets than
10 EBD and the San Joaquin Valley pilots. For example, the Central California Asthma
11 Collaborative (“CCAC”) has multiple programs aimed at helping low-income asthma
12 patients reduce asthma triggers in their homes. CCAC’s Multicultural Inclusive Climate
13 Action Solutions for Asthma (“MICASA”) program “helps Central Valley families create
14 healthier, safer homes by replacing natural gas appliances with clean, electric alternatives,
15 at no cost to participants.”¹⁷³ The MICASA program received funding from a TECH
16 Quick Start Grant, as well as California Jobs First and Kern Coalition.¹⁷⁴

17 TECH Quick Start Grants have supported a range of programs that aim to work with
18 various barriers common to ESJ Communities, such as providing in-language education,
19 addressing logistical barriers to electrifying manufactured homes, deploying room heat
20 pumps that do not require structural changes or property ownership, augmenting
21 incentive funds from municipal utilities for low-income heat pump adoption, and
22 more.¹⁷⁵

23 CCAC is also running a study called Cooking Energy and Ventilation Impacts on
24 Children with Asthma (“CEVICA”), funded by the CEC and in collaboration with several
25 research institutions, including Lawrence Berkeley National Lab.¹⁷⁶ CEVICA “is
26 replacing gas stoves with electric induction stoves in 100 homes of [CCAC asthma

¹⁷¹ See Center for Biological Diversity, *California Regulators Urged to Reconsider Abandoning San Joaquin Valley Clean Energy Program* (June 18, 2026), <https://biologicaldiversity.org/w/news/press-releases/california-regulators-urged-to-reconsider-abandoning-san-joaquin-valley-clean-energy-program-2026-06-18/>.

¹⁷² See generally P.25-09-009, *Application of the Petitioners for Rehearing of Decision 26-05-003* (June 18, 2026), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M609/K238/609238738.PDF>.

¹⁷³ CCAC, *Clean Energy for Healthy Communities*, <https://www.centralcalasthma.org/ceej/micasa/> (last accessed Aug. 11, 2026).

¹⁷⁴ *Id.*; TECH, *2026 Quick Start Grant Recipients: Central California Asthma Collaborative*, <https://techcleanca.com/quick-start-grants/2026-qsg-recipients/central--california-asthma-collaborative/> (last accessed Aug. 11, 2026).

¹⁷⁵ TECH, *2026 Quick Start Grant Recipients*, <https://techcleanca.com/quick-start-grants/2026-qsg-recipients/> (last accessed Sept. 10, 2026).

¹⁷⁶ CCAC, *CEVICA*, <https://www.centralcalasthma.org/health-research/cevica/> (last accessed Sept. 9, 2026).

1 program] participants from Fresno Bakersfield,” with research staff making eight
2 monthly follow-up visits to collect data.¹⁷⁷

3 There will likely continue to be small-scale, limited scope projects through public health
4 groups like CCAC, RENs, and environmental justice organizations like the recipients of
5 many of the TECH Quick Start Grants.

6 **Q. Why aren’t these types of programs enough?**

7 **A.** These programs are much smaller in scale than ESA and tend to be narrowly scoped to
8 meet funding program guidelines or to achieve specific research goals. Many such
9 programs are focused on installing one piece of equipment, like a stove, rather than
10 comprehensively addressing efficiency, home health and safety, and decarbonization
11 together.¹⁷⁸

12 Further, these types of programs tend to reach much smaller numbers of households. For
13 example, the CEVICA program will be treating 100 homes. In contrast, PG&E treated
14 44,324 single-family homes, 6,300 mobile homes, and 16,041 multifamily household
15 units in 2025.¹⁷⁹

16 As TECH notes for its Quick Start Grant program, these types of targeted pilots “promote
17 the development and refinement of interventions that can be scaled into statewide
18 solutions.”¹⁸⁰ Even where these pilots are successful, they are not designed to be the
19 scaled solution, but rather to provide data and best practices that can inform large-scale
20 efforts. Meaningfully addressing ESJ Communities’ barriers to electrification at scale—
21 and achieving California’s policy goals—will require “approaches that align with the
22 scale of that ambition, focusing on opportunities that are widespread and program designs
23 that can serve high volumes of contractors and customers throughout the state. An
24 explicit emphasis on scale drives market maturation.”¹⁸¹ Statewide, consistently funded
25 efforts will be needed for electrification measures to be deployed at scale in ESJ
26 Communities.

27 **Q. Is ESA well-positioned to address the barriers to electrification experienced by ESJ**
28 **Communities?**

29 **A.** Yes. ESA is well-positioned to provide comprehensive electrification, weatherization, and
30 health, comfort and safety (“HCS”) benefits to participating customers. In 2025 alone, the

¹⁷⁷ *Id.*

¹⁷⁸ *See, e.g., id.*

¹⁷⁹ PG&E, *PY2025 Low Income Annual Report Tables*, at ESA Table 2, Lines 99 and 101 (May 1, 2026) (“PG&E 2025 Annual Report Tables”), https://liob.cpuc.ca.gov/wp-content/uploads/sites/14/2026/05/2025_ESA_CARE_FERA_AR_Tables.xlsx; *id.* at ESA Table 2A MFWB, Line 110.

¹⁸⁰ TECH, *Quick Start Grants*, <https://techcleanca.com/quick-start-grants/> (last accessed Sept. 9, 2026).

¹⁸¹ TECH Best Practices Draft Report at 88.

IOUs treated 157,164 homes across the state through their ESA Main programs.¹⁸² In addition, despite implementation challenges, the MFWB programs treated 16,041 household units in the Northern Region and 14,118 units in the Southern Region in 2025.¹⁸³ ESA's broad reach is necessary to treat anywhere near the number of households in need of deep decarbonization and weatherization treatments. Further, ESA's budget substantially outstrips the budgets of other low-income electrification programs like those discussed above. Authorized budgets for ESA in the 2021–2026 cycle totaled nearly \$2.2 billion:¹⁸⁴

Figure 5: 2021–2026 Total Authorized ESA Budgets

Table 7: ESA Approved Budgets (All IOUs)³

IOU	2021 (July 1 to Dec. 31)	2022	2023	2024	2025	2026	Total
PG&E	\$89,362,820	\$152,758,877	\$172,231,361	\$171,757,189	\$171,120,842	\$170,915,152	\$928,146,242
SCE	\$40,926,750	\$58,773,576	\$69,127,408	\$91,154,996	\$96,372,294	\$74,799,327	\$431,154,350
SoCalGas	\$67,066,667	\$122,802,317	\$122,824,705	\$122,814,843	\$122,849,884	\$122,541,070	\$680,899,486
SDG&E	\$10,729,079	\$25,832,330	\$27,043,980	\$29,894,951	\$31,768,583	\$33,329,042	\$158,597,966
Total	\$208,085,316	\$360,167,100	\$391,227,455	\$415,621,978	\$422,111,603	\$401,584,592	\$2,198,798,044

If ESA funds are appropriately directed to electrification and electrification-enabling work, the programs can provide crucial benefits to a broad range of households. For example, reporting from TECH's Low-Income Leveraging Pilot demonstrated that with

¹⁸² According to their respective 2025 IQP Annual Reports, for ESA Main, SoCalGas treated 45,535 homes (see A.19-11-003, *Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025 [Public Version]*, at 8 (June 26, 2026) ("SoCalGas 2025 IQP Annual Report"), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M609/K653/609653634.PDF>); PG&E treated 50,624 homes (see A.19-11-003, *Annual Report of Pacific Gas and Electric Company (U 39 M) on the Results of its Energy Savings Assistance, California Alternate Rates for Energy and Family Electric Rate Assistance Programs*, at 7 (May 1, 2026) ("PG&E 2025 IQP Annual Report"), https://liob.cpuc.ca.gov/wp-content/uploads/sites/14/2026/05/A.19-11-003-et-al._PGE-2025-ESA-CARE-FERA-Annual-Report_05-01-2026.pdf); SCE treated 55,198 homes (see A.19-11-003, *Annual Report of Southern California Edison Company (338-E) on Energy Savings Assistance and California Alternate Rates for Energy Programs for 2025*, at 7 (May 1, 2026) ("SCE 2025 IQP Annual Report"), <https://liob.cpuc.ca.gov/wp-content/uploads/sites/14/2026/05/A1911003-et-al.SCE-ESA-CARE-2025-Low-Income-Annual-Report.pdf>); and SDG&E treated 5,807 homes (see A.19-11-003, *Annual Report Activity of San Diego Gas & Electric Company (U 902 M) on Energy Savings Assistance, California Alternate Rates for Energy, and Family Electric Rate Assistance Programs for 2025*, at 7 (May 1, 2026) ("SDG&E 2025 IQP Annual Report"), <https://liob.cpuc.ca.gov/wp-content/uploads/sites/14/2026/05/A.19-11-003-2025-Annual-Report-5-1-2026-eServe.pdf>).

¹⁸³ PG&E 2025 IQP Annual Report at 8; SDG&E 2025 IQP Annual Report at 21 (reporting on all three service territories included in the Southern MFWB Program).

¹⁸⁴ D.21-06-015, Attach. 1, Table 7 (June 7, 2021), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M387/K458/387458900.pdf>

1 an infusion of funding for pre-electrification work like electrical upgrades and home
2 repairs, both the San Joaquin Valley Pilots and ESA programs were able to provide deep
3 weatherization and electrification treatments to homes that “would otherwise have been
4 turned away” for costs exceeding per-household caps.¹⁸⁵

5 **C. The Commission Should Expressly Prioritize Electrification for ESA in the**
6 **2028–2033 Cycle.**

7 **Q. How should California’s policy objectives inform Commission review of the IOUs’**
8 **ESA Applications?**

9 **A.** The Commission should review the IOUs’ ESA Applications with California’s policy
10 goals as its North Star. As explained above in Section III.B, ESJ Communities face
11 specific and disproportionate barriers to electrification. Focusing ESA on overcoming
12 these barriers is necessary to align the program with California’s policy objectives.
13 Conversely, every new gas appliance installed through ESA locks a low-income
14 household into gas reliance for the life of the appliance, along with the climate and
15 criteria air pollution of the appliance and the growing risk of gas rate shock as wealthier
16 customers electrify. If the Commission does not affirmatively shape ESA to provide
17 funding and access to electrification for low-income customers, then those customers are
18 left with no choice but to let their gas utility lock them onto another decade-plus of gas.
19 This result is not only inequitable but, as a use of ratepayer funds, is irreconcilable with
20 the state’s policy goals. While PG&E and SDG&E acknowledge that electrification
21 measures are the most aligned with California’s policy goals, only SCE’s proposals truly
22 reflect the urgency to incorporate access to electrification measures through a
23 widespread, comprehensive approach.¹⁸⁶

24 **Q. Is updating ESA to prioritize electrification rather than perpetuating fossil fuel**
25 **dependence consistent with ESA’s purpose?**

26 **A.** Yes. In D.19-06-022, the Commission issued guidance to the IOUs for the 2021–2026
27 IQP cycle, urging the IOUs to “present innovative design approaches in their proposed
28 ESA programs taking into consideration the current policy landscape.”¹⁸⁷ Among the
29 policies the Commission identified as “important to consider” were the state’s greenhouse
30 gas reduction goals and the ESJ Action Plan’s goals to “come to terms with, and remedy,”

¹⁸⁵ TECH *Low-Income Leveraging Pilot Final Report* at 13–14, 36.

¹⁸⁶ See, e.g., Exh. PG&E-01E, Errata Testimony at 1-14:14–1-15:14; Exh. SDG&E-03, ESA Testimony at ESA-88:15–89:7, ESA-91:13–92:2; Exh. SCE-01, Testimony Supporting Policy Considerations for Southern California Edison Company’s Energy Savings Assistance (ESA), California Alternate Rates for Energy (CARE), and Family Electric Rate Assistance (FERA) Programs and Budgets for the Program Years 2028–2033, at 4:17–6:15 (Jan. 9, 2026).

¹⁸⁷ D.19-06-022, *Decision Issuing Guidance to Investor-Owned Utilities for California Alternate Rates for Energy/Energy Savings Assistance Program Applications for 2021–2026 and Denying Petition for Modification*, at 5 (June 28, 2019), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M301/K140/301140548.PDF>.

1 legacy environmental and socioeconomic injustices.¹⁸⁸ There, the Commission stated
2 unequivocally that for ESA, it “prioritizes actions that improve local air quality, benefit
3 public health, increase climate resiliency or provide economic benefits within ESJ
4 communities.”¹⁸⁹

5 Prioritizing public health and energy equity is consistent with ESA’s statutory
6 underpinnings. Public Utilities Code section 2790 requires utilities to “perform home
7 weatherization services for low-income customers if the commission determines that a
8 significant need for those services exists . . . taking into consideration both the cost-
9 effectiveness of the services and the policy of reducing the hardships facing low-income
10 households.”¹⁹⁰ The statutory definition of “weatherization” includes “energy-efficient
11 appliances” and “other building conservation measures.”¹⁹¹ Continuing to evolve ESA to
12 create pathways for low-income customers to electrify is critically-needed hardship
13 reduction aligned with current state policies.

14 Notably, in the 2021–2026 ESA cycle, the Commission began to move ESA “towards
15 deeper and more thoughtful retrofits” rather than focusing on households-treated goals.¹⁹²
16 Building on that progress, this cycle is the time for the Commission to require investment
17 in deeper treatments that advance the energy performance, affordability, and health,
18 comfort, and safety of participants’ homes through electrification.

19 **Q. How should the Commission reshape ESA to align with California’s policy goals?**

20 **A.** The magnitude of spending on polluting gas measures in the current ESA cycle
21 underscores the need for the Commission to provide clear redirection of program funds
22 toward electrification and electrification-enabling measures, rather than gas.

23 In the last ESA cycle decision, the Commission deferred prioritization of efficient
24 electrification measures until further information could be gathered from utility pilots, but
25 acknowledged “the various concerns about use of ESA funds over the long term to
26 replace gas appliances . . . in light of the Commission and other agencies’ recognition that
27 building electrification is a necessary strategy to meet the state’s GHG reduction
28 goals.”¹⁹³ The IOUs now have five years’ worth of additional data not only from the San
29 Joaquin Valley Pilots and SCE’s Building Electrification Pilot (“BE Pilot”), but also from
30 the myriad other small-scale pilots described above. The Commission should not delay
31 action on electrification for another six-year cycle. Instead, the Commission should:

¹⁸⁸ *Id.* at 5–6.

¹⁸⁹ *Id.* at 6.

¹⁹⁰ Cal. Pub. Util. Code § 2790(a).

¹⁹¹ *Id.* at § 2790(c).

¹⁹² D.21-06-015 at 232, 483–4.

¹⁹³ D.21-06-015 at 195–196.

- 1 1. Make express findings that building electrification advances the goals of the ESA
- 2 Program and that electrification is aligned with—and required by—California’s
- 3 climate and public health policies;
- 4 2. Require all four IOUs to provide heat pump fuel substitution technologies for
- 5 space and water heating equipment replacements provided by their ESA
- 6 programs; and
- 7 3. To the extent continued funding of polluting appliances is permitted under ESA,
- 8 limit its application to narrow infeasibility scenarios as discussed in Section V.

9 **IV. RECOMMENDATIONS TO ALIGN IOU ESA APPLICATIONS WITH CALIFORNIA’S**
10 **CLIMATE, AIR QUALITY, PUBLIC HEALTH, AND EQUITY OBJECTIVES**

11 **A. SCE’s ESA Proposals (Barker)**

12 **Q. Please summarize SCE’s proposed ESA offerings and your recommended**
13 **modifications.**

14 **A.** SCE has presented its proposals within its “Pathway 2045” framework, which centers
15 low-income communities’ inclusion in achieving California’s climate goals.¹⁹⁴ According
16 to SCE, its proposal is a “strategic redesign of the ESA Program that reflects a deliberate
17 shift from legacy energy efficiency models towards a comprehensive, customer-centric
18 framework that integrates electrification, affordability, and health-related outcomes.”¹⁹⁵
19 Under this framework, SCE proposes to “fully integrate and transition its [building
20 electrification] offerings, such as [heat pump] HVAC systems, [heat pump water heaters
21 (“HPWH”)], induction cooking equipment, and efficient clothes dryers, into the ESA
22 Main Program.”¹⁹⁶

23 Over the course of the 2028–2033 cycle, SCE plans to treat an average of approximately
24 64,500 households per year (including single-family, multifamily dwelling units, and
25 mobile homes), plus cycle-wide 200 multifamily properties’ common areas.¹⁹⁷ Measure
26 and budget projections for ESA Main include 1,103 HPWH installations per year
27 throughout the program cycle;¹⁹⁸ 1,090 heat pump replacement measures per year;¹⁹⁹ 219
28 portable heat pumps and 152 room heat pump replacement measures per year;²⁰⁰ and 189

¹⁹⁴ See Exh. SCE-02, Testimony Supporting Southern California Edison Company’s Energy Savings Assistance (ESA) Program and Budget for Program Years 2028-2033, at 18–19 (Jan. 9, 2026) (“Exh. SCE-02, ESA Testimony”).

¹⁹⁵ *Id.* at 19.

¹⁹⁶ *Id.* at 21.

¹⁹⁷ Exh. SCE-05, Appendices and Witness Qualifications, at B3, Table 6: Annual ESA Household Treatment Targets.

¹⁹⁸ Exh. SCE-05, Appendices and Witness Qualifications, at B6, Table A-1, Planning Assumptions.

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

1 induction cooktops or ranges per year.²⁰¹ SCE also plans to ramp up ductless mini-split
2 installations, with 146 budgeted for 2028, ramping up to 291 in 2033.²⁰² SCE also
3 currently forecasts 1,100 Central AC Replacement measures per year throughout the
4 2028–2033 cycle, at a forecasted budget of roughly \$10 million per year.²⁰³ SCE has
5 included budget assumptions for “electrical minor home repairs for fuel sub” in its
6 application worksheets ranging from approximately \$6 million in 2028 up to
7 approximately \$6.9 million in 2033.²⁰⁴

8 SCE proposes to deliver its ESA services exclusively through its ESA Main program,
9 which would include its single-family, mobile home, and multifamily services.²⁰⁵ For
10 multifamily buildings, SCE proposes to retire the regional administration model for the
11 Southern MFWB program and fold multifamily services back into its ESA Main for local
12 administration.²⁰⁶ SCE also plans to incorporate the services offered through its BE Pilot
13 into ESA Main for the 2028–2033 cycle, and to expand its offerings of cooling measures
14 to additional climate zones.²⁰⁷

15 My recommendations on SCE’s Application are as follows:

- 16 1. Approve SCE’s increased electrification offerings in ESA Main;
- 17 2. Prioritize AC-to-Heat Pump conversions and phase out like-for-like central AC
18 replacements beginning in PY 2028 with limited potential exceptions;
- 19 3. Approve SCE’s request for increased, dedicated funding for electrification-enabling
20 work, with implementation guidance based on the TECH Low-Income Leveraging
21 Pilot that is applicable to all IOUs; and
- 22 4. Approve SCE’s proposal to return to local administration of the MFWB Program. As
23 discussed more fully in Section IV.D, the Commission should limit ESA
24 misalignment with California’s policy objectives and conflicting customer
25 experiences by prohibiting SoCalGas from offering gas appliances as part of its
26 MFWB program, which will avoid creating competition between gas and electric
27 space and water heating appliance replacements offered to mutual customers of SCE
28 and SoCalGas.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ Exh. SCE-02, ESA Testimony at 34, Table III-7, note 2.

²⁰⁶ *Id.* at 76:2–4.

²⁰⁷ *Id.* at 49:10–15, 103–105.

1 **1. The Commission Should Approve SCE’s Increased Focus on**
2 **Electrification in ESA Main**

3 **Q. Does SCE’s increased focus on electrification align with California’s climate, air**
4 **quality, public health, and equity objectives?**

5 **A.** Yes. SCE’s proposal properly aligns ESA implementation with California’s climate, air
6 quality, public health, and equity objectives and will make needed progress toward
7 delivering low-income electrification benefits at scale. In other words, SCE has correctly
8 moved past the question of whether its low-income customers should be included in the
9 energy transition, and is actively presenting solutions to include them. The Commission
10 should approve this element of SCE’s Application.

11 **Q. Is the 0.49 ESACET projection for SCE’s portfolio a basis to reject its Application?**

12 **A.** No. SCE explains that focusing on deep savings, building electrification, HCS, and
13 climate resilience measures will result in lower ESA Cost-Effectiveness Test
14 (“ESACET”) scores for its portfolio.²⁰⁸ SCE’s explanation of the 0.49 ESACET forecast
15 for its portfolio underscores the need for the Commission to qualitatively assess program
16 proposals. While the ESACET score is relevant information, it is telling that SCE
17 previously met the 0.7 ESACET target by providing high volumes of lightbulbs and
18 power strips.²⁰⁹ Similarly, SCE found it could achieve a 0.7 ESACET average in the
19 2028–2033 by providing “a few domestic water measures, such as faucet aerators and
20 showerheads” to each customer, but that it leaves those measures to SoCalGas when the
21 customer has a gas water heater.²¹⁰ SCE is correct to depart from high volumes of
22 shallow treatments and move toward “deeper investments in individual households to
23 enable decarbonization with long-term bill savings.”²¹¹ Indeed, this is exactly what the
24 Commission envisioned in D.21-06-015 when it shifted ESA’s “design and delivery
25 model towards deeper and more targeted treatments.”²¹² The Commission declined to
26 adopt a 1.0 ESACET target there, noting Cal Advocates analysis that showed such a
27 requirement would “lead to measures such as central system replacements and insulation
28 being removed, while measures such as LED lamps, smart power strips, faucet aerators,
29 and low flow showerheads would be promoted.”²¹³ As the Commission concluded, such a
30 result would be “similar to the previous program design that emphasized reaching all
31 households” rather than “achieving deeper savings.”²¹⁴

²⁰⁸ Exh. SCE-02, ESA Testimony at 38–42.

²⁰⁹ *Id.* at 39.

²¹⁰ *Id.* at 40.

²¹¹ *Id.* at 41.

²¹² D.21-06-015 at 249.

²¹³ *Id.*

²¹⁴ *Id.* at 250.

Rigid application of the ESACET target would reduce SCE’s ability to achieve the goals of the ESA program, and would redirect budget toward measures that do not meaningfully advance energy equity. The dynamic between deeper treatments and lower ESACET scores may indicate that the Commission needs to update ESACET to better capture the HCS, climate resilience, and decarbonization benefits of deeper measures and electrification measures. In the meantime, the Commission should maintain a flexible approach toward ESACET performance for electrification programs that advance California’s policy goals.

2. SCE Should Prioritize AC-to-Heat Pump Conversions and Retire its Like-for-Like Central AC Replacement Measure Beginning in PY 2028 with Limited Potential Exceptions.

Q. What is your recommendation regarding AC-to-Heat Pump Conversions in ESA?

A. AC replacements are a prime opportunity for heat pump installations that carry substantial benefits into the future to electrify the household’s heating loads upon furnace burnout. To maximize climate and public health benefits from central AC replacement and avoid future furnace replacement costs, SCE and other utilities offering like-for-like central AC replacements should modify this measure to replace central AC with central heat pump systems beginning in PY 2028.

Q. What is SCE’s past and proposed future spending on like-for-like AC replacements?

A. SCE’s annual report data indicates that they installed the following number of “Central A/C Replacement” measures in ESA Main in each year, at the following costs:²¹⁵

Table 3: SCE Like-for-Like AC Replacements 2023 to 2025

Year	Number of Central A/C Replacements	Total Costs
2023 ²¹⁶	176	\$1,205,943
2024 ²¹⁷	505	\$3,409,893
2025 ²¹⁸	755	\$3,430,036

²¹⁵ See also Attach. 7, SCE Response to Data Request Sierra Club-SCE-03, Q.2(a) (confirming that the “Central A/C Replacement” measure only includes like-for-like Central AC replacements).

²¹⁶ SCE 2023 IQP Annual Report, ESA Table 2 Main, Line 36.

²¹⁷ SCE 2024 IQP Annual Report, ESA Table 2 Main, Line 41.

²¹⁸ SCE 2025 IQP Annual Report, ESA Table 2 Main, Line 42.

1 SCE intends to continue like-for-like AC replacements in the upcoming ESA cycle and is
2 forecasting 1,100 Central AC Replacement measures per year between 2028–2033 cycle,
3 at a forecasted budget of roughly \$10 million per year.²¹⁹

4 **Q. Please explain why continued like-for-like central AC replacements are misaligned**
5 **with California’s climate, air quality, public health and equitable electrification**
6 **objectives.**

7 **A.** AC-only installations are a missed opportunity to cut pollution and increase home
8 comfort. Because heat pumps are essentially AC units with a two-way valve to provide
9 both heating and cooling, homes that replace an existing central AC unit with a heat
10 pump gain a clean, efficient source of heating.²²⁰ On top of their climate and air quality
11 benefits, heat pumps create a more comfortable home by maintaining a consistent
12 temperature.²²¹ Because the heat pump adds efficient, decarbonized heating service in
13 addition to the cooling efficiency gains of replacing an inefficient AC unit, AC-to-Heat
14 Pump projects are a great fit for ESA.²²² While a heat pump may be somewhat higher-
15 cost than a like-for-like AC replacement, it is likely a lower-cost or cost-neutral strategy
16 compared to replacing an AC and separately replacing the home’s furnace on burnout.²²³
17 And TECH has found that replacing an AC or AC + furnace with a heat pump is “already
18 close to cost parity,” but “a heat pump HVAC unit is significantly more expensive than a
19 furnace-only replacement.”²²⁴ By using the funds that would go toward the AC
20 replacement to instead fund a heat pump, the ESA program eliminates the friction point
21 of future electrification of the household’s heating loads.

22 **Q. Do you recommend any exceptions to this rule?**

23 **A.** If installing an HVAC heat pump is technically infeasible, then a like-for-like central AC
24 replacement could still be provided. However, exceptions should be limited. For example,
25 even in areas with high heating loads where a furnace-to-heat pump conversion might not
26 carry immediate bill savings (see Section V), assuming the cold climate-zone customer

²¹⁹ Exh. SCE-05, Appendices and Witness Qualifications, at B-8–B-B-13, Table A-1, Planning Assumptions (Central A/C Replacement measure listed under HVAC category, with forecasted costs ranging from \$9.4 million in PY 2028 to \$10.9 million in PY 2033).

²²⁰ See Ryan Mayes, *What is a Heat Pump and How Does a Heat Pump Work?*, Carrier <https://www.carrier.com/us/en/residential/hvac-resources/heat-pumps/what-is-a-heat-pump-how-does-it-work/> (last accessed Sept. 9, 2026).

²²¹ See, e.g., Quality Home Air Care, *Heat Pump vs Furnace: Comparing Home Heating Options for Comfort and Efficiency* (July 24, 2025), <https://qualityhomeaircare.com/heat-pump-furnace-comparing-home-heating-options-comfort/>.

²²² Building Decarbonization Coalition, *Why Cooling is Key: How to Decarbonize Buildings with One Weird Trick*, at 5 (June 2023), https://buildingdecarb.org/wp-content/uploads/Heat-Pump-Shipment-Report-Spring-2023_V4.pdf; See also Liam McCabe, *Heat pump vs. AC: Why a Heat Pump Usually Wins*, EnergySage (Mar. 10, 2026), <https://www.energysage.com/heat-pumps/heat-pump-vs-ac/>.

²²³ See *id.*

²²⁴ TECH Best Practices Draft Report at 19.

1 had central AC for replacement, the customer does not have to decommission their gas
2 furnace in the central AC replacement scenario. Thus, in the unlikely event that this
3 measure is serving a customer in a cold climate zone, the heat pump can still provide
4 benefits to the customer by giving them optionality and backup heating when their
5 furnace eventually burns out, and the customer can assess bill impacts of furnace
6 replacement at that time, as year-over-year that analysis may pencil out differently due to
7 changes in rates.

8 **3. The Commission Should Approve SCE's Plan to Invest in "Customer**
9 **Enablement" to Support Electrification with Implementation**
10 **Guidance Based on the TECH Low-Income Leveraging Pilot.**

11 **Q. What does SCE propose regarding electrification-enabling work in ESA?**

12 **A.** SCE "seeks to advance customer enablement" in the next ESA cycle, "in support of
13 expanding clean energy and decarbonization in vulnerable communities."²²⁵ SCE defines
14 "customer enablement" work as "measures that have zero energy savings but are
15 necessary to unlock customer participation in certain [energy efficiency] and [building
16 electrification] measures," such as "panel and circuit upgrades, wiring, and other non-
17 energy saving interventions required for safe and effective installation of BE
18 measures."²²⁶ SCE does not make a specific, comprehensive funding request for this
19 work, as it is folded into the budget allocations for electrification measures, minor home
20 repairs, and remediation.²²⁷ However, in advocating for increased budget to support
21 deployment of electrification measures, SCE discusses the trade-offs between ESACET
22 high-scoring measures like LED lightbulbs versus deeper treatments like HVAC heat
23 pumps and HPWHs, which carry much higher costs (including costs of electrification-
24 enabling work) but deliver significant energy savings.²²⁸ SCE argues that these higher
25 costs should be covered—even if the ESACET score of its portfolio drops to 0.5 rather
26 than the 0.7 target—to "balance cost-effectiveness with measures that support
27 electrification and long-term decarbonization," which SCE has identified as "strategic
28 imperatives."²²⁹

29 **Q. Do you agree that ESA funding allocations should be increased for necessary pre-**
30 **work to enable installation of non-polluting appliances in low-income households?**

31 **A.** Yes. Current cost caps for electrification-enabling work are segmented across the
32 categories of remediation, minor home repairs, and electrical auxiliary measures, and
33 they are treated differently by each of the IOUs. In the TECH Low-Income Leveraging

²²⁵ Exh. SCE-02, ESA Testimony, at 41.

²²⁶ *Id.* at 41–42, fn. 48.

²²⁷ See Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 1, Q. 7.

²²⁸ Exh. SCE-05, Appendices and Witness Qualifications, at Appx. D, D-3–4.

²²⁹ *Id.* at D-4.

1 Pilot, TECH found that existing cost caps are too low to address the needs of many ESA
2 customers.²³⁰ TECH provided “supplemental funding for remediation and minor home
3 repairs for households that would otherwise exceed existing caps” for the San Joaquin
4 Valley Pilots and for SCE and PG&E ESA projects, including SCE’s BE Pilot as well as
5 PG&E and SCE ESA Main projects.²³¹ Supplemental funding overcame barriers to heat
6 pump adoption and allowed more ESA eligible customers to benefit from highly efficient,
7 non-polluting appliances than would have occurred under existing program limits.

8 **Q. Do you agree with SCE’s definition of “customer enablement” work?**

9 **A.** I do not object to SCE’s definition of its own term. However, SCE’s definition relies on
10 this work having “zero energy savings.”²³² I believe the Commission should simplify and
11 augment electrification-enabling work, including some measures that probably do carry
12 non-zero energy savings (e.g., air infiltration mitigation), so I would adopt a different
13 general definition of work that, in SCE’s words, is “necessary to unlock customer
14 participation” in building electrification, which I will refer to as “electrification-enabling
15 work.”²³³

16 By “electrification-enabling work,” I am referring both to work that is necessary to install
17 an electrification measure and work that is necessary to ensure the energy and bill savings
18 benefits of the electrification measure can be realized. This includes, but is not limited to,
19 tasks like wiring or panel upgrades when they are necessary for safe equipment
20 installation and operation, necessary electrical repairs, as well as non-electrical building
21 work that removes hazardous conditions, fixes envelope leaks and holes, or moves non-
22 electrical elements of the home to make space for the electrification measure.²³⁴

23 Much of this work is referred to as “pre-weatherization” or “weatherization readiness
24 projects” in other programs, with these terms defined generally as work that addresses
25 conditions that would cause a home to be deferred (turned away) from a weatherization
26 program, and whose completion enables the home to participate in the weatherization
27 program.²³⁵ Pre-weatherization measures may include things like roof
28 repair/replacement; remediation or abatement of lead, asbestos, pests, or mold; and/or

²³⁰ TECH Low-Income Leveraging Pilot Final Report at 17, 33.

²³¹ TECH Low-Income Leveraging Pilot Final Report at 4, 18–19.

²³² Ex. SCE-02, ESA Testimony at 41–42.

²³³ *Id.*

²³⁴ Similarly, SCE refers to what I call “pre-electrification work” as “customer enablement activities.” See Exh. SCE-02, ESA Testimony at 42, fn. 48.

²³⁵ See, e.g., U.S. DOE, *Weatherization Program Notice 24-9*, at 2 (Apr. 14, 2025), https://www.energy.gov/sites/default/files/2025-04/wap-wpn-24-9-revised_041425.pdf (providing implementation guidance for the Weatherization Readiness Program, which funds pre-weatherization work that enables participation in federally-funded Weatherization Assistance Program (“WAP”)); American Council for an Energy-Efficient Economy (“ACEEE”), *Estimating the Impacts of Weatherization Readiness Programs*, at v, x (June 2025), <https://www.aceee.org/sites/default/files/pdfs/b2504.pdf>.

repairs to walls, ceiling, floors, and building foundations.²³⁶ In this case, a customer might not be fully turned away from ESA due to extensive pre-work, but could be turned away from receiving a specific measure, like a heat pump, and instead given other ESA measures that do not require pre-work to deploy (e.g., power strips).²³⁷

Q. Is electrification-enabling work currently covered by ESA?

A. Yes, to an extent. Currently, much of this work is categorized within ESA as either “remediation,” “minor home repairs,” or “electrical auxiliary measures.”²³⁸

“Remediation” work within ESA refers to electrical or non-electrical building repairs that are directly required to “facilitate safe and code compliant installation” of a measure.²³⁹

For example, electrical repairs that correct code violations, address electrical safety hazards, or facilitate measure installation are considered electrical remediation.²⁴⁰ Non-electrical building remediation includes work necessary for equipment installation that is not electrical repairs, such as creating physical clearance for the equipment, removal of hazardous materials, and removing or addressing physical obstacles to the installation (e.g., rerouting plumbing or electrical).²⁴¹

Minor home repairs are a separate category subject to separate cost caps.²⁴² Minor home repairs include a variety of work that is needed to facilitate measure installation, prevent air infiltration, and address hazards. Per the Installation Standards Manual, specific measures have minor home repairs associated with them that are tailored to the measure itself. For example, minor home repairs associated with the installation of heat pump water heaters include installing pipe insulation, earthquake straps, and drain pans, repairing deteriorated flooring, and many other measure-specific tasks.²⁴³

Panel upgrades and replacements, new circuits and/or sub-panels, and non-coincident load sharing devices to serve fuel substitution measures are described as “auxiliary

²³⁶ Ryan Anthony et al., *Frontiers of Weatherization: Evolving Programmatic Needs and Expanding Evaluation Tools*, 130 Energy Research & Social Science at Appx. C, Table C.2 (2025), <https://www.sciencedirect.com/science/article/pii/S2214629625005237>.

²³⁷ See, e.g., Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-05, Q. 5.

²³⁸ Statewide Energy Savings Assistance Program 2021–2026 Cycle Policy and Procedures Manual (v1.6), 35–36, 106–108 (June 30, 2026) (“ESA Policy and Procedures Manual v1.6”), <https://www.cpuc.ca.gov/-/media/cpuc-website/consumer-support/documents/20260630-statewide-esa-program-pp-manualv16.pdf>.

²³⁹ *Id.* at 106.

²⁴⁰ *Id.* at 106, Table 7-1; Energy Savings Assistance Program California Installation Standards v1.5, at Section 805 (PDF pp. 966–975) (Jan. 1, 2026) (“IS Manual v1.5”).

²⁴¹ ESA Policy and Procedures Manual v1.6 at 107–108.

²⁴² *Id.* at 35–36.

²⁴³ IS Manual v1.5 at 601-5–601-6 (PDF pp. 820–821).

measures” in the current iteration of the Policy and Procedures Manual.²⁴⁴ Auxiliary Measures for fuel substitution are separate from remediation and minor home repairs.²⁴⁵

Q. Is this segmentation necessary?

A. No. Separating out electrification-enabling work across multiple categories with their own separate cost caps introduces unnecessary complexity and constraints on implementation. As the ESA program evolves to center the “strategic imperative” of low-income building decarbonization and meaningful home energy treatments, the Commission should collapse these categories and create clear guidance for the IOUs on how to track and assess these costs. Doing so will facilitate wholistic home assessments, rather than try to fit electrification-enabling work into buckets designed for a past iteration of ESA.²⁴⁶ As they currently stand—dictated in part by the ESA Policy and Procedures Manual—cost caps for electrification-enabling remediation, minor home repairs, and electrical auxiliary measures are a complex web, with bespoke definitions and procedures for each IOU that are not included in the manual and are thus opaque to stakeholders.²⁴⁷ While I appreciate the need for implementation flexibility at the IOU level, I recommend that the Commission set forth a more specific framework than currently exists to classify costs as measure costs versus electrification-enabling costs, and to set general procedures for the IOUs to assess electrification-enabling costs wholistically for each project.

²⁴⁴ ESA Policy and Procedures Manual v1.6 at 105.

²⁴⁵ See *id.*, see also IS Manual v1.5 at 804-A (PDF p. 954) (requiring fuel substitution or switching measures as a feasibility criterion for electrical auxiliary measures), 601-5-6 (PDF pp. 820-821) (identifying minor home repairs to support the installation of electric appliances, including “install new circuit” and “install subpanel for new circuit”).

²⁴⁶ Exh. SCE-05, Appendices and Witness Qualifications, at D-4.

²⁴⁷ The IOUs each appear to treat these costs differently, making it extremely difficult to compare data and make statewide recommendations. For example, in discovery, PG&E noted that it includes no forecasted budget in the “Remediation/Upgrade costs” category on its Planning Assumption spreadsheets because all of these costs are “included in the measure installation costs,” which is “similar to how PG&E reports minor home repair costs.” Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-06, Q. 4(d). In a discovery response to TURN, PG&E broke out the embedded costs for “remediation measures, such as electric panel upgrades” from its measure budget projections, revealing \$19.4 million in planned budget for these costs over the course of the program cycle. Attach. 11, PG&E Response to Data Request TURN-PG&E-06, Q. 8. In contrast, SCE includes a line item in its Planning Assumption spreadsheets for “Electrical MHR for Fuel Sub,” which is separate from the line item for “Minor Home Repairs” and which makes up 6.6% of its annual program budget, but which does not appear to include electrical auxiliary measures, which SCE has indicated are considered as part of the fuel substitution measure cost. See Exh. SCE-05, Appendices and Witness Qualifications, at Table A-1, Planning Assumptions ESA Program, under “Enclosure” measures; see also Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 7.

1 **Q. What are the current cost caps for electrification-enabling remediation work?**

2 **A.**

3 *Table 4: Electrification-Enabling Remediation Cost Caps in the Current Cycle*

Utility	Cost Cap for Electrification-Enabling Remediation Measures
SCE	SCE does not have hard cost caps but provided “implementation guidance” for these costs in the current cycle. For fuel substitution measures in ESA Main, SCE’s guidance set an average remediation level of \$3,600 per home for electrification-enabling remediation work, and a per-home cap of \$5,400. ²⁴⁸ The \$5,400 per-home soft cap was set as 150% of the average guidance level, similar to the way the Minor Home Repairs per-home maximum is set. ²⁴⁹
PG&E	PG&E has not established average or per-home cost caps for electrification-enabling remediation work because it does not yet offer fuel substitution through its ESA Main Program. ²⁵⁰ In its Pilot Plus/Pilot Deep Program, which does provide fuel substitution measures, PG&E did not adopt an average cost cap, but does provide “up to \$2,500 per project for remediation,” which can be exceeded with approval from the PG&E program manager. ²⁵¹
SDG&E	SDG&E does not have a cost cap for electrification-enabling remediation in its ESA Main program because it does not offer electrification measures through ESA Main. However, for Pilot Plus/Pilot Deep, SDG&E includes auxiliary measures supporting fuel substitution within its “home mitigation cost caps,” which are \$5,000 per home for Pilot Plus and \$7,500 per home in Pilot Deep. ²⁵²

4
5 **Q. What are the current cost caps for minor home repairs?**

6 **A.** Minor home repairs are currently subject to a maximum per-home cost cap that is derived
7 from the average cost per home receiving services.²⁵³ The Commission determined the
8 current \$1,700 average cost-per-home in D.21-06-015 by “dividing the IOUs’ total
9 proposed budget of \$2.6 billion by the IOUs’ total proposed number of treatments of 1.5

²⁴⁸ Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 1(b), 1(d).

²⁴⁹ Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 1(e).

²⁵⁰ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-05, Q. 1.

²⁵¹ *Id.*

²⁵² Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-04, Q. 1.

²⁵³ ESA Policy and Procedures Manual v1.6 at 36.

million.”²⁵⁴ The Commission then adopted a \$2,500 maximum per-home cost cap for minor home repairs, and delegated authority to the ESA Working Group to adjust that cap on an ongoing basis to be up to 150% of average costs per household.²⁵⁵ The Policy and Procedures Manual notes that the individual home cost cap is the “limits on the cost that can be incurred for an individual home without the specific approval of the utility Program Manager,” indicating that utility Program Managers have flexibility to approve minor home repairs cost cap exceedances based on the total costs and the need for the repairs.²⁵⁶

Q. Are there cost caps for electrical auxiliary measures that support fuel substitution measures?

A. Costs of electrical auxiliary measures installed to support fuel substitution measures (i.e., panel upgrades or upsizes, new circuits, subpanels, and circuit splitting devices) are treated separately from remediation and minor home repairs. Because the ESA Working Group has not established a statewide maximum per-home cost for fuel substitution measures, the IOUs each have been tasked with identifying their own.²⁵⁷ However, because fuel substitution measures have not been widely deployed in ESA thus far outside of pilots, the IOUs have not all identified cost caps for the “auxiliary measures” that support them. Currently, the cost caps for homes receiving fuel substitution are:

Table 5: Cost Caps for Electrical Auxiliary Measures for Fuel Substitution by Utility

Utility	Cost Cap for Electrical Auxiliary Measures for Fuel Substitution
SCE	SCE includes the costs of auxiliary measures within measure costs for fuel substitution measures. ²⁵⁸ Thus, there is no specific cost cap for auxiliary measures, but SCE’s fuel substitution implementation guidance uses a \$31,000 cost cap per home. ²⁵⁹
PG&E	PG&E has not established a cost cap for electrical auxiliary measures as it does not currently install fuel substitution measures through ESA Main. ²⁶⁰ While the Pilot Plus/Pilot Deep programs did provide fuel substitution measures, they did not establish a cost cap for auxiliary measures because a pilot goal was “to understand the cost associated achieving deeper energy

²⁵⁴ D.21-06-015 at 198.

²⁵⁵ *Id.*

²⁵⁶ ESA Policy and Procedures Manual v1.6 at 35.

²⁵⁷ *Id.* at 109.

²⁵⁸ Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 7.

²⁵⁹ Attach. 7, SCE Response to Data Request Sierra Club-SCE-02, Q. 7(b).

²⁶⁰ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-05, Q. 7.

	savings, such as electrification measures.” ²⁶¹ PG&E states that it “plans to establish a cost cap procedure” for these measures. ²⁶²
SDG&E	SDG&E includes auxiliary measures for fuel substitution in its MFWB and Pilot Plus/Pilot Deep offerings. For MFWB, there is no hard cost cap, although SDG&E “is using the existing MFWB Minor Home Repair (MHR) cost caps as an interim benchmark” and has not actually installed any auxiliary measures through MFWB to date. ²⁶³ For Pilot Plus/Pilot Deep fuel substitution measures, SDG&E includes auxiliary measure costs “in the applicable per-home mitigation cost limits,” which are \$5,000 per home in Pilot Plus and \$7,500 for Pilot Deep. ²⁶⁴

Q. Do current allowances provide sufficient funding for necessary pre-electrification work?

A. In many instances, no.²⁶⁵ As a result, those low-income households are left behind in the energy transition and are denied the health, comfort and safety benefits of non-polluting appliances. Customers with the highest cost estimates for pre-electrification work may be those with the starkest need for the HCS benefits that electrification would carry. For example, in the TECH Low-Income Leveraging Pilot, mobile homes and pre-1978 homes each had significantly higher average costs than their single-family home and post-1978 home counterparts.²⁶⁶ Similarly, TECH’s analysis found that “[d]isadvantaged community status had a strong relationship with remediation costs and needs.”²⁶⁷ If ESA programs are turning away these customers due to high pre-electrification costs—or only providing them with basic measures like lightbulbs, weatherstripping, and power strips—then ESA will be exacerbating inequities by denying customers whose homes are most in need of treatment and who live in regions with a higher potential benefit for hardship reduction.

²⁶¹ *Id.*

²⁶² *Id.*

²⁶³ Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-04, Q. 7(a), 7(b).

²⁶⁴ Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-04, Q. 7(a), Q. 1(a).

²⁶⁵ TECH Low-Income Leveraging Pilot Final Report at 18–19 (identifying 431 households served by TECH in the pilot from the PG&E ESA Main, SCE ESA Main, and SCE BE Pilot Programs whose costs would otherwise have exceeded per home caps), 33 (“an increase in remediation budget allowing up to \$10,000 in total remediation and minor home repair work within the ESA program would have enabled 468 additional homes across the three leveraged and partner programs to participate.”).

²⁶⁶ TECH Low-Income Leveraging Pilot Final Report at 30.

²⁶⁷ *Id.* at 29.

1 **Q. Does increased funding for electrification-enabling work further the goals of ESA?**

2 **A.** Yes. As an initial matter, electrification-enabling work that results in building envelope
3 improvements helps ensure that participants' HVAC measures will be able to deliver their
4 promised energy and bill savings.²⁶⁸ Further, pre-weatherization work that increases
5 building performance or reduces indoor health hazards carries significant hardship
6 reduction and HCS benefits, which are explicit goals of ESA. A 2023 report by ACEEE
7 found that envelope improvements provided a wide range of benefits beyond simply
8 energy and climate benefits, including:²⁶⁹

- 9 • Improved indoor air quality due to reductions in uncontrolled air exchange
10 between outdoor and indoor environments (i.e., reduced infiltration);
- 11 • Increased thermal comfort and reductions in temperature gradients across floors
12 of a building;
- 13 • Increased building resilience during power outages, especially during periods of
14 extreme heat or cold; and
- 15 • Enhanced grid interactivity of buildings by enabling load shifting through pre-
16 heating or pre-cooling.

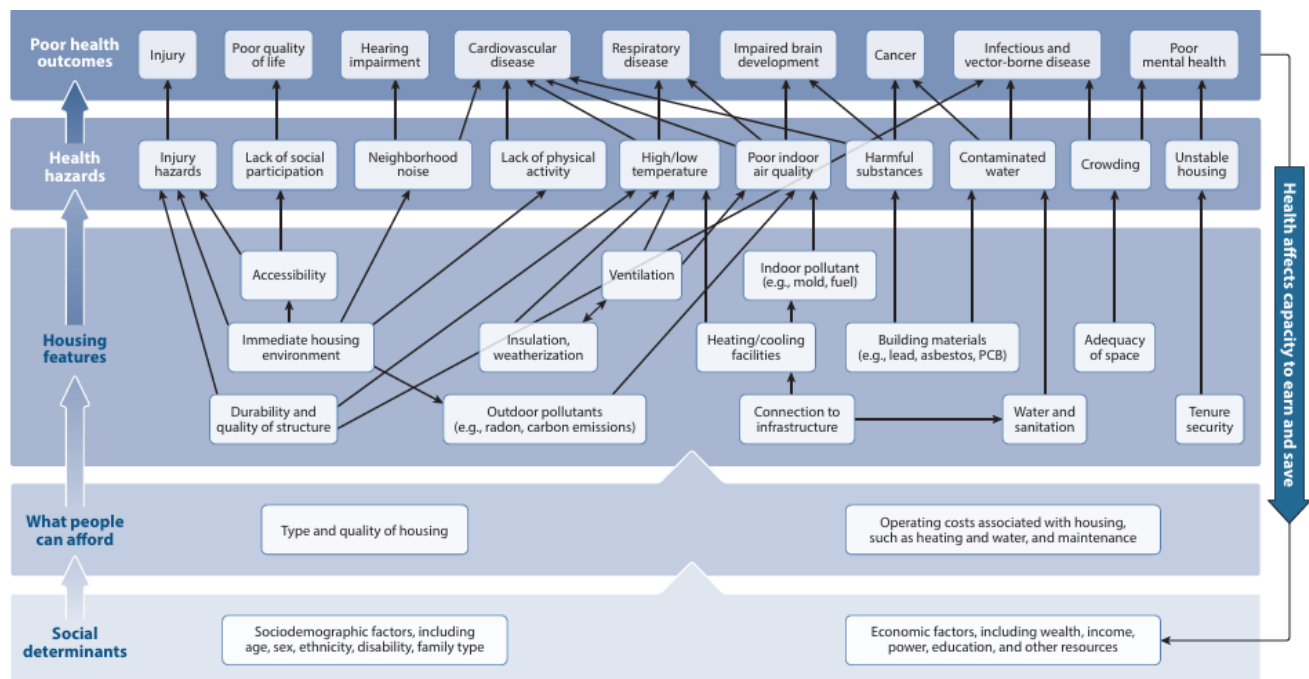
17 The relationship between housing quality and health outcomes has been widely studied.
18 The following visualization from a 2022 study reflects several factors that intersect with
19 ESA's scope. ESA, including through pre-weatherization work, has the capacity to impact
20 every factor identified in the "housing features" category, as well as the "what people can
21 afford" category:²⁷⁰

²⁶⁸ See ACEEE, *Empowering Electrification through Building Envelope Improvements*, at 6–7 (July 13, 2023) ("ACEEE, *Empowering Electrification through Building Envelope Improvements*"), https://www.aceee.org/sites/default/files/pdfs/empowering_electrification_through_building_envelope_improvements_-_encrypt.pdf ("The average residential customer who weatherizes an electrified home can expect to save an additional \$150–\$1,200 in operational costs per year, with most households saving \$500–800 per year."); TECH Low-Income Leveraging Pilot Final Report at 37.

²⁶⁹ ACEEE, *Empowering Electrification through Building Envelope Improvements* at 8–9.

²⁷⁰ Philippa Howden-Chapman et al., *Review of the Impact of Housing Quality on Inequalities in Health and Well-Being*, 44 Annual Rev. Publ. H., at 235 (Apr. 2023), <https://doi.org/10.1146/annurev-publhealth-071521-111836>.

Figure 6: Housing Pathways to Public Health



Q. Is increasing coverage of these costs consistent with state policy?

A. Yes. The Commission has expressed a desire to move the ESA Program toward “deeper and more thoughtful retrofits” that “maximize the individual household’s energy savings, and HCS benefits based on the household’s unique profile.”²⁷¹ Increasing coverage of pre-electrification costs is necessary to accomplish this goal for many of the homes most in need of ESA treatments, and will continue to incentivize treatment of homes whose costs are below the portfolio average.

Pre-weatherization work that removes hazardous conditions inside Californians’ homes also serves the state’s healthy homes policies. In its 2025–2030 Strategic Plan, the California Department of Public Health (“CDPH”) identified “[a]dvanc[ing] health equity, health promotion and disease prevention through strategic approaches that address root causes” as an objective of its Strategic Priority #1: to “Build a Healthy California for All.”²⁷² CDPH notes that reaching these goals will require addressing “systems, structures and policies that lead to health inequities and structural racism,” and making “lasting changes to policies and environments.”²⁷³ Removing and remediating health hazards such as lead, asbestos, and mold from homes is a form of disease prevention, and

²⁷¹ D.21-06-015 at 164.

²⁷² Cal. Dept. of Public Health, *Strategic Plan 2025–30* (Mar. 6, 2026), <https://www.cdph.ca.gov/Pages/Strategic-Plan/Strategic-Priorities-Objectives-And-Strategies.aspx>.

²⁷³ *Id.*

1 is appropriate to include in ESA treatments where necessary to safely install or operate
2 the appliances provided through the program.²⁷⁴

3 CDPH has long identified policy goals of supporting healthy housing through
4 “comprehensive, coordinated, and sustainable” efforts by a wide range of responsible
5 entities, including government agencies, health and housing advocates, policymakers,
6 healthcare and social service providers, property owners, building managers, and
7 others.²⁷⁵ In one comprehensive report, CDPH highlighted pest intrusion, mold growth,
8 peeling lead-based paint, and broken structural elements as examples of “housing issues
9 with health consequences” that should be addressed.²⁷⁶

10 Further, in 2015, California became the first state in the nation to include mold as an
11 enforceable substandard housing condition in SB 655 (Mitchell 2015).²⁷⁷ Pursuant to SB
12 655, inadequate sanitation that can lead to the presence of mold—and thus classifies a
13 dwelling as substandard and subject to enforcement—includes lack of adequate heating,
14 below-code ventilation, and lack of required electrical lighting, among other things.²⁷⁸
15 Structural hazards under SB 655 include deteriorated or inadequate foundations, flooring,
16 floor supports, walls, ceilings, roofs, fireplaces, and chimneys.²⁷⁹ Wiring and plumbing
17 that is not in “good and safe condition and working properly” and “faulty weather
18 protection,” are also listed as hazards.²⁸⁰ Thus, ESA treatments that address these
19 conditions while providing energy-related services can advance the state’s healthy
20 housing goals.

21 Further, increasing coverage of pre-electrification work is consistent with the ESJ Action
22 Plan. Specifically, this work advances Goal 2: Increase investment in clean energy
23 resources to benefit ESJ Communities, especially to improve local air quality and public
24 health; as well as Goal 4: Increase climate resiliency in ESJ Communities.²⁸¹

²⁷⁴ See e.g., generally, Patrick Breyse et al., *The Relationship between Housing and Health: Children at Risk*, 112 *Env’tl Health Perspectives* Number 1583 (Nov. 2004), <https://pmc.ncbi.nlm.nih.gov/articles/PMC1247625/pdf/ehp0112-001583.pdf>.

²⁷⁵ CDPH, *The Overlapping Issues of Health and Housing: A Report on California Statewide Data and Healthy Housing Indicators*, at 1 (Oct. 2013), <https://www.cdph.ca.gov/Programs/CCDC/DEOD/CEHIB/CPE/CDPH%20Document%20Library/Mold/HealthyHousingIndicators.pdf>.

²⁷⁶ *Id.*

²⁷⁷ Cal. Health & Safety Code § 17920.3; see also California Healthy Housing Coalition, *Habitability Workgroup: Accomplishments*, <https://cahealthyhousing.org/habitability/> (last accessed Aug. 16, 2026).

²⁷⁸ Cal. Health & Safety Code § 17920.3(a).

²⁷⁹ *Id.* at § (b).

²⁸⁰ *Id.* at § (d), (e)–(g).

²⁸¹ ESJ Action Plan 2.0 at 23–24.

1 **Q. Please describe the results of the TECH pilot supplementing ESA’s existing limits on**
2 **electrification-enabling work.**

3 **A.** Through its Low-Income Leveraging Pilot, TECH offered additional funding and a wider
4 scope of electrification-enabling work to participants in the San Joaquin Valley Pilots and
5 ESA whose homes could not be electrified within their programs’ cost caps and
6 definitional limits.²⁸² For the purposes of its pilot, TECH defined “remediation” as
7 “improvements that enhance energy efficiency or performance in the home, such as
8 insulation (wall, ceiling, attic), air sealing, and duct sealing,” and defined “minor home
9 repairs” as follows:²⁸³

10 Minor home repairs refers to the enabling work required to install
11 new electric appliances safely and successfully, such as electrical
12 work (e.g., panel or wiring upgrades), trenching associated with new
13 service lines, relocating a water heater, fixing a roof or addressing
14 space constraints, removing vegetation or other barriers to panel
15 access, and installing smoke or CO2 alarms in accordance with
16 code.

17 Note that these definitions of remediation and minor home repairs are not identical to
18 those in the ESA Policy and Procedures Manual, but overall align with what I believe
19 should be considered “electrification-enabling” work. This definitional disparity
20 highlights the need for the Commission to simplify and define the types of pre-work
21 needed, which are obscured by the current segmentation and IOU-specific procedures.

22 TECH reported providing the following supplemental funding amounts overall, which
23 were applied on top of the maximum allowable costs for remediation and minor home
24 repairs provided by the original program (i.e., San Joaquin Valley Pilot or ESA).²⁸⁴

25 *Figure 7: TECH Low-Income Leveraging Pilot Costs*

Table 4: Supplemental remediation and minor home repair cost ranges

Ranges	Cost
Average	\$ 5,893
Median	\$ 5,226
5th Percentile	\$ 1,256
95th Percentile	\$ 15,363
Average – Mobile Home	\$11,203
Average – Single-Family	\$5,197

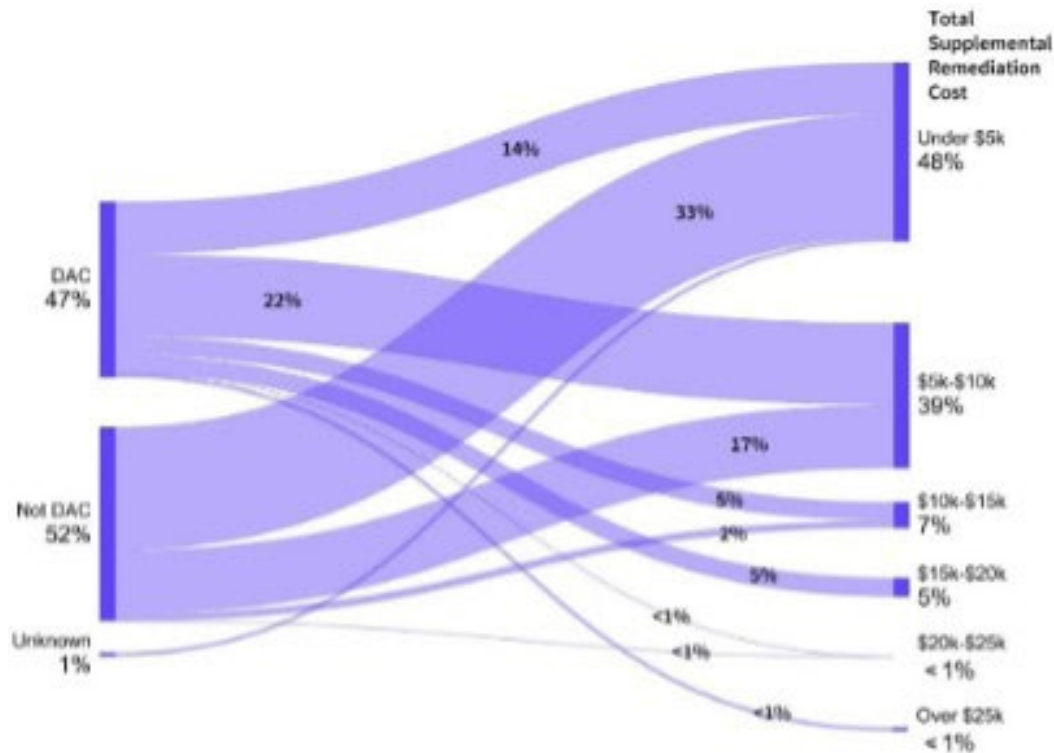
26
²⁸² TECH Low-Income Leveraging Pilot Final Report at 17–19.

²⁸³ *Id.* at 13.

²⁸⁴ *Id.* at 24.

1 According to TECH, 87% of its projects required less than or equal to \$10,000 in
2 supplemental remediation and minor home repair needs, with DAC status correlated to
3 higher remediation needs.²⁸⁵

4 *Figure 8: Supplemental Costs and DAC Status in the TECH Low-Income Leveraging Pilot*



5
6 **Q. How do existing ESA caps on electrification-enabling work limit access to non-**
7 **polluting appliances?**

8 **A.** As TECH has noted, high costs for pre-electrification work “such as electrical panel
9 upsizing or upgrades, or extensive home repairs . . . frequently prevent projects from
10 moving forward under current program funding caps and eligibility rules,” thus creating
11 “systemic barriers to equitable adoption of electrification technologies—leaving many
12 households who would benefit from resilience upgrades, lower energy costs, and carbon
13 reductions unable to participate.”²⁸⁶ Currently, as described above, ESA budgets for work
14 needed to enable electrification are spread across multiple categories that are
15 unnecessarily delineated and subject to varying cost caps. Addressing these costs on a
16 wholistic level without needlessly sorting them into different buckets and measuring
17 them against insufficient per-home cost caps would enable greater access.²⁸⁷ TECH noted
18 that in its Low-Income Leveraging Pilot, collaboration with ESA program administrators

²⁸⁵ *Id.* at 25, 29.

²⁸⁶ *Id.* at 12–13.

²⁸⁷ *See id.* at 21–22.

1 and the addition of TECH funding that was not categorically constrained “allowed for a
2 more holistic approach to home electrification,” as TECH could provide funding “to
3 cover the full package of work associated with installing comprehensive heat pump and
4 HVAC upgrades, including remediation costs that the ESA program could not fund.”²⁸⁸

5 Expanding ESA pre-electrification budgets and removing unnecessary sorting of these
6 costs into different buckets is a minimal first step that the Commission should take to
7 continue evolving ESA on its trajectory to provide deeper treatments and hardship
8 reductions to California’s low-income households. Even with the steps I recommend,
9 there will be outlier households whose homes will take significantly more investment to
10 electrify—TECH’s highest outlier had “just over \$36,000” in remediation and home
11 repair costs.²⁸⁹ Shifting ESA funding away from light-touch measures and toward these
12 critical upgrades will ensure that more program participants are able to access deeper
13 energy savings and non-energy benefits of zero-emission appliances.

14 **Q. What are the recommendations from the TECH Low-Income Leveraging Pilot on**
15 **more effectively addressing pre-electrification costs for ESA recipients?**

16 **A.** TECH stressed the need for flexibility in directing funding and the need for policymakers
17 to prioritize investment in long-term benefits of low-income electrification.²⁹⁰ TECH
18 recommended adopting a portfolio-wide average cost target rather than per-home cost
19 caps and giving program administrators more flexibility to balance higher- and lower-cost
20 projects.²⁹¹ Further, TECH urged policymakers to “ensure that funding sources are
21 aligned to deliver the highest value” when stacked with other programs, and to “tak[e]
22 advantage of flexible funding sources to complement less-flexible sources.”²⁹² In
23 addition, TECH recommended that policymakers prioritize investments that will enable
24 low-income households to electrify, including electrification-ready measures and panel
25 optimization strategies, as part of planning “for long-term equity and market
26 transformation by investing in technological, financial, and delivery solutions tailored to
27 serve high-need, high-cost homes over time.”²⁹³

28 **Q. What is your recommendation for more effectively addressing pre-electrification**
29 **needs for ESA customers?**

30 **A.** There is a range of different approaches that the Commission could take to boost funding
31 and flexibility while reducing complexity for program administrators and implementers
32 regarding pre-electrification work.

²⁸⁸ *Id.* at 22.

²⁸⁹ *Id.* at 26.

²⁹⁰ *Id.* at 41–42.

²⁹¹ *Id.* at 41.

²⁹² *Id.*

²⁹³ *Id.* at 41–42.

1 As one option, the Commission could eliminate per-home cost caps for pre-electrification
2 work and adopt the flexible approach used—and recommended—by the TECH Low-
3 Income Leveraging Pilot instead.²⁹⁴ For their pilot, TECH adopted a “targeted average
4 funding approach” at a portfolio-wide level, setting a “\$5,000 soft cap” for additional
5 funds per project in addition to “\$3,000 from the ESA program itself,” but allowed
6 “flexibility for outliers that required additional funding.”²⁹⁵ TECH was able to “maintain
7 overall cost efficiency” by balancing high-cost outlier projects with lower-cost
8 projects.²⁹⁶ TECH noted that 91% of single-family homes and 58% of mobile homes
9 treated in its pilot required \$10,000 or less in supplemental funding.²⁹⁷

10 Based on this data, the Commission could direct the IOUs to implement a portfolio-
11 average target of \$8,000 per home for remediation and minor home repair costs
12 combined. This figure is based on the funding level provided by the TECH Low-Income
13 Leveraging Pilot: \$3,000 of ESA funds stacked with a “soft cap” of \$5,000 of
14 supplemental TECH funding. Adopting an average target of \$8,000 per home would
15 allow the IOUs to balance lower-cost projects, like many of the single-family homes who
16 were treated through the TECH pilot, with higher-cost projects that may be more likely to
17 occur in mobile homes or homes with more deferred maintenance.

18 I also recommend that the Commission make explicit that treatments such as roof repairs
19 and remediation or containment of asbestos, lead, and mold/moisture are authorized
20 activities within pre-electrification budgets to the extent these treatments are needed to
21 ensure safe and efficient installation and operation of the new appliances.

22 **Q. What approach do you recommend for funding electrical auxiliary measures that**
23 **are triggered by electrification measures in ESA?**

24 **A.** I recommend eliminating the segmentation of these costs from other electrification-
25 enabling work. Simplifying the analysis of funding sources and limitations for different
26 types of electrification-enabling work will reduce administrative complexity and allow
27 implementers to assess holistically what work needs to be done to properly treat the
28 home and provide the core appliance measures.

29 It is critical that the Commission both unlock funds for auxiliary measure costs while also
30 expressly authorizing the IOUs to pursue panel optimization strategies that can avoid the
31 need for costly panel upsizes in many instances. A growing body of data from
32 electrification projects, including low-income pilots, shows that many households can
33 fully electrify on a 100 amp electrical panel and do not need service or panel upsizes,

²⁹⁴ *Id.* at 37.

²⁹⁵ *Id.* at 23, 37.

²⁹⁶ *Id.* at 37.

²⁹⁷ *Id.* at 25.

1 particularly when panel optimization strategies are employed.²⁹⁸ These strategies include
2 choosing high-efficiency and power-efficient appliances, avoiding oversizing equipment,
3 choosing multifunction appliances (e.g., ranges rather than separate cooktops and ovens),
4 employing devices that enable circuit-sharing and circuit-pausing, and decreasing loads
5 through envelope improvements.²⁹⁹

6 Current-cycle ESA pilots have revealed that ESA households have a wide range of
7 upgrade needs. For example, in PG&E’s Pilot Plus/Pilot Deep programs in the 2021–
8 2026 cycle, PG&E reported that only “about 4.3% of projects that received electrification
9 upgrades received a panel upgrade.”³⁰⁰ However, SCE’s BE Pilot Project-Midpoint
10 Evaluation Findings reported that 35% of projects needed panel upgrades, compared to
11 85% that needed circuit upgrades to facilitate installation of their new appliances.³⁰¹

12 To avoid incurring unnecessary upgrade costs, the Commission should actively
13 encourage IOUs’ efforts to pursue panel optimization strategies in the 2028–2033 ESA
14 Cycle. TECH noted that for its Low-Income Leveraging Pilot, existing program rules for
15 the San Joaquin Valley Pilots and ESA constrained TECH from “manag[ing] individual
16 projects against a ‘Watt Diet’ or panel optimization approach,” and that “[i]t will be
17 critical for all electrification programs moving forward to require a panel optimization
18 approach and minimize unnecessary and expensive upgrades.”³⁰² The IOUs are beginning
19 to incorporate these approaches to ESA, and the Commission should make its support
20 clear. For example, PG&E has indicated that it explored some panel optimization
21 techniques through its Pilot Plus/Pilot Deep programs, including “smart panels, circuit
22 splitters, and lower voltage heat pump water heaters,” but that thus far, “only lower
23 voltage heat pump water heaters have been deployed while other strategies are under
24 consideration and evaluation.”³⁰³ Similarly, SDG&E is planning to investigate whether

²⁹⁸ See, e.g., R.19-01-011, *R.19-01-011 Phase 4A Staff Proposal*, at 19–22 (July 18, 2024), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M536/K015/536015666.PDF>; Westlight Energy (formerly Peninsula Clean Energy), *Case Study of Whole-Home Electrification at Nine Low-Income Homes in San Mateo County*, at 4 (Jan. 2026), <https://library.peninsulacleanenergy.com/m/24e2e90876980d43/original/Case-Study-of-Whole-Home-Electrification-in-San-Mateo-County.pdf> (low-income whole-home electrification pilot treated nine homes and none needed panel upsizes, including five homes with 100 amp existing service); TECH Low-Income Leveraging Pilot Final Report at 27; Stephanie Pinceti et al., *Equitable Electrification of Existing Buildings: A Pathway to Decarbonization*, at 50 (Jan. 21, 2026) (CARB, *Equitable Electrification of Existing Buildings*), <https://www.ioes.ucla.edu/wp-content/uploads/2026/06/Research-Contract-21STC023-Final-Report.pdf>.

²⁹⁹ TECH, *Good Stewardship of the Electric Panel*, at 64 (Jan. 23, 2024), https://techcleanca.com/documents/4159/Panel_Symposium.pdf.

³⁰⁰ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03, Q.14.

³⁰¹ Attach. 12, SCE Presentation on ESA Building Electrification (BE) Pilot Project-Midpoint Evaluation Findings, at 23 (PDF p. 13) (Aug. 2026).

³⁰² TECH Low-Income Leveraging Pilot Final Report at 27.

³⁰³ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03, Q.14(d).

1 load management devices, dedicated circuits, 120-volt induction ranges, circuit-sharing
2 technologies, and subpanels can avoid panel upgrades and facilitate electrification
3 through ESA.³⁰⁴

4 For the 2028–2033 cycle, the Commission should support IOUs continuing to evaluate
5 and incorporate panel optimization techniques where feasible, and should ensure that
6 adequate program funding is available for upgrades and upsizes where truly needed.

7 **Q. What are potential sources of funding within existing ESA budgets for increased**
8 **funds for pre-electrification work?**

9 **A.** In D.21-06-015, the Commission noted that the IOUs had underspent their ESA budgets
10 by 10 to 30 percent annually since 2009.³⁰⁵ While the utilities have utilized higher
11 percentages of their ESA Main budgets in recent years, annual report data shows that
12 PG&E still spent only 29% of its MFWB budget in 2025, and only 44% of its Pilot
13 Plus/Pilot Deep budget.³⁰⁶ SDG&E used 78% of its ESA Main budget, 74% of its MFWB
14 budget, and 65% of its Pilot Plus/Pilot Deep budget.³⁰⁷ Similarly, SCE spent 61% of its
15 MFWB budget and 67% of its ESA Whole Home Pilot budget.³⁰⁸ While SCE spent 112%
16 of its BE Pilot budget, in its 2027 Bridge Funding Application, SCE sought to reallocate
17 \$40.1 million of unspent funds from its other pilots to continue the ramp-up of the BE
18 Pilot in preparation to incorporate it into ESA Main in the 2028–2033 cycle.³⁰⁹ Thus,
19 continuing the BE Pilot through the bridge year would not have required additional
20 budget authorization beyond what had already been approved. Allocating funding
21 amounts for the type of work completed through the pilots into ESA Main budgets in the
22 next cycle—due to the sunseting of the pilots and the deepening of intended ESA Main
23 treatments—can offset increases to ESA Main Budgets to cover pre-electrification work.

24 In addition, as discussed below, the IOUs other than SCE have proposed substantial
25 spending on gas-burning appliance measures for the 2028–2033 ESA Cycle. If the
26 Commission prohibits continued use of ratepayer funds for like-for-like gas appliance
27 replacements as recommended below or only allows their installation under limited
28 circumstances, funding that is currently projected for gas appliances and repairs to
29 facilitate their installation, such as plumbing upgrades, could be used for electrification
30 measures and pre-electrification work.

³⁰⁴ Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-05, Q. 10.

³⁰⁵ D.21-06-015 at 310–311.

³⁰⁶ PG&E 2025 IQP Annual Report at 8, 11, 24.

³⁰⁷ SDG&E 2025 IQP Annual Report at 7, 14.

³⁰⁸ SCE 2025 IQP Annual Report at 12, 16. The Whole Home Pilot is SCE’s Pilot Plus and Pilot Deep program.

³⁰⁹ A.25-06-022, *Testimony of Southern California Edison Company (U-338-E) in Support of Application for 2027 Income Qualified Program Bridge Funding: Exhibit 1 – SCE’s Proposed 2027 Income Qualified Program Bridge Funding Request* at 39 (June 30, 2025), <https://docs.cpuc.ca.gov/PublishedDocs/SupDoc/A2506025/8292/571244397.pdf>.

1 **4. The Commission Should Approve the Southern Region IOUs’**
2 **Requests to Return to Locally-Administered MFWB Programs.**

3 **Q. Do you generally agree with SCE’s proposed return to local control of its**
4 **multifamily offerings?**

5 A. Yes. SCE proposes—consistent with SoCalGas and SDG&E—to retire the regional
6 administration of the Southern MFWB program and return to treating multifamily
7 properties through its own ESA Main program.³¹⁰ Given the extreme challenges faced by
8 the regional administration of the Southern MFWB program, I support a return to local
9 administration of multifamily ESA treatments.

10 **Q. Do you have any concerns regarding SCE’s proposed local administration of**
11 **multifamily ESA services?**

12 A. I have concerns regarding the interplay of SCE and SoCalGas’ local administration of
13 MFWB treatments if SoCalGas is still permitted to install new gas appliances. For
14 example, SCE noted that one challenge to regional administration in collaboration with
15 SDG&E and SoCalGas was “misalignment with electrification goals and inconsistent
16 customer experiences across service territories,” which “contributed to diminished impact
17 and equity.”³¹¹ Because the regional program “was designed to accommodate the
18 priorities of multiple utilities,” it “did not consistently prioritize electrification measures,
19 fuel-substitution opportunities, or other activities intended to advance California’s climate
20 goals.”³¹²

21 I am concerned that if SoCalGas continues to offer gas appliance measures through
22 MFWB, SCE and SoCalGas’ respective MFWB programs may end up competing in the
23 2028–2033 cycle, and customers served by SoCalGas’ program might miss opportunities
24 for fuel substitution measures that they would have received through SCE’s program.

25 **Q. How do you suggest addressing that concern?**

26 A. As set forth below in my recommendations for SoCalGas’ ESA Application, eliminating
27 funding for like-for-like gas appliance replacements and requiring SoCalGas to install
28 heat pumps for space and water heating will avoid fuel-source competition between SCE
29 and SoCalGas’ programs. Thus, rather than undercutting SCE’s heat pump installations in
30 mutual service territory, the programs can collectively help more low-income households
31 obtain the HCS benefits of non-polluting appliances. To the extent the Commission
32 simply limits SoCalGas to weatherization and other therm saving measures that do not

³¹⁰ Exh. SCE-02, ESA Testimony at 76:2–10. *See also* Exh. SDG&E-03, ESA Testimony at ESA-3:6–8;
Exh. SCG-01 at OV and RC-10:22–11:18.

³¹¹ Exh. SCE-02, ESA Testimony at 16.

³¹² Attach. 7, SCE Response to Data Request Sierra Club-SCE-03, Q. 1.

involve installation of new polluting appliances, SoCalGas should be required to refer mutual SCE/SoCalGas customers to SCE for space and water heating treatments.

B. PG&E's ESA Proposals (Barker)

Q. Please summarize PG&E's proposals for ESA in the 2028–2033 cycle as they relate to electrification and continued investment in polluting appliances.

A. While PG&E proposes to direct meaningful funding to low-income electrification, PG&E's 2028–2033 ESA Application would still direct close to \$30 million to like-for-like gas appliance replacements.

PG&E proposes to treat between 50,000 and 60,000 households per year in the 2028–2033 cycle, plus a cycle total of 487 multifamily properties' common areas.³¹³

Electrification measure projections for ESA Main in the 2028–2033 cycle include:³¹⁴

Table 6: PG&E Electrification Measures in ESA Main Planning Assumptions for 2028–2033

Measure	2028	2029	2030	2031	2032	2033	Cycle Total
HPWH – Fuel Sub	100	752	813	838	828	770	4,101
HPWH Fuel Sub Budget	\$812,321	\$6,134,991	\$6,634,200	\$6,838,638	\$6,756,724	\$6,284,806	\$33,461,680
Ducted Heat Pump – Fuel Sub	0	106	511	744	812	755	2,928
Ducted Heat Pump Fuel Sub Budget	\$0	\$1,317,153	\$6,349,713	\$9,248,697	\$10,088,747	\$9,384,107	\$36,388,417
HPWH (Deep Savings), ³¹⁵	81	101	127	159	199	212	879
HPWH Deep Savings Budget	\$561,048	\$699,856	\$880,059	\$1,102,083	\$1,379,272	\$1,469,586	\$6,091,904
Heat Pump HVAC (Deep Savings Tier)	67	84	105	131	164	175	726
Heat Pump HVAC Deep Savings Budget	\$750,368	\$940,990	\$1,176,272	\$1,467,769	\$1,837,458	\$1,960,877	\$8,133,734
Induction Cooking Appliance – Fuel Sub	4	4	4	3	3	3	21

³¹³ Exh. PG&E-01E, Errata Testimony, at AppA-4, Table 6: Annual ESA Household Treatment Targets.

³¹⁴ Exh. PG&E-01E, Errata Testimony, at AppA-6, Table A-1, Planning Assumptions.

³¹⁵ Deep Savings refers to the Targeted Deep Savings Tier that PG&E has proposed, which I explain further in this section. See Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-06, Q. 4(e).

Induction Cooking Appliance Fuel Sub Budget	\$3,544	\$3,806	\$3,798	\$3,812	\$3,880	\$3,717	\$22,557
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For MFWB, electrification projections include:³¹⁶

Table 7: PG&E MFWB Electrification Measure Planning Assumptions 2028–2033

Measure	2028	2029	2030	2031	2032	2033	Cycle Total
Central Heat Pump - FS	0	7	42	32	87	66	234
Central Heat Pump – FS Budget	\$0	\$81,102	\$528,283	\$403,425	\$1,086,611	\$826,550	\$2,925,971
HPWH – FS (In-Unit)	9	93	96	77	69	47	391
HPWH – FS (In-Unit) Budget	\$72,759	\$760,326	\$780,034	\$630,345	\$565,938	\$387,441	\$2,566,498
Heat Pump Pool Heater - FS	7	12	32	33	33	25	142
Heat Pump Pool Heater – FS Budget	\$26,477	\$48,854	\$125,301	\$129,100	\$127,953	\$96,465	\$554,150
Ductless Mini-Split – FS (CAM)	21	41	42	44	43	33	224
Ductless Mini-Split – FS (CAM) Budget	\$42,190	\$84,094	\$88,862	\$94,302	\$96,268	\$74,755	\$480,471
HPWH – FS (CAM)	32	37	38	39	39	29	214
HPWH – FS (CAM) Budget	\$80,771	\$96,598	\$102,075	\$108,324	\$110,587	\$85,870	\$584,225

Thus, total budgets projected for these electrification measures in ESA Main and MFWB are:³¹⁷

Table 8: Total PG&E ESA Main and MFWB Electrification Budget Planning Assumptions 2028–2033

Program	2028	2029	2030	2031	2032	2033	Cycle Total
ESA Main	\$2,127,271	\$9,096,796	\$15,044,042	\$18,660,999	\$20,066,081	\$19,103,093	\$84,098,292
MFWB	\$222,197	\$1,070,974	\$1,624,555	\$735,151	\$1,987,357	\$1,471,081	\$7,111,315

³¹⁶ Exh. PG&E-01E, Errata Testimony, at AppA-7, Table A-1a, Planning Assumptions, ESA MFWB Program.

³¹⁷ These totals are the sum of the budget projections listed in the tables above, which were sourced from PG&E’s Planning Assumption Tables in the Appendices of Exh. PG&E-01E, Errata Testimony.

1 However, PG&E also intends to make significant investments in gas-burning measures,
2 particularly in early program years. In discovery, PG&E provided the following
3 breakdown of its Proposed Budgets for Gas Equipment Replacements.³¹⁸

4 *Table 9: PG&E Response to TURN Data Request Regarding Gas Equipment Replacement Measures*

Program	2028	2029	2030	2031	2032	2033	Cycle Total
ESA Main	\$11,381,019	\$8,349,248	\$3,891,466	\$1,166,582	\$371,427	\$345,485	\$25,505,227
MFVB	\$1,460,920	\$780,569	\$792,088	\$699,977	\$392,679	\$306,356	\$4,432,589

5 For program structures, PG&E proposes to deliver ESA services in the 2028–2033 cycle
6 through ESA Main as well as its MFVB program.³¹⁹ For ESA Main, PG&E proposes a
7 three-tier system including its existing Basic Tier and Plus Tier, plus a new Targeted
8 Deep Savings Tier.³²⁰ Under PG&E’s proposals, Targeted Deep Savings Tier would
9 target customers who PG&E has identified with “high energy savings potential and high
10 probability of positive bill impacts” based on “criteria such as climate zone, housing
11 stock, home vintage, and energy use characteristics.”³²¹ These customers would receive
12 in-depth home energy assessments, bundled electrification and deep energy-saving
13 measures, and post-installation customer care.³²²

14 PG&E’s ESA Main also includes R&R service within the Plus and Targeted Deep
15 Savings tiers, which provides repair and replacement services for gas furnaces and water
16 heaters that fail Natural Gas Appliance Testing (“NGAT”).³²³ Currently, PG&E’s R&R
17 program provides only like-for-like gas appliances when appliances are replaced through
18 this program.³²⁴ PG&E has proposed transitioning its R&R program from gas like-for-
19 like replacements to electrification measures over the course of the 2028–2033 program
20 cycle, which is reflected in the decline in projected gas spending in the table above. As
21 discussed in more detail below, the multi-year rollout reflects PG&E’s plan to switch over
22 to offering only electrification R&R measures in a phased approach, region-by-region
23 within its service territory. The Electrification R&R plan appears to be the only way for

³¹⁸ Attach. 11, PG&E Response to Data Request TURN-PG&E-007, Q.1, Attachment, at Tab 002_ESA Main and Tab 002_MFVB. For the purposes of this data request, PG&E included the following measures: Non-Condensing Domestic Hot Water Boiler (MFVB), Condensing Domestic Hot Water Boiler (MFVB), Storage Water Heater (MFVB), Water Heater Repair/Replacement (ESA Main and MFVB), Space Heating Boiler (MFVB), Furnace Repair/Replacement (ESA Main and MFVB), and High Efficiency Forced Air Unit (HE FAU) (ESA Main and MFVB). *Id.* at “Gas Replacement Measures” tab.

³¹⁹ Exh. PG&E-01E, Errata Testimony, at 4-31:16–17.

³²⁰ Exh. PG&E-01E, Errata Testimony at 4-49:9–12.

³²¹ Exh. PG&E-01E, Errata Testimony at 4-51:2–11.

³²² Exh. PG&E-01E, Errata Testimony at 4-51:25–4-53:16.

³²³ Exh. PG&E-01E, Errata Testimony at 4-38:14–18; 4-42:9–11.

³²⁴ Exh. PG&E-01E, Errata Testimony at 4-38:18–4-39:3; *see also* Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03, Q. 8(a), Q. 10(a).

1 Plus Tier customers to access electrification measures if they do not qualify for Targeted
2 Deep Savings Tier.³²⁵ As a result, if PG&E’s proposal is adopted, customers in most
3 regions of PG&E’s service territory will not have access to electrification measures until
4 later in the cycle.

5 For multifamily buildings, PG&E proposes to continue its MFWB program, which offers
6 in-unit measures, common area measures (“CAM”), and central system retrofits.³²⁶ In
7 addition to its current MFWB offerings, PG&E proposes to “modify the current R&R
8 service to enable electrification when replacing gas space and water heaters for in-unit
9 treatments” in MFWB.³²⁷

10 **Q. Please summarize your recommended changes to PG&E’s ESA Application.**

11 **A.** While I appreciate PG&E’s increased emphasis on electrification over the course of this
12 ESA program cycle, I am concerned that PG&E’s 2028–2033 ESA proposals do not move
13 quickly enough to meet the urgent need for low-income electrification and still include
14 substantial investment in polluting appliances. The funding disparity between gas and
15 electrification measures is most stark at the outset of the cycle, with over five times the
16 spending on gas measures compared to electrification measures in PY 2028. Redirecting
17 the approximately \$30 million of projected gas equipment costs to electrification
18 measures is needed to align the program with California’s policy goals, the goals of the
19 ESA Program, and the needs of low-income households.

20 To align PG&E’s ESA offerings with California policy and the goals of the ESA Program,
21 I recommend the following modifications:

- 22 1. The Commission should require heat pumps as the replacement technology for all
23 furnaces and water heaters replaced through PG&E’s ESA Main and MFWB
24 programs, across the entirety of PG&E’s service territory, beginning in PY 2028.
25 To the extent any funding is permitted for installation of gas furnace and water
26 heater measures, it should be restricted to infeasibility scenarios (as discussed in
27 Section V);

³²⁵ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-04, Q. 8. This Data Request response explains that under the current proposal, which PG&E reserves the right to modify over the course of the cycle, PG&E “does not anticipate providing electrification of a gas end-use through the Plus Tier” for a Plus Tier customer who was found ineligible for Targeted Deep Savings Tier, because the Plus Tier priority is replacing appliances on burnout or emergency, not efficiency-driven replacements. PG&E’s method of replacing appliances on burnout or emergency is its R&R service. Therefore, a customer whose region has not yet been rolled into the Electrification R&R service would still receive a gas like-for-like replacement of their appliance regardless of their preference, if the appliance is in burnout. *See* Exh. PG&E-01E, Errata Testimony, at 4-38:13–4-39:8.

³²⁶ Exh. PG&E-01E, Errata Testimony at 4-57:8–11, 4-62:3–7.

³²⁷ *Id.* at 4-62:3–7.

- 1 2. Like SCE, PG&E should retire like-for-like central AC replacements and replace
2 the service with AC-to-Heat Pump conversions, with limited potential exceptions;
- 3 3. Like SCE, PG&E should assess electrification-enabling work collectively rather
4 than dividing it into remediation, minor home repairs, and auxiliary electric
5 measures, and adopt a portfolio average target of \$8,000 per home for such work
6 (for the reasons discussed in Section IV.A.3).

7 **1. PG&E Should Accelerate Deployment of Heat Pumps as the**
8 **Replacements for Furnaces and Gas Water Heaters in its R&R**
9 **Service.**

10 **Q. Does PG&E’s proposed program structure offer sufficient access to electrification**
11 **measures for its ESA households?**

12 **A.** No. PG&E’s proposed program structure offers two pathways for participants to electrify:
13 the Targeted Deep Savings Tier or the multi-year, staggered transition of the furnace and
14 water heater R&R programs from gas like-for-like replacements to electrification. As
15 proposed, these two pathways do not provide enough access to households in PG&E’s
16 service territory in the immediate term, as they are limited in scope (Targeted Deep
17 Savings Tier) or move too slowly (phased rollout of Electrification R&R). PG&E
18 anticipates Targeted Deep Savings Tier performing “fewer than 100 household
19 installations” in 2028, ramping up to “approximately 240 by 2033.”³²⁸ As a result,
20 Electrification R&R is the broader pathway for Plus Tier and MFWB customers who are
21 not part of that select group. Because PG&E’s proposed rollout for Electrification R&R
22 would take place in stages over the course of the cycle, many PG&E customers will still
23 be functionally locked out of electrification access until the 2030s if adopted as proposed.

24 **Q. Please summarize PG&E’s Electrification R&R Proposal for the 2028–2033 cycle.**

25 **A.** PG&E plans to transition its gas R&R services for furnaces and water heaters to provide
26 HVAC heat pumps and heat pump water heaters (“HPWHs”) rather than like-for-like gas
27 replacements.³²⁹ PG&E plans to implement this transition in a phased approach by region
28 within its service territory.³³⁰

³²⁸ Exh. PG&E-01E, Errata Testimony at 4-51:21–24.

³²⁹ Exh. PG&E-01E, Errata Testimony at 4-38:14–4-39:12.

³³⁰ Exh. PG&E-01E, Errata Testimony at 4-44, Table 4-19.

Figure 9: PG&E Electrification R&R Rollout Proposed Schedule

TABLE 4-19
EXPECTED ROLL OUT OF R&R ELECTRIFICATION BY ESA PROGRAM REGION

Line No.	Measure Effective Date by Region	Bay Area	Central Valley	Northern	Central Coast
1	HPWH Replacement	2028	2029	2030	2031
2	Heat Pump HVAC Replacement	2029	2030	2031	2032

Q. Why does PG&E propose this phased rollout rather than offering electrification to all regions concurrently?

A. PG&E stated in discovery that its phased approach is intended to ease the transition from like-for-like gas replacement service to fuel substitution service, which will “allow ESA subcontractor workforces to realistically build capacity to service thousands of annual fuel-substitution projects” and give implementers the time to “scale the staff and processes that support new activities necessary for electrification.”³³¹ PG&E stated that it “expects that transitioning all R&R offerings to electrification to PG&E’s entire service territory in a single year . . . would significantly strain the ability to deliver ESA programs effectively and introduce disruptions to ESA treatment volume, the ESA subcontractor workforce, and ESA customer service and satisfaction.”³³²

Q. Do you agree that a phased rollout is the right way to add electrification R&R service?

A. No. A phased rollout that still locks customers out of electrification—and locks them into multi-decade commitments to gas—is not sufficient to meet California ESJ Communities’ urgent need for immediate electrification pathways.

PG&E has not demonstrated that its implementers are unable to make electrification options available in the R&R service across its service territory beginning in PY 2028. When faced with impending zero-NOx standards from BAAD, PG&E made a plan to implement electrification-only R&R in PY 2028 and 2029 for water heaters and HVAC, respectively.³³³ In its 2027 Bridge Year Funding Application, PG&E noted that BAAD Rule 9-6 for Zero-NOx water heaters would go into effect in 2027, and that PG&E “expects that this requirement will increase the average water heater installation costs as

³³¹ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03, Q. 12.

³³² *Id.*

³³³ Exh. PG&E-01E, Errata Testimony, at 4-44:10–17.

1 a result of increased equipment and installation costs.”³³⁴ PG&E requested \$2.2 million
2 above their previous 2027 forecast to cover the incremental costs of the “approximately
3 300 water heater installations” it projected for the bridge year.³³⁵ PG&E did not indicate
4 concerns about workforce or contractor readiness to comply with the rule, but simply
5 requested an increase in funding to enable compliance.

6 Other programs have shown a similar nimbleness in preparing the contractor community
7 to access electrification funds. For example, in anticipation of additional electrification
8 incentives from the Aliso Canyon Recovery Account, the TECH program provided
9 additional trainings to enable contractors to qualify under the program.³³⁶ PG&E can
10 similarly provide advance preparation to its contractors, and should already be doing so
11 given the state’s increased focus on electrification.

12 To the extent PG&E is able to demonstrate additional time is needed to ensure ESA
13 contractors are trained to properly install electric appliances, the solution is not to
14 continue to perpetuate the health and safety harms of polluting appliances. Instead, the
15 Commission could provide PG&E flexibility in the use of funds for electrification, such
16 as authorization to carry over unspent funds to the following program year, or allowing
17 PG&E to initially fund more projects in regions with more trained implementers and
18 focusing on other areas following additional contractor training.

19 **2. PG&E Should Prioritize AC-to-Heat Pump Conversions and Retire**
20 **Like-for-Like AC Replacements Beginning in PY 2028, With Limited**
21 **Potential Exceptions.**

22 **Q. Does your recommendation that SCE retire like-for-like AC replacements and**
23 **replace the service with AC-to-Heat Pump conversions apply equally to PG&E?**

24 **A.** Yes, for the same reasons I explained above in my recommendations on SCE’s ESA
25 Application. PG&E currently offers (and plans to continue offering) central AC
26 replacement as a Plus Tier measure through ESA.³³⁷ PG&E stated in discovery that it
27 provided the following number of like-for-like AC replacements in ESA Main, at the
28 following costs, since 2023.³³⁸

³³⁴ A.25-06-022 et al., *Pacific Gas and Electric Company Income-Qualified Programs Bridge Funding Application Prepared Testimony*, at 41:11–42:7 (June 30, 2025) (“PG&E Bridge Funding Testimony”), <https://pgera.azurewebsites.net/Regulation/ValidateDocAccess?docID=833116>.

³³⁵ *Id.* at 42:7–9.

³³⁶ See D.25-06-034, *Phase 4 Track A Decision Establishing New Electric Service Line Upsizing Rules, Modifying Electric Line Extension Rules and Reporting Requirements, and Implementing Assembly Bill 157* at 79, <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M570/K302/570302781.PDF>; TECH, *San Fernando Valley Residential Incentives*, <https://techcleanca.com/incentives/sanfernandovalley/> (last accessed Sept. 10, 2026).

³³⁷ Exh. PG&E-01E, Errata Testimony at 4-Atch03-1, Line 11.

³³⁸ Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03 Q. 9.

Figure 10: PG&E Like-for-Like AC Replacements 2023 to Present

Year	Central A/C Replacement	Year	Total Cost for Central A/C Replacements
2023	32	2023	\$136,234
2024	47	2024	\$187,700
2025	20	2025	\$95,847
Through April 2026	2	Through April 2026	\$7,426

Like SCE, the Commission should require PG&E to replace this program with AC to heat pump replacements.

C. SDG&E's ESA Proposals (Barker)

Q. Please summarize SDG&E's proposed ESA offerings as they relate to electrification and continued investment in polluting appliances.

A. SDG&E proposes to deliver its ESA services through ESA Main, locally-administered MFWB, and a new ESA Electrification Pilot.³³⁹ SDG&E's ESA Main proposal would "retain the tiered measure structure of Basic and Plus, where Basic consists of measures that do not require any grounding or modifications to dwellings, and Plus consists of more advanced measures that may involve modification."³⁴⁰ For MFWB, SDG&E, consistent with the other Southern Region IOUs, proposes to move to local administration within its service territory.³⁴¹ SDG&E's proposed Electrification Pilot would "test bundled electrification and weatherization measures, emphasizing bill neutrality and customer education."³⁴²

Over the course of the program cycle, SDG&E requests approximately \$132.7 million for ESA Main, \$54.4 million for its locally-administered MFWB Program, and \$7.7 million for its proposed Electrification Pilot.³⁴³

For single-family homes and mobile homes, SDG&E is not proposing to offer any fuel substitution measures through ESA Main, meaning the only way for SDG&E ESA customers in those building types to access electrification measures would be through its narrowly-scoped Electrification Pilot.³⁴⁴

³³⁹ Exh. SDG&E-03, ESA Testimony at ESA-1:6–9.

³⁴⁰ *Id.* at ESA-3:1–3.

³⁴¹ *Id.* at ESA-3:6–8.

³⁴² *Id.* at ESA-3:9–11.

³⁴³ *Id.* at ESA-30, Table 9.

³⁴⁴ *Id.* at ESA-48:3–7 ("SDG&E is not proposing fuel substitution measures within ESA Main.").

1 While offering no fuel substitution measures in ESA Main, SDG&E projects installing
2 the following gas-burning measures:³⁴⁵

3 *Table 10: SDG&E Projected Gas-Burning Appliances in ESA Main for 2028–2033 Cycle*

Measure	2028	2029	2030	2031	2032	2033	Cycle Total
Tankless Water Heater	12	12	12	12	12	12	72
Tankless Water Heater Budget	\$15,866	\$16,401	\$16,956	\$17,528	\$18,120	\$18,713	\$103,584
Water Heater Replacement	300	301	302	304	305	306	1,818
Water Heater Replacement Budget	\$1,008,600	\$1,042,610	\$1,077,859	\$1,114,240	\$1,151,864	\$1,189,597	\$6,584,770
Furnace Replacement	580	582	585	587	589	591	3,514
Furnace Replacement Budget	\$3,238,081	\$3,347,267	\$3,460,434	\$3,577,233	\$3,698,024	\$3,819,165	\$21,140,204

4 The total budget projection for these gas combustion measures is over \$27.8 million over
5 the course of the 2028–2033 cycle, compared to a budget of zero for fuel substitution
6 measures in ESA Main.³⁴⁶

7 In contrast, SDG&E’s Electrification Pilot has a total requested budget of only \$7.7
8 million including administrative, marketing, and outreach costs.³⁴⁷ The requested budget
9 for measure and installation costs in the pilot is only \$6.6 million across the entire
10 program cycle.³⁴⁸ Further, as discussed more below, the pilot’s scope and targeting is
11 unnecessarily narrow.

12 For MFWB, SDG&E proposes to offer some electrification measures for both in-unit and
13 CAM end uses, such as “heat pump water heaters, heat pump HVAC, heat pump pool
14 heaters, induction cooktops, and clothes dryers.”³⁴⁹ Specifically, SDG&E forecasts the
15 following numbers and budgets for fuel substitution measures in its MFWB program for
16 PY 2028–2033.³⁵⁰

³⁴⁵ SDG&E Application, Attach. G, Table A-1 Planning Assumptions ESA Main.

³⁴⁶ This number is the rounded sum of the total projected budgets per measure listed in the table above, which were sourced from Attachment G to SDG&E’s Application, Table A-1, Planning Assumptions for ESA Main.

³⁴⁷ Exh. SDG&E-03, ESA Testimony at ESA-96, Table 20: PY 2028–2033 Pilot Budget.

³⁴⁸ *Id.*

³⁴⁹ Exh. SDG&E-03, ESA Testimony at ESA-47:20–48:2.

³⁵⁰ SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions.

Table 11: SDG&E MFWB Fuel Substitution Planning Assumptions 2028–2033

Measure	2028	2029	2030	2031	2032	2033	Cycle Total
Heat Pump Pool Heater – FS (CAM) ³⁵¹	1	3	3	3	3	3	16
HP Pool Heater Budget	\$13,468	\$35,863	\$37,410	\$38,338	\$39,297	\$40,288	\$204,664
HPWH – FS (In-Unit) ³⁵²	140	204	204	204	204	204	1160
HPWH – FS (In-Unit) Budget	\$747,583	\$1,157,535	\$1,207,464	\$1,237,393	\$1,268,342	\$1,300,358	\$6,918,675
HPWH – FS (CAM) ³⁵³	1	3	3	3	3	3	16
HPWH – FS (CAM) Budget	\$9,195	\$24,452	\$25,507	\$26,139	\$26,793	\$27,469	\$139,555
Central Heat Pump FS (In-Unit) ³⁵⁴	7	13	13	13	13	13	72
Central Heat Pump FS (In-Unit) Budget	\$81,892	\$154,868	\$161,548	\$165,552	\$169,693	\$173,976	\$907,529
Induction Cooktop – FS ³⁵⁵	50	68	68	68	68	68	390
Induction Cooktop – FS Budget	\$108,029	\$156,285	\$163,027	\$167,068	\$171,246	\$175,568	\$941,223

While SDG&E has allocated roughly 38% of its MFWB measures budget to electrification and electrification-enabling work, the remaining 62% would go to a combination of lighter-touch measures like refrigerators, showerheads, and pipe insulation, as well as some gas-burning measures like furnace replacements.³⁵⁶ Accordingly, roughly \$9.1 million of its cycle-wide requested \$54.4 million MFWB budget would fund electrification measures.³⁵⁷

Q, Please summarize your recommendations for SG&E’s ESA Application.

A. SDG&E’s ESA proposals are a small step in the right direction, but they do not do nearly enough to create widespread electrification pathways in the near term for low-income

³⁵¹ SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions, Line 40.

³⁵² SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions, Line 41.

³⁵³ SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions, Line 42.

³⁵⁴ SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions, Line 62.

³⁵⁵ SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions, Line 43.

³⁵⁶ Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-05, Q. 5(a); SDG&E, Application, Attach. G, Table A-1a ESA MFWB Planning Assumptions.

³⁵⁷ \$9.1 million is the rounded sum of the dollar amounts listed in the table above, which were sourced from Attachment G, Table A-1a within SDG&E’s Application. The \$54.4 million MFWB budget request appears in Exh. SDG&E-03 at ESA-30, Table 9.

1 customers. Accordingly, I recommend the following modifications to SDG&E's
2 proposals:

- 3 1. The Commission should require heat pumps as the replacement technology for all
4 furnaces and water heaters replaced through SDG&E's ESA Main and MFWB
5 programs beginning in PY 2028. To the extent any funding is permitted for
6 installation of gas furnace and water heater measures, it should be restricted to
7 infeasibility scenarios (as discussed in Section V);
- 8 2. With fuel substitution measures incorporated into ESA Main, SDG&E should
9 eliminate the Electrification Pilot or redesign it to target customers switching from
10 propane or other delivered fuels;
- 11 3. Substantially increase both the overall budget and the "remediation" sub-budget for
12 MFWB, separate from the ESA Main flexible \$8,000 per-home average described in
13 Section IV.A.3;
- 14 4. Like SCE, retire like-for-like central AC replacements and replace the service with
15 AC-to-Heat Pump conversions;
- 16 5. Like SCE, assess pre-electrification work for ESA Main collectively rather than
17 dividing it into remediation, minor home repairs, and auxiliary electric measures, and
18 adopt a portfolio average target of \$8,000 per home for such work (for the reasons
19 discussed in Section IV.A.3).

20 **1. SDG&E Should Provide Heat Pumps for Space and Water Heating**
21 **Appliance Replacements in ESA Main Beginning in PY 2028.**

22 **Q. Does SDG&E's ESA proposal provide adequate pathways for low-income customers**
23 **to electrify?**

24 **A.** No. For single-family and mobile homes, SDG&E provides only one, very limited
25 pathway to electrification through ESA—its proposed Electrification Pilot. As discussed
26 further below, the pilot is too narrowly targeted and too small to meet the urgent need for
27 access to electrification, and its narrow reach is unsupported.

28 And while In-Unit and CAM electrification measures are offered to multifamily buildings
29 served by SDG&E's MFWB Program, SDG&E has not set up the program for successful
30 deployment of these measures as it has not requested adequate budget to cover the unique
31 electrification-enabling needs of multifamily buildings.

32 **Q. Does SDG&E still plan to spend money on gas like-for-like appliance replacements?**

33 **A.** Yes. SDG&E anticipates spending over \$27.8 million on gas appliance measures in ESA
34 Main over the course of the 2028–2033 cycle.³⁵⁸ Compared to its zero budget for

³⁵⁸ See *supra*, Table 10.

1 electrification in ESA Main, and its requested \$6.6 million for the limited Electrification
2 Pilot, SDG&E's proposal would largely continue status quo spending on gas.

3 **Q. Is SDG&E's proposal consistent with state policy and the goals of the ESA**
4 **Program?**

5 **A.** No. Redirecting the \$27.8 million SDG&E has budgeted for gas appliance measures to
6 electrification and electrification-enabling measures would align SDG&E's ESA Main
7 program with California's policy imperatives, as discussed in Section III. In contrast,
8 continuing to spend four times as many ratepayer dollars on gas versus fuel substitution
9 unnecessarily locks low-income customers onto the gas system while failing to provide
10 these customers with access to the benefits of decarbonization. Accordingly, I
11 recommend SDG&E, like the other IOUs, be required to provide fuel substitution
12 measures (i.e., heat pumps) for space and water heating equipment replacements
13 performed through its ESA program beginning in PY 2028.

14 **2. SDG&E's Electrification Pilot Unnecessarily Restricts Pathways for**
15 **Low-Income Single-Family and Mobile Homes to Electrify.**

16 **Q. Please summarize SDG&E's proposed Electrification Pilot for single-family and**
17 **mobile homes.**

18 **A.** The Electrification Pilot is a small-scale effort to offer fuel substitution measures to select
19 customers within SDG&E's service territory. SDG&E intends to offer these measures
20 first to low-income solar customers, although it also states it will "use data-driven
21 targeting" to identify other homes where electrification is "both feasible and
22 beneficial."³⁵⁹ The measures would be bundled electrification appliance measures plus
23 energy efficiency upgrades.³⁶⁰ SDG&E also states an intent to "explore the potential" for
24 including fuel switching opportunities in the pilot (i.e., electrifying end uses that are
25 currently served by non-utility fuels, such as propane).³⁶¹

26 **Q. Is the Electrification Pilot proposal enough to open up pathways to electrification**
27 **for low-income customers in SDG&E's service territory?**

28 **A.** No. SDG&E has requested minimal budget for its Electrification Pilot—only \$7.7 million
29 across the entire program cycle (and only \$6.6 million for direct measure costs),
30 compared to \$132.7 million for ESA Main.³⁶² Further, the pilot is unnecessarily
31 constrained in scope. The pilot would not open pathways for low-income customers
32 outside of its narrow scope until the next program cycle, after evaluations have been

³⁵⁹ Exh. SDG&E-03, ESA Testimony, at ESA-50:16–17, ESA-51:4–6.

³⁶⁰ *Id.* at ESA-50:18–20.

³⁶¹ *Id.* at ESA-51:10–12.

³⁶² *Id.* at ESA-30, Table 9, ESA-96, Table 20: PY 2028–2033 Pilot Budget.

1 completed.³⁶³ Realistically, this means most ESA households served by SDG&E would
2 not have the opportunity to electrify until the mid-2030s.

3 **Q. Why does SDG&E plan to offer single-family and mobile home fuel substitution**
4 **measures only through its Electrification Pilot?**

5 A. SDG&E has stated that its limitation of fuel substitution measures to a small pilot is an
6 effort to “ensure fuel substitution and electrification measures do not inadvertently
7 increase energy burden for vulnerable customers,” and that the pilot will “test and learn
8 how these measures can be implemented purposefully without having negative
9 impacts.”³⁶⁴ SDG&E cites its “mild climate, diverse housing stock, and limited data on
10 electrification impacts” as support for this cautious approach.³⁶⁵

11 **Q. Do you agree that this level of caution is necessary to provide electrification**
12 **measures to low-income customers?**

13 A. No. SDG&E’s service territory is not so distinct from other California communities to
14 merit holding off on low-income electrification access until the mid-2030s, as SDG&E
15 suggests. Existing studies and pilots have established that many low-income Californians
16 can electrify without negative bill impacts, including in Climate Zones 7 and 10, where
17 SDG&E has indicated many of its CARE and FERA customers reside.³⁶⁶ In June 2026,
18 the CEC issued a staff report modeling potential bill impacts to support the
19 implementation of the EBD Direct Install program.³⁶⁷ This study used CARE rates for its
20 inputs since it was prepared in support of a program for low-income customers.³⁶⁸ The
21 CEC modeling found that the majority of households receiving HPWHs and HVAC heat
22 pumps with code-required duct sealing would experience bill savings, with the exceptions
23 of climate zones 5 and 16:³⁶⁹

³⁶³ Exh. SDG&E-03, ESA Testimony at ESA-96, Figure 12.

³⁶⁴ *Id.* at ESA-50:10–13, ESA-88:6–14.

³⁶⁵ *Id.* at ESA-88:9–10.

³⁶⁶ CEC, *Low-Income Residential Energy Bill Impact Analysis: Modeling the Impact of Decarbonization Activities on Energy Bills in California*, at 28–29 (June 2026) (“CEC, Bill Impacts Modeling”), <https://www.energy.ca.gov/sites/default/files/2026-06/CEC-300-2026-003.pdf>; Exh. SDG&E-03, ESA Testimony at ESA-11:13–12:2 (“SDG&E’s internal data shows that approximately 310,000 CARE and FERA customers resided in the milder climate zones 7 and 10, with less than 4,000 estimated of those customers in the hottest climate zones 14 and 15.”).

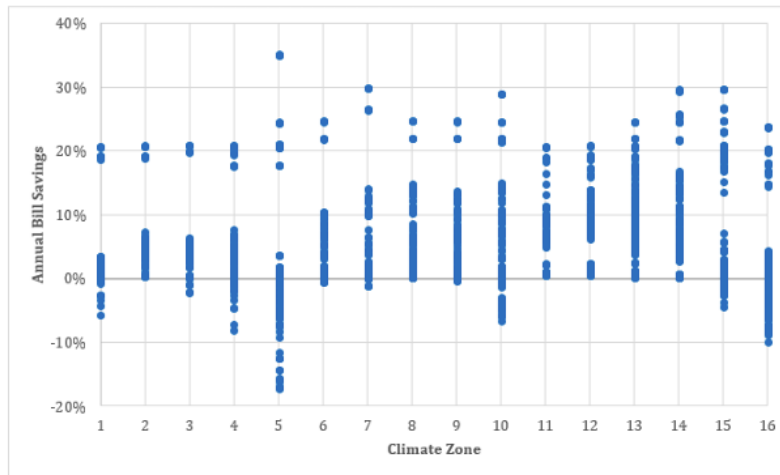
³⁶⁷ CEC, Bill Impacts Modeling at 1.

³⁶⁸ *Id.* at 16 (“Because of the income eligibility requirement of the EBD Statewide Direct Install Program, staff used low-income or California Alternative Rates for Energy (CARE) rates to calculate the energy bill.”).

³⁶⁹ *Id.* at 28–29. These figures measure savings projections, therefore values above zero indicate lower bills (higher savings), and values below zero indicate higher bills (fewer savings).

Figure 11: CEC Modeling of HPWH Retrofit Bill Savings by Climate Zone

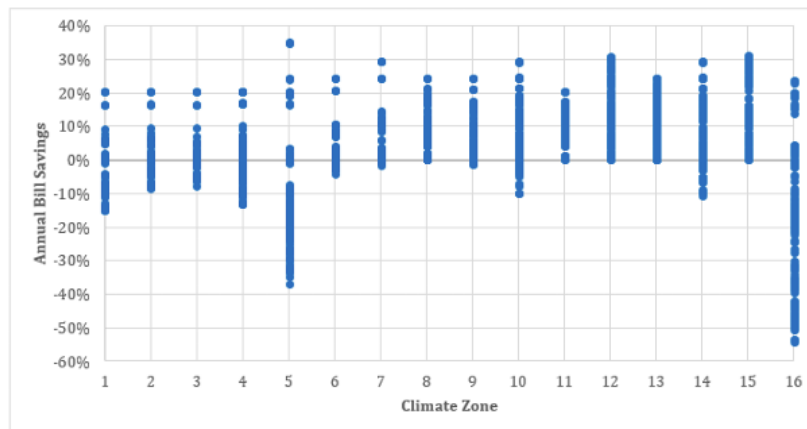
Figure 4: Annual Bill Savings Heat Pump Water Heater Retrofit by Climate Zone



Source: California Energy Commission staff

Figure 12: CEC Modeling of HVAC Heat Pump Bill Savings by Climate Zone

Figure 5: Annual Bill Savings Heat Pump Space Conditioning Retrofit by Climate Zone



Source: California Energy Commission staff

SDG&E does not serve climate zones 5 and 16.³⁷⁰ Climate zones 7 and 10, where it identified large numbers of CARE and FERA customers (i.e., customers whose incomes would qualify them for ESA), saw similar bill savings in the CEC analysis to the “hottest climate zones 14 and 15.”³⁷¹

Other studies and pilots targeting coastal areas have made similar findings. For example, as part of Marin Clean Energy’s (“MCE”) Low-Income Families and Tenants (“LIFT”)

³⁷⁰ Exh. SDG&E-03, ESA Testimony at ESA-12, Figure 2: SDG&E Climate Zones and CARE/FERA Household Population. It is also worth noting that for its modeling, the CEC assumed customers in Climate Zone 5 had no existing air conditioning, contributing to projected higher cooling loads in the warm summers. CEC, Bill Impacts Modeling at 11, 29.

³⁷¹ *Id.* at ESA-12:1.

1 Pilot Program, MCE installed 125 heat pumps serving 215 low-income dwelling units.³⁷²
2 MCE found substantial bill savings accrued to customers following their heat pump
3 retrofits—fuel substitution retrofits saw average bill savings of \$128 per year.³⁷³

4 Another pilot from Peninsula Clean Energy (now Westlight Energy) fully electrified low-
5 income households in San Mateo County (Climate Zone 3).³⁷⁴ Westlight Energy found
6 that “[o]n average, electrifying their homes saves customers about 20% on their energy
7 bills,” and that “[m]ost customers can save an additional 8% by switching to an
8 electrification rate.”³⁷⁵ This finding aligned with Westlight’s previous modeling in a joint
9 bill impacts study conducted with Silicon Valley Clean Energy.³⁷⁶ That study had found
10 that electrification would lower customer bills for single-family homes “even when
11 installing minimum efficiency appliances” when customers concurrently enrolled in
12 electrification rates, such as PG&E’s E-ELEC rate.³⁷⁷ And because that modeling focused
13 on general market customers, it did not account for the even higher bill savings that
14 would flow to CARE/FERA customers. In its Best Practices Draft Report, TECH noted
15 CARE and FERA customers who received heat pumps through TECH programs saw
16 annual energy bill savings of \$109, compared to \$34 per year for non-CARE or FERA
17 customers.³⁷⁸ Notably, these savings were prior to roll out of the Basic Service Charge,
18 which TECH notes “is expected to improve bill outcomes for all customers” by reducing
19 per kWh electric rates.³⁷⁹

20 **Q. With fuel substitution measures in ESA Main, should SDG&E’s proposed**
21 **electrification pilot be eliminated?**

22 **A.** SDG&E transitioning in PY 2028 to offer fuel substitution measures for space and water
23 heating service territory-wide through ESA Main obviates the need for a limited
24 electrification pilot. However, SDG&E could redesign its pilot proposal to more
25 specifically target fuel-switching customers (i.e., customers currently reliant on propane
26 or wood for heating fuel) in climate zones 14 and 15. SDG&E noted in its application

³⁷² MCE, *Low-Income Families and Tenants Pilot Program Evaluation*, at 2 (Aug. 5, 2021) (“MCE LIFT Evaluation”),

https://pda.energydataweb.com/api/view/2529/MCE_LIFT_Final%20EMV%20Report_August2021.pdf.

³⁷³ *Id.* at 28. Fuel switching (i.e., propane to electric) customers who also received solar PV as part of their projects also saw substantial savings on average (\$1,123). *Id.*

³⁷⁴ PCE, *Case Study of Whole-Home Electrification at Nine Low-Income Homes in San Mateo County*, at 1 (Jan. 2026), <https://library.peninsulacleanenergy.com/m/24e2e90876980d43/original/Case-Study-of-Whole-Home-Electrification-in-San-Mateo-County.pdf>.

³⁷⁵ *Id.*

³⁷⁶ Silicon Valley Clean Energy and Peninsula Clean Energy, *Bill Impacts of Decarbonizing Existing Single Family Homes* (2023), <https://www.svcleanenergy.org/wp-content/uploads/SVCE-PCE-Single-Family-On-Bill-Impacts-Results-2023.pdf>.

³⁷⁷ *Id.* at 9.

³⁷⁸ TECH Best Practices Report at 26.

³⁷⁹ *Id.* See also D.24-05-028, Attach. A & B (estimated impact of adopted fixed charges on lowering CARE/FERA monthly electric bills and reducing costs of home electrification).

1 that many of the households it thought would be eligible for Pilot Plus/Pilot Deep
2 treatments in these climate zones during the 2021–2026 program cycle “rely on propane
3 as a primary fuel source, which disqualifies them from receiving most ESA services.”³⁸⁰
4 Because SDG&E’s service territory does not include the San Joaquin Valley, it did not
5 participate in the San Joaquin Valley pilots like the other IOUs. However, SDG&E could
6 use learnings from SCE and PG&E’s San Joaquin Valley pilots to pursue a similar effort
7 to electrify low-income households reliant on propane or wood in its hottest climate
8 zones. For example, SCE’s San Joaquin Valley Pilot found that participants received
9 significant bill savings, even after accounting for the additional bill discounts provided by
10 the pilot and stacked with the CARE discount.³⁸¹ Accordingly, I recommend that—after
11 incorporating fuel substitution measures into ESA Main—SDG&E either eliminate its
12 pilot or redesign it to narrowly target fuel-switching customers and meet their unique
13 needs.

14 **Q. With electrification measures incorporated into ESA Main rather than the pilot,**
15 **how do you propose SDG&E handle costs of electrification-enabling work within**
16 **ESA Main?**

17 **A.** I recommend that SDG&E, along with the other IOUs, adopt the wholistic approach to
18 electrification-enabling work described in Section IV.A.3, with a flexible, \$8,000 average
19 per-home cost for ESA Main electrification-enabling treatments. This recommendation is
20 separate from—and additional to—the recommendations set forth below for
21 electrification-enabling work within SDG&E’s MFWB program.

22 **3. SDG&E’s MFWB Program Should Receive Substantially Increased**
23 **Overall Budget and Remediation Sub-Budget to Ensure Multifamily**
24 **Buildings Can Access the Electrification Measures it Offers.**

25 **Q. Does SDG&E plan to offer electrification measures through its locally-administered**
26 **MFWB Program?**

27 **A.** Yes. SDG&E proposes to offer electrification measures through MFWB, but it only
28 proposes to include a \$3.4 million budget for pre-electrification work.³⁸² This is
29 insufficient to drive significant uptake in electrification measures through the program.
30 Indeed, SDG&E has only projected and budgeted for 10% of treated MFWB households
31 and 10% of CAM measures to “participate in electrification efforts during PY 2028–
32 2033,” meaning 90% of the MFWB treatments would not involve any electrification
33 measures.³⁸³

³⁸⁰ Exh. SDG&E-03, ESA Testimony at ESA-86:6–8.

³⁸¹ Evergreen Economics, *SCE San Joaquin Valley Disadvantaged Communities Pilot Impact Evaluation*, at 37 (June 25, 2025), <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M571/K363/571363434.PDF>.

³⁸² Exh. SDG&E-03, ESA Testimony at ESA-77:5–10.

³⁸³ *Id.* at ESA-77:12–14.

SDG&E has noted that “replacement of all feasible measures from gas to electric has not been widely adopted under the current program” and acknowledged that multifamily buildings—particularly older ones—face infrastructure barriers to electrification.³⁸⁴ It appears that SDG&E installed only two total electrification measures through MFWB in its service territory in 2025, both pool heaters.³⁸⁵ Yet SDG&E has proposed a budget for this necessary electrification-enabling work that is only “intended to make installations more feasible” while “not expected to cover the full cost of infrastructure upgrades.”³⁸⁶ In discovery, SDG&E explained that it plans to allocate the funding “on a project-specific basis,” based on “factors such as the condition of the building, feasibility of proposed measures, and the scope of electrical or non-electrical upgrades required to support fuel substitution,” as there is an “absence of statewide guidance on remediation funding.”³⁸⁷ SDG&E will also “seek to leverage other funding sources and layer incentives” to try to cover more costs.³⁸⁸

Q. Is the \$3.4 million remediation budget for MFWB enough to move the needle on electrification?

A. No. Multifamily buildings face particularly stark barriers to electrification that require significantly more funding to address. Recent research from the UCLA California Center for Sustainable Communities found that expanding incentives to cover pre-electrification work such as “panel optimization, outlet installation, and service capacity upgrades” is “especially critical in multifamily and DAC properties.”³⁸⁹ As UCLA researchers noted in their full report for CARB and CalEPA:

Multi-unit residential property owners cited electrical capacity upgrades as the most challenging and time-consuming aspect of their electrification projects. Many noted that existing incentives do not cover the full cost of these upgrades, leading some to abandon electrification efforts altogether Expanding the limited incentives currently available for panel upgrades is especially critical for lower-income households and those in DACs.³⁹⁰

Similarly, TECH’s reporting on its Multifamily Pilot found that “[e]lectrifying affordable multifamily housing will require funding sources to pay for electrical infrastructure and

³⁸⁴ *Id.* at ESA-76:12–77:4.

³⁸⁵ SDG&E 2025 IQP Annual Report Tables at ESA Table 2A MFWB, Line 122, Column Q. In the entire Southern Region MFWB program, only those two pool heaters and one induction cooktop were installed as electrification measures in 2025. *Id.* at Lines 118 and 122, Column D.

³⁸⁶ Exh. SDG&E-03, ESA Testimony at ESA-77:14–16.

³⁸⁷ Attach. 9, SDG&E Response to Data Request Sierra Club-SDG&E-05, Q. 4(a).

³⁸⁸ Exh. SDG&E-03, ESA Testimony at ESA-77:16–19.

³⁸⁹ UCLA California Center for Sustainable Communities, *Residential Building Electrification in California: An Equity-Focused Policy Analysis*, at 8 (2026), <https://www.ioes.ucla.edu/wp-content/uploads/2026/06/Final-Residential-Policy-Brief-April-2026-1.pdf>.

³⁹⁰ CARB, *Equitable Electrification of Existing Buildings* at 168–169.

1 electrification readiness work,” and that “this funding should define electrification
2 readiness broadly, because changes beyond electric wiring and infrastructure are
3 needed.”³⁹¹ In its pilot, TECH found that there is “a large funding gap for low-income
4 multifamily properties attempting to go all electric,” with TECH providing per-unit
5 incentive amounts ranging “between \$2,800 and \$20,300 per unit, averaging around
6 \$8,000 per unit” including both pilot funds and standard TECH Clean California
7 incentives.³⁹² This funding was crucial to enable electrification. For example, TECH
8 noted that “[m]ost low-income properties do not have a large reserve” to cover the
9 funding gap, and that properties “indicated that the out-of-pocket cost for electrification
10 needed to be less than 10 percent—and in reality, \$0—for the property to move
11 forward.”³⁹³

12 Further, TECH’s cost analysis found that even when full electrification could not be
13 performed all at once, front-loading the electric-readiness work resulted in significant
14 projected cost savings for electrification down the line. For example:

15 For one 15-unit project, a contractor provided estimates for
16 running a new circuit in the future after the walls were closed in
17 and an undersized panel was potentially replaced. Costs per unit
18 ranged from \$18,000 to \$19,500 per unit, compared to \$10,600 per
19 unit for upgrading the panel and running the circuit in conjunction
20 with other work.

21 Applying these estimates to the 10-unit, 15-unit, and 33-unit
22 properties the team worked on, we predicted additional costs for
23 panels and circuits would have been \$89,000, \$133,500, and
24 \$293,700, respectively. Another contractor indicated that it could
25 be a 20 to 30 percent increase in cost to complete the work in the
26 future but did not provide an actual estimate. While these cost
27 estimates are just two examples, the implications are consistent
28 with the expectation that running electrical circuits out of
29 sequence with other work comes at a higher cost.³⁹⁴

30 As proposed, SDG&E’s program would have the costly result that TECH described
31 above. By failing to adequately cover electrification-enabling costs, SDG&E’s MFWB
32 program will likely continue to cover primarily lighter-touch electrification measures
33 identified in its testimony, such as pool heaters, that “can be installed independently of
34 whole building retrofits,” or none at all.³⁹⁵ This means the properties are not only locked
35 into another decade-plus of gas dependence from whatever gas measures were installed,

³⁹¹ TECH, *Multifamily Pilot Final Report*, at 21 (Mar. 3, 2026),
https://techcleanca.com/documents/5729/8.3_MF_Final_Report_v260316.pdf.

³⁹² *Id.* at 28.

³⁹³ *Id.*

³⁹⁴ *Id.* at 21.

³⁹⁵ Exh. SDG&E-03, ESA Testimony at ESA-76:12–17.

1 but they have missed the opportunity for substantial cost savings that could have flowed
2 from front-loading the pre-electrification work.

3 **Q. What modifications do you recommend for SDG&E's MFWB Program?**

4 A. I include SDG&E's MFWB program in our general recommendation that fuel
5 substitution measures should be the primary space and water heating equipment
6 replacement measures, with gas like-for-like appliance replacements provided in
7 technical infeasibility scenarios only (as defined in Section V). To accomplish this goal, I
8 recommend substantially increasing the budget for MFWB, including the budget for
9 electrification-enabling work.

10 **4. SDG&E Should Prioritize AC-to-Heat Pump Conversions and Retire**
11 **Like-for-Like AC Replacements Beginning in PY 2028, With Limited**
12 **Potential Exceptions.**

13 **Q. Does SDG&E currently perform Central AC replacements through ESA?**

14 A. According to SDG&E's Annual Report data, it has not performed any "Central AC
15 Replacement" measure installations between 2023 and 2025.³⁹⁶ To the extent SDG&E
16 may offer this measure in the future, clear policy direction from the Commission that
17 electric IOU central AC replacement measures must replace the AC with a heat pump
18 rather than another one-way AC unit will ensure alignment with California climate, air
19 quality, public health and equity objectives.

20 **D. SoCalGas' ESA Proposals (Barker/Osuala)**

21 **Q. Please summarize SoCalGas' ESA proposals as they relate to electrification and**
22 **continued investment in polluting appliances.**

23 A. SoCalGas has requested a total of \$801.4 million across the 2028–2033 program cycle for
24 its ESA Program.³⁹⁷ Of that \$801.4 million, approximately \$179 million is projected for
25 polluting equipment.³⁹⁸ These investments represent not only a continuation of
26 SoCalGas' existing offerings, but an increase in gas appliance uptake, particularly for
27 tankless water heaters.³⁹⁹

³⁹⁶ See generally SDG&E 2023, 2024, and 2025 IQP Annual Reports, ESA Table 2 Main.

³⁹⁷ Exh. SCG-01, Verduzco and Christian Direct at OV and RC-104, Table 19: Summary of Requested ESA Program Budget.

³⁹⁸ This number was derived by adding the total budget numbers in the three tables below. As cited below, the numbers in those tables are sourced from SoCalGas' ESA Planning Tables, Table A-1 (ESA Main Planning Assumptions) and Table A-1A (MFWB Planning Assumptions).

³⁹⁹ Exh. SCG-01, Verduzco and Christian Direct at 124 ("SoCalGas anticipates strong growth in the domestic hot water measure category, driven by heightened customer demand for high-impact, modern home upgrades."); Attach. 10, SoCalGas Response to Data Request Sierra Club-SoCalGas-01, Q. 10 ("The phrase 'high-impact, modern home upgrades' refers to the installation of tankless water heaters.").

In ESA Main, SoCalGas projects installing 1,682 tankless water heaters per program year, at 11% of the program budget.⁴⁰⁰ SoCalGas also projects significant water heater R&R treatments, with 16,321 projected per year, making up 7% of the annual program budget.⁴⁰¹ Overall, SoCalGas projects installing 10,092 tankless water heaters and performing 97,926 water heater R&R treatments over the course of the cycle, at the following costs:⁴⁰²

Table 12: SoCalGas ESA Main Gas-Burning Water Heater Budget Projections 2028–2033

Measure Type	Year	Budget
Water Heater R&R	2028	\$6,353,111
Water Heater R&R	2029	\$6,543,705
Water Heater R&R	2030	\$6,740,016
Water Heater R&R	2031	\$6,942,216
Water Heater R&R	2032	\$7,150,483
Water Heater R&R	2033	\$7,364,997
Tankless Water Heater	2028	\$9,299,719
Tankless Water Heater	2029	\$9,578,711
Tankless Water Heater	2030	\$9,866,072
Tankless Water Heater	2031	\$10,162,054
Tankless Water Heater	2032	\$10,466,916
Tankless Water Heater	2033	\$10,780,923
Total ESA Main Gas Water Heater Budget 2028–2033 (including both categories): \$101,248,923		

SoCalGas reported in discovery that in 2025, within its Water Heater R&R measure, “eight water heaters were repaired and 2,465 water heaters were replaced.”⁴⁰³ Thus, it is reasonable to assume that the majority of the forecasted R&R budgets will fund new gas-burning equipment, rather than repairs of existing equipment.

SoCalGas also proposes to increase its ESA Main investment in high efficiency forced air unit (“HE FAU”) furnaces.⁴⁰⁴ SoCalGas anticipates that customers will increasingly adopt these furnaces because it plans to expand eligibility to include rental properties

⁴⁰⁰ SoCalGas ESA Budget Tables, Table A-1, Planning Assumptions, ESA Main Program, at Line 25.

⁴⁰¹ *Id.* at line 30.

⁴⁰² SoCalGas ESA Budget Tables, Table A-1, Planning Assumptions, ESA Main, at Lines 25 and 30, Columns X, AE, AL, AS, AZ, and BG.

⁴⁰³ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-05, Q. 3(c).

⁴⁰⁴ Exh. SCG-01, Verduzco and Christian Direct at 125:4–16.

with an owner copay.⁴⁰⁵ Further, as discussed more below, SoCalGas expects a potential increase in HE FAU Early Replacement measures due to updates in baseline efficiency standards for furnaces. SoCalGas' Planning Assumptions worksheet for ESA Main does not currently project any budget for Early Replacement furnace measures, as that budget would purportedly be reallocated from the Burnout measure, which SoCalGas has provided a forecast for. SoCalGas projects providing 208 Furnace R&R services per year in the 2028–2033 cycle and 814 HE FAU – on Burnout measures per year.⁴⁰⁶ Over the course of the full cycle, that would be 1,248 Furnace R&R measures and 4,884 HE FAU measures. In 2022, 2023, 2024, and 2025, the percentages of Furnace R&R treatments that were repairs (as opposed to replacements) were approximately 32%, 5%, 9%, and 13%, respectively.⁴⁰⁷ Thus, it is reasonable to assume that the majority of the budgets for Furnace R&R measures listed below will fund new gas-burning furnaces.

These ESA Main furnace treatments carry the following budget projections:⁴⁰⁸

Table 13: SoCalGas ESA Main Gas-Burning Furnace Projections 2028–2033

Measure Type	Year	Budget
Furnace R&R	2028	\$825,142
Furnace R&R	2029	\$849,896
Furnace R&R	2030	\$875,393
Furnace R&R	2031	\$901,655
Furnace R&R	2032	\$928,705
Furnace R&R	2033	\$956,566
High Efficiency FAU – On Burnout	2028	\$4,664,627
High Efficiency FAU – On Burnout	2029	\$4,804,565
High Efficiency FAU – On Burnout	2030	\$4,948,702
High Efficiency FAU – On Burnout	2031	\$5,097,164
High Efficiency FAU – On Burnout	2032	\$5,250,078
High Efficiency FAU – On Burnout	2033	\$5,407,581
Total ESA Main Gas Furnace Budget 2028–2033 (including both categories): \$35,510,074		

⁴⁰⁵ Exh. SCG-01, Verduzco and Christian Direct at 125:5–9.

⁴⁰⁶ SoCalGas Attach. E, Table A-1, Planning Assumptions at Lines 47 and 53, Columns S, Z, AG, AN, AU, and BB.

⁴⁰⁷ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-06, Q. 1. These percentages were determined by adding up the total number of repair and replacement measures for each year in the table provided by SoCalGas, then dividing the number of repairs by the total for the year.

⁴⁰⁸ SoCalGas ESA Budget Tables, Table A-1, Planning Assumptions, ESA Main, at Lines 47 and 53, Columns X, AE, AL, AS, AZ, and BG.

SoCalGas also proposes, like the other Southern Region IOUs, to return its multifamily offerings to a locally-administered MFWB program.⁴⁰⁹

For MFWB, SoCalGas forecasts the following quantities and budgets for polluting gas equipment:

Table 14: SoCalGas MFWB Gas-Burning Equipment Projections 2028–2033

Measure	Year	Quantity	Budget
Tankless Water Heater ⁴¹⁰	2028	41	\$157,874
Tankless Water Heater	2029	41	\$162,610
Tankless Water Heater	2030	41	\$167,488
Tankless Water Heater	2031	41	\$172,513
Tankless Water Heater	2032	41	\$177,688
Tankless Water Heater	2033	41	\$183,019
Water Heater R&R ⁴¹¹	2028	402	\$108,954
Water Heater R&R	2029	402	\$112,223
Water Heater R&R	2030	402	\$115,590
Water Heater R&R	2031	402	\$119,057
Water Heater R&R	2032	402	\$122,629
Water Heater R&R	2033	402	\$126,308
Central Domestic Hot Water Boiler – CAM ⁴¹²	2028	50	\$6,000,000
Central Domestic Hot Water Boiler – CAM	2029	50	\$6,180,000
Central Domestic Hot Water Boiler – CAM	2030	50	\$6,365,400
Central Domestic Hot Water Boiler – CAM	2031	50	\$6,556,362
Central Domestic Hot Water Boiler – CAM	2032	50	\$6,753,053
Central Domestic Hot Water Boiler – CAM	2033	50	\$6,955,644
Furnace R&R ⁴¹³	2028	18	\$49,785
Furnace R&R	2029	18	\$51,279
Furnace R&R	2030	18	\$52,817
Furnace R&R	2031	18	\$54,401
Furnace R&R	2032	18	\$56,034
Furnace R&R	2033	18	\$57,715
High Efficiency Forced Air Unit (HE FAU) ⁴¹⁴	2028	20	\$171,768
High Efficiency Forced Air Unit (HE FAU)	2029	20	\$176,921
High Efficiency Forced Air Unit (HE FAU)	2030	20	\$182,229

⁴⁰⁹ Exh. SCG-01, Verduzco and Christian Direct at 135:15–19.

⁴¹⁰ SoCalGas ESA Budget Tables, Table A-1A, Planning Assumptions, ESA MFWB Program, Line 15.

⁴¹¹ SoCalGas ESA Budget Tables, Table A-1A, Planning Assumptions, ESA MFWB Program, Line 23.

⁴¹² SoCalGas ESA Budget Tables, Table A-1A, Planning Assumptions, ESA MFWB Program, Line 31.

⁴¹³ *Id.* at Line 49.

⁴¹⁴ *Id.* at Line 52.

High Efficiency Forced Air Unit (HE FAU)	2031	20	\$187,696
High Efficiency Forced Air Unit (HE FAU)	2032	20	\$193,327
High Efficiency Forced Air Unit (HE FAU)	2033	20	\$199,126
Total Budget for Polluting Appliances in MFWB 2028–2033 Cycle: \$41,969,510			

Q. Please summarize your recommended modifications to SoCalGas’ ESA Application.

A. SoCalGas’ proposal to spend over \$178 million on polluting gas measures in the 2028–2033 cycle directly undermines California’s climate, public health, air quality, and equity objectives for the reasons set forth in Section III. To align SoCalGas’ ESA offerings with California policy, I recommend the following modifications to both the ESA Main and the MFWB program delivery:

1. SoCalGas should be required to provide fuel substitution measures for space and water heating through its ESA programs like the other IOUs, and should be restricted from installing gas-burning furnace and water heating measures outside of infeasibility scenarios, as discussed in Section V.
2. To the extent that any gas appliance measures are permitted to continue in ESA, then:
 - a. The Commission should still restrict SoCalGas from spending ratepayer funds on furnace early replacement measures;
 - b. Home upgrade and repair costs whose only purpose is to facilitate installation of a new gas appliance should be restricted; and
 - c. Baseline-efficiency gas-burning furnaces should be categorized as core HVAC measures, rather than HCS measures, and should not be exempt from reporting requirements.

1. The Commission Should Require SoCalGas to Provide Fuel Substitution Measures for Space and Water Heating Equipment Replacements.

Q. What is SoCalGas’ policy justification for continued gas spending?

A. SoCalGas asserts that “[f]or households that qualify for IQPs, energy provided through natural gas remains important given the relatively lower cost.”⁴¹⁵

⁴¹⁵ Exh. SCG-02, Prepared Direct Testimony of Andrew Steinberg on Behalf of Southern California Gas Company, at AS-2:10-11 (Jan. 16, 2026) (“Exh. SCG-02, Steinberg Direct”).

1 **Q. Do you agree that gas appliance installations promote affordability?**

2 **A.** No. First, installing new long-lived gas appliances in low-income households increases
3 the risk of exposure to gas rate shock as wealthier customers leave the gas system.⁴¹⁶ As
4 explained more fully above, under a scenario assuming a gradual level of electrification,
5 the CEC forecasts SoCalGas rates increasing from \$1.76/therm in 2025 to about
6 \$43.17/therm by 2050.⁴¹⁷ The Commission has previously recognized “the concern with
7 low-income and vulnerable communities not having the means to electrify, and whether
8 or not they will be ‘left behind’ to carry the burden of higher gas rates as other customers
9 leave the gas system.”⁴¹⁸ Rather than using ESA to ensure low-income customers are not
10 left behind on the gas system, SoCalGas would use ESA to perpetuate their dependency.

11 Second, on top of hedging against future gas rate increases, CARE/FERA customers
12 typically experience meaningful bill savings from switching from gas space and water
13 heating to a heat pump. For example, the TECH Best Practices report found that CARE
14 and FERA customers “typically experience more bill savings from fuel substitution than
15 market rate customers” due to the greater discount on electric over gas rates, with CARE
16 customers experiencing an average \$75 improvement on bill impacts over non-CARE
17 customers (annual savings of \$109 versus \$34).⁴¹⁹ Customers in some climate zones with
18 higher winter heating loads, such as Climate Zone 16, are currently the exception to this
19 general finding, as noted in Section IV.C.2. The CEC’s bill impacts modeling for the
20 EBD program found that “HPWH retrofit results in bill savings in nearly all climate
21 zones,” and that heat pump HVAC retrofits “with code-required duct sealing will likely
22 result in bill savings in most of the simulated scenarios.”⁴²⁰ Climate Zones 5 and 16 were
23 outliers in the CEC’s modeling for heat pump retrofits, showing potentially significant
24 bill impacts for customers.⁴²¹ As discussed more in Section V, the Commission could
25 consider a temporary carve-out for Climate Zone 16 due to its uniquely cold climate
26 paired with California’s current high electric rates.

27 Third, the HCS benefits of switching from inefficient polluting appliances to heat pumps
28 and induction cooking can also provide cost savings. For example, as stated in Section

⁴¹⁶ D.22-09-026 at 16 (Energy Division staff noting “[t]he maintenance and operational costs associated with gas infrastructure will need to be paid for by a shrinking number of future gas customers, which will be reflected in higher rates. These customers are likely to be low-income customers as they face the greatest barriers to electrification.”).

⁴¹⁷ CEC, 2025 IEPR at 43, D-3.

⁴¹⁸ D.22-09-026 at 31.

⁴¹⁹ TECH Best Practices Draft Report at 5, 21, 25.

⁴²⁰ CEC, Bill Impacts Analysis at 28–29.

⁴²¹ *Id.* Climate Zone 1 also had a significant portion of results with negative bill savings in the CEC’s modeling. However, the magnitude of the potential bill increases in proportion to current bills was much lower for Climate Zone 1 compared to Climate Zones 5 and 16. In the case of Climate Zone 5, bill increases can in part be attributed to new cooling load as the CEC model assumed all homes in Climate Zone 5 did not previously have air conditioning. *See supra* fn 369.

1 III, improved air quality from electrification can reduce medical costs. Similarly, unlike a
2 gas furnace, a heat pump provides cooling to address extreme heat, resulting in “reduced
3 risk of heat-related illnesses and lowered associated healthcare costs.”⁴²²

4 Finally, ESA Main and MFWB should be used to address upfront costs for electrification
5 that remain a barrier to adoption. The TECH report found that customers were very
6 sensitive to the high costs of heat pumps and were more willing to install them if given an
7 incentive that covered the cost.⁴²³ By covering upfront costs of electrification, ESA
8 enables low-income households to access zero-emission equipment that would otherwise
9 be financially inaccessible under general market rebate programs.

10 **Q. Do you agree with SoCalGas’ analysis of other states’ findings regarding**
11 **affordability benefits of low-income gas appliance replacements?**

12 **A.** No. SoCalGas’ witness Andrew Steinberg claims that other states such as New York,
13 Michigan, Maryland, and Rhode Island “are recognizing that natural gas continues to
14 play an important role as an affordable energy source” and are “adopting approaches that
15 support access to natural gas service while advancing efficiency, greenhouse gas
16 emissions reductions and equity objectives.”⁴²⁴

17 As a threshold matter, California is a leader in the low-income energy efficiency space
18 and its housing stock and climate zones differ substantially from the states that Steinberg
19 refers to. In addition, as set forth more fully in Section III, California agencies have
20 repeatedly found widespread electrification is necessary for the state to achieve its
21 climate and air quality objectives. Accordingly, the extent to which other states choose to
22 continue to use ratepayer funds on polluting appliances is of limited relevance to
23 Commission review of SoCalGas’ ESA Application. In any event, contrary to SoCalGas’
24 assertions, other states are shifting ratepayer efficiency funds from gas to electric
25 appliances.

26 For example, the New York Public Service Commission (“NY PSC”) adopted a
27 framework requiring utilities and other program administrators to allocate large portions
28 of their energy efficiency and beneficial electrification (“EE/BE”) portfolio budgets to
29 electrification and required all program administrators to proportionally reduce gas
30 combustion equipment budgets for all use cases in multifamily portfolios. The NY PSC’s
31 Strategic Framework for both low- and moderate-income (“LMI”) EE/BE portfolios and
32 non-LMI EE/BE portfolios orders program administrators to allocate 85% of portfolio
33 budgets to electrification or electrification-readiness measures.⁴²⁵ Further, the NY PSC
34 required that the proportional level LMI EE and BE budgets for gas combustion

⁴²² 2026 Extreme Heat Action Plan at 10.

⁴²³ TECH Best Practices Report at 19.

⁴²⁴ Exh. SCG-02, Steinberg Direct at AS-3:7–11.

⁴²⁵ Order Directing Energy Efficiency and Building Electrification Proposals, Cases Nos. 14-M-0094 and 18-M-0084, at 35 (N.Y. P.S.C., July 20, 2023).

1 appliance installations in multifamily buildings be less than that used in 2020–2025
2 portfolios.⁴²⁶ Finally, program administrators must allocate up to 15 percent of LMI
3 EE/BE program budgets to supporting the adoption of heat pumps in single family and
4 affordable multifamily buildings.⁴²⁷

5 Second, Maryland shifted ratepayer funding from gas to electric energy efficiency
6 programs pursuant to recently enacted legislation that required their gas companies to
7 sunset gas energy efficiency programs. Maryland’s Utility RELIEF Act, passed in May
8 2026,⁴²⁸ prohibits utilities from offering gas energy efficiency plans—including those
9 that provided gas fired appliance replacements or repairs—from the state’s energy
10 efficiency portfolio, the EmPOWER program. The Act requires utilities to ramp down
11 their gas energy efficiency EmPOWER program offerings,⁴²⁹ and the Maryland Public
12 Service Commission ordered its gas-only utility to sunset its gas efficiency offerings by
13 December 2026 and to stop collecting cost recovery by December 2027.⁴³⁰ Because
14 customers pay surcharges to fund the EmPOWER program,⁴³¹ the new legislation ensures
15 that ratepayer funding will no longer fund gas appliance measure installations in the
16 EmPower program. Further, the Maryland Public Service Commission approved program
17 administrators for the limited income segment of the EmPOWER programs to
18 “discontinue funding fossil fuel measures in covered buildings” and use leftover gas
19 efficiency funding for building envelope measures.⁴³²

20 **Q. Does SoCalGas currently provide, or plan to provide, fuel substitution measures**
21 **through ESA?**

22 **A.** No.⁴³³

⁴²⁶ Order Authorizing Low- to Moderate- Income Energy Efficiency and Building Electrification Portfolio for 2026-2030, Cases 14-M-0094 et al., at 110 (N.Y. P.S.C., May 15, 2025).

⁴²⁷ *Id.* at 83.

⁴²⁸ Christine Condon, *Moore Signs Maryland Energy Bill Aimed at Cutting Power Costs*, Maryland Matters (May 12, 2026) <https://marylandmatters.org/2026/05/12/moore-signs-utility-relief-act/>.

⁴²⁹ MD Pub. Util. C. §7-222(f).

⁴³⁰ Order on the Sunset of Washington Gas Light Company’s Empower Program, Case No. 9705 (MD P.S.C. Aug. 21, 2026).

⁴³¹ Maryland Office of People’s Counsel, *EmPOWER Programs* (“Maryland EmPOWER Program”), <https://opc.maryland.gov/Consumer-Learning/Energy-Bill-Savings/EmPOWER-Programs> (last accessed Sept. 12, 2026).

⁴³² Order on Empower Semi-Annual and Work Group Reports, Case No. 9705 (MD P.S.C., Feb 6, 2026); Maryland EmPOWER Program at 8.

⁴³³ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q.6, Q. 18.

1 **Q. What is SoCalGas' justification for failing to offer fuel substation measures?**

2 **A.** SoCalGas cites guidelines in the ESA Policy and Procedures Manual and the ESA
3 Installation Standards ("IS") Manual as the reason it does not provide heat pumps
4 through ESA.⁴³⁴

5 **Q. What are the ESA program manuals' prohibitions on gas providers offering fuel**
6 **substitution measures?**

7 **A.** Currently, the ESA Policy and Procedures Manual and the IS Manual contain provisions
8 limiting gas utilities from providing fuel substitution measures to customers for whom
9 they do not supply electricity. For example, in the IS Manual v1.5, "Electricity is not
10 supplied by the utility providing ESA Program services" is listed among nonfeasibility
11 criteria for HPWH and central heat pump fuel substitution measures.⁴³⁵

12 **Q. Do you agree with the prohibitions in the program manuals?**

13 **A.** No. I do not agree that gas utilities should be restricted from installing fuel substitution
14 measures through ESA. As discussed above, continued installation of polluting gas
15 measures is contrary to California's policy objectives, and installation of these measures
16 through ESA is particularly harmful because it targets the precise customers who are most
17 vulnerable to being left behind in the energy transition and ensures that they will be by
18 locking them into decades of fossil fuel dependence.

19 Further, in areas where there is no other IOU or POU-run program offering no-cost fuel
20 substitution measures, low-income customers are left with no options other than the
21 measures that SoCalGas can provide. The Commission should authorize—and require—
22 SoCalGas to provide fuel substitution measures through its ESA program to ensure that
23 its customers are given the same resources and opportunities to access zero-emission
24 appliances.

25 **2. SoCalGas' Proposal to Potentially Shift Funds from HE FAU Burnout**
26 **to HE FAU Early Replacement Measures Should be Rejected.**

27 **Q. Please summarize SoCalGas' projected increase in HE FAU Early Replacement**
28 **measures in the 2028–2033 cycle.**

29 **A.** In testimony, SoCalGas' witnesses stated that the company may reallocate projected
30 budgets from the HE FAU Burnout measure to the HE FAU Early Replacement measure
31 over the course of the cycle if the Title 24 Building Code is updated to reflect federal
32 efficiency standard increases that would go into effect in December 2028.⁴³⁶

⁴³⁴ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q.6, Q. 18.

⁴³⁵ IS Manual v1.5 at 801-A (PDF p. 912), 802-A (PDF p. 928).

⁴³⁶ Exh. SCG-01, Verduzco and Christian Direct at 125:10–16; Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 16.

1 Currently, the HE FAU Burnout measure is used when “the existing FAU has failed
2 NGAT and *cannot be repaired* (also known as ‘burnout’).”⁴³⁷ In comparison, Early
3 Replacement occurs for “an existing *operational* FAU” if the “existing FAU has an
4 AFUE <80%” and “[t]he customer’s winter season usage is >100% of baseline.”⁴³⁸

5 In 2023, the U.S. Department of Energy released a final rule regarding baseline efficiency
6 standards for consumer furnaces, requiring furnaces manufactured or imported in the
7 United States to have a 95% AFUE by December 18, 2028.⁴³⁹ If this rule update remains
8 in effect,⁴⁴⁰ it could allow SoCalGas to engage in early replacement of furnaces that are
9 currently ineligible for early replacement because they meet the current baseline
10 efficiency standard of 80% AFUE under federal standards and Title 24.⁴⁴¹ Under the new
11 standard, a larger population of heaters could meet both the applicable AFUE criteria and
12 seasonal usage thresholds for early replacement. Under such circumstances, SoCalGas’
13 ESA Program delivery could shift toward earlier replacement of furnaces that no longer
14 meet baseline efficiency standards rather than relying on equipment burnout.⁴⁴²

15 **Q. Are like-for-like furnace early replacements consistent with California policy?**

16 **A.** No. To the extent that any gas appliances receive early replacements rather than
17 replacement on burnout, they should be replaced with zero-emission electric appliances,
18 consistent with the CEC’s Aggressive Electrification scenario.⁴⁴³ Early replacements are
19 efficiency-driven appliance replacements that are not undertaken in response to an
20 emergency or safety concern. As the CEC has found, “[t]he overall cost of investing in
21 upgrading the efficiency of a gas appliance to achieve 2030 goals, and then later
22 upgrading that gas appliance to a high-efficiency electric one later, is greater than the cost
23 of upgrading to a high-efficiency electric appliance in the first place . . . Care must be
24 taken to avoid early retirement leading to higher associated costs.”⁴⁴⁴ As the CEC also
25 found in its 2021 IEPR, “gas equipment efficiency investments have a growing likelihood
26 over time of becoming stranded assets, becoming a liability for carbon offsets, or causing
27 the state to miss its goals.”⁴⁴⁵ Early replacement of gas furnaces with higher-efficiency
28 gas furnaces is irreconcilable with the state’s climate and public health policies, and

⁴³⁷ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 19.

⁴³⁸ *Id.*

⁴³⁹ Energy Conservation Program: Energy Conservation Standards for Consumer Furnaces, 10 CFR Part 430, Dep’t of Energy (Dec. 18, 2023) <https://www.federalregister.gov/documents/2023/12/18/2023-25514/energy-conservation-program-energy-conservation-standards-for-consumer-furnaces>.

⁴⁴⁰ The rule is currently being litigated in federal courts and the case was recently remanded to the D.C. Circuit Court of Appeals. *Am. Gas Ass’n, et al. v. Dep’t of Energy, et al.*, Case No. 25-879, 2026 WL 1640863 (June 8, 2026) (granting certiorari, vacating judgment, and remanding case to D.C. Circuit).

⁴⁴¹ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 16.

⁴⁴² Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 16.

⁴⁴³ CEC, 2021 Building Decarbonization Assessment at 45–46.

⁴⁴⁴ CEC, 2021 Building Decarbonization Assessment at 35.

⁴⁴⁵ CEC, 2021 IEPR Vol. I at 22.

1 should not be authorized as a use of ratepayer funds. While SoCalGas does not currently
2 propose spending on early replacements, the Commission should affirmatively prohibit
3 such spending in the coming cycle in anticipation of the increasingly stringent furnace
4 baselines.

5 **3. Home Upgrades and Repairs for Gas Efficiency Should Be Limited to**
6 **Fuel-Neutral Envelope Improvements and Electrification-Enabling**
7 **Work.**

8 **Q. What types of pre-weatherization and make-ready work are appropriate for gas**
9 **efficiency programs?**

10 **A.** Generally speaking, I support expanded budgets for the types of pre-weatherization work
11 discussed in Section IV.A.3 that support code compliance, envelope improvements, and
12 removal of home hazards. These types of work may provide therm savings or enable gas
13 IOUs to install other fuel-neutral energy efficiency measures in the home. Further, as
14 discussed in Section IV.C.3, I support IOUs pursuing electrification readiness work that
15 sets up the home for future electrification while other work is being performed, thus
16 avoiding the need to, e.g., open up walls for work now and then open them up again to
17 electrify a few years down the line.

18 **Q. What types of make-ready work are not appropriate for funding in a gas efficiency**
19 **program?**

20 **A.** Home repairs or upgrades that do not provide value to the home outside of enabling the
21 installation of a polluting gas appliance are not an appropriate use of ratepayer funds. For
22 example, SoCalGas has indicated that its tankless water heater measure often requires
23 plumbing updates.⁴⁴⁶ As SoCalGas has explained, tankless water heaters “require [¾]-
24 inch piping, which is often absent in older homes,” and “[r]emediation to upgrade
25 existing piping frequently exceeds minor home repair limits.”⁴⁴⁷

26 **Q. How often are these plumbing updates needed and how much money is SoCalGas**
27 **spending on plumbing updates to facilitate installation of tankless water heaters?**

28 **A.** SoCalGas stated in discovery that it does not track data regarding the frequency of these
29 types of plumbing upgrades, and that its witnesses’ testimony statement that the ¾-inch
30 piping needed for tankless water heaters is “often absent in older homes” was “based on
31 anecdotal feedback provided by ESA program contractors.”⁴⁴⁸ SoCalGas also stated that
32 it did not have data on costs of these repairs beyond the general testimony statement that

⁴⁴⁶ Exh. SCG-01 at OV and RC-151:19–152:2.

⁴⁴⁷ *Id.* at OV and RC-151:20–21, Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q.27 (specifying that a reference to ½ inch piping in the testimony was in error and should have referred to ¾ inch piping).

⁴⁴⁸ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-05, Q. 1, Q. 2.

1 such costs “frequently exceed[] minor home repair limits,” which was “not based on a
2 quantitative analysis of project-level piping upgrade costs” but rather was “part of a
3 broader description of implementation experience, lessons learned, and considerations
4 that may be relevant to future evaluation of measure delivery within the ESA
5 portfolio.”⁴⁴⁹ Thus, it is hard to say with certainty how often these updates are needed or
6 how much they are costing ratepayers.

7 **Q. Do you believe that plumbing updates to allow installation of gas tankless water**
8 **heaters should be supported?**

9 A. I believe that gas tankless water heaters should only be installed in scenarios where a
10 HPWH is truly physically infeasible, as set forth in Section V. To the extent that a gas
11 tankless water heater is being installed because there is truly no feasible electrification
12 option, costs of plumbing upgrades should be tracked and reported, and electrification-
13 readiness measures should be undertaken concurrently to the extent possible (i.e., while
14 the walls are open, adjusting wiring for future electrification).⁴⁵⁰ In general, costly pre-
15 electrification work is frequently cited as a reason electrification measures cannot be
16 installed.⁴⁵¹ To the extent that costly make-ready work is being undertaken in an ESA
17 property, it should be for measures that advance the state’s policy goals. Incurring extra
18 costs to facilitate installation of gas measures rather than making the home electrification-
19 ready is not consistent with state goals.

20 **4. To the Extent the Commission Continues to Enable SoCalGas to**
21 **Install Gas Furnaces, It Should Require SoCalGas to Classify its**
22 **Baseline-Efficiency Furnace Replacements as Core ESA Measures**
23 **Rather than HCS Measures that are Exempt from Certain Reporting**
24 **Requirements.**

25 **Q. What is SoCalGas’ HCS Furnace reporting exemption?**

26 A. During the current program cycle, SoCalGas “obtained an exemption from standard
27 therm savings reporting requirements for HCS measures, services, and fees that produce
28 negative therm savings” through the ESA Working Group and “discontinued the inclusion
29 of therm savings data for the installation of negative therm savings measures in both
30 internal and external monthly program reporting” effective July 1, 2024.⁴⁵² The measures

⁴⁴⁹ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-05, Q. 2.

⁴⁵⁰ See *supra* fn. 394.

⁴⁵¹ See, e.g., TECH Best Practices Draft Report at 60–62; CEC 2026 Building Energy Action Plan, at 48–53.

⁴⁵² Exh. SCG-01, Verduzco and Christian Direct at 117:17–118:1.

producing negative therm savings and thus subject to this reporting exemption are “Furnace Clean and Tune” and “Furnace Repair/Replacement.”⁴⁵³

Q. How many HCS furnaces has SoCalGas installed during the current cycle?

A. In discovery, SoCalGas stated it installed the following number of HCS and non-HCS furnaces in 2022, 2023, 2024, and 2025:⁴⁵⁴

Table 15: SoCalGas HCS and Non-HCS Furnace Installations 2022–2025

Program Year	HCS Furnaces	Non-HCS Furnaces	Total
2022	3,407	1,305	4,712
2023	1,296	1,560	2,856
2024	1,083	953	2,036
2025	1,757	1,295	3,052

Q. What is the difference between an HCS furnace replacement and a non-HCS furnace replacement?

A. Under SoCalGas’ current practices, a *non*-HCS furnace replacement occurs when a customer’s furnace is found eligible for replacement and installation of the High Efficiency FAU measure is deemed feasible and provided.⁴⁵⁵ All other furnace replacements are HCS measures.⁴⁵⁶

SoCalGas explained in discovery that its Furnace R&R measure as a whole is considered an HCS measure.⁴⁵⁷ Furnace R&R is available to all furnaces—operable or inoperable—“that fail NGAT or appliance evaluation protocols,” as specified in the ESA Policy and Procedures Manual.⁴⁵⁸ Within the Furnace R&R workflow, a furnace is assessed for repair versus replacement, and when a furnace is approved for replacement pursuant to that process, SoCalGas then evaluates whether it can be “replaced with a High Efficiency furnace first,” and “if deemed not feasible due to the new specifications the HE furnace carries, (i.e. condensate line, size of equipment or different exhaust change out) then it falls under the HCS measure as a like for like replacement due to existing configurations.”⁴⁵⁹

⁴⁵³ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 3.

⁴⁵⁴ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 19 (for PY 2022, 2023, and 2024); SoCalGas Response to Data Request Sierra Club-SCG-07, Q.2(a) (for PY 2025).

⁴⁵⁵ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-04, Q. 1.

⁴⁵⁶ *Id.*

⁴⁵⁷ *Id.*; *see also* Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-07, Q. 2(c).

⁴⁵⁸ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-04, Q. 1.

⁴⁵⁹ *Id.*

1 Thus, the primary difference between an HCS furnace and a non-HCS furnace is whether
2 a High Efficiency FAU was deemed feasible for installation.⁴⁶⁰

3 **Q. Do you agree with this classification of furnaces as HCS measures?**

4 **A.** No. HCS measures are defined as those that result in less than 1 therm or 1 kWh of
5 annual energy savings but merit inclusion in ESA because they provide health, comfort,
6 and safety benefits.⁴⁶¹ As explained in Section III, heating equipment that combusts gas is
7 inconsistent with the state’s health-protective policy goals and contributes to ambient air
8 pollution in addition to greenhouse gases. As a point of comparison, other HCS measures
9 offered by SoCalGas include carbon monoxide and smoke alarms, air sealing, and
10 comprehensive home health and safety check-ups.⁴⁶² These measures provide clear HCS
11 benefits but inherently lack pathways to provide energy savings due to the nature of the
12 measure. In contrast, SoCalGas’ furnace HCS measure moves a core HVAC measure into
13 the HCS category and does not advance the health, comfort, and safety of the customer
14 except insofar as restoring heating generally promotes HCS. However, if restoring
15 heating is the goal, as discussed throughout this testimony, providing efficient electric
16 heating with any of the myriad heat pump configurations available in the market (e.g.,
17 mini-splits, room heat pumps, central heat pumps) could accomplish the same goal
18 without the externality of health-harming air pollution. Rather than truly providing HCS
19 benefits, this measure serves as a vehicle to install baseline-efficiency gas furnace
20 replacements while reducing reporting requirements.

21 **Q. What are the transparency impacts of the HCS Furnace reporting exemption?**

22 **A.** The reporting exemption obfuscates SoCalGas’ spending on baseline-efficiency gas
23 furnace installations. For example, in its 2025 Annual Report ESA Table 2 (ESA Main),
24 SoCalGas reports the installed quantity and the therm increases from its HCS Furnace
25 Repair/Replacement and Furnace Clean and Tune measures in a separate section of the
26 table, but does not report the spending on these measures.⁴⁶³ The “Furnace
27 Repair/Replacement” line of the main table is blank and notes that “future reporting for
28 Furnace Repair/Replacement and Furnace Clean and Tune measures is suspended on this
29 table beginning in July 2024,” as “approved at the 5/30/24 ESA WG meeting.”⁴⁶⁴ In
30 discovery, SoCalGas stated that it spent approximately \$4.38 million on Furnace R&R
31 HCS measures in ESA Main during PY 2025.⁴⁶⁵ This is a significant expense for
32 baseline-efficiency gas-burning equipment. To the extent that any such installations

⁴⁶⁰ *Id.* Note that a non-HCS furnace replacement could also take place in a scenario where the existing furnace passes safety testing but is inefficient enough to qualify for an efficiency-driven upgrade. *Id.*

⁴⁶¹ See D.21-06-015 at 254.

⁴⁶² Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-01, Q. 3.

⁴⁶³ SoCalGas 2025 IQP Annual Report, ESA Table 2 (ESA Main), Lines 95–96.

⁴⁶⁴ *Id.* at lines 33, 109.

⁴⁶⁵ Attach. 10, SoCalGas Response to Data Request Sierra Club-SCG-07, Q. 1(d).

1 continue to be funded with ESA dollars, the Commission should require SoCalGas to
2 restart reporting its spending on these measures. Notably, SoCalGas *does* report its
3 spending for other HCS measures, such as the CO and Smoke Alarm, Air
4 Sealing/Envelope, and Comprehensive Home Health and Safety Check-up measures.⁴⁶⁶

5 **Q. What is your recommendation regarding the HCS Furnace reporting exemption?**

6 **A.** To the extent that the Commission continues to enable SoCalGas to install polluting gas-
7 burning furnaces in low-income households, it should be required to resume classifying
8 baseline-efficiency furnace replacements within its general HVAC measures, and
9 reporting all data on measure costs and impacts, rather than classifying them as HCS
10 measures and exempting themselves from reporting requirements.

11 **V. TO THE EXTENT THE COMMISSION ALLOWS ESA FUNDING TO CONTINUE TO**
12 **BE USED FOR POLLUTING APPLIANCE MEASURES, IT SHOULD ONLY BE**
13 **WHERE ELECTRIC APPLIANCE INSTALLATION IS INFEASIBLE (OSUALA)**

14 **Q. Please summarize your recommendations regarding restriction of gas appliance**
15 **measures in ESA.**

16 **A.** As set forth in Sections III and IV, continued use of ratepayer funds for polluting gas
17 appliances in low-income households is fundamentally incompatible with California's
18 climate, air quality, public health and equity objectives. To the extent ESA continues to
19 fund gas appliance installations, it should be where electric appliance installation is
20 infeasible, such as where a household lacks adequate space or other barriers that cannot
21 be addressed through expanded program pre-electrification budgets and available
22 supplemental funding. I also recommend annual reporting on the circumstances under
23 which electric appliance installation was determined to be infeasible and limits on the
24 percentage of space and water heating appliance funds used under this exception to
25 ensure ESA properly prioritizes enabling ESJ Communities' transition off polluting
26 appliances.

27 **Q. How should the installation of a gas appliance be reviewed to ensure installation**
28 **only occurs where electric options are infeasible?**

29 **A.** The Commission should only consider allowing gas appliance installation where a
30 household lacks adequate space, infrastructure, or structural integrity for fuel substitution
31 measure installation that cannot be remedied within expanded program pre-electrification
32 budgets and available supplemental funding. Gas IOUs invoking an infeasibility
33 exception to install a new polluting appliance should document the conditions warranting
34 the exception and include this in their annual ESA reports. For example, if a household
35 lacked adequate space or venting to install a HPWH, the installer would document those
36 space constraints and the continued infeasibility of options intended to address those

⁴⁶⁶ SoCalGas 2025 IQP Annual Report, ESA Table 2 (ESA Main), Lines 26, 57, and 58.

1 constraints, such as split HPWH systems. Similarly, if upgrading the household's electric
2 system to accommodate an electric appliance exceeded the budget for pre-electrification
3 work, the installer would document those potential costs and explain why technologies
4 that could avoid those costs, such as 120V product models, could not be utilized. This
5 reporting will help ensure an infeasibility exception is only invoked where necessary and
6 help identify technological, funding, and other gaps that limit low-income customers
7 from being able to access the benefits of efficient electric technologies.

8 To help ensure infeasibility exceptions are only invoked where necessary, the
9 Commission should consider tasking the ESA Working Group with regularly updating the
10 installation standards for situations where fuel substitution is infeasible. Manufacturers
11 are continuously evolving zero-emissions technologies to meet market needs, including
12 lower-voltage products (i.e. 120V HPWHs and 120V battery-equipped induction
13 ranges),⁴⁶⁷ and products in new form factors that can be compatible with structural and
14 spatial constraints.⁴⁶⁸ As a result, the circumstances that merit infeasibility for any given
15 electrification measure are rapidly changing as innovation meets these constraints.

⁴⁶⁷ See CalMTA, *120V Battery-Equipped Induction Ranges: Field Study Report* (Feb. 9, 2026), <https://calmta.org/wp-content/uploads/2025/09/120V-Battery-Equipped-Induction-Ranges-Field-Study.pdf> (noting that “[t]he plug-and-play 120V battery-equipped range prevents the need for invasive and costly electrical service upgrades,” studying performance data of 120V battery-equipped ranges in low-income California homes, and making recommendations for manufacturers and contractors regarding further development and installation of these products); see also TECH Best Practices Draft Report at 29 (“There has been some progress in reducing the inherent complexity of heat pump installations. In some cases, technology innovations have succeeded in simplifying project work scopes TECH Clean California has seen positive market response to the introduction of 120V heat pump water heaters, which mitigates the need for expensive wiring upgrades.”).

⁴⁶⁸ See CalMTA, *Residential Heat Pump Water Heating: Market Transformation Initiative Plan*, at 45 (June 26, 2026), https://calmta.org/wp-content/uploads/2025/09/RHPWH-MTI-Plan-062626_Stamped.pdf (describing split-system HPWHs, where the “primary heat pump components are located outdoors and connected via refrigerant lines to the condenser and water storage tank indoors,” versus integrated HPWHs); *id.* at 63 (“[M]anufacturers are introducing split-systems and units with a smaller integrated form factor, such as ‘lowboys,’ which are shorter and more compact water heaters that fit into smaller spaces. In 2025, both Eco-Logical and Embertec began offering new HPWH products with form factors that will allow for targeting California mobile homes.”); CalMTA, *Room Heat Pumps Market Transformation Initiative Plan*, at 10 (Dec. 18, 2024), <https://calmta.org/wp-content/uploads/2025/09/MTI-Plan-Room-Heat-Pump-121225.pdf> (explaining barriers to California adoption of existing room heat pump technologies, including that “current product configurations . . . do not fit in casement or slider windows, which are the dominant window types in California.”) CalMTA’s market transformation initiative plan for 120V room heat pumps includes manufacturer challenges to “design, test, and commercialize a new configuration of window heat pump (WHP) products that fit into slider (and possibly casement) windows and serve the more moderate climate requirements of California.” *Id.* at 19. The initiative was approved by the Commission in D.25-11-023. D.25-11-023, *Decision Approving Initial Tranche of Energy Efficiency Market Transformation Initiatives*, at 2 (Nov. 24, 2025), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M588/K645/588645495.PDF> (“One MTI for room heat pumps is fully approved for deployment.”).

1 Accordingly, infeasibility analysis under ESA should also be updated over the course of
2 the program cycle.

3 The ESA IS Manual provides guidance on structural barriers that exist in a customer's
4 home that can currently make a fuel substitution measure infeasible. For instance, HPWH
5 fuel substitutions cannot be installed in confined spaces that do not comply with state or
6 federal regulations.⁴⁶⁹ The IS Manual can be expanded to identify potential solutions to
7 address these type of constraints where they exist, such as through installation of a split
8 HPWH system.⁴⁷⁰ The Working Group can also consider whether the Natural Gas
9 Appliance Test ("NGAT") standards and Natural Gas Appliance Evaluation ("NGAE")
10 standards should be modified to provide specific guidance on feasible fuel substitution
11 repair and replacement options. NGAT and NGAE are critical tests that help contractors
12 determine whether a gas appliance is operating safely and whether it should be repaired
13 or replaced. Currently, the installation standards do not exclude fuel substitution
14 measures from repair and replacement measures for natural gas appliances that fail
15 NGAT or NGAE.⁴⁷¹ However, additional guidance can assist contractors in identifying
16 the range of available electric options to meet space and water heating needs.

17 Given the significant resource needs to achieve equitable electrification, the Commission
18 should also consider limiting the percent of funds a gas corporation can use for like-for-
19 like gas appliance replacement under an infeasibility exception for a given appliance. For
20 example, a limit of no more than 10 percent of water heating replacement funds for gas
21 replacement instead of fuel substitution can ensure that ESA is advancing California's
22 electrification objectives while still allowing for like-for-like gas appliance replacements
23 in limited circumstances.

24 **Q. Should the Commission also make exceptions for emergency replacements?**

25 **A.** I do not believe an emergency exemption allowing for like-for-like gas appliance
26 replacements is needed, and believe that creating one could result in avoidable
27 installation of new polluting appliances. Although most water heating replacements are
28 "emergency" replacements to restore hot water when an existing water heater breaks,
29 permanent installation of a replacement gas water heater is not necessary to address this
30 concern. For example, a TECH Quick Start grant allowed a water heater installer to offer
31 a no-cost, temporary gas water heater installation while permitting and pre-electrification
32 proceeded to enable HPWH installation.⁴⁷² Plug-in 120V HPWHs can avoid delays (and

⁴⁶⁹ IS Manual v1.5 at 801-A (PDF p. 912).

⁴⁷⁰ See California Heat Pump Partnership, *A.O. Smith's Split Heat Pump Water Heater is Closing a Gap in the California Market*, <https://heatpumppartnership.org/blog/ao-smith-split-heat-pump-water-heater-california-market/> (last accessed Sept. 11, 2026).

⁴⁷¹ IS Manual v1.5 at 24-C (PDF p. 41).

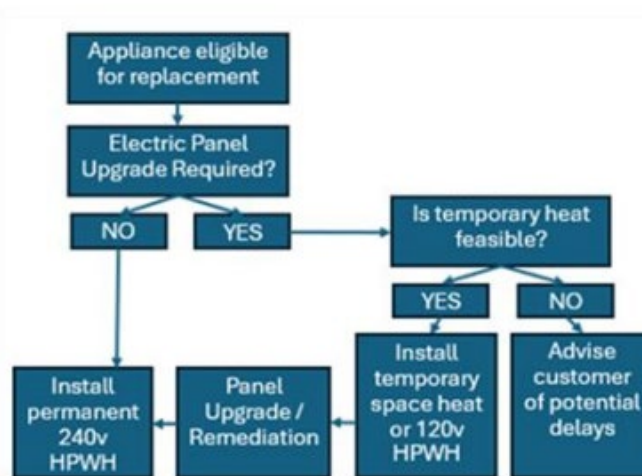
⁴⁷² TECH, *Bridging the Gap to Heat Pump Adoption: Water Heater Loaner Program* (July 2023), <https://techcleanca.com/quick-start-grants/2021-quick-start-grant-recipients/barnett-plumbing/>

costs) of electric upgrades that may be needed to accommodate a 240V HPWH where installation of a 240V model would ultimately be needed. With regard to space heating, temporary portable electric heating can provide heating services where needed.

PG&E's electrification proposal to modify its R&R workflows provides an example of how to include electrification measures.⁴⁷³

Figure 13: PG&E Proposed Electrification R&R Workflow

**FIGURE 4-5
STANDARD R&R ELECTRIFICATION SERVICE WORKFLOW**



As illustrated in the figure above, its proposed Standard R&R Electrification Service Workflow provides guidance to contractors to assess when to replace non-operating gas or electric appliances with heat pumps or HPWHs.⁴⁷⁴ PG&E states that its proposal is “guided by the urgent nature of replacing non-operating appliances such as furnaces and/or quickly remediating unsafe conditions” with electric appliances.⁴⁷⁵ Notably, PG&E’s electrification workflow does not contemplate installing a gas appliance even where temporary heat is infeasible. Rather, the ESA contractor would “advise [the] customer of potential delays” to replace the appliance.⁴⁷⁶ However, particularly where temporary measures are expanded to include a loaner gas water heater where pre-electrification work may require time to implement, these circumstances should be extremely limited.

With regard to space heating, emergency gas-fired replacement would only be appropriate where temporary space heating is infeasible and the customer cannot undergo

⁴⁷³ Exh. PG&E-01E, Errata Testimony at 4-45.

⁴⁷⁴ Exh. PG&E-01E, Errata Testimony at 4-45–4-46.

⁴⁷⁵ Exh. PG&E-01E, Errata Testimony at 4-45:15–16, and 4-46:1–7.

⁴⁷⁶ Exh. PG&E-01E, Errata Testimony at 4-46, Figure 4-5, *Standard R&R Electrification Service Workflow*.

1 reasonable delays to permanent electric space heating installations for health and safety-
2 related reasons. For such cases, the ESA Working Group should be tasked with
3 determining and limiting the health and safety-related reasons where administrators could
4 install gas-fired space heating. One health and safety-related reason the working group
5 could consider is an extreme cold weather event like those that trigger weather related
6 utility service disconnection protections. For example, California prohibits
7 disconnections when the temperature is below 32 degrees Fahrenheit.⁴⁷⁷ And the
8 Michigan Public Service Commission recently adopted stronger weather-related utility
9 disconnection protections, prohibiting shutoffs at 20 degrees Fahrenheit or zero degree
10 wind chill for low temperatures.⁴⁷⁸ Another health and safety-related reason the working
11 group could consider is when a customer's medical condition requires uninterrupted
12 utility service for space heating. Here, the working group could look to utility service
13 disconnection protections prohibiting disconnection for nonpayment of customers who
14 receive a medical baseline allowance and are (1) under hospice care at home, (2) depend
15 on life support equipment, or (3) have a life-threatening condition that would be
16 exacerbated without utility services.⁴⁷⁹

17 **Q. Are there any other circumstances that would merit an exception to the prohibition**
18 **on gas appliance installations?**

19 **A.** To the extent the Commission allows exceptions to the prohibition on gas appliance
20 installations, it could also consider a temporary carve-out to the rule for Climate Zone 16,
21 which experiences colder winter temperatures that could impose unfavorable bill impacts
22 on customers who electrify under existing rates. The CEC's bill impacts modeling found
23 that in Climate Zone 16, "most modeled decarbonization retrofit combinations . . . result
24 in higher energy bills" due to the "very low cooling load and higher heating load," where
25 "modeled retrofits are not gaining savings from cooling efficiencies, and a relatively large
26 amount of gas space heating is switched to electric heating."⁴⁸⁰ However, the CEC's

⁴⁷⁷ D.20-06-003, *Phase I Decision Adopting Rules and Policy Changes to Reduce Residential Customer Disconnections for the larger California-Jurisdictional Energy Utilities*, at OP #1(f) (June 11, 2020), <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K648/340648092.PDF>.<https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M340/K648/340648092.PDF>.

⁴⁷⁸ Order, Case No. U-20140, at 18 (Mich. P.S.C. July 16, 2026), <https://mi-psc.my.site.com/sfc/servlet.shepherd/version/download/068cs00002FQ1ejAAD>. In the matter, on the Commission's own motion, to process extreme weather condition policies filed in compliance with Mich Admin Code, R 460.134 for approval.

⁴⁷⁹ Cal. Pub. Util. Code §779.3(a)(1)–(3).

⁴⁸⁰ CEC, *Low-Income Residential Energy Bill Impact Analysis*, at 26–27 (June 2026) ("CEC, Bill Impacts Analysis"), <https://www.energy.ca.gov/sites/default/files/2026-06/CEC-300-2026-003.pdf>.<https://www.energy.ca.gov/sites/default/files/2026-06/CEC-300-2026-003.pdf> at 26–27. While the CEC's modeling also found potentially significant bill impacts for Climate Zone 5 (Central Coast), a similar carve-out for Climate Zone 5 is likely not warranted because the CEC's model assumed that the homes there did not have existing AC. *Id.* at 11. Thus, bill impacts in the CEC's modeling for Climate Zone 5 may be attributable to added cooling load due to the "warm summers" in the region and the

analysis relied upon utility rates from 2024 to calculate bill impacts, and did not model future bill impacts using its IEPR projections for future gas or electric rates.⁴⁸¹ As noted above, the CEC’s most recent IEPR data projects significant rises in gas rates under its AAFS 2 gradual electrification scenario. Thus, any carve-out undertaken out of concern for bill impacts should be adopted on a temporary basis and revisited regularly.

VI. OTHER PROGRAM RECOMMENDATIONS (BARKER)

Q. What other recommendations do you have for the IOUs’ 2028–2033 ESA Programs?

A. I recommend that the Commission consider expanding access to air purifiers through ESA. Specifically, I recommend that all four IOUs provide air purifiers to need state segments that correspond with higher respiratory health risk. Under each IOU’s customer segmentation proposals, these are:

Table 16: Proposed Need State Eligibility for Air Purifier Measure

Utility	Need States for Air Purifiers
PG&E	Medical Baseline, ⁴⁸² DAC, Tribal, Rural, and High Heat Areas ⁴⁸³
SDG&E	Medical Baseline, DAC, Tribal, and Heat Health Event Areas ⁴⁸⁴
SCE	Medically Vulnerable and Seniors, Tribal and Rural Communities, Extreme Heat Areas ⁴⁸⁵
SoCalGas	Medical Baseline, DAC, Tribal, Rural, and all “Respiratory” customer segments over 50% ⁴⁸⁶

Additionally, rather than treat air purifiers as an incremental add-on to Plus Tier treatment, I recommend that the Commission consider making air purifiers a Basic Tier

assumption that homes there did not have pre-existing AC. *Id.* at 29. Even if many customers in Climate Zone 5 do not have existing AC, installing a heat pump gives them the option to cool their home, but does not require them to use the cooling capabilities of the new heat pump should they find it too expensive—they can maintain their status quo cooling usage (none). In contrast, in a climate zone where winter heating load drives bill increases from electrification, customers would have fewer options within their control for avoiding bill increases.

⁴⁸¹ CEC, Bill Impacts Analysis at 16, App’x A.

⁴⁸² PG&E proposes closing its Medical Baseline category because other programs are serving the battery storage needs of its medical baseline customers. However, batteries do not improve air quality. Thus, I recommend PG&E maintain the Medical Baseline segment to prevent medically vulnerable customers from losing access to the measure. Exh. PG&E-01E, Errata Testimony, at 4-70:24–4-71:11.

⁴⁸³ Exh. PG&E-01E, Errata Testimony, at 4-73, Table 4-26 (identifying PG&E’s proposed need state segments for the 2028–2033 cycle).

⁴⁸⁴ Exh. SDG&E-03, ESA Testimony, at ESA-8, Table 1 (identifying SDG&E’s proposed need state segments for the 2028–2033 cycle), ESA-6:17-18 (noting that “SDG&E intends to maintain a distinct and separate treatment for Tribal communities” in addition to the other need state segments).

⁴⁸⁵ Exh. SCE-02, ESA Testimony, at 113, fn. 129 (listing the priority customer segments that SCE plans on targeting for ESA targeting).

⁴⁸⁶ See SoCalGas 2025 IQP Annual Report at PDF p. 195, ESA Program Table 16: Customer Segments/Needs State by Demographic, Financial, Location, and Health Conditions.

1 measure for customers within those Need State segments to ensure that low-income
2 renters in qualifying locations have access to this measure without burdensome Property
3 Owner Authorization (“POA”) forms.

4 **Q. Do any of the IOUs currently offer air purifiers through ESA?**

5 A. Yes. PG&E and SDG&E currently offer air purifiers to Medical Baseline, DAC, Tribal,
6 and Rural customer segments through their Plus Tier ESA offerings.⁴⁸⁷ SoCalGas and
7 SCE do not appear to currently offer air purifiers through ESA, nor do their application
8 materials propose offering them for the next program cycle.⁴⁸⁸

9 **Q. What is the difference between Basic Tier and other service tiers?**

10 A. IOUs’ specific programs are not identical. However, Basic Tier was approved by the
11 Commission in D.21-06-015 for “basic measures, which may include energy education
12 (whether in person or online), LED light bulbs and smart power strips, and Energy
13 Conservation Savings Kits.”⁴⁸⁹ Basic Tier measures are available to customers who self-
14 certify that they meet the income eligibility requirements and do not require income
15 verification, unlike other tiers.⁴⁹⁰ The Commission authorized Basic Tier to “remove the
16 burdensome income documentation process,” “appeal to those that still have distrust in
17 providing their personal information,” and “reach insecure and undocumented
18 households.”⁴⁹¹ While the IOUs have varying classifications of other service tiers, the
19 Commission required all four of the IOUs to exempt recipients of Basic Tier measures
20 from the otherwise-present requirement of income verification and POA forms, which are
21 sometimes difficult for tenants to obtain.⁴⁹²

22 Measures “requiring modifications to dwellings, which includes grounding, such as
23 refrigerators, portable air conditioners, and smart thermostats,” are not required to be
24 provided through Basic Tier to self-certifying customers.⁴⁹³

⁴⁸⁷ Exh. SDG&E-01, Prepared Direct Testimony of Kazeem Omidiji on Behalf of San Diego Gas & Electric Company’s Policy – Energy Savings Assistance, California Alternate Rates for Energy, and Family Electric Rate Assistance Program Plans and Budgets for Program Years 2028–2033, at KO-30, Table 3 (Jan. 16, 2026); Attach. 8, PG&E Response to Data Request Sierra Club-PG&E-03, Q. 6.

⁴⁸⁸ Sierra Club is aware that IOUs may propose adding and removing measures to their ESA offerings through the ESA Working Group throughout the cycle, and refers in this sentence to the program proposals in the IOUs’ filed applications.

⁴⁸⁹ D.21-06-015 at 142.

⁴⁹⁰ *Id.*

⁴⁹¹ *Id.* at 142–143.

⁴⁹² *Id.* at 143 (“We see advantages to this change and will require all the IOUs to allow for self-certification for [their] respective levels of the basic services . . .”).

⁴⁹³ *Id.* at 147.

1 **Q. Are air purifiers for need state segment customers currently dependent on income**
2 **verification and POA forms?**

3 **A.** Yes. As PG&E explains, need state segments are “special customer segments” that “build
4 upon the Plus Tier by providing an expanded suite of services tailored to customers with
5 significant hardship indicators.”⁴⁹⁴ Accordingly, air purifiers are part of its Plus Tier,
6 which is not exempt from income verification and POA requirements.⁴⁹⁵ SDG&E
7 similarly lists air purifiers as part of its Plus Tier offerings in its application materials, not
8 Basic Tier.⁴⁹⁶

9 **Q. Why are air purifiers an appropriate addition to the IOUs’ Basic Tier offerings for**
10 **customers in the need state segments you listed above?**

11 **A.** Air purifiers are important HCS measures that are widely available, including in low-cost
12 form factors, and do not require modification to the dwelling or professional installation.
13 Basic searches at online retailers such as Amazon, Target, and Home Depot at the time of
14 this writing showed a wide range of air purifiers available at prices between
15 approximately \$50 and \$200, depending on size and features.⁴⁹⁷ Further, many models do
16 not require grounding and plug into basic, two-prong outlets.⁴⁹⁸

17 While the Basic Tier measure examples enumerated in D.21-06-015 were focused on
18 energy savings rather than HCS, there is no reason the Commission could not authorize
19 air purifiers as a Basic Tier measure due to their HCS benefits.⁴⁹⁹ Vulnerable households
20 in California should have access to an air purifier to maintain healthy air quality in their
21 homes (or at a minimum, within one room of their homes).⁵⁰⁰ Low-income households

⁴⁹⁴ Exh. PG&E-01E, Errata Testimony, at 4-70:10–12.

⁴⁹⁵ *Id.* at 4-66:23–25 (“The measures for these Need States are incremental to the measures available in the Plus Tier and provide additional HCS or energy savings benefits.”); *id.* at 4-65:9–4-66:12 (describing Basic Tier and noting its streamlined enrollment for “self-certifying customers and renters who are unable to obtain their property owner’s authorization,” in contrast to Plus Tier, which “consists of ESA customers who, after completing the income and housing verification process, are eligible for deeper energy saving treatments.”).

⁴⁹⁶ A.26-01-011, Application of SDG&E, Attach. G, Table A-1 ESA Main Planning.

⁴⁹⁷ Attach. 13, Air Purifier Searches (Sept. 9, 2026).

⁴⁹⁸ See IS Manual v1.5, at 703-3–4 (PDF pp. 893–894) (noting in Installation Standards for Air Purifier measures that “units with three-prong plugs shall be plugged into a properly grounded three-prong receptacle,” but also that “units equipped with a two-prong polarized plug shall be plugged into a polarized receptacle” and that three-prong adapters and extension cords “may be used” when allowed by the manufacturer).

⁴⁹⁹ D.21-06-015 at 142 (providing examples of energy education, LED lightbulbs, smart power strips, and Energy Conservation Savings Kits as Basic Tier measures). As discussed in Section III.C, the statutory underpinnings of ESA are clear regarding the program’s hardship reduction purposes. The Commission noted in D.21-06-015 that improving HCS is among the explicit goals of the ESA program. D.21-06-015 at 8.

⁵⁰⁰ See Noam Rosenthal et al., *Population Co-Exposure to Extreme Heat and Wildfire Smoke Pollution in California during 2020*, 1 Env’t Rsch.: Climate, Col., at 6 (Aug. 25, 2022),

1 are disproportionately at risk of chronic respiratory diseases, and are disproportionately
2 burdened by medical costs.⁵⁰¹ Offering air purifiers to the Medical Baseline, DAC, Rural
3 and Tribal need state segments has already been approved by the Commission and tracks
4 with these customer segments' higher exposure to air pollution.⁵⁰²

5 **Q. How does your recommendation to add air purifiers to Basic Tier offerings**
6 **complement your overall recommendation that ESA focus more on deeper and more**
7 **meaningful treatments?**

8 **A.** My primary recommendation regarding the continued evolution of the ESA Program is to
9 prioritize funds and program efforts on deep household treatments that can end fossil fuel
10 reliance for low-income customers. As discussed above, widespread building
11 electrification will carry substantial climate and health benefits, including reductions in
12 criteria air pollution in both indoor and outdoor air in overburdened communities.
13 However, until deep decarbonization is achieved at a widespread level, these need state
14 communities continue to disproportionately bear the burdens of fossil fuel reliance and
15 air pollution. Further, renters in these need state households and communities who are
16 unable to obtain POA forms from their landlords will not be able to access the deeper
17 treatments that I recommend as the main focus of the ESA Program. Accordingly, I
18 believe it is appropriate for SCE and SoCalGas, who serve some of the most polluted air
19 basins in the country, to introduce these measures to their need state customers, and for
20 all four IOUs to make them available to qualifying need state customers without POA. If
21 the Commission or the IOUs are concerned about overdeployment of these measures in

https://repository.library.noaa.gov/view/noaa/52008/noaa_52008_DS1.pdf (finding that 30.2 million California residents were affected by at least one occurrence of extreme wildfire smoke during 2020, and that 68% of California's land area and 42% of the population simultaneously experienced hazardous smoke PM2.5 and extreme temperatures at least once in 2020); Lara Schwarz et al., *Long-Term Exposure to Wildfire Smoke and Mortality: Heterogeneous Effects by Exposure Metric and Across Subpopulations*, 122 PNAS U.S.A., at 1 (Dec. 15, 2025), <https://doi.org/10.1073/pnas.2509173122> (noting that "[c]limate-driven environmental changes, such as droughts and rising temperatures, have led to longer fire seasons and increasing wildfire frequency, severity, and duration").

⁵⁰¹ See Asthma & Allergy Found. Of Am., *Asthma Disparities in America: A Roadmap to Reducing Burden on Racial and Ethnic Minorities*, at 102 (2020) <https://aafa.org/wp-content/uploads/2022/08/asthma-disparities-in-america-burden-on-racial-ethnic-minorities.pdf> ("Economic instability is one of the strongest risk factors for asthma. Financial hardship, combined with interrelated factors such as poverty, employment, and income, contributes to socioeconomic disadvantage. Low socioeconomic status has been shown to increase an individual's exposure to asthma triggers and decrease the ability to seek effective health care."); *id.* at 104 ("Asthma prevalence among people in low-income households is significantly higher than among people in economically stable household."); see also Tursynbek Nurmagambetov, Robin Kuwahara & Paul Garbe, *The Economic Burden of Asthma in the United States, 2008–2013*, 15 Annals of the Am. Thoracic Soc'y 348, 353 (Mar. 2018), <https://doi.org/10.1513/AnnalsATS.201703-259OC> (finding the annual per-person incremental medical cost of asthma was \$3,266, and \$3,581 "for those living below the poverty line.").

⁵⁰² D.21-06-015 at 192 (approving the IOUs' ESA program measure mixes, which included SDG&E and PG&E's proposals to provide air purifiers as HCS measures to certain need state customer segments).

1 the Basic Tier, they could consider setting a budget cap for air purifiers to ensure that
2 they do not receive an outsized proportion of funding.

3 **Q. Why do you recommend adding air purifiers to the IOUs' high heat risk segments?**

4 **A.** Extreme heat and respiratory health risk are linked. High heat can worsen air quality due
5 to increased ozone formation, increased pollutants like particulates due to drought and
6 wildfire, and thermal inversions that trap pollutants closer to the ground.⁵⁰³ High
7 temperatures accelerate the chemical reactions between volatile organic compounds and
8 NO_x that lead to ozone formation.⁵⁰⁴ University of Southern California researchers found
9 that the mortality risks of extreme heat and air pollution have compounding impacts
10 when combined. Looking at California mortality data from 2014–2019, they found that
11 all-cause mortality increased by 6.1% on extreme maximum temperature days and by
12 5.1% on extreme PM2.5 days, but on days with both conditions, all-cause mortality risk
13 increased by 21%, more than triple the risk of either stressor alone.⁵⁰⁵ Providing air
14 purifiers to households in high heat event risk areas thus can help mitigate compounding
15 health and safety risks that these households face.

16 **VII. CONCLUSION**

17 **Q. Does this conclude your testimony?**

18 **A.** Yes.

⁵⁰³ See Beatriz Cardenas et al., *What Happens When Extreme Heat and Air Pollution Collide*, World Res. Inst. (Sept. 10, 2024) (“Cardenas et al., *When Heat and Air Pollution Collide*”), <https://www.wri.org/insights/extreme-heat-air-pollution>; Univ. Corp. for Atmospheric Rsch., *How Weather Affects Air Quality*, <https://scied.ucar.edu/learning-zone/air-quality/how-weather-affects-air-quality>, (last accessed May 28, 2025).

⁵⁰⁴ See Cardenas et al., *When Heat and Air Pollution Collide*; CARB, *Ozone & Health* (“CA one & Health”), <https://ww2.arb.ca.gov/resources/ozone-and-health>, (last accessed May 28, 2025).

⁵⁰⁵ Md Mostafijur Rahman et al., *The Effects of Coexposure to Extremes of Heat and Particulate Air Pollution on Mortality in California*, 206 Am. J. of Respiratory Med. 1117 (Nov. 1, 2022), <https://pubmed.ncbi.nlm.nih.gov/35727303/>.

Attachment List

Attachment Number	Title
1	Witness Qualifications
2	2021–2025 ESA Program Gas Appliance Measure Expenses
3	2028–2033 Forecasted ESA Gas Expenses
4	CARB Environmental Justice Advisory Committee Building Decarbonization EJAC Resolution
5	March 2024 Letter from BEEP Coalition to CARB
6	BEEP, Equity Considerations and Implementation Concerns for Flexibility Measures Outlined in <i>Concepts for Rule 9-6 Amendments: Affordability and Availability Considerations for Zero NOx Small Water Heaters</i> (Nov. 24, 2025)
7	SCE Responses to Sierra Club Data Requests
8	PG&E Responses to Sierra Club Data Requests
9	SDG&E Responses to Sierra Club Data Requests
10	SoCalGas Responses to Sierra Club Data Requests
11	PG&E Responses to TURN Data Requests
12	SCE Presentation Slides to ESA Working Group on BE Pilot
13	Air Purifier Searches
14	Zhu et al., Indoor Air Quality in California: New Evidence and Environmental Justice (July 10, 2026)