

A.26-01-003 et al.

**Attachments to Direct Testimony of
Rebecca Barker and Chinyere Osuala
on Behalf of Sierra Club
On the IOUs' 2028-2033 Income-Qualified Program Application**

Attachment 1

Witness Qualifications

Qualifications of Sierra Club Witnesses

Rebecca Barker is a Senior Attorney at Earthjustice with over six years of experience and has practiced before the Commission since joining Earthjustice in January 2020. She has served as lead counsel in A.22-09-006, the Application of the Southern California Gas Company, San Diego Gas & Electric Company, Pacific Gas and Electric Company, and Southwest Gas Corporation to Establish Hydrogen Blending Demonstration Projects; R.25-04-010, the Commission's general energy efficiency rulemaking; A.24-12-009, CalMTA's Application for its first tranche of Market Transformation Initiatives; and A.26-07-004, CalMTA's Application for its second tranche of Market Transformation Initiatives. She has also assisted lead counsel in a number of other Commission dockets, including R.24-09-012 and its predecessor docket R.20-01-007 (Long-Term Gas Planning Rulemakings), R.13-11-005 (predecessor energy efficiency rulemaking), A.22-02-005 et al. (utilities' 2024–2031 energy efficiency portfolio and business plan applications), and R.19-01-011 (Building Decarbonization Rulemaking). She has sponsored testimony in A.22-05-015/016 (Sempra TY 2024 General Rate Case) and A.25-05-009 (PG&E TY 2026 General Rate Case). In addition to her practice before the Commission, she has helped develop comments at the Federal Energy Regulatory Commission and has represented environmental and environmental justice groups in Public Utility Commission proceedings in Nevada and Pennsylvania. Her resume is attached below.

Chinyere Osuala is a Senior Attorney at Earthjustice with over eleven years of experience practicing before state public utility commissions. She has advocated for equitable clean energy access, reduced electric and gas rates for residential customers, and robust energy efficiency programs for income qualified ratepayers. Since 2019, Ms. Osuala has been actively representing Sierra Club before the Michigan Public Utility Commission and advocating for improved energy efficiency program design to target disconnections and reduce shut-offs. This advocacy led to several settlements where Michigan utilities DTE and Consumers Energy agreed to develop neighborhood based geotargeted programs focusing on energy burdened customers and providing them with no cost, whole home weatherization and health and safety measures. She has also practiced before the following state public utility commissions: New York, Indiana, West Virginia, Arizona, Washington, D.C., Maryland, and Missouri. Her resume is attached below.

Rebecca Barker
rbarker@earthjustice.org

EXPERIENCE

Earthjustice, San Francisco, CA & Chicago, IL

Senior Attorney, January 2026 – Present; *Senior Associate Attorney*, January 2023 – January 2026; *Associate Attorney*, January 2020 – January 2023

- Administrative litigation before state Public Utilities Commissions on behalf of environmental and environmental justice clients. Subjects include utilities' abuse of ratepayer funds, energy efficiency, net metering, building electrification policy, general rate cases, and gas transition
- Coalition work and policy advocacy regarding equitable decarbonization of the building sector
- Negotiation of community benefits agreement at former oil refinery site

Sierra Club, Washington, D.C.

Environmental Law Program Intern, Summer 2019

- Researched and drafted memoranda to support environmental litigation and policy work, including utility franchise agreements, air quality data, and state-level electric vehicle policy

Natural Resources Defense Council, Chicago, IL

Litigation Intern, September 2018 – December 2018

- Researched and drafted memoranda and sections of briefs for environmental impact litigation, including closure of coal plants, comments on EPA rulemakings, and procedural issues around depositions

U.S. Department of the Interior - Pacific Northwest Regional Office of the Solicitor, Portland, OR

Law Clerk, June 2018 – August 2018

- Researched and provided advisory memoranda regarding mining law, Indian law, CERCLA, NEPA, FTCA liability, federal contracting, and other legal issues relevant to client agencies

Abrams Environmental Law Clinic, Chicago, IL

Clinic Extern, September 2017 – December 2019

- Worked on projects including Clean Water Act citizen suits, community advocacy related to Superfund Alternative sites, and representing an environmental justice organization in a utility rate case

United States District Court for the District of Oregon, Portland, OR

Judicial Extern to the Honorable Michael W. Mosman, June 2017 – August 2017

- Provided research and trial support for judicial clerks, including drafting memoranda and opinions

Oregon Judicial Department, Oregon City, OR

Records Clerk, Clackamas County Circuit Court, July 2015 – August 2016

- Created, maintained, audited, and imaged court files both in paper form and during transition to E-Court
- Ran civil commitment hearings at area hospitals with referee judge

EDUCATION

The University of Chicago Law School, Chicago, IL

Juris Doctor, December 2019

- HONORS:* 2018 American College of Employee Benefits Counsel Alvin D. Lurie Memorial Award
- ACTIVITIES:* Environmental Law Society; International Refugee Assistance Project; Women's Advocacy Project, *Researcher/Faculty Interviewer*; Vincent Gambini Society, *Co-President*
- PUBLICATION:* *Is Estate of Barton v. ADT Security Services Pension Plan Good Law?*, 31 BENEFITS LAW JOURNAL No. 4, 33 (2018)

Portland State University, Portland, OR

Bachelor of Arts, *magna cum laude*, in Applied Linguistics, December 2014

Chinyere A. Osuala

•Cosuala@earthjustice.org•

EXPERIENCE

Earthjustice, Senior Attorney, Clean Energy Program, New York, NY 2020-Present

Represented environmental and environmental justice clients before state public utility commissions to advocate for increased budgets for energy efficiency programs serving limited income ratepayers in underserved communities, advocated for programs to improve reach and provide beneficial customer side utility programs, worked with coalition partners to develop geotargeting initiatives for neighborhoods that demonstrated high energy burdens to reduce bills and increase affordability. Led efforts to promote energy affordability in other clean energy cases.

Earthjustice, Senior Associate Attorney, Clean Energy Program, Washington, D.C. 12/2014-2020

Litigated before state public service commissions in rate, energy efficiency, and grid modernization cases to advocate for reduced barriers to adopting distributed energy resources, reduced energy usage, transportation electrification and facilitating the transition to clean energy.

Temple University Beasley School of Law, Adjunct Professor, Philadelphia, PA, Spring 2024, Spring 2026

Taught students and offered a comprehensive introduction to the history, contemporary developments, and practical applications of Environmental Justice advocacy in the United States. Students were required to submit a research paper that included the philosophical foundations and historical trajectory of the environmental justice movement and use definitional and legal frameworks to identify environmental justice clients, environmental justice issues, and relevant laws, policies, and principles.

Clean Air Council, Legal Fellow, Philadelphia, PA 2/14-7/14

Performed research and writing on various environmental laws. Wrote petition to intervene in Pennsylvania administrative proceedings and wrote important attorney work product on the organization's corporate structure and future litigation.

Philadelphia District Attorney, Clinical Intern, Philadelphia, PA 01/13-05/13

Performed municipal trials and preliminary hearings and handled a complex caseload concerning petty theft, DWI, and drug possession in Philadelphia Municipal Court. Did research and writing for trials as well as consulted with witnesses and victims in a courteous and professional manner

Bronx County District Attorney, Legal Intern, Bronx, NY 06/12-07/12

Intern for Trial Bureau. Assisted in preparing witnesses for trial, preparing questions for direct and cross-examination and researching defendants. Assisted in researching and writing a memorandum of law for an ADA.

ADDITIONAL EXPERIENCE

NAACP Legal Defense Fund, Freelance Reporter, New York, NY 06/09-12/09

Covered events in New York City Area. Wrote four articles for the blog The Defenders Online addressing issues such as fresh food availability in limited income neighborhoods and diversity in the media.

EDUCATION & CERTIFICATION

New York University, College of Arts and Science, New York, NY

Bachelor of Arts, Politics, Journalism and Mass Communication, May 2009

Temple University, James E. Beasley School of Law, Philadelphia, P.A.

Juris Doctor, May 2013

Attachment 2

2021–2025 ESA Program Gas Appliance Measure Expenses

ESA Gas Appliance Expense Workbook

This workbook was created to support claims made in the Direct Testimony of Rebecca Barker and Chinyere Ousala on Behalf of Sierra Club on the IOUs' 2028-2033 Income Qualified Program Applications filed in case A-26-01-003. The included worksheets contain tables and data on gas combustion appliance measure expenditures that Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Gas companies spent in the Energy Savings Assistance Program during program years 2021-2025. The data compiled and calculations made this workbook were derived from PG&E, SDG&E, and SoCalGas' Low Income Annual Reports for program years 2021 through 2025, as well as SoCalGas' second supplemental response to Sierra Club's first set of data requests at question 15 (regarding wall furnace expenditures).

WORKBOOK CONTENTS	DESCRIPTION	DATA SOURCE CITATION
	This sheet contains summary tables calculating total ESA program expenditures each utility spent on gas fired appliances in program years 2021-25. Tables included are titled "ANNUAL GAS COMBUSTION APPLIANCE BY UTILITY," "ANNUAL GAS COMBUSTION APPLIANCE MEASURE EXPENSES BY ESA PROGRAM IN PY 2021-25," "TOTAL PY 2021-25 ESA PROGRAM EXPENSES FOR EACH GAS COMBUSTION MEASURE PER UTILITY," AND ANNUAL ESA PROGRAM EXPENDITURES FOR EACH GAS COMBUSTION APPLIANCE MEASURE IN PY 2021-25."	See below.
Expense Detail	List of gas appliance measure expenditure by category, year, general measure description, specific measure description, source worksheet, source cell, and cited Utility low income annual report excet sheet and original corresponding cell	See below.
2025 ESA Pilot Expenses	Total 2025 ESA Pilot Plus and Pilot Deep expenses for identified gas combustion appliances per utility.	<i>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 - A.19-11-003 et al., May 1, 2026, Appendix A, "ESA Table 2B - PPVPO Expenses and Energy Savings by Measures Installed;" 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 - A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2B PP PD - ESA Pilot Plus and Pilot Deep Expenses and Energy Savings by Measures Installed; Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 (Public Version) A.19-11-003 et al., May 1, 2026, Appendix A, ESA Program - Table 2B - Expenses and Energy Savings by Measures Installed - Pilot Plus and Pilot Deep</i>
2025 ESA MF expenses	Total 2025 ESA Multifamily Whole Building Program expenses for identified gas combustion appliances per utility	<i>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 - A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2A MFWB Expenses and Energy Savings by Measures Installed; 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 - A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2A-2 ESA Program - Multifamily Whole Building - San Diego Gas & Electric Company; Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 (Public Version) A.19-11-003 et al., May 1, 2026, Appendix A, ESA Program - Table 2A - Expenses and Energy Savings by Measure installed - Multifamily Whole Building</i>
2025 ESA Main gas expenses	Total 2025 ESA Main Program expenses for identified gas combustion appliances per utility	<i>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 - A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2 - ESA Main Expenses and Energy Savings by Measures Installed (SF,MH, MF in-Unit); 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 - A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2 Main - ESA Main Expenses & Energy Savings by Measures Installed; Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 (Public Version) A.19-11-003 et al., May 1, 2026, Appendix A, "ESA Program - Table 2 - Expenses & Energy Savings by Measures Installed - ESA Main;" Southern California Gas Company responses to Sierra Club's Seventh Set of Data Requests to the Company submitted on September 11, 2024 (SCG response to Sierra Club-SCG-07, 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 - A.19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2B PPVPO Expenses and Energy Savings by Measures Installed; 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 2024 - A.19-11-003 et al., June 27, 2025, Table 2B - ESA Pilot Plus and Pilot Deep Expenses and Energy Savings by Measures Installed;" Appendix A, ESA Program Table 2B "ESA Program - Pilot Plus - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 - July 1, 2025; Appendix A, ESA Program Table 2B "ESA Program - Pilot Deep - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 - July 1, 2025.</i>
2024 ESA Pilot Expenses	Total 2024 ESA Pilot Plus and Pilot Deep expenses for identified gas combustion appliances per utility.	<i>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 - A.19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2A - MFWB Expenses and Energy Savings by Measures Installed; 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 2024 - A.19-11-003 et al., June 27, 2025, Table 2B - ESA Pilot Plus and Pilot Deep Expenses and Energy Savings by Measures Installed;" Appendix A, ESA Program Table 2B "ESA Program - Pilot Plus - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 - July 1, 2025; Appendix A, ESA Program Table 2B "ESA Program - Pilot Deep - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 - July 1, 2025.</i>
2024 ESA MF Gas expenses	Total 2024 ESA Multifamily Whole Building Program expenses for identified gas combustion appliances per utility	<i>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 - A.19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2 - ESA Main Expenses and Energy Savings by Measures Installed (SF,MH, MF in-Unit); 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 2024 - A.19-11-003 et al., June 27, 2025, Appendix A, "ESA Program - Table 2 - ESA Main Expenses & Energy Savings by Measures Installed;" Appendix A, ESA Program Table 2 "Main ESA Program (SF, MH) Expenses and Energy Savings by Measure Installed," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 (Public Version) July 1, 2025; Southern California Gas Company response to Sierra Club-SCG-01 question 15, response submitted April 17, 2026.</i>
2024 ESA Main Gas expenses	Total 2024 ESA Main Program expenses for identified gas combustion appliances per utility	<i>Appendix A, ESA Table 2C PPVPO Expenses and Energy Savings by Measures Installed, 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 - A. 19-11-003 et al., May 1, 2024, Appendix G, "ESA Program - Table 2C - ESA Pilot Plus and Pilot Deep Expenses & Energy Savings by Measures Installed;" 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 2023 - A.19-11-003 et al. May 1, 2024, Appendix A, "ESA Program - Table 2C - Expenses and Energy Savings by Measure Installed - Pilot Plus and Pilot Deep," Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023.</i>
2023 ESA Pilot Expenses	Total 2023 ESA Pilot Plus and Pilot Deep expenses for identified gas combustion appliances per utility.	<i>Appendix A, ESA Table 2A "ESA CAM Initiative Expenses and Energy Savings by Measures Installed," and "ESA Table 2B "MFWB Expenses and Energy Savings by Measures Installed," 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 - A. 19-11-003 et al., May 1, 2024; Appendix G, "ESA Program - Table 2A - ESA MF CAM Expenses & Energy Savings by Measures Installed," and "ESA Program - Table 2B - ESA MFWB Expenses & Energy Savings by Measures Installed," 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 2023 - A.19-11-003 et al., May 1, 2024; Appendix A, "ESA Program - Table 2A - Expenses and Energy Savings by Measure Installed - Multifamily CAM" and "ESA Program - Table 2B - Expenses and Energy Savings by Measure Installed - Multifamily Whole Building," Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023.</i>
2023 ESA MF Gas Expenses	Total 2023 ESA Multifamily Whole Building Program expenses for identified gas combustion appliances per utility	<i>Appendix A, ESA Table 2 "ESA Main Expenses and Energy Savings by Measures Installed (SF, MH, MF in-Unit)," 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 - A. 19-11-003 et al., May 1, 2024; Appendix G, "ESA Table 2 - ESA Main (SF, MH, MF in-Unit) Expenses and Energy Savings by Measures Installed," 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 2023 - A.19-11-003 et al., May 1, 2024, Appendix A, ESA Program Table 2 "Main ESA Program (SF,MH, MF in-unit) Expenses and Energy Savings by Measure Installed," Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023.</i>
2023 ESA Main Gas Expenses	Total 2023 ESA Main Program expenses for identified gas combustion appliances per utility	<i>Appendix A, "ESA Table 2C PPVPO Expenses and Energy Savings by Measures Installed," 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 - A. 19-11-003 et al., April 28, 2023; Appendix H, "ESA Program - Table 2C - Pilot Plus and Pilot Deep Expenses & Energy Savings by Measures Installed," 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 2022 - A.19-11-003 et al. May 1, 2023; Appendix A, "ESA Program-Table 2C- Expenses and Energy Savings by Measures Installed - Pilot Plus and Pilot Deep," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022 - May 1, 2023.</i>
2022 ESA Pilot Expenses	Total 2022 ESA Pilot Plus and Pilot Deep expenses for identified gas combustion appliances per utility.	<i>Appendix A, "ESA Table 2A MF CAM Initiative Expenses and Energy Savings by Measures Installed" and "ESA Table 2B MFWB Expenses and Energy Savings by Measures Installed," 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 - A. 19-11-003 et al., April 28, 2022;Appendix H, "ESA Program - Table 2A - MF CAM Expenses & Energy Savings by Measures Installed," and "ESA Program - Table 2B - ESA MFWB Expenses & Energy Savings by Measures Installed," 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 2022 - A.19-11-003 et al. May 1, 2023; Appendix A, "ESA Program-Table 2A - Expenses and Energy Savings by Measures Installed - Multifamily CAM" and "ESA Program - Table 2B - Expenses & Energy Savings by Measures Installed - Multifamily Whole Building," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022 - May 1, 2023.</i>
2022 ESA MF Gas Expenses	Total 2022 ESA Multifamily Whole Building and Multifamily Common Area Measures Program expenses for identified gas combustion appliances per utility	<i>Appendix A, ESA Table 2 "ESA Main Expenses and Energy Savings by Measures Installed (SF, MH, MF in-Unit)," 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 - A. 19-11-003 et al., April 28, 2023; Appendix H, "ESA Program - Table 2 - ESA Main Expenses & Energy Savings by Measures Installed," 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 2022 - A.19-11-003 et al. May 1, 2023; Appendix A, "ESA Program-Table 2C- Expenses and Energy Savings by Measures Installed - ESA Main," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022 - May 1, 2023.</i>
2022 ESA Main Gas Expenses	Total 2022 ESA Main Program expenses for identified gas combustion appliances per utility	<i>Appendix B, ESA Program Table 2B MF CAM Measure Installations and Savings, Annual Report of Pacific Gas and Electric Company (U 39 M) on the Results of its Energy Savings Assistance and California Alternate Rates for Energy - A. 19-11-003 et al., May 2, 2022; Appendix G, "ESA Program - Table 2B - Expenses & Energy Savings by Measures Installed: MF CAM," Annual Report Activity of San Diego Gas & Electric Company (U 902 M) on Low Income Assistance Programs for 2021 - A.19-11-003 et al. May 1, 2024; Appendix A, "ESA Program-Table 2B - Expenses and Energy Savings by Measures Installed - Multifamily Common Area," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2021 - May 27, 2022.</i>
2021 ESA MF Gas App Expenses	Total 2021 ESA Multifamily Common Area Measures Program expenses for identified gas combustion appliances per utility	<i>Appendix B, ESA Program Table 2 ESA Measure Installations and Savings, Annual Report of Pacific Gas and Electric Company (U 39 M) on the Results of its Energy Savings Assistance and California Alternate Rates for Energy - A. 19-11-003 et al., May 2, 2022; Appendix G, "ESA Program - Table 2 - Expenses & Energy Savings by Measures Installed," Annual Report Activity of San Diego Gas & Electric Company (U 902 M) on Low Income Assistance Programs for 2021 - A.19-11-003 et al. May 1, 2024; Appendix A, "ESA Program-Table 2 - Expenses and Energy Savings by Measures Installed Summary," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2021 - May 27, 2022.</i>
2021 ESA Main Gas App expenses	Total 2021 ESA Main Program expenses for identified gas combustion appliances per utility	

Total Expenses by Measure, Category, Program Year, and Utility

Includes ESA Main, Multifamily, Pilot Plus, and Pilot Deep expenses for program years 2021-2025

ANNUAL GAS COMBUSTION APPLIANCE EXPENSES BY UTILITY				
Program Year	PG&E	SDG&E	SCG	Total Gas Expense
2021	\$3,377,785.00	\$3,491,566.00	\$22,825,200.00	\$29,694,551.00
2022	\$12,517,393.77	\$2,123,772.00	\$28,489,619.63	\$43,130,785.40
2023	\$12,683,874.69	\$3,393,564.00	\$21,371,782.00	\$37,449,220.69
2024	\$15,276,896.00	\$3,749,685.00	\$20,093,172.00	\$39,119,753.00
2025	\$15,108,019.00	\$4,064,237.00	\$27,204,579.48	\$46,376,835.48
All Years	\$58,963,968.46	\$16,822,824.00	\$119,984,353.11	\$195,771,145.57

ANNUAL GAS COMBUSTION APPLIANCE MEASURE EXPENSES BY ESA PROGRAM IN PY2021-25						
ESA Program	2021	2022	2023	2024	2025	Total
Main	\$26,305,271.00	\$37,095,073.13	\$31,759,279.00	\$35,218,078.00	\$35,635,460.62	\$166,013,161.75
Multifamily	\$3,389,280.00	\$6,035,712.27	\$5,406,598.69	\$1,719,198.00	\$7,843,232.06	\$24,394,021.02
Pilot Plus	\$0.00	\$0.00	\$128,535.00	\$999,660.00	\$1,015,947.00	\$2,144,142.00
Pilot Deep	\$0.00	\$0.00	\$154,808.00	\$1,182,817.00	\$1,882,195.80	\$3,219,820.80
Total	\$29,694,551.00	\$43,130,785.40	\$37,449,220.69	\$39,119,753.00	\$46,376,835.48	\$195,771,145.57

TOTAL PY 2021-25 ESA PROGRAM EXPENDITURES FOR EACH GAS COMBUSTION APPLIANCE PER UTILITY				
Gas Measure	PG&E	SDG&E	SCG	Total
Boiler Replacement	\$-	\$-	\$1,432,078.00	\$1,432,078.00
Central Boiler	\$-	\$1,616,542.00	\$2,870,288.00	\$4,486,830.00
Central Boiler Replacement	\$-	\$-	\$455,359.00	\$455,359.00
Central Boiler replacement/measure install	\$-	\$119,098.00	\$2,557,151.00	\$2,676,249.00
Central Domestic Hot Water Boiler	\$-	\$714,451.00	\$3,447,373.05	\$4,161,824.05
Condensing Domestic Hot Water Boiler	\$1,713,222.51	\$28,452.00	\$477,707.00	\$2,219,381.51
Furnace Repair	\$401,091.00	\$105,109.00	\$-	\$506,200.00
Furnace Repair/Replacement	\$25,380,534.69	\$7,778,237.00	\$32,175,647.96	\$65,334,419.65
Furnace Replacement	\$6,903,215.25	\$1,972,930.00	\$15,336.00	\$8,891,481.25
Furnace Replacement HC&S	\$-	\$10,224.00	\$15,335.91	\$25,559.91
HE FAU	\$1,974,094.00	\$3,807.00	\$4,953,804.45	\$6,931,705.45
HE FAU - On Burnout	\$-	\$-	\$14,249,423.00	\$14,249,423.00
Instantaneous Domestic Hot Water Heater	\$-	\$-	\$151,002.00	\$151,002.00
Packaged HVAC	\$679,146.00	\$2,744.00	\$-	\$681,890.00
Replace Package G/E with 16+ SEER/80%+ AFUE - 2 1/2 Ton	\$-	\$-	\$9,555.00	\$9,555.00
Replace Split System with 16+ SEER/80%+ AFUE - 4 Ton	\$-	\$-	\$10,280.00	\$10,280.00
Replace Split System with 16+ SEER/95%+ AFUE - 2 1/2 Ton	\$-	\$-	\$23,760.00	\$23,760.00
Replace Split System with 16+ SEER/95%+ AFUE - 3 1/2 Ton	\$-	\$-	\$180,906.00	\$180,906.00
Replace Split System with 16+ SEER/95%+ AFUE - 3 Ton	\$-	\$-	\$110,750.80	\$110,750.80
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton	\$-	\$-	\$110,735.00	\$110,735.00
Replace Split System with 16+ SEER/95%+ AFUE - 5 Ton	\$-	\$-	\$68,480.00	\$68,480.00
Space Heating Boiler	\$305,684.51	\$-	\$-	\$305,684.51
Storage Water Heater	\$3,801,539.14	\$120,669.00	\$376,076.40	\$4,298,284.54
Tankless Water Heater	\$741,107.36	\$131,548.00	\$16,381,771.83	\$17,254,427.19
Wall Furnace	\$1,065,420.00	\$-	\$1,951,305.00	\$3,016,725.00
Wall Furnace Replacement HC&S	\$-	\$-	\$40,225.00	\$40,225.00
Water Heater Repair	\$67,476.00	\$37,201.00	\$-	\$104,677.00
Water Heater Repair/Replacement	\$11,963,192.00	\$2,224,333.00	\$36,551,826.46	\$50,739,351.46
Water Heater Repair/Replacement - HC&S	\$-	\$14,155.00	\$36,534.75	\$50,689.75
Water Heater Replacement	\$3,968,246.00	\$1,943,324.00	\$1,331,641.50	\$7,243,211.50
All Gas Measures	\$58,963,968.46	\$16,822,824.00	\$119,984,353.11	\$195,771,145.57

ANNUAL ESA PROGRAM EXPENDITURES FOR EACH GAS COMBUSTION APPLIANCE FOR PY 2021-2025							
Category	Measure	2021	2022	2023	2024	2025	All Years
Gas	Boiler Replacement	\$1,432,078.00	\$-	\$-	\$-	\$-	\$1,432,078.00
Gas	Central Boiler	\$335,184.00	\$-	\$4,151,646.00	\$-	\$-	\$4,486,830.00
Gas	Central Boiler Replacement	\$-	\$-	\$-	\$455,359.00	\$-	\$455,359.00
Gas	Central Boiler replacement/measure install	\$-	\$2,676,249.00	\$-	\$-	\$-	\$2,676,249.00
Gas	Central Domestic Hot Water Boiler	\$-	\$-	\$-	\$-	\$4,161,824.05	\$4,161,824.05
Gas	Condensing Domestic Hot Water Boiler	\$574,500.00	\$1,138,722.51	\$-	\$-	\$-	\$2,219,381.51
Gas	Furnace Repair	\$-	\$-	\$-	\$-	\$506,200.00	\$506,200.00
Gas	Furnace Repair/Replacement	\$16,404,536.00	\$18,432,903.62	\$13,282,848.69	\$12,366,682.00	\$4,847,449.34	\$65,334,419.65
Gas	Furnace Replacement	\$154,739.00	\$218,064.25	\$-	\$26,184.00	\$8,492,494.00	\$8,891,481.25
Gas	Furnace Replacement HC&S	\$-	\$-	\$-	\$10,224.00	\$15,335.91	\$25,559.91
Gas	HE FAU	\$212,162.00	\$4,713,937.45	\$457,840.00	\$341,010.00	\$1,206,756.00	\$6,931,705.45
Gas	HE FAU - On Burnout	\$-	\$-	\$5,694,264.00	\$3,808,821.00	\$4,746,338.00	\$14,249,423.00
Gas	Instantaneous Domestic Hot Water Heater	\$-	\$-	\$-	\$-	\$151,002.00	\$151,002.00
Gas	Packaged HVAC	\$-	\$-	\$14,751.00	\$2,744.00	\$664,395.00	\$681,890.00
Gas	Replace Package G/E with 16+ SEER/80%+ AFUE - 2	\$-	\$-	\$-	\$-	\$9,555.00	\$9,555.00
Gas	Replace Split System with 16+ SEER/80%+ AFUE - 4	\$-	\$-	\$-	\$10,280.00	\$-	\$10,280.00
Gas	Replace Split System with 16+ SEER/95%+ AFUE - 2	\$-	\$-	\$-	\$7,660.00	\$16,100.00	\$23,760.00
Gas	Replace Split System with 16+ SEER/95%+ AFUE - 3	\$-	\$-	\$-	\$61,775.00	\$119,131.00	\$180,906.00
Gas	Replace Split System with 16+ SEER/95%+ AFUE - 3	\$-	\$-	\$8,280.00	\$33,120.00	\$69,350.80	\$110,750.80
Gas	Replace Split System with 16+ SEER/95%+ AFUE - 4	\$-	\$-	\$-	\$28,030.00	\$82,705.00	\$110,735.00
Gas	Replace Split System with 16+ SEER/95%+ AFUE - 5	\$-	\$-	\$-	\$9,380.00	\$59,100.00	\$68,480.00
Gas	Space Heating Boiler	\$73,030.00	\$232,654.51	\$-	\$-	\$-	\$305,684.51
Gas	Storage Water Heater	\$544,615.00	\$1,420,123.14	\$75,179.00	\$668,021.00	\$1,590,346.40	\$4,298,284.54
Gas	Tankless Water Heater	\$174,314.00	\$248,179.36	\$1,678,600.00	\$7,544,308.00	\$7,609,025.83	\$17,254,427.19
Gas	Wall Furnace	\$-	\$-	\$-	\$3,016,725.00	\$-	\$3,016,725.00
Gas	Wall Furnace Replacement HC&S	\$-	\$-	\$-	\$-	\$40,225.00	\$40,225.00
Gas	Water Heater Repair	\$-	\$-	\$-	\$-	\$104,677.00	\$104,677.00
Gas	Water Heater Repair/Replacement	\$8,689,411.00	\$13,948,232.06	\$10,956,710.00	\$10,688,913.00	\$6,456,085.40	\$50,739,351.46
Gas	Water Heater Repair/Replacement - HC&S	\$-	\$-	\$-	\$40,517.00	\$10,172.75	\$50,689.75
Gas	Water Heater Replacement	\$1,099,982.00	\$101,719.50	\$1,129,102.00	\$-	\$4,912,408.00	\$7,243,211.50
All Categories	All Measures	\$29,694,551.00	\$43,130,785.40	\$37,449,220.69	\$39,119,753.00	\$46,376,835.48	\$195,771,145.57

Program Year	ESA Sub-Program	Category	Measure	Raw Measure	Utility	Expense	Source Sheet	Source Cell	Cited Utility Low Income Annual Report Excel Table	Referenced Table cell
2020	Main	Gas	HE FAU	HE FAU	PG&E	\$112,499.00	2020 ESA Main Gas Expenses	B10	PI 2020 PG&E Annual Report - ESA Table 2	B3
2023	Main	Gas	HE FAU	HE FAU	PG&E	\$141,024.00	2023 ESA Main Gas Expenses	B10	PI 2023 PG&E Annual Report - ESA Table 2	B3
2023	Main	Gas	HE FAU	HE FAU	PG&E	\$272,707.00	2023 ESA Main Gas Expenses	B10	PI 2023 PG&E Annual Report - ESA Table 2	B3
2022	MultiFamily	Gas	Space Heating Boiler	Space Heating Boiler	PG&E	\$232,654.51	2022 ESA MF Gas Expenses	B12	PI 2022 PG&E Annual Report - ESA Table 2A	H31
2020	Main	Gas	Water Heater Replacement	Water Heater Replacement	PG&E	\$3,869.40	2020 ESA Main Gas expenses	B13	PI 2020 PG&E Annual Report - ESA Table 2	B3
2020	Main	Gas	Water Heater Repair	Water Heater Repair	PG&E	\$7,476.00	2020 ESA Main Gas expenses	B14	PI 2020 PG&E Annual Report - ESA Table 2	B3
2025	MultiFamily	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$154,300.00	2025 ESA MF expenses	B14	PI 2025 PG&E Annual Report - ESA Table 2A 1 MFWB Program Totals	C4
2024	MultiFamily	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$196,907.00	2024 ESA MF Gas expenses	B14	PI 2024 PG&E Annual Report - ESA Table 2A MFWB	C5
2020	MultiFamily	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$26,400.00	2020 ESA MF Gas Expenses	B14	PI 2020 PG&E Annual Report - ESA Table 2B	C5
2021	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$141,030.00	2021 ESA Main Gas App expenses	B14	PI 2021 PG&E Annual Report ESA Program Table 2	C18
2021	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$444,635.00	2021 ESA MF Gas App Expenses	B15	PI 2021 PG&E ESA Program Table 2B - MultiFamily CAM	H15
2024	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$3,539.03	2024 ESA Main Gas Expenses	B15	PI 2024 PG&E Annual Report - ESA Table 2	B3
2020	MultiFamily	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$4,297.20	2020 ESA Main Gas Expenses	B15	PI 2020 PG&E Annual Report - ESA Table 2	B3
2022	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$2,824,716.00	2022 ESA Main Gas Expenses	B15	PI 2022 PG&E Annual Report - ESA Table 2	H17
2020	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$1,136,090.00	2020 ESA MF expenses	B16	PI 2020 PG&E Annual Report - ESA Table 2A 1 MFWB Program Totals	H4
2022	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$203,320.00	2022 ESA MF Gas expenses	B16	PI 2024 PG&E Annual Report - ESA Table 2A MFWB	C13
2022	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$1,420,123.14	2022 ESA MF Gas Expenses	B16	PI 2022 PG&E Annual Report - ESA Table 2A	H14
2021	MultiFamily	Gas	Tankless Water Heater	Tankless Water Heater	PG&E	\$174,314.00	2021 ESA MF Gas App Expenses	B16	PI 2021 PG&E ESA Program Table 2B - MultiFamily CAM	H16
2021	MultiFamily	Gas	Space Heating Boiler	Space Heating Boiler	PG&E	\$73,690.00	2021 ESA MF Gas App Expenses	B17	PI 2021 PG&E ESA Program Table 2B - MultiFamily CAM	H16
2020	MultiFamily	Gas	Tankless Water Heater	Tankless Water Heater	PG&E	\$88,975.00	2020 ESA MF Gas Expenses	B17	PI 2020 PG&E Annual Report - ESA Table 2A 1 MFWB Program Totals	H5
2024	MultiFamily	Gas	Tankless Water Heater	Tankless Water Heater	PG&E	\$29,982.00	2024 ESA MF Gas expenses	B17	PI 2024 PG&E Annual Report - ESA Table 2A MFWB	H17
2022	MultiFamily	Gas	Tankless Water Heater	Tankless Water Heater	PG&E	\$248,139.36	2022 ESA MF Gas Expenses	B17	PI 2022 PG&E Annual Report - ESA Table 2A	H14
2022	MultiFamily	Gas	Condensing Domestic Hot Water Boiler	Condensing Domestic Hot Water Boiler	PG&E	\$1,198,728.13	2022 ESA MF Gas App Expenses	B18	PI 2022 PG&E Annual Report - ESA Table 2A	H12
2021	MultiFamily	Gas	Condensing Domestic Hot Water Boiler	Condensing Domestic Hot Water Boiler	PG&E	\$174,500.00	2021 ESA MF Gas App Expenses	B18	PI 2021 PG&E ESA Program Table 2B - MultiFamily CAM	H14
2024	Pilot Plus	Gas	Wall Furnace	HE Wall Furnace 82% AFUE	PG&E	\$488,472.00	2024 ESA Pilot Expenses	B19	PI 2024 PG&E Annual Report - ESA Table 2B PP PPD	G40
2020	Pilot Plus	Gas	HE FAU	High Efficiency Furnace	PG&E	\$296,150.00	2020 ESA Pilot Expenses	B20	PI 2020 PG&E Annual Report - ESA Table 2B PP PPD	G40
2021	Pilot Plus	Gas	HE FAU	High Efficiency Furnace	PG&E	\$48,846.00	2021 ESA Pilot Expenses	B20	PI 2021 PG&E Annual Report - ESA Table 2C	G19
2024	Pilot Plus	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$223,264.00	2024 ESA Pilot Expenses	B21	PI 2024 PG&E Annual Report - ESA Table 2B PP PPD	G50
2020	Pilot Plus	Gas	Packaged HVAC	Packaged HVAC	PG&E	\$108,007.00	2020 ESA Pilot Expenses	B22	PI 2020 PG&E Annual Report - ESA Table 2B PP PPD	G50
2023	Pilot Plus	Gas	Packaged HVAC	Packaged HVAC	PG&E	\$141,571.00	2023 ESA Pilot Expenses	B22	PI 2023 PG&E Annual Report - ESA Table 2C	G50
2020	Pilot Plus	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	PG&E	\$44,832.00	2020 ESA Pilot Expenses	B23	PI 2020 PG&E Annual Report - ESA Table 2B PP PPD	G25
2020	Pilot Plus	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$209,822.00	2020 ESA Pilot Expenses	B24	PI 2020 PG&E Annual Report - ESA Table 2B PP PPD	G25
2023	Pilot Plus	Gas	Storage Water Heater	Storage Water Heater	PG&E	\$22,960.00	2023 ESA Pilot Expenses	B24	PI 2023 PG&E Annual Report - ESA Table 2C	G25
2020	Pilot Plus	Gas	Tankless On Demand (Water Heater)	Tankless On Demand (Water Heater)	PG&E	\$135,000.00	2020 ESA Pilot Expenses	B25	PI 2020 PG&E Annual Report - ESA Table 2B PP PPD	G26
2025	Main	Gas	Furnace Replacement	Furnace Replacement	PG&E	\$6,293,035.00	2025 ESA Main gas expenses	B4	PI 2025 PG&E Annual Report - ESA Table 2	I42
2025	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	PG&E	\$226,962.00	2025 ESA MF expenses	B4	PI 2025 PG&E Annual Report - ESA Table 2A 1 MFWB Program Totals	I49
2024	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	PG&E	\$10,448.00	2024 ESA MF Gas expenses	B4	PI 2024 PG&E Annual Report - ESA Table 2A MFWB	I48
2022	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	PG&E	\$48,846.00	2022 ESA MF Gas Expenses	B7	PI 2022 PG&E Annual Report - ESA Table 2A	I45
2021	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	PG&E	\$154,276.00	2021 ESA MF Gas App Expenses	B4	PI 2021 PG&E ESA Program Table 2B - MultiFamily CAM	H34
2020	Main	Gas	Furnace Repair	Furnace Repair	PG&E	\$401,091.00	2020 ESA Main gas expenses	B6	PI 2020 PG&E Annual Report - ESA Table 2	I48
2020	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$130,490.00	2020 ESA MF Gas Expenses	B6	PI 2020 PG&E Annual Report - ESA Table 2A 1 MFWB Program Totals	I46
2024	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$8,424,506.00	2024 ESA Main Gas expenses	B7	PI 2024 PG&E Annual Report - ESA Table 2	I48
2024	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$231,209.00	2024 ESA MF Gas expenses	B7	PI 2024 PG&E Annual Report - ESA Table 2A MFWB	I48
2020	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$7,752,470.00	2020 ESA Main Gas Expenses	B7	PI 2020 PG&E Annual Report - ESA Table 2	I40
2022	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$130,490.00	2022 ESA MF Gas Expenses	B7	PI 2022 PG&E Annual Report - ESA Table 2B	I46
2022	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$6,434,854.00	2022 ESA Main Gas Expenses	B7	PI 2022 PG&E Annual Report - ESA Table 2	I31
2021	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	PG&E	\$1,716,000.00	2021 ESA Main Gas App Expenses	B7	PI 2021 PG&E Annual Report ESA Program Table 2	G3
2020	Main	Gas	Water Heater Replacement	Water Heater Replacement	SG&E	\$99,360.00	2020 ESA Main Gas App expenses	C12	PI 2021 SG&E Annual Report ESAP Table 2 - ESA Program (Summary) Total	C15
2020	Main	Gas	Water Heater Replacement	Water Heater Replacement	SG&E	\$44,832.00	2020 ESA Main Gas App expenses	C13	PI 2020 SG&E Annual Report ESA Table 2 Main	I30
2020	Main	Gas	Water Heater Repair	Water Heater Repair	SG&E	\$37,201.00	2020 ESA Main Gas expenses	C14	PI 2020 SG&E Annual Report ESA Table 2 Main	I30
2020	MultiFamily	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	SG&E	\$12,433.00	2020 ESA MF expenses	C14	PI 2020 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V9
2024	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	SG&E	\$130,490.00	2024 ESA Main Gas Expenses	C15	PI 2024 SG&E Annual Report ESA Table 2 Main	I38
2023	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	SG&E	\$6,334,204.00	2023 ESA Main Gas Expenses	C15	PI 2023 SG&E Annual Report ESA Table 2 Main	I38
2022	Main	Gas	Water Heater Repair/Replacement	Water Heater Repair/Replacement	SG&E	\$6,76,400.00	2022 ESA Main Gas Expenses	C15	PI 2022 SG&E Annual Report ESA Table 2 Main - ESAP Table 2	V19
2024	MultiFamily	Gas	Water Heater Repair/Replacement - HC&S	Water Heater Repair/Replacement - HC&S	SG&E	\$14,155.00	2024 ESA MF Gas Expenses	C15	PI 2024 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	I28
2020	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	SG&E	\$8,167.00	2020 ESA MF expenses	C16	PI 2020 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	I18
2024	MultiFamily	Gas	Storage Water Heater	Storage Water Heater	SG&E	\$108,000.00	2024 ESA MF Gas expenses	C16	PI 2024 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V17
2021	MultiFamily	Gas	Central Boiler	Central Boiler	SG&E	\$1,381,268.00	2021 ESA MF Gas Expenses	C17	PI 2023 SG&E Annual Report ESA Table 2A MF CAM	H11
2020	MultiFamily	Gas	Tankless Water Heater	Tankless Water Heater	SG&E	\$106,800.00	2020 ESA MF Gas Expenses	C17	PI 2020 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	I16
2021	MultiFamily	Gas	Central Boiler	Central Boiler	SG&E	\$335,184.00	2021 ESA MF Gas App Expenses	C19	PI 2021 SG&E Annual Report ESAP Table 2B - MF CAM	H12
2022	MultiFamily	Gas	Central Boiler replacement/measure install	Central Boiler replacement/measure install	SG&E	\$119,088.00	2022 ESA MF Gas Expenses	C19	PI 2022 SG&E Annual Report ESA Table 2A MF CAM- ESAP Table 2A	G12
2020	MultiFamily	Gas	Condensing Domestic Hot Water Boiler	Condensing Domestic Hot Water Boiler - CAM	SG&E	\$38,420.00	2020 ESA MF expenses	C20	PI 2020 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V17
2020	Pilot Plus	Gas	HE FAU	High Efficiency Furnace	SG&E	\$7,601,600.00	2020 ESA Pilot Expenses	C21	PI 2020 SG&E Annual Report ESA Table 2B PP PPD	I40
2025	MultiFamily	Gas	Central Domestic Hot Water Boiler - CAM	Central Domestic Hot Water Boiler - CAM	SG&E	\$7,144,510.00	2025 ESA MF expenses	C21	PI 2025 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V16
2020	Main	Gas	Furnace Replacement	Furnace Replacement	SG&E	\$1,972,467.00	2020 ESA Main gas expenses	C4	PI 2020 SG&E Annual Report ESA Table 2 Main	I42
2022	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	SG&E	\$1,021,000.00	2022 ESA Main Gas Expenses	C5	PI 2022 SG&E Annual Report ESA Table 2B - MF CAM	C19
2024	MultiFamily	Gas	Furnace Replacement HC&S	Furnace Replacement HC&S	SG&E	\$110,224.00	2024 ESA MF Gas expenses	C5	PI 2024 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V92
2025	Main	Gas	Furnace Repair	Furnace Repair	SG&E	\$105,109.00	2025 ESA Main gas expenses	C6	PI 2025 SG&E Annual Report ESA Table 2 Main	I42
2024	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$1,052,008.00	2024 ESA MF Gas Expenses	C7	PI 2024 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V62
2024	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$2,814,901.00	2024 ESA Main Gas Expenses	C7	PI 2024 SG&E Annual Report ESA Table 2 Main	I42
2024	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$12,171.00	2024 ESA MF Gas expenses	C7	PI 2024 SG&E Annual Report ESA Table 2A MFWB - Table 2A-2	V96
2023	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$1,777,862.00	2023 ESA Main Gas Expenses	C7	PI 2023 SG&E Annual Report ESA Table 2 Main	I39
2020	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$1,208,054.00	2020 ESA Main Gas Expenses	C7	PI 2020 SG&E Annual Report ESA Table 2 Main - ESAP Table 2	I38
2021	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$2,146,170.00	2021 ESA Main Gas App expenses	C7	PI 2021 SG&E Annual Report ESAP Table 2 - ESA Program (Summary) Total	C15
2021	MultiFamily	Gas	Boiler Replacement	Boiler Replacement	SG&E	\$1,432,078.00	2021 ESA MF Gas App Expenses	D00	PI 2021 SG&E Annual Report ESA Program Table 2B	G24
2020	MultiFamily	Gas	Central Boiler	Central Boiler	SG&E	\$2,76,288.00	2020 ESA MF Gas Expenses	D17	PI 2020 SG&E Annual Report (Amended) ESA Program Table 2A (MF CAM)	H16
2024	MultiFamily	Gas	Central Boiler Replacement	Central Boiler Replacement	SG&E	\$455,860.00	2024 ESA MF Gas Expenses	D17	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2A	I19
2022	MultiFamily	Gas	Central Boiler replacement/measure install	Central Boiler replacement/measure install	SG&E	\$2,657,151.00	2022 ESA MF Gas Expenses	D19	PI 2022 SG&E Annual Report ESA Program Table 2A (MF CAM)	H16
2025	MultiFamily	Gas	Central Domestic Hot Water Boiler	Central Domestic Hot Water Boiler - CAM	SG&E	\$3,447,378.00	2025 ESA MF expenses	D21	PI 2025 SG&E Annual Report ESA Program Table 2A (MFWB)	V28
2024	MultiFamily	Gas	Condensing Domestic Hot Water Boiler	Condensing Domestic Hot Water Boiler - CAM	SG&E	\$4,77,707.00	2024 ESA MF expenses	D20	PI 2024 SG&E Annual Report ESA Program Table 2A (MFWB)	V29
2020	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$4,76,042.00	2020 ESA Main Gas Expenses	D53	SG&E response to Sierra Club SGO-17, Q 1501, Submitted 8/11/20	C19
2025	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$55,062.72	2025 ESA MF expenses	D7	PI 2025 SG&E Annual Report ESA Program Table 2A (MFWB)	V57
2020	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$608,362.00	2020 ESA Main Gas Expenses	D7	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2	I27
2024	MultiFamily	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$27,423.00	2024 ESA MF Gas expenses	D7	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2A	I30
2023	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$303,126.00	2023 ESA Main Gas Expenses	D7	PI 2023 SG&E Annual Report (Amended) ESA Program Table 2 (ESA Main)	I32
2022	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$10,689,036.2	2022 ESA Main Gas Expenses	D7	PI 2022 SG&E Annual Report ESA Program Table 2 (ESA Main)	I31
2024	Main	Gas	Furnace Repair/Replacement	Furnace Repair/Replacement	SG&E	\$12,331,759.00	2024 ESA Main Gas App Expenses	D7	PI 2024 SG&E Annual Report ESA Program Table 2	G26
2024	MultiFamily	Gas	Furnace Replacement	Furnace Replacement	SG&E	\$15,138.00	2024 ESA MF Gas Expenses	D5	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2A	I30
2020	MultiFamily	Gas	Furnace Replacement HC&S	Furnace Replacement - HC&S	SG&E	\$15,335.81	2020 ESA MF expenses	D6	PI 2020 SG&E Annual Report ESA Program Table 2A (MFWB)	V36
2022	Main	Gas	HE FAU	HE FAU	SG&E	\$4,713,547.00	2022 ESA Main Gas Expenses	D10	PI 2022 SG&E Annual Report ESA Program Table 2 (ESA Main)	I40
2021	Main	Gas	HE FAU	HE FAU	SG&E	\$21,730.00	2021 ESA Main Gas App Expenses	D5	PI 2021 SG&E Annual Report ESA Program Table 2	C19
2020	Pilot Deep	Gas	HE FAU	HE FAU	SG&E	\$6,000.00	2020 ESA Pilot Expenses	J6	PI 2020 SG&E Annual Report ESA Program Table 2B PPDP	O49
2020	Pilot Deep	Gas	HE FAU	HE FAU	SG&E	\$15,720.00	2020 ESA Pilot Expenses	J7	PI 2020 SG&E Annual Report ESA Program Table 2B PPDP	O91
2020	Pilot Deep	Gas	HE FAU	HE FAU	SG&E	\$5,520.00	2020 ESA Pilot Expenses	J8	PI 2020 SG&E Annual Report ESA Program Table 2B PPDP	O92
2020	Main	Gas	HE FAU - On Burnout	HE FAU - On Burnout	SG&E	\$4,462,380.00	2020 ESA Main Gas Expenses	D12	PI 2020 SG&E Annual Report ESA Program Table 2 (ESA Main)	I32
2024	Main	Gas	HE FAU - On Burnout	HE FAU - On Burnout	SG&E	\$3,808,821.00	2024 ESA Main Gas Expenses	D12	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2	I32
2023	Main	Gas	HE FAU - On Burnout	HE FAU - On Burnout	SG&E	\$8,984,264.00	2023 ESA Main Gas Expenses	D12	PI 2023 SG&E Annual Report (Amended) ESA Program Table 2 (ESA Main)	I41
2020	MultiFamily	Gas	Instantaneous Domestic Hot Water Heater	Instantaneous Domestic Hot Water Heater - CAM (SGO)	SG&E	\$151,002.00	2020 ESA MF expenses	D13	PI 2020 SG&E Annual Report ESA Program Table 2A (MFWB)	V12
2020	Pilot Deep	Gas	Replace Package U/E with 16+ SEER/95% AFUE - 3 1/2 Ton	Replace Package U/E with 16+ SEER/95% AFUE - 3 1/2 Ton	SG&E	\$8,500.00	2020 ESA Pilot Expenses	J9	PI 2020 SG&E Annual Report ESA Program Table 2B PPDP	O30
2024	Pilot Deep	Gas	Replace Split System with 16+ SEER/95% AFUE - 4 Ton	Replace Split System with 16+ SEER/95% AFUE - 4 Ton	SG&E	\$15,280.00	2024 ESA Pilot Expenses	J10	PI 2024 SG&E Annual Report, Appendix A, ESA Program - Table 2B	O38
2020	Pilot Deep	Gas	Replace Split System with 16+ SEER/95% AFUE - 3 1/2 Ton	Replace Split System with 16						

ESA Main Program Totals				
Program Year 2025 Measure installation expenses				
Gas Appliance Measure	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure
Furnace Replacement	\$6,293,035.00	\$1,972,467.00		\$8,265,502.00
Furnace Replacement HC&S				\$0.00
Furnace Repair	\$401,091.00	\$105,109.00		\$506,200.00
Furnace Repair/Replacement ⁴			\$4,379,929.62	\$4,379,929.62
HE FAU	\$112,499.00			\$112,499.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout			\$4,746,338.00	\$4,746,338.00
Water Heater Replacement	\$3,968,246.00	\$944,162.00		\$4,912,408.00
Water Heater Repair	\$67,476.00	\$37,201.00		\$104,677.00
Water Heater Repair/Replacement			\$6,232,307.00	\$6,232,307.00
Storage Water Heater				\$0.00
Tankless Water Heater			\$6,375,600.00	\$6,375,600.00
Total Expenses for Gas measures - per IOU	\$10,842,347.00	\$3,058,939.00	\$21,734,174.62	
Total Expenses for Gas measures - all IOUs				\$35,635,460.62

¹ 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 , A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2 ESA Main Expenses and Energy Savings by Measures Installed (SF,MH, MF In-Unit). All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² 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, A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2 Main - ESA Main Expenses & Energy Savings by Measures Installed. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 [Public Version] , A.19-11-003 et al., May 1, 2026, Appendix A, "ESA Program - Table 2 - Expenses & Energy Savings by Measures Installed - ESA Main." All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

⁴ Southern California Gas Company provided the expense value for the 2025 Furnace Repair/Replacement measure its response to question 1(d) of Sierra Club's Seventh Set of Data Requests to the Company submitted on September 11, 2026 (SCG response to Sierra Club-SCG-07, Q.1(d), Submitted 9/11/26).

ESA MFWB Program Totals				
Program Year 2025 Measure installation expenses				
Gas Appliance Measure	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure
Furnace Replacement	\$226,992.00			\$226,992.00
Furnace Replacement - HC&S			\$15,335.91	\$15,335.91
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$310,409.00	\$102,028.00	\$55,082.72	\$467,519.72
HE FAU				\$0.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Wall Furnace Replacement - HC&S			\$40,225.00	\$40,225.00
Water Heater Replacement				\$0.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$154,380.00	\$12,431.00	\$56,967.40	\$223,778.40
Water Heater Repair/Replacement - HC&S			\$10,172.75	\$10,172.75
Storage Water Heater	\$1,116,009.00	\$9,527.00	\$19,646.40	\$1,145,182.40
Tankless Water Heater	\$88,975.00	\$106,230.00	\$699,835.83	\$895,040.83
Tankless Water Heater (water heater replacement)				\$0.00
Instantaneous Domestic Hot Water Heater-CAM (SCG)			\$151,002.00	\$151,002.00
Condensing Domestic Hot Water Boiler - CAM		\$28,452.00	\$477,707.00	\$506,159.00
Central Domestic Hot Water Boiler - CAM		\$714,451.00	\$3,447,373.05	\$4,161,824.05
Total Expenses for Gas Measures - per IOU	\$1,896,765.00	\$973,119.00	\$4,973,348.06	
Total Expenses for Gas Measures - all IOUs				\$7,843,232.06

¹ 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, A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2A MFWB Expenses and Energy Savings by Measures Installed. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² 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, A.19-11-003 et al., May 1, 2026, Appendix A, ESA Table 2A-2 ESA Program - Multifamily Whole Building - San Diego Gas & Electric Company. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 [Public Version], A.19-11-003 et al., May 1, 2026, Appendix A, ESA Program - Table 2A - Expenses and Energy Savings by Measure installed - Multifamily Whole Building . All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

ESA Pilot Program Totals							
Program Year 2025 Measure Installation Expenses							
	Pilot Plus				Pilot Deep		
	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure	PG&E	SDG&E	Total Expense Per Measure
Gas Appliance Measure							
Replace FAU with HE FAU, 100 KBTU 95% AFUE			\$ -	\$ -		\$ 6,060.00	\$ 6,060.00
Replace FAU with HE FAU, 40 KBTU 95% AFUE			\$ -	\$ -			\$ -
Replace FAU with HE FAU, 60 KBTU 95% AFUE			\$ -	\$ -		\$ 15,720.00	\$ 15,720.00
Replace FAU with HE FAU, 80 KBTU 95% AFUE			\$ -	\$ -		\$ 5,925.00	\$ 5,925.00
Replace Package C/E with 16+ SEER/80%+ AFUE - 2 1/2 Ton			\$ -	\$ -		\$ 9,555.00	\$ 9,555.00
Replace Split System with 16+ SEER/80%+ AFUE - 4 Ton			\$ -	\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 2 1/2 Ton			\$ -	\$ -		\$ 16,100.00	\$ 16,100.00
Replace Split System with 16+ SEER/95%+ AFUE - 2 Ton			\$ -	\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 1/2 Ton			\$ -	\$ -		\$ 119,131.00	\$ 119,131.00
Replace Split System with 16+ SEER/95%+ AFUE - 3 Ton			\$ -	\$ -		\$ 69,350.80	\$ 69,350.80
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton			\$ 24,805.00	\$ 24,805.00		\$ 57,900.00	\$ 57,900.00
Replace Split System with 16+ SEER/95%+ AFUE - 5 Ton			\$ 9,850.00	\$ 9,850.00		\$ 49,250.00	\$ 49,250.00
Energy Star HE Gas Storage Water Heater - 40G			\$ -	\$ -			\$ -
Energy Star HE Gas Storage Water Heater - 50G			\$ -	\$ -			\$ -
HE Wall Furnace 82% AFUE			\$ -	\$ -			\$ -
High Efficiency Furnace	\$ 396,528.00	\$ 190.00	\$ -	\$ 396,718.00	\$ 666,217.00	\$ 3,617.00	
Furnace Repair/Replacement			\$ -	\$ -			\$ -
Packaged HVAC	\$ 308,007.00		\$ -	\$ 308,007.00	\$ 356,388.00		\$ 356,388.00
Water Heater Repair/Replacement			\$ -	\$ -			\$ -
Storage Water Heater	\$ 209,922.00		\$ -	\$ 209,922.00	\$ 232,188.00	\$ 3,054.00	
Tankless On-Demand (Water Heater)	\$ 66,645.00		\$ -	\$ 66,645.00	\$ 133,012.00	\$ 25,318.00	
Replace with Tankless Water Heater				\$ -			\$ 113,410.00
Total Gas Measure expenses- Per IOU	\$ 981,102.00	\$ 190.00	\$ 34,655.00	\$ 1,015,947.00	\$ 1,387,805.00	\$ 31,989.00	\$ 462,493.80
Total Gas Measure expenses- All IOUs-Pilot Plus	\$ 1,015,947.00						
Total Gas Measure expenses- All IOUs-Pilot Deep	\$ 1,602,195.80						
Total Gas Measure expenses- All IOUs-both pilots	\$ 2,898,142.80						

¹ 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, A 19-11-003 et al., May 1, 2026, Appendix A, "ESA Table 28 - PPVP Expenses and Energy Savings by Measures Installed." All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² 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, A 19-11-003 et al., May 1, 2026, Appendix A, ESA Table 28 PP PD- ESA Pilot Plus and Pilot Deep Expenses and Energy Savings by Measures Installed. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Preliminary Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2025, Through December 31, 2025 (Public Version), A 19-11-003 et al., May 1, 2026, Appendix A, ESA Program - Table 28 - Expenses and Energy Savings by Measure Installed - Pilot Plus and Pilot Deep, A 19-11-006. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

ESA Main Program Totals				
Program Year 2024 Measure installation expenses				
<i>Gas Appliance Measure</i>	PG&E¹	SDG&E²	SCG³	Total Expense Per Measure
Furnace Replacement				\$0.00
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$8,424,506.00	\$2,601,365.00	\$608,392.00	\$11,634,263.00
Wall Furnace Replacement (HCS)				\$0.00
Wall Furnace ⁴			\$1,946,665.00	\$1,946,665.00
HE FAU	\$341,010.00			\$341,010.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout			\$3,808,821.00	\$3,808,821.00
Water Heater Replacement				\$0.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$3,839,683.00	\$1,000,938.00	\$5,177,698.00	\$10,018,319.00
Storage Water Heater				\$0.00
Tankless Water Heater			\$7,469,000.00	\$7,469,000.00
Total Expenses for Gas measures - per IOU	\$12,605,199.00	\$3,602,303.00	\$19,010,576.00	
Total Expenses for Gas measures - all IOUs				\$35,218,078.00

¹ 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, A.19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2 - ESA Main Expenses and Energy Savings by Measures Installed (SF,MH, MF In-Unit). All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² 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 2024, A.19-11-003 et al., June 27, 2025, Appendix A, "ESA Program - Table 2 - ESA Main Expenses & Energy Savings by Measures Installed." All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Appendix A, ESA Program Table 2 "Main ESA Program (SF, MH) Expenses and Energy Savings by Measure installed," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 [Public Version] July 1, 2025. All values below were derived from the Company's annual low income report ESA program tables unless otherwise specifically cited.

⁴ Southern California Gas Company provided expenses specifically for their measure category "Wall Furnaces" in a data request and did not specify the ESA sub-program the expense is attributed to, thus the value in cell D9 may include SCG wall furnace measure expenses from ESA Main, ESA Multifamily Whole Building Program, and/or Pilot Plus/Pilot Deep Programs. Southern California Gas Company response to Sierra Club-SCG-01 question 15, response submitted April 17, 2026.

ESA MFWB Program Totals				
Program Year 2024 Measure installation expenses				
Gas Appliance Measure	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure
Furnace Replacement	\$10,848.00		\$15,336.00	\$26,184.00
Furnace Replacement HC&S		\$10,224.00		\$10,224.00
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$231,209.00	\$12,171.00	\$27,423.00	\$270,803.00
Wall Furnace Replacement (HCS)				\$0.00
HE FAU				\$0.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Water Heater Replacement				\$0.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$196,997.00		\$1,475.00	\$198,472.00
Water Heater Repair/Replacement - HC&S		\$14,155.00	\$26,362.00	\$40,517.00
Storage Water Heater	\$203,503.00	\$108,088.00	\$345,715.00	\$657,306.00
Tankless Water Heater	\$29,982.00		\$30,351.00	\$60,333.00
Central Boiler Replace			\$455,359.00	\$455,359.00
Total Expenses for Gas measures - per IOU	\$672,539.00	\$144,638.00	\$902,021.00	
Total Expenses for Gas measures - all IOUs				\$1,719,198.00

¹ 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 , A.19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2A - MFWB Expenses and Energy Savings by Measures Installed. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² 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 2024 , A.19-11-003 et al., June 27, 2025, Appendix A "Table 2A-2 ESA Program - Multifamily Whole Building - San Diego Gas & Electric Company. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Appendix A, ESA Program Table 2A "Table 2A-2 ESA Program - Multifamily Whole Building Measures - 2024 completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 . July 1, 2025. All values below were derived from the Company's annual low income report ESA program tables unless otherwise specifically cited.

ESA Pilot Program Totals							
Program Year 2024 Measure Installation expenses							
	Pilot Plus			Total Expense Per Measure	Pilot Deep		
	PG&E ¹	SDG&E ²	SCG ³		PG&E ¹	SDG&E ²	SCG ³
Replace FAU with HE FAU, 100 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 40 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 60 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 80 KBTU 95% AFUE				\$ -			\$ -
Replace Package G/E with 16+ SEER/80%+ AFUE - 2 1/2 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton				\$ -		\$ 10,280.00	\$ 10,280.00
Replace Split System with 16+ SEER/95%+ AFUE - 2 1/2 Ton				\$ -		\$ 7,660.00	\$ 7,660.00
Replace Split System with 16+ SEER/95%+ AFUE - 2 Ton				\$ -		\$ -	\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 1/2 Ton			\$ 35,090.00	\$ 35,090.00		\$ 26,685.00	\$ 26,685.00
Replace Split System with 16+ SEER/95%+ AFUE - 3 Ton			\$ 33,120.00	\$ 33,120.00		\$ -	\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton			\$ 18,380.00	\$ 18,380.00		\$ 9,650.00	\$ 9,650.00
Replace Split System with 16+ SEER/95%+ AFUE - 5 Ton			\$ -	\$ -		\$ 9,380.00	\$ 9,380.00
Energy Star HE Gas Storage Water Heater - 40G			\$ 5,080.00	\$ 5,080.00		\$ 2,540.00	\$ 2,540.00
Energy Star HE Gas Storage Water Heater - 50G				\$ -		\$ 3,095.00	\$ 3,095.00
HE Wall Furnace 82% AFUE	\$ 488,874.00			\$ 488,874.00	\$ 576,546.00	\$ 4,640.00	\$ 581,186.00
High Efficiency Furnace				\$ -			\$ -
Furnace Repair/Replacement	\$ 223,264.00			\$ 223,264.00	\$ 238,352.00		\$ 238,352.00
Packaged HVAC				\$ -		\$ 2,744.00	\$ 2,744.00
Water Heater Repair/Replacement	\$ 190,697.00			\$ 190,697.00	\$ 281,425.00		\$ 281,425.00
Storage Water Heater				\$ -			\$ -
Tankless On Demand [Water Heater]			\$ 5,155.00	\$ 5,155.00		\$ 9,820.00	\$ 9,820.00
Replace with Tankless Water Heater				\$ -		\$ -	\$ -
Total Gas Measure expenses-Per IOU	\$ 902,835.00	\$ -	\$ 96,825.00	\$ 999,660.00	\$ 1,096,323.00	\$ 2,744.00	\$ 83,750.00
Total Gas Measure expenses-All IOUs-Pilot Plus	\$ 999,660.00						
Total Gas Measure expenses-All IOUs-Pilot Deep	\$ 1,182,817.00						
Total Gas Measure expenses-All IOUs-both pilots	\$ 2,182,477.00						

¹ Annual Report of Pacific Gas and Electric Company (U 39 H) on the Results of its Energy Savings Assistance, California Alternate Rates for Energy and Family Electric Rate Assistance Programs for 2024 , A 19-11-003 et al., May 1, 2025, Appendix A, ESA Table 2B R/PD Expenses and Energy Savings by Measures Installed. All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

² Annual Report Activity of San Diego Gas & Electric Company (U 902 H) on Energy Savings Assistance, California Alternate Rates for Energy and Family Electric Rate Assistance Programs for 2024 , A 19-11-003 et al., June 27, 2025, "Table 2B - ESA Pilot Plus and Pilot Deep Expenses and Energy Savings by Measures Installed." All values below were derived from the Company's annual low income report excel tables unless otherwise specifically cited.

³ Appendix A, ESA Program Table 2B "ESA Program - Pilot Plus - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 . July 1, 2025. All values below were derived from the Company's annual low income report ESA program tables unless otherwise specifically cited.

⁴ Appendix A, ESA Program Table 2B "ESA Program - Pilot Deep - 2024 Completed & Expensed Installation" Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2024 . July 1, 2025. All values below were derived from the Company's annual low income report ESA program tables unless otherwise specifically cited.

ESA Main Program Totals				
Program Year 2023 Measure installation expenses				
<i>Gas Appliance Measure</i>	PG&E¹	SDG&E²	SCG³	Total Expense Per Measure
Furnace Replacement				\$0.00
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$7,752,875.00	\$1,577,882.00	\$3,903,126.00	\$13,233,883.00
Wall Furnace Replacement (HCS)				\$0.00
HE FAU	\$272,707.00			\$272,707.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout			\$5,694,264.00	\$5,694,264.00
Water Heater Replacement				\$0.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$4,257,379.00	\$534,324.00	\$6,088,122.00	\$10,879,825.00
Storage Water Heater				\$0.00
Tankless Water Heater			\$1,678,600.00	\$1,678,600.00
Total Expenses for Gas measures - per IOU	\$12,282,961.00	\$2,112,206.00	\$17,364,112.00	
Total Expenses for Gas measures - all IOUs				\$31,759,279.00

¹ Appendix A, ESA Table 2 "ESA Main Expenses and Energy Savings by Measures Installed (SF, MH, MF In-Unit)," 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. A. 19-11-003 et al., May 1, 2024. All values below are derived from the ESA Program tables in appendix A of the Company's 2023 low income annual report unless otherwise cited.

² Appendix G, "ESA Table 2 - ESA Main (SF, MH, MF in-Unit) Expenses and Energy Savings by Measures Installed," 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 2023. A. 19-11-003 et al. May 1, 2024. All values below are derived from the ESA Program tables in appendix G of the Company's low income annual report unless otherwise cited.

³ Appendix A, ESA Program Table 2 "Main ESA Program (SF,MH, MF In-unit) Expenses and Energy Savings by Measure Installed," Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

ESA MF Program Totals				
Program Year 2023 Measure installation expenses				
Gas Appliance Measure	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure
Furnace Replacement	\$0.00	\$0.00		\$0.00
Furnace Replacement HC&S	\$0.00	\$0.00		\$0.00
Furnace Repair	\$0.00	\$0.00		\$0.00
Furnace Repair/Replacement	\$48,965.69	\$0.00		\$48,965.69
Wall Furnace Replacement (HCS)	\$0.00	\$0.00		\$0.00
HE FAU	\$0.00	\$0.00		\$0.00
HE FAU- Early Replacement	\$0.00	\$0.00		\$0.00
HE FAU-on Burnout	\$0.00	\$0.00		\$0.00
Water Heater Replacement	\$0.00	\$0.00	\$1,129,102.00	\$1,129,102.00
Water Heater Repair	\$0.00	\$0.00		\$0.00
Water Heater Repair/Replacement	\$76,885.00	\$0.00		\$76,885.00
Storage Water Heater	\$0.00	\$0.00		\$0.00
Tankless Water Heater	\$0.00	\$0.00		\$0.00
Central Boiler	\$0.00	\$1,281,358.00	\$2,870,288.00	\$4,151,646.00
Total Expenses for Gas measures - per IOU	\$125,850.69	\$1,281,358.00	\$3,999,390.00	
Total Expenses for Gas measures - all IOUs				\$5,406,598.69

¹ Appendix A, ESA Table 2A "ESA CAM Initiative Expenses and Energy Savings by Measures Installed," and ESA Table 2B "MFWB Expenses and Energy Savings by Measures Installed," *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*. A. 19-11-003 et al., May 1, 2024. All values below are derived from the ESA Program tables in appendix A of the Company's 2023 low income annual report unless otherwise cited.

² Appendix G, "ESA Program - Table 2A - ESA MF CAM Expenses & Energy Savings by Measures Installed," and "ESA Program - Table 2B - ESA MFWB Expenses & Energy Savings by Measures Installed," *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 2023* . A. 19-11-003 et al. May 1, 2024. All values below are derived from the ESA Program tables in appendix G of the Company's 2023 low income annual report unless otherwise cited.

³ Appendix A, "ESA Program - Table 2A - Expenses and Energy Savings by Measure Installed - Multifamily CAM" and ""ESA Program - Table 2B - Expenses and Energy Savings by Measure Installed - Multifamily Whole Building," *Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023* . All values below were derived from the ESA program tables in Appendix A of the Company's 2023 low income annual report unless otherwise cited.

ESA Pilot Program Totals							
Program Year 2023 Measure Installation expenses							
Gas Appliance Measure	Pilot Plus			Total Expense Per Measure	Pilot Deep		
	PG&E ¹	SDG&E ²	SCG ³		PG&E ¹	SDG&E ²	SCG ³
Replace FAU with HE FAU, 100 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 40 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 60 KBTU 95% AFUE				\$ -			\$ -
Replace FAU with HE FAU, 80 KBTU 95% AFUE				\$ -			\$ -
Replace Package G/E with 16+ SEER/80%+ AFUE - 2 1/2 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/80%+ AFUE - 4 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 2 1/2 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 2 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 1/2 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 Ton				\$ -		\$ 8,280.00	\$ 8,280.00
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton				\$ -			\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 5 Ton				\$ -			\$ -
Energy Star HE Gas Storage Water Heater - 40G				\$ -			\$ -
Energy Star HE Gas Storage Water Heater - 50G				\$ -			\$ -
HE Wall Furnace 82% AFUE				\$ -			\$ -
High Efficiency Furnace	\$ 80,824.00			\$ 80,824.00	\$ 104,309.00		\$ 104,309.00
Furnace Repair/Replacement				\$ -			\$ -
Packaged HVAC	\$ 14,751.00			\$ 14,751.00			\$ -
Water Heater Repair/Replacement				\$ -			\$ -
Storage Water Heater	\$ 32,960.00			\$ 32,960.00	\$ 42,219.00		\$ 42,219.00
Tankless On Demand [Water Heater]				\$ -			\$ -
Replace with Tankless Water Heater				\$ -			\$ -
Total Gas Measure expenses Per IOU	\$ 128,535.00	\$ -	\$ -	\$ 128,535.00	\$ 146,528.00	\$ -	\$ 8,280.00
Total Gas Measure expenses- All IOUs-Pilot Plus	\$ 128,535.00						\$ 154,808.00
Total Gas Measure expenses- All IOUs-Pilot Deep	\$ 154,808.00						
Total Gas Measure expenses- All IOUs-both pilots	\$ 283,343.00						

¹ Appendix A, ESA Table 2C PPI/PPD Expenses and Energy Savings by Measures Installed, *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* . A. 19-11-003 et al., May 1, 2024. All values below are derived from the ESA Program tables in appendix A of the Company's 2023 low income annual report unless otherwise cited.

² Appendix G, "ESA Program - Table 2C - ESA Pilot Plus and Pilot Deep Expenses & Energy Savings by Measures Installed," *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 2023* . A. 19-11-003 et al. May 1, 2024. All values below are derived from the ESA Program tables in appendix G of the Company's 2023 low income annual report unless otherwise cited.

³Appendix A, "ESA Program - Table 2C - Expenses and Energy Savings by Measure Installed - Pilot Plus and Pilot Deep," *Amended Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs for Program Year 2023, Through December 31, 2023*. All values below were derived from the ESA program tables in Appendix A of the Company's 2023 low income annual report unless otherwise cited.

ESA Main Program Totals				
Program Year 2022 Measure installation expenses				
<i>Gas Appliance Measure</i>	PG&E¹	SDG&E²	SCG³	Total Expense per Measure
Furnace Replacement				\$0.00
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$6,434,934.00	\$1,328,034.00	\$10,669,935.62	\$18,432,903.62
Wall Furnace Replacement (HCS)				\$0.00
HE FAU			\$4,713,937.45	\$4,713,937.45
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Water Heater Replacement				\$0.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$2,824,716.00	\$676,640.00	\$10,446,876.06	\$13,948,232.06
Storage Water Heater				\$0.00
Tankless Water Heater				\$0.00
Total Expenses for Gas measures - per IOU	\$9,259,650.00	\$2,004,674.00	\$25,830,749.13	
Total Expenses for Gas measures - all IOUs				\$37,095,073.13

¹ Appendix A, ESA Table 2 ESA Main Expenses and Energy Savings by Measures Installed (SF, MH, MF In-Unit), 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. A. 19-11-003 et al., April 28, 2023. All values below are derived from the ESA Program tables in appendix A of the Company's 2022 low income annual report unless otherwise cited.

² Appendix H, "ESA Program - Table 2 - ESA Main Expenses & Energy Savings by Measures Installed," 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 2022. A. 19-11-003 et al. May 1, 2023. All values below are derived from the ESA Program tables in appendix H of the Company's low income annual report unless otherwise cited.

³Appendix A, ESA Program-Table 2 - Expenses and Energy Savings by Measures Installed - ESA Main, Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022, May 1, 2023. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

ESA MF Program Totals				
Program Year 2022 Measure installation expenses				
Gas Appliance Measure	PG&E ¹	SDG&E ²	SCG ³	Total Expense Per Measure
Furnace Replacement	\$218,064.25			\$218,064.25
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement				\$0.00
Wall Furnace Replacement (HCS)				\$0.00
HE FAU				\$0.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Space Heating Boiler	\$232,654.51			\$232,654.51
Water Heater Replacement			\$101,719.50	\$101,719.50
Water Heater Repair				\$0.00
Water Heater Repair/Replacement				\$0.00
Storage Water Heater	\$1,420,123.14			\$1,420,123.14
Tankless Water Heater	\$248,179.36			\$248,179.36
Condensing Domestic Hot Water Boiler	\$1,138,722.51			\$1,138,722.51
Central Boiler replacement/measure install		\$119,098.00	\$2,557,151.00	\$2,676,249.00
Total Expenses for Gas measures - per IOU	\$3,257,743.77	\$119,098.00	\$2,658,870.50	
Total Expenses for Gas measures - all IOUs				\$6,035,712.27

¹ Appendix A, "ESA Table 2A MF CAM Initiative Expenses and Energy Savings by Measures Installed" and "ESA Table 2B MFWB Expenses and Energy Savings by Measures installed," *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* . A. 19-11-003 et al., April 28, 2023. All values below are derived from the ESA Program tables in appendix A of the Company's 2022 low income annual report unless otherwise cited.

² Appendix H, "ESA Program - Table 2A - MF CAM Expenses & Energy Savings by Measures Installed," and "ESA Program - Table 2B - ESA MFWB Expenses & Energy Savings by Measures Installed," *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 2022* . A. 19-11-003 et al. May 1, 2023. All values below are derived from the ESA Program tables in appendix H of the Company's low income annual report unless otherwise cited.

³ Appendix A, "ESA Program-Table 2A - Expenses and Energy Savings by Measures Installed - Multifamily CAM" and "ESA Program - Table 2B - Expenses & Energy Savings by Measures Installed - Multifamily Whole Building," *Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022* , May 1, 2023. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

ESAPilot Program Totals									
Program Year 2022 Measure installation expenses									
	Pilot Plus					Pilot Deep			
Gas Appliance Measure	PG&E	SDG&E	SCG	Total Expense Per Measure		PG&E	SDG&E	SCG	Total Expense Per Measure
Replace FAU with HE FAU, 100 KBTU 95% AFUE				\$ -					\$ -
Replace FAU with HE FAU, 40 KBTU 95% AFUE				\$ -					\$ -
Replace FAU with HE FAU, 60 KBTU 95% AFUE				\$ -					\$ -
Replace FAU with HE FAU, 80 KBTU 95% AFUE				\$ -					\$ -
Replace Package G/E with 16+ SEER/80%+ AFUE - 2 1/2 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/80%+ AFUE - 4 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 2 1/2 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 2 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 1/2 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 3 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 4 Ton				\$ -					\$ -
Replace Split System with 16+ SEER/95%+ AFUE - 5 Ton				\$ -					\$ -
Energy Star HE Gas Storage Water Heater - 40G				\$ -					\$ -
Energy Star HE Gas Storage Water Heater - 50G				\$ -					\$ -
HE Wall Furnace 82% AFUE				\$ -					\$ -
High Efficiency Furnace				\$ -					\$ -
Furnace Repair/Replacement				\$ -					\$ -
Packaged HVAC				\$ -					\$ -
Water Heater Repair/Replacement				\$ -					\$ -
Storage Water Heater				\$ -					\$ -
Tankless On Demand [Water Heater]				\$ -					\$ -
Replace with Tankless Water Heater				\$ -					\$ -
Total Gas Measure expenses Per IOU	\$ -	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	\$ -
Total Gas Measure expenses- All IOUs-Pilot Plus	\$ -								
Total Gas Measure expenses- All IOUs-Pilot Deep	\$ -								
Total Gas Measure expenses- All IOUs-both pilots	\$ -								

¹ Appendix A, "ESA Table 2C PP/PD Expenses and Energy Savings by Measures Installed," *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* . A. 19-11-003 et al., April 28, 2023. All values below are derived from the ESA Program tables in appendix A of the Company's 2022 low income annual report unless otherwise cited.

² Appendix H, "ESA Program - Table 2C - Pilot Plus and Pilot Deep Expenses & Energy Savings by Measures Installed," *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 2022* . A. 19-11-003 et al. May 1, 2023. All values below are derived from the ESA Program tables in appendix H of the Company's low income annual report unless otherwise cited.

³ Appendix A, "ESA Program-Table 2C - Expenses and Energy Savings by Measures Installed - Plot Plus and Pilot Deep," *Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2022*, May 1, 2023. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

ESA Main Program Totals				
Program Year 2021 Measure installation expenses				
<i>Gas Appliance Measure</i>	PG&E¹	SDG&E²	SCG³	Total Expense Per Measure
Furnace Replacement				\$0.00
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement	\$1,716,020.00	\$2,156,757.00	\$12,531,759.00	\$16,404,536.00
Wall Furnace Replacement (HCS)				\$0.00
HE FAU			\$212,162.00	\$212,162.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Water Heater Replacement		\$999,162.00		\$999,162.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement	\$141,030.00		\$8,548,381.00	\$8,689,411.00
Storage Water Heater				\$0.00
Tankless Water Heater				\$0.00
Total Expenses for Gas measures - per IOU	\$1,857,050.00	\$3,155,919.00	\$21,292,302.00	
Total Expenses for Gas measures - all IOUs				\$26,305,271.00

¹ Appendix B, ESA Program Table 2 ESA Measure Installations and Savings, Annual Report of Pacific Gas and Electric Company (U 39 M) on the Results of its Energy Savings Assistance and California Alternate Rates for Energy, A. 19-11-003 et al., May 2, 2022. All values below are expenses recorded through March 2022 and derived from the ESA Program tables in appendix B of the Company's 2021 low income annual report unless otherwise cited.

² Appendix G, "ESA Program - Table 2 - Expenses & Energy Savings by Measures Installed," Annual Report Activity of San Diego Gas & Electric Company (U 902 M) on Low Income Assistance Programs for 2021. A. 19-11-003 et al. May 1, 2024. All values below are derived from the ESA Program tables in appendix G of the Company's low income annual report unless otherwise cited.

³ Appendix A, "ESA Program-Table 2 - Expenses and Energy Savings by Measures Installed Summary," Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2021, May 27, 2022. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

ESA MF Program Totals				
Program Year 2021 Measure installation expenses				
<i>Gas Appliance Measure</i>	PG&E¹	SDG&E²	SCG³	Total Expense Per Measure
Furnace Replacement	\$154,276.00	\$463.00		\$154,739.00
Furnace Replacement HC&S				\$0.00
Furnace Repair				\$0.00
Furnace Repair/Replacement				\$0.00
Wall Furnace Replacement (HCS)				\$0.00
HE FAU				\$0.00
HE FAU- Early Replacement				\$0.00
HE FAU-on Burnout				\$0.00
Water Heater Replacement			\$100,820.00	\$100,820.00
Water Heater Repair				\$0.00
Water Heater Repair/Replacement				\$0.00
Storage Water Heater	\$544,615.00			\$544,615.00
Tankless Water Heater	\$174,314.00			\$174,314.00
Space Heating Boiler	\$73,030.00			\$73,030.00
Condensing Domestic Hot Water Boiler	\$574,500.00			\$574,500.00
Central Boiler		\$335,184.00		\$335,184.00
Boiler Replacement			\$1,432,078.00	\$1,432,078.00
Total Expenses for Gas measures - per IOU	\$1,520,735.00	\$335,647.00	\$1,532,898.00	
Total Expenses for Gas measures - all IOUs				\$3,389,280.00

¹ Appendix B, ESA Program Table 2B MF CAM Measure Installations and Savings, Annual Report of Pacific Gas and Electric Company (U 39 M) on the Results of its Energy Savings Assistance and California Alternate Rates for Energy, A. 19-11-003 et al., May 2, 2022. All values below are expenses recorded through March 2022 and derived from the ESA Program tables in appendix B of the Company's 2021 low income annual report unless otherwise cited.

² Appendix G, "ESA Program - Table 2B - Expenses & Energy Savings by Measures Installed: MF CAM," *Annual Report Activity of San Diego Gas & Electric Company (U 902 M) on Low Income Assistance Programs for 2021* . A. 19-11-003 et al. May 1, 2024. All values below are derived from the ESA Program tables in appendix G of the Company's low income annual report unless otherwise cited. SDG&E has a Central Boiler measure expense of \$335,184 that represents a unit of measure, not the amount of measures installed or each home the measure was installed in. see footnote 2 of ESAP Table 2B

³Appendix A, "ESA Program-Table 2B - Expenses and Energy Savings by Measures Installed - Multifamily Common Area," *Annual Report of Southern California Gas Company (U 904 G) on Low Income Assistance Programs 2021* , May 27, 2022. All values below were derived from the ESA program tables in Appendix A of the Company's low income annual report unless otherwise cited.

Attachment 3

2028–2033 Forecasted ESA Gas Expenses

ESA Gas Appliance Planning Assumptions for PY2028-33

This workbook was created to support claims made in the Direct Testimony of Rebecca Barker and Chinyere Osuala on Behalf of Sierra Club on the IOUs' 2028-2033 Income Qualified Program Applications filed in case A.26-01-003. The included worksheets contain tables and data on gas combustion appliance measure planning assumptions derived from . The data compiled and calculations made this workbook were derived from Pacific Gas & Electric, San Diego Gas & Electric, and Southern California Gas companies Energy Savings Assistance Program planning assumption tables for the IQP case A.26-01-003.

WORKBOOK CONTENTS	DESCRIPTION	DATA SOURCE CITATION
Expense Detail	List of gas appliance measure budget by utility, ESA program, year, specific measure description, source worksheet, source cell, and cited Utility low income annual report excel sheet and original corresponding cell	embedded in worksheet Exh. PG&E-01, Appendix A, Table A-1, Planning Assumptions ESA Main Program
PGEPY28-33ESA Main Gas App budg	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for Pacific Gas & Electric Company PY2028-33 ESA Main Program	
PGEPY28-33ESA MFWB Gas App budg	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for Pacific Gas & Electric Company PY2028-33 ESA Multifamily Whole Building Program	Exh. PG&E-01, Appendix A, Table A-1a, Planning Assumptions ESA MFWB Program
SDGEPY28-33ESA Main Gas Budget	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for San Diego Gas & Electric Company PY2028-33 ESA Main Program	Attachment G, Table A-1 "Planning Assumptions ESA Main Program," <i>Application of San Diego Gas & Electric Company (U 902-M) for Approval of Income Qualified Programs and Budgets for Program years 2028-2033</i> , A.26-01-003 et al., January 16, 2026.
SDGEPY28-33ESA MFWB Gas Budget	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for San Diego Gas & Electric Company PY2028-33 ESA Multifamily Whole Building Program	Attachment G, Table A-1a "Planning Assumptions ESA MFWB Program," <i>Application of San Diego Gas & Electric Company (U 902-M) for Approval of Income Qualified Programs and Budgets for Program years 2028-2033</i> , A.26-01-003 et al., January 16, 2026.
SCGPY28-33 ESA Main gas budget	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for Southern California Gas Company PY2028-33 ESA Main Program	"Southern California Gas Company PY 2028-2033 ESA Table A-1A, Planning Assumptions ESA MFWB Program," provided in Southern California Gas Company response to Sierra Club's 5th set of data requests at Question 4, submitted September 2 2026;
SCGPY28-33 ESA MFWB gas budget	Contains all planning assumptions and calculates total budget for identified gas combustion appliances for Southern California Gas Company PY2028-33 ESA Multifamily Whole Building Program	"Southern California Gas Company PY 2028-2033 ESA Table A-1A, Planning Assumptions ESA MFWB Program," provided in Southern California Gas Company response to Sierra Club's 5th set of data requests at Question 4, submitted September 2 2026.

ESA Sub-Program	Program Year	IOU	Gas Measure	Proposed Budget	Source Worksheet	Source Code	Comment	Cited record sheet call
Main	2028	SDG&E	Tamless Water Heater	\$ 15,896.00	SDGEP28-33ESA Main Gas Budget	B4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A17
Main	2029	SDG&E	Tamless Water Heater	\$ 15,451.05	SDGEP28-33ESA Main Gas Budget	C4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A17
Main	2030	SDG&E	Tamless Water Heater	\$ 16,955.55	SDGEP28-33ESA Main Gas Budget	D4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A17
Main	2031	SDG&E	Tamless Water Heater	\$ 17,527.84	SDGEP28-33ESA Main Gas Budget	E4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A17
Main	2032	SDG&E	Tamless Water Heater	\$ 18,119.70	SDGEP28-33ESA Main Gas Budget	F4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A17
Main	2033	SDG&E	Tamless Water Heater	\$ 18,713.27	SDGEP28-33ESA Main Gas Budget	G4	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	B017
Main	2028	SDG&E	Water Heater Repair	\$ 28,468.00	SDGEP28-33ESA Main Gas Budget	B5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A20
Main	2029	SDG&E	Water Heater Repair	\$ 29,428.18	SDGEP28-33ESA Main Gas Budget	C5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A20
Main	2030	SDG&E	Water Heater Repair	\$ 30,429.09	SDGEP28-33ESA Main Gas Budget	D5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A20
Main	2031	SDG&E	Water Heater Repair	\$ 31,449.55	SDGEP28-33ESA Main Gas Budget	E5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A20
Main	2032	SDG&E	Water Heater Repair	\$ 32,511.81	SDGEP28-33ESA Main Gas Budget	F5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A20
Main	2033	SDG&E	Water Heater Repair	\$ 33,576.84	SDGEP28-33ESA Main Gas Budget	G5	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	B020
Main	2028	PG&E	Water Heater Repair	\$ 18,857.87	PGEP28-33ESA Main Gas App Budget	C3	Enk. PG&E-01, Appendix A, Table A.1	A216
Main	2022	PG&E	Water Heater Repair	\$ 48,237.05	PGEP28-33ESA Main Gas App Budget	F3	Enk. PG&E-01, Appendix A, Table A.1	A216
Main	2031	PG&E	Water Heater Repair	\$ 48,821.85	PGEP28-33ESA Main Gas App Budget	E3	Enk. PG&E-01, Appendix A, Table A.1	A216
Main	2028	PG&E	Water Heater Replacement	\$ 140,692.47	PGEP28-33ESA Main Gas App Budget	C8	Enk. PG&E-01, Appendix A, Table A.1	A17
Main	2030	PG&E	Water Heater Repair	\$ 50,101.32	PGEP28-33ESA Main Gas App Budget	D3	Enk. PG&E-01, Appendix A, Table A.1	A116
Main	2029	PG&E	Water Heater Repair	\$ 51,712.06	PGEP28-33ESA Main Gas App Budget	C3	Enk. PG&E-01, Appendix A, Table A.1	A216
Main	2032	PG&E	Water Heater Replacement	\$ 252,248.48	PGEP28-33ESA Main Gas App Budget	D4	Enk. PG&E-01, Appendix A, Table A.1	A17
Main	2028	SDG&E	Furnace Repair	\$ 292,771.00	SDGEP28-33ESA Main Gas Budget	B6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	X35
Main	2031	SDG&E	Furnace Repair	\$ 300,617.42	SDGEP28-33ESA Main Gas App Budget	B6	Enk. PG&E-01, Appendix A, Table A.1	B034
Main	2029	SDG&E	Furnace Repair	\$ 302,642.74	SDGEP28-33ESA Main Gas Budget	C8	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A235
Main	2030	SDG&E	Furnace Repair	\$ 312,874.79	SDGEP28-33ESA Main Gas Budget	D8	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A335
Main	2032	SDG&E	Furnace Repair	\$ 321,190.39	SDGEP28-33ESA Main Gas App Budget	F6	Enk. PG&E-01, Appendix A, Table A.1	A234
Main	2033	SDG&E	Furnace Repair	\$ 329,426.03	SDGEP28-33ESA Main Gas Budget	E8	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A235
Main	2031	PG&E	Furnace Repair	\$ 327,108.35	PGEP28-33ESA Main Gas App Budget	B6	Enk. PG&E-01, Appendix A, Table A.1	A334
Main	2028	PG&E	Furnace Repair	\$ 322,325.39	PGEP28-33ESA Main Gas App Budget	B6	Enk. PG&E-01, Appendix A, Table A.1	X34
Main	2032	SDG&E	Furnace Repair	\$ 334,256.48	SDGEP28-33ESA Main Gas Budget	F8	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A235
Main	2030	PG&E	Furnace Repair	\$ 335,681.08	PGEP28-33ESA Main Gas App Budget	D6	Enk. PG&E-01, Appendix A, Table A.1	A334
Main	2033	SDG&E	Furnace Repair	\$ 345,309.34	SDGEP28-33ESA Main Gas Budget	D8	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	B035
Main	PG&E	Furnace Repair	\$ 346,473.15	PGEP28-33ESA Main Gas App Budget	C8	Enk. PG&E-01, Appendix A, Table A.1	A234	
Main	2028	PG&E	Water heater replacement	\$ 595,380.87	PGEP28-33ESA Main Gas App Budget	C4	Enk. PG&E-01, Appendix A, Table A.1	A217
Main	2031	PG&E	Furnace Replacement	\$ 796,651.68	PGEP28-33ESA Main Gas App Budget	E7	Enk. PG&E-01, Appendix A, Table A.1	A335
Main	SCG	Furnace Replacement	\$ 825,142.00	SCGEP28-33 ESA Main gas budget	B5	Sc/CalGasPV 2028-2033 ESA Table A.1	A247	
Main	2029	SCG	Furnace Repair/Replacement	\$ 848,896.00	SCGEP28-33 ESA Main gas budget	C5	Sc/CalGasPV 2028-2033 ESA Table A.1	A247
Main	2030	SCG	Furnace Repair/Replacement	\$ 875,993.00	SCGEP28-33 ESA Main gas budget	D5	Sc/CalGasPV 2028-2033 ESA Table A.1	A247
Main	2031	SCG	Furnace Repair/Replacement	\$ 901,655.00	SCGEP28-33 ESA Main gas budget	E5	Sc/CalGasPV 2028-2033 ESA Table A.1	A247
Main	2032	SCG	Furnace Repair/Replacement	\$ 928,705.00	SCGEP28-33 ESA Main gas budget	F5	Sc/CalGasPV 2028-2033 ESA Table A.1	A247
Main	2033	SCG	Furnace Repair/Replacement	\$ 956,550.00	SCGEP28-33 ESA Main gas budget	G5	Sc/CalGasPV 2028-2033 ESA Table A.1	B047
Main	SDG&E	Water Heater Replacement	\$ 1,008,000.00	SDGEP28-33ESA Main Gas Budget	C6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A235	
Main	2029	SDG&E	Water Heater Replacement	\$ 1,042,699.79	SDGEP28-33ESA Main Gas Budget	C6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A231
Main	2030	SDG&E	Water Heater Replacement	\$ 1,077,819.00	SDGEP28-33ESA Main Gas Budget	D6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A231
Main	SDG&E	Water Heater Replacement	\$ 1,114,239.11	SDGEP28-33ESA Main Gas Budget	D6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A231	
Main	2032	SDG&E	Water Heater Replacement	\$ 1,151,863.82	SDGEP28-33ESA Main Gas Budget	F6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A231
Main	2033	SDG&E	Water Heater Replacement	\$ 1,189,106.92	SDGEP28-33ESA Main Gas Budget	G6	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	B021
Main	PG&E	Water heater replacement	\$ 1,199,392.33	PGEP28-33ESA Main Gas App Budget	A4	Enk. PG&E-01, Appendix A, Table A.1	X17	
Main	2028	PG&E	Furnace Replacement	\$ 1,228,081.00	SDGEP28-33ESA Main Gas Budget	B9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	X36
Main	2031	PG&E	Furnace Replacement	\$ 1,263,436.00	PGEP28-33ESA Main Gas App Budget	D7	Enk. PG&E-01, Appendix A, Table A.1	A335
Main	SDG&E	Furnace Replacement	\$ 1,347,287.27	SDGEP28-33ESA Main Gas Budget	D9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A236	
Main	2030	SDG&E	Furnace Replacement	\$ 1,460,434.67	SDGEP28-33ESA Main Gas Budget	D9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A336
Main	2031	SDG&E	Furnace Replacement	\$ 1,577,233.00	SDGEP28-33ESA Main Gas Budget	E9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A336
Main	SDG&E	Furnace Replacement	\$ 1,688,024.35	SDGEP28-33ESA Main Gas Budget	F9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	A236	
Main	2033	SDG&E	Furnace Replacement	\$ 1,828,155.33	SDGEP28-33ESA Main Gas Budget	E9	Attachment G, Table A.1, SDGE IOP App. Pp 28-33	B036
Main	2028	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 4,884,627.00	SCGEP28-33 ESA Main gas budget	B6	Sc/CalGasPV 2028-2033 ESA Table A.1	A253
Main	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 4,884,686.00	SCGEP28-33 ESA Main gas budget	D6	Sc/CalGasPV 2028-2033 ESA Table A.1	A253	
Main	2030	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 4,948,702.00	SCGEP28-33 ESA Main gas budget	D6	Sc/CalGasPV 2028-2033 ESA Table A.1	A333
Main	2031	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 5,097,154.00	SCGEP28-33 ESA Main gas budget	E6	Sc/CalGasPV 2028-2033 ESA Table A.1	A253
Main	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 5,250,678.00	SCGEP28-33 ESA Main gas budget	F6	Sc/CalGasPV 2028-2033 ESA Table A.1	A253	
Main	2032	SCG	High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 5,407,581.00	SCGEP28-33 ESA Main gas budget	G6	Sc/CalGasPV 2028-2033 ESA Table A.1	B053
Main	2028	SCG	Water Heater Repair/Replacement	\$ 3,833,111.00	SCGEP28-33 ESA Main gas budget	B4	Sc/CalGasPV 2028-2033 ESA Table A.1	X30
Main	SCG	Water Heater Repair/Replacement	\$ 3,843,706.00	SCGEP28-33 ESA Main gas budget	D4	Sc/CalGasPV 2028-2033 ESA Table A.1	A253	
Main	2030	SCG	Water Heater Repair/Replacement	\$ 3,849,038.00	SCGEP28-33 ESA Main gas budget	D4	Sc/CalGasPV 2028-2033 ESA Table A.1	A330
Main	2031	SCG	Water Heater Repair/Replacement	\$ 3,856,238.00	SCGEP28-33 ESA Main gas budget	F4	Sc/CalGasPV 2028-2033 ESA Table A.1	A250
Main	2032	SCG	Water Heater Repair/Replacement	\$ 3,863,483.00	SCGEP28-33 ESA Main gas budget	F4	Sc/CalGasPV 2028-2033 ESA Table A.1	A250
Main	2029	PG&E	Furnace Replacement	\$ 3,855,682.48	PGEP28-33ESA Main Gas App Budget	C7	Enk. PG&E-01, Appendix A, Table A.1	A235
Main	SCG	Water Heater Repair/Replacement	\$ 3,857,897.00	SCGEP28-33 ESA Main gas budget	B7	Sc/CalGasPV 2028-2033 ESA Table A.1	A250	
Main	2030	PG&E	Furnace Replacement	\$ 3,795,701.90	PGEP28-33ESA Main Gas App Budget	B7	Enk. PG&E-01, Appendix A, Table A.1	X35
Main	2028	SCG	Tamless Water Heater - NEW	\$ 9,299,710.00	SCGEP28-33 ESA Main gas budget	B3	Sc/CalGasPV 2028-2033 ESA Table A.1	X25
Main	SCG	Tamless Water Heater - NEW	\$ 9,311,711.00	SCGEP28-33 ESA Main gas budget	D3	Sc/CalGasPV 2028-2033 ESA Table A.1	A255	
Main	2030	SCG	Tamless Water Heater - NEW	\$ 9,866,072.00	SCGEP28-33 ESA Main gas budget	D3	Sc/CalGasPV 2028-2033 ESA Table A.1	A335
Main	2031	SCG	Tamless Water Heater - NEW	\$ 10,162,054.00	SCGEP28-33 ESA Main gas budget	E3	Sc/CalGasPV 2028-2033 ESA Table A.1	A255
Main	2032	SCG	Tamless Water Heater - NEW	\$ 10,460,936.00	SCGEP28-33 ESA Main gas budget	F3	Sc/CalGasPV 2028-2033 ESA Table A.1	A255
Main	2033	SCG	Tamless Water Heater - NEW	\$ 10,765,923.00	SCGEP28-33 ESA Main gas budget	G3	Sc/CalGasPV 2028-2033 ESA Table A.1	B025
MultiFamily	2028	SDG&E	Water Heater Repair	\$ 923.00	SDGEP28-33ESA MFWB Gas Budget	B7	Enk. PG&E-01, Appendix A, Table A.1a	X31
MultiFamily	SDG&E	Water Heater Replacement	\$ 13,330.00	SDGEP28-33ESA MFWB Gas Budget	B8	Enk. PG&E-01, Appendix A, Table A.1a	B32	
MultiFamily	2029	SDG&E	Water Heater Replacement	\$ 14,179.00	SDGEP28-33ESA MFWB Gas Budget	C8	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2030	SDG&E	Water Heater Replacement	\$ 14,791.00	SDGEP28-33ESA MFWB Gas Budget	D8	Enk. PG&E-01, Appendix A, Table A.1a	A332
MultiFamily	PG&E	Water Heater Replacement	\$ 14,866.00	PGEP28-33ESA MFWB Gas App Budget	B6	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2031	SDG&E	Water Heater Replacement	\$ 15,138.00	SDGEP28-33ESA MFWB Gas Budget	D8	Enk. PG&E-01, Appendix A, Table A.1a	A332
MultiFamily	2032	SDG&E	Water Heater Replacement	\$ 15,537.00	SDGEP28-33ESA MFWB Gas Budget	F8	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	SDG&E	Water Heater Repair	\$ 15,750.00	SDGEP28-33ESA MFWB Gas Budget	C7	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2033	SDG&E	Water Heater Replacement	\$ 15,929.00	SDGEP28-33ESA MFWB Gas Budget	G8	Enk. PG&E-01, Appendix A, Table A.1a	B032
MultiFamily	2028	SDG&E	Water Heater Repair	\$ 16,362.00	SDGEP28-33ESA MFWB Gas Budget	D7	Enk. PG&E-01, Appendix A, Table A.1a	A331
MultiFamily	SDG&E	Water Heater Replacement	\$ 16,788.00	SDGEP28-33ESA MFWB Gas Budget	C7	Enk. PG&E-01, Appendix A, Table A.1a	A231	
MultiFamily	2032	SDG&E	Water Heater Repair	\$ 17,208.00	SDGEP28-33ESA MFWB Gas Budget	F7	Enk. PG&E-01, Appendix A, Table A.1a	A231
MultiFamily	2033	SDG&E	Water Heater Repair	\$ 17,643.00	SDGEP28-33ESA MFWB Gas Budget	G7	Enk. PG&E-01, Appendix A, Table A.1a	B031
MultiFamily	SDG&E	Water Heater Replacement	\$ 18,134.00	SDGEP28-33ESA MFWB Gas Budget	F6	Enk. PG&E-01, Appendix A, Table A.1a	A331	
MultiFamily	2030	SDG&E	Water Heater Replacement	\$ 18,837.00	SDGEP28-33ESA MFWB Gas Budget	D9	Enk. PG&E-01, Appendix A, Table A.1a	A333
MultiFamily	2028	PG&E	Furnace Replacement (Cap-Mkth)	\$ 22,846.00	PGEP28-33ESA MFWB Gas App Budget	B9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	SDG&E	Tamless Water Heater	\$ 27,420.00	SDGEP28-33ESA MFWB Gas Budget	C6	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2033	PG&E	Furnace Replacement (Cap-Mkth)	\$ 28,154.00	PGEP28-33ESA MFWB Gas App Budget	B9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2028	SDG&E	Furnace Replacement	\$ 29,795.00	SDGEP28-33ESA MFWB Gas Budget	B12	Enk. PG&E-01, Appendix A, Table A.1a	X96
MultiFamily	PG&E	Furnace Replacement (Cap-Mkth)	\$ 30,498.00	PGEP28-33ESA MFWB Gas App Budget	B9	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2031	PG&E	Furnace Replacement (Cap-Mkth)	\$ 30,493.00	PGEP28-33ESA MFWB Gas App Budget	E9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2032	PG&E	Furnace Replacement (Cap-Mkth)	\$ 30,493.00	PGEP28-33ESA MFWB Gas App Budget	F9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2033	PG&E	Furnace Replacement (Cap-Mkth)	\$ 30,493.00	PGEP28-33ESA MFWB Gas App Budget	G9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2028	PG&E	Water Heater Repair	\$ 40,640.00	PGEP28-33ESA MFWB Gas App Budget	G6	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2029	PG&E	Furnace Replacement (Cap-Mkth)	\$ 42,154.00	PGEP28-33ESA MFWB Gas App Budget	C9	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	SDG&E	Tamless Water Heater	\$ 43,389.00	SDGEP28-33ESA MFWB Gas Budget	D9	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2028	SCG	Furnace Repair/Replacement	\$ 49,785.04	SCGEP28-33 ESA MFWB gas budget	B7	Sc/CalGasPV 2028-2033 ESA Table A.1a	Y49
MultiFamily	2031	PG&E	Tamless Water Heater	\$ 51,567.00	PGEP28-33ESA MFWB Gas App Budget	B6	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2029	SCG	Furnace Repair/Replacement	\$ 51,278.39	SCGEP28-33 ESA MFWB gas budget	C7	Sc/CalGasPV 2028-2033 ESA Table A.1a	A249
MultiFamily	PG&E	Water heater replacement	\$ 52,087.00	PGEP28-33ESA MFWB Gas App Budget	D8	Enk. PG&E-01, Appendix A, Table A.1a	A232	
MultiFamily	2032	PG&E	Tamless Water Heater	\$ 52,336.00	PGEP28-33ESA MFWB Gas App Budget	F6	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2033	PG&E	Furnace Repair/Replacement	\$ 52,816.85	SCGEP28-33 ESA MFWB gas budget	D7	Sc/CalGasPV 2028-2033 ESA Table A.1a	A249
MultiFamily	2031	SCG	Furnace Repair/Replacement	\$ 54,401.45	SCGEP28-33 ESA MFWB gas budget	E7	Sc/CalGasPV 2028-2033 ESA Table A.1a	A249
MultiFamily	2032	SCG	Furnace Repair/Replacement	\$ 56,033.00	SCGEP28-33 ESA MFWB gas budget	F7	Sc/CalGasPV 2028-2033 ESA Table A.1a	B049
MultiFamily	SDG&E	Furnace Repair	\$ 57,244.11	SDGEP28-33 ESA MFWB gas budget	C7	Enk. PG&E-01, Appendix A, Table A.1a	A249	
MultiFamily	2033	PG&E	Water Heater Repair	\$ 58,864.00	PGEP28-33ESA MFWB Gas App Budget	D7	Enk. PG&E-01, Appendix A, Table A.1a	A232
MultiFamily	2029	SDG&E	Water Heater Replacement - CAM	\$ 62,454.00	SDGEP28-33ESA MFWB Gas Budget	C9	Enk. PG&E-01, Appendix A, Table A.1a	A233
MultiFamily	SDG&E	Furnace Replacement	\$ 63,389.00	SDGEP28-33ESA MFWB Gas Budget	D12	Enk. PG&E-01, Appendix A, Table A.1a	A233	
MultiFamily	2030	SDG&E	Furnace Replacement	\$ 66,123.00	SDGEP28-33ESA MFWB Gas Budget	D12	Enk. PG&E-01, Appendix A, Table A.1a	A333
MultiFamily	2031	SDG&E	Water Heater Replacement (per installation)	\$ 67,786.00	SDGEP28-33ESA MFWB Gas Budget	E12	Enk. PG&E-0	

PG&E ESA Main Planning Assumptions for Gas Appliance Measures PY 2027-33 ¹							
	2028	2029	2030	2031	2032	2033	Total proposed budget per measure
Water Heater Repair	\$ 49,600.47	\$ 51,712.06	\$ 50,101.32	\$ 48,821.85	\$ 48,237.05	\$ 44,867.97	\$ 293,340.72
Water heater replacement	\$ 3,199,392.28	\$ 595,380.67	\$ 212,248.40	\$ -	\$ -	\$ -	\$ 4,007,021.36
Water Heater Repair/Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Furnace Repair	\$ 332,325.39	\$ 346,473.15	\$ 335,681.08	\$ 327,108.55	\$ 323,190.39	\$ 300,617.42	\$ 1,965,395.97
Furnace Replacement	\$ 7,799,701.90	\$ 7,355,682.48	\$ 3,293,436.00	\$ 790,651.08	\$ -	\$ -	\$ 19,239,471.46
Furnace Repair/Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
High Efficiency Forced Air Unit (HE FAU)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
High Efficiency Furnace	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expense per year	\$ 11,381,020.04	\$ 8,349,248.36	\$ 3,891,466.80	\$ 1,166,581.48	\$ 371,427.43	\$ 345,485.39	\$ 25,505,229.51
Total Proposed expenses for PY2027-33	\$ 25,505,229.51						

Exh. PG&E-01, Appendix A, Table A-1, Planning Assumptions ESA Main Program

¹All gas measure values sourced from corresponding measure and budget columns from the following table "Pacific Gas and Electric Company Table A-1, Planning Assumptions ESA Main Program," provided in Pacific Gas and Electric Company's response to Sierra Club's 6th set of data requests at Question 4(a), submitted September 3 2026

PG&E ESA MFWB Gas Appliance Planning Assumptions PY 2027-33¹

	2028	2029	2030	2031	2032	2033	Total proposed budget per measure
Non-Condensing Domestic Hot Water Boiler	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Condensing Domestic Hot Water Boiler	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Storage Water Heater	\$ 801,396.00	\$ 79,134.00	\$ 139,369.00	\$ 147,902.00	\$ 150,985.00	\$ 117,244.00	\$ 1,436,030.00
Tankless Water Heater	\$ 14,866.00	\$ 27,430.00	\$ 48,309.00	\$ 51,267.00	\$ 52,336.00	\$ 40,640.00	\$ 234,848.00
Water Heater Repair	\$ 39,711.00	\$ 94,985.00	\$ 111,951.00	\$ 104,107.00	\$ 76,407.00	\$ 59,864.00	\$ 487,025.00
Water heater replacement	\$ 164,864.00	\$ 69,009.00	\$ 52,087.00				\$ 285,960.00
Furnace Replacement (Cap-kBtuh)	\$ 22,846.00	\$ 42,154.00	\$ 33,408.00	\$ 35,453.00	\$ 36,192.00	\$ 28,104.00	\$ 198,157.00
Furnace Repair	\$ 108,383.00	\$ 135,792.00	\$ 163,059.00	\$ 149,836.00	\$ 129,094.00	\$ 300,617.00	\$ 986,781.00
Furnace Replacement (per installation)	\$ 323,720.00	\$ 359,496.00	\$ 292,214.00	\$ 262,680.00	\$ -	\$ -	\$ 1,238,110.00
High Efficiency Forced Air Unit (HE FAU)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total Expense per year	\$ 1,475,786.00	\$ 808,000.00	\$ 840,397.00	\$ 751,245.00	\$ 445,014.00	\$ 546,469.00	\$ 4,866,911.00
Total Proposed expenses for PY2027-33	\$ 4,866,911.00						

¹ Exh. PG&E-01, Appendix A, Table A-1a, Planning Assumptions ESA MFWB Program

SDGE ESA Main Planning Assumptions for Gas Appliance Measures PY 2027-33 ¹							
	2028	2029	2030	2031	2032	2033	Total Proposed Budget Per Measure
Tankless Water Heater	\$ 15,866.00	\$ 16,401.05	\$ 16,955.55	\$ 17,527.84	\$ 18,119.70	\$ 18,713.27	\$ 103,583.43
Water Heater Repair	\$ 28,468.00	\$ 29,428.16	\$ 30,423.09	\$ 31,449.95	\$ 32,511.91	\$ 33,576.94	\$ 185,858.05
Water Heater Replacement	\$ 1,008,600.00	\$ 1,042,609.70	\$ 1,077,859.00	\$ 1,114,239.51	\$ 1,151,863.82	\$ 1,189,596.92	\$ 6,584,768.95
Water Heater Repair/Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Furnace Repair	\$ 292,771.00	\$ 302,642.74	\$ 312,874.70	\$ 323,435.03	\$ 334,356.40	\$ 345,309.34	\$ 1,911,389.20
Furnace Replacement	\$ 3,238,081.00	\$ 3,347,267.27	\$ 3,460,434.07	\$ 3,577,233.60	\$ 3,698,024.35	\$ 3,819,165.33	\$ 21,140,205.61
Furnace Repair/Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total proposed gas expense per year	\$ 4,583,786.00	\$ 4,738,348.92	\$ 4,898,546.40	\$ 5,063,885.92	\$ 5,234,876.19	\$ 5,406,361.81	\$ 29,925,805.24
Total proposed gas appliance replacement expense Per year	\$ 4,262,547.00	\$ 4,406,278.03	\$ 4,555,248.61	\$ 4,709,000.95	\$ 4,868,007.88	\$ 5,027,475.52	
Total proposed gas appliance replacement budget	\$ 27,828,557.99						
Total proposed gas appliance budget	\$ 29,925,805.24						

¹ All gas measure values sourced from corresponding measure and budget columns of the following table: Attachment G, Table A-1 "Planning Assumptions ESA Main Program," Application of San Diego Gas & Electric Company (U 902-M) for Approval of Income Qualified Programs and Budgets for Program years 2028-2033, A.26-01-003 et al., January 16, 2026.

SDGE ESA MFWB Gas Appliance Planning Assumptions PY 2027-33 ¹							
	2028	2029	2030	2031	2032	2033	Total Proposed Budget Per Measure
Central Domestic Hot Water Boiler (CAM)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Condensing Domestic Hot Water Boiler - CAM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
non-condensing domestic hot water boiler - cam	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tankless water heater - CAM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Water Heater Repair	\$ 923.00	\$ 15,705.00	\$ 16,382.00	\$ 16,788.00	\$ 17,208.00	\$ 17,643.00	\$ 84,649.00
Water Heater Replacement	\$ 13,330.00	\$ 14,179.00	\$ 14,791.00	\$ 15,158.00	\$ 15,537.00	\$ 15,929.00	\$ 88,924.00
Water Heater Replacement - CAM	\$ 19,134.00	\$ 62,464.00	\$ 19,837.00	\$ 66,776.00	\$ 68,446.00	\$ 70,172.00	\$ 306,829.00
Furnace Repair		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Furnace Repair - CAM	\$ -	\$ 143,463.00	\$ 149,652.00	\$ 153,362.00	\$ 157,197.00	\$ 161,166.00	\$ 764,840.00
Furnace Replacement	\$ 29,795.00	\$ 63,389.00	\$ 66,123.00	\$ 67,762.00	\$ 69,457.00	\$ 71,210.00	\$ 367,736.00
Furnace Replacement - CAM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Space Heating Boiler - CAM	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total proposed gas expense per year	\$ 63,182.00	\$ 299,200.00	\$ 266,785.00	\$ 319,846.00	\$ 327,845.00	\$ 336,120.00	\$ 1,612,978.00
Total proposed budget	\$ 1,612,978.00						

¹All gas measure values sourced from corresponding measure and budget columns of the following table: Attachment G, Table A-1a "Planning Assumptions ESA MFWB Program," Application of San Diego Gas & Electric Company (U 902-M) for Approval of Income Qualified Programs and Budgets for Program years 2028-2033, A.26-01-003 et al., January 16, 2026.

SCG ESA Main Planning Assumptions for Gas Appliance Measures PY 2027-33 ¹							
	2028	2029	2030	2031	2032	2033	Total Proposed Budget Per Measure
Tankless Water Heater - NEW	\$ 9,299,719.00	\$ 9,578,711.00	\$ 9,866,072.00	\$ 10,162,054.00	\$ 10,466,916.00	\$ 10,780,923.00	\$ 60,154,395.00
Water Heater Repair/Replacement	\$ 6,353,111.00	\$ 6,543,705.00	\$ 6,740,016.00	\$ 6,942,216.00	\$ 7,150,483.00	\$ 7,364,997.00	\$ 41,094,528.00
Furnace Repair/Replacement	\$ 825,142.00	\$ 849,896.00	\$ 875,393.00	\$ 901,655.00	\$ 928,705.00	\$ 956,566.00	\$ 5,337,357.00
High Efficiency Forced Air Unit (HE FAU) - On Burnout	\$ 4,664,627.00	\$ 4,804,565.00	\$ 4,948,702.00	\$ 5,097,164.00	\$ 5,250,078.00	\$ 5,407,581.00	\$ 30,172,717.00
Total Gas Appliance Measure Expense Per Year	\$ 21,142,599.00	\$ 21,776,877.00	\$ 22,430,183.00	\$ 23,103,089.00	\$ 23,796,182.00	\$ 24,510,067.00	\$ 136,758,997.00
Total	\$ 136,758,997.00						

¹All gas measure values sourced from corresponding measure and budget columns from the following table
 "Southern California Gas Company PY 2028-2033 ESA Table A-1A, Planning Assumptions ESA MFWB Program,"
 provided in Southern California Gas Company response to Sierra Club's 5th set of data requests at Question 4,
 submitted September 2 2026

SCG ESA MFWB Gas Appliance Planning Assumptions PY 2027-33 ¹							
MEASURE	2028	2029	2030	2031	2032	2033	Total Proposed Budget Per Measure
Tankless Water Heater	\$ 157,873.73	\$ 162,609.94	\$ 167,488.24	\$ 172,512.88	\$ 177,688.27	\$ 183,018.92	\$ 1,021,191.97
Water Heater Repair/Replacement	\$ 108,954.35	\$ 112,222.98	\$ 115,589.67	\$ 119,057.36	\$ 122,629.09	\$ 126,307.96	\$ 704,761.42
Water Heater Repair/Replacement - HC&S		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Central Domestic Hot Water Boiler - CAM	\$ 6,000,000.00	\$ 6,180,000.00	\$ 6,365,400.00	\$ 6,556,362.00	\$ 6,753,052.86	\$ 6,955,644.45	\$ 38,810,459.31
Furnace Repair/Replacement	\$ 49,785.04	\$ 51,278.59	\$ 52,816.95	\$ 54,401.46	\$ 56,033.50	\$ 57,714.51	\$ 322,030.06
Furnace Replacement-HC&S		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
High Efficiency Forced Air Unit (HE FAU)	\$ 171,768.21	\$ 176,921.26	\$ 182,228.90	\$ 187,695.77	\$ 193,326.64	\$ 199,126.44	\$ 1,111,067.21
Total Gas Appliance Measure Expense Per Year	\$ 6,488,381.34	\$ 6,683,032.78	\$ 6,883,523.76	\$ 7,090,029.47	\$ 7,302,730.36	\$ 7,521,812.27	\$ 41,969,509.97
Total	\$ 41,969,509.97						

¹All gas measure values sourced from corresponding measure and budget columns of the following table "Southern California Gas Company PY 2028-2033 ESA Table A-1A, Planning Assumptions ESA MFWB Program," provided in Southern California Gas Company response to Sierra Club's 5th set of data requests at Question 4, submitted September 2 2026

Attachment 4

CARB Environmental Justice Advisory Committee Building Decarbonization EJAC Resolution

Building Decarbonization EJAC Resolution
Assembly Bill 32 Environmental Justice Advisory Committee

For Discussion and Motion to Approve at the August 14, 2025, EJAC Public Meeting

Whereas building decarbonization exists in the context of the housing and energy systems; and that significant barriers—many of which are rooted in historically discriminatory practices and disinvestment including high levels of utility debt, rising housing costs, and barriers to high-road employment opportunities further prevent widespread adoption of clean and pollution prevention technologies that can prevent exposure to health harming emissions from gas infrastructure in homes; and

Whereas those barriers continue to dramatically limit California’s environmental justice communities participation in and benefiting from building decarbonization efforts and other clean energy programs; and

Whereas many environmental justice coalitions including the Building Energy Equity and Power (BEEP) Coalition have consistently communicated concerns and recommendations to this Environmental Justice Advisory Committee (EJAC) and California Air Resources Board (CARB) through various avenues, including, but not limited to: [a letter to CARB on June 24, 2022](#) outlining concerns with the zero-emission standards for new space and water heaters rulemaking; and

Whereas these same concerns and recommendations were proposed as part of the 2022 Scoping Plan and 2022 State Implementation Plan; [a letter submitted with key allies to CARB on March 27, 2024](#) clearly outlining barriers to local outreach around building decarbonization, including additional requests for inclusion of additional potentially critical data and metrics in CARB’s equity analysis via [a letter submitted to CARB on May 8, 2024](#); and

Whereas the California Public Utilities Commission (CPUC) Building Decarbonization Proceeding R.19-01-011, and CARB Zero-Emission Appliance Standards include broad exemptions from beneficial standards and rely on burdensome incentive-based approaches without adequate solutions and funding to ensure frontline participation; and

Whereas these programs and standards have resulted in policies and programs that effectively exclude frontline communities from building decarbonization’s transition, investment, and benefits; and

Whereas inequitable implementation is not only an equity issue, but a public safety concern, as reduced throughput in aging gas infrastructure increases the risks for those remaining on them; and

Whereas if policies and programs included and prioritized frontline community needs and concerns throughout policy and program development, these barriers and inequities would be

identified earlier and either avoided completely, or if unavoidable, mitigation measures developed and incorporated;

Now, therefore, be it resolved that a collaborative process shall support the development and implementation of a comprehensive, statewide strategy for the phased deployment of greenhouse gas emission standards that are accessible to frontline communities. The strategy shall be supported by a harmonized set of market-based and financial incentive mechanisms designed to facilitate equitable compliance and comprehensive statewide greenhouse gas emissions reductions in alignment with the state's climate, air quality, and environmental justice goals.

Be it further resolved that CARB should continue to move upstream to ensure that local communities are involved in community codesign from inception to evaluation of regulatory building decarbonization initiatives, including the provision of financially sustainable funding for local community-based organizations to engage in co-designing building decarbonization strategies and to provide culturally-specific outreach.

Be it further resolved that identification of CARB and Air District resources to support implementation is critical. CARB would identify what state or local resources can be committed to support successful implementation. Ideally this would involve re-examination of existing funding sources (like the [Air Pollution Control Fund](#)) or existing incentive programs to identify opportunities to shift that funding into a direct installation program, either run by CARB or in tandem with other programs (like the [CEC Equitable Building Decarbonization Program](#)). This chapter could also include a review of resources at CPUC, CEC, or other federal, state, or local agencies to identify opportunities for resource stacking.

Be it further resolved that CARB must rank target communities and when possible, work with CEC and CPUC staff as well as stakeholders to prioritize target communities by level of need. Top priority should be given to communities with highest housing and energy cost burdens as well as highest pollution burden. CARB should also seek alignment with communities that are listed as “nonattainment areas” in the 2022 State Implementation Plan.

Be it further resolved that CARB collaborate with the CPUC and CEC, shall engage in a transparent, accessible, and inclusive public stakeholder processes—including community and industry stakeholders as well as regular coordination meetings among regulatory agency staff—to ensure alignment, track implementation progress, and adjust strategies as necessary and progress reports should be agendaized at Board Meetings and available for public comment and review at least annually.

Attachment 5

March 2024 Letter from BEEP Coalition to CARB



March 27, 2024

California Air Resources Board
1001 I Street #2828
Sacramento, CA 95814
By Email and Online

Re: Zero-Emission Space and Water Appliance Standards Workshop

Dear Staff of the California Air Resources Board:

The undersigned organizations join the Building Energy, Equity and Power (BEEP) Coalition to provide comments on the California Air Resources Board's (CARB) initial regulatory concepts under development and staff analysis work underway to develop zero-emission space and water heater standards.

The BEEP Coalition includes representatives from Self-Help Enterprises; PODER; the Center on Race, Poverty & the Environment; the Central Valley Air Quality Coalition; Leadership Counsel for Justice & Accountability; Local Clean Energy Alliance; Physicians for Social Responsibility-Los Angeles; Central California Asthma Collaborative; and Emerald Cities Collaborative - Northern California. The BEEP Coalition represents environmental justice communities in various parts of the state. We formed for a simple reason: low-income communities and communities of color are being left behind in conversations about building decarbonization.

Since last year, BEEP has engaged with CARB through monthly meetings to provide insights from BEEP's [Preliminary Report](#) and local community experience and to support community engagement for this effort. BEEP attended the most recent workshop held on February 28 and was glad to see a continued commitment to supporting public health, resilience, and significant GHG emissions reduction; efforts to coordinate with other state agencies on building decarbonization; the inclusion of a Building Readiness Analysis to identify priority areas; and a comprehensive Equity Analysis that is inclusive of Affordability *and* Building Readiness.

Additionally, BEEP would like to restate its stance that while it understands the urgency to address the climate and public health crises very well, this sense of urgency should not lead to adopting regulations that may further perpetuate harm. The appliance standards must consider and address the significant barriers and risks faced by low-income communities and communities of color in complying with the standards in the near future. These barriers and risks include:

- Lack of adequate electrical grid capacity for households to transition to all-electric appliances, particularly in rural areas;
- Costs of substantial upgrades to accommodate the new appliances;
- Lack of ability or time to obtain an appliance and/or make substantial upgrades in emergency scenarios, particularly for seniors, those with disabilities, and medical baseline residents;
- Risk of higher energy bills without additional upgrades to the home (e.g. weatherization) or additional bill support; and
- Risk of tenant evictions without meaningful tenant protections to prevent landlords from evicting tenants through construction or passing down the costs of adhering to the regulation as rent increases. For example, the [City of Santa Ana's local Ordinance](#) protects renters from large rent increases; however, landlords are still able to [petition](#) to allow capital improvement costs (such as a new electric system and/or air conditioning) to be passed on to tenants and tenants are still vulnerable to a no-fault eviction if the property will be substantially remodeled (See [example in Concord, CA](#)).

We caution that exempting communities who face these barriers and risks from the standard will not be acceptable as that would leave these communities behind in the clean energy transition to pick up the increased costs of staying on the gas system, and the benefits of public health and resilience will not reach these communities. **Thus, we believe it is important that CARB considers the following recommendations for its initial regulatory concepts and staff analysis work:**

1. Include a **robust barrier and risk analysis** considering the barriers and risks named above as a starting point in the Equity Analysis.
2. Prioritize **low-income tenants** in the Equity Analysis and include an analysis of which local jurisdictions in California have tenant protections *and* enforcement mechanisms including any cost recovery programs, tenant laws, and eviction protections for renovation work. It is critical for CARB to understand the potential for appliance standards to negatively impact renters due to rent increases (via capital improvement pass-throughs) or no-fault evictions due to renovation. CARB must work with other state agencies and local housing organizations to ensure that strong tenant protections (and enforcement of those protections) are rolled out with appliance standards to prevent evictions of or rent increases for tenants who live in rental properties.
3. Ensure analysis of how the regulation will **improve the air quality** in overburdened communities is included in the Equity Analysis.
4. Include **forecasted gas and electric rate increases and their potential impacts on low-income households** in the Cost Analysis.
5. Consider including an **analysis of a household unable to access compliance** (or CARB not adopting/implementing a zero-emission appliance standard) and staying on the gas system. Ensure no penalties are associated with non-compliance for households who cannot access the appliances or the necessary upgrades.

6. Identify **significant funding sources** to ensure that electric appliances are more affordable than gas appliances *and* that households can make the necessary upgrades to accommodate electric appliances. Funding programs for low-income households must avoid replicating rebate programs and prioritize direct install programs.
7. Look into potential gas pipeline risks of **reduced throughput** if a significant number of households transition before others in the same area in the Building Readiness Analysis.
8. Clearly **define what compliance looks like** when a household cannot access or afford a new electric appliance or the required upgrades to support the replacements, particularly for low-income households and tenants. Include plans for how these households can address emergency replacement scenarios. For example, a number of households, particularly mobile home residents, in the San Joaquin Valley Accessible Energy Pilot Program were deemed ineligible due to the need for significant upgrades. These households will most likely be unable to comply with the regulation without significant support and resources and should not be penalized for non-compliance.
9. Do not include **hydrogen-fueled** appliances as an eligible technology in this regulation for [several reasons](#), including safety and health risks related to using hydrogen appliances, the potential to expand hydrogen production,¹ the high risk of flammability particularly indoors, dirty hydrogen production in environmental justice communities, the increased risk of leaks from pipelines, delaying the retirement of the gas system by greenwashing fossil gas blended with hydrogen, and the limited energy efficiency of hydrogen compared to electrification.
10. Support the **innovation and accessibility of electric appliances** that are good quality, have a long lifespan, are affordable, and are non-exploitative to produce.
11. Develop a process for **safely recycling and reusing materials** from retired gas appliances to prevent significant material waste (resulting from the regulation) from impacting environmental justice communities within and beyond the state.

The undersigned organizations again appreciate CARB staff's commitment to advancing equity in its appliance standards regulation and their willingness to integrate input from our coalition and other stakeholders. We look forward to continuing working with CARB to ensure the regulation provides benefits and does not perpetuate harm in the communities we represent.

If you have any questions about our position, please do not hesitate to reach out to us. Thank you for your time and consideration of these comments.

Sincerely:

BEEP Coalition

¹ BEEP recognizes that there are different forms of and uses for hydrogen production. For reasons described and shared with several environmental justice organizations across the state in the [Equity Principles for Hydrogen](#), BEEP is firmly against permitting hydrogen appliances without clear industry regulations eliminating non-green hydrogen production.

Merrian Borgeson, Director, California
Climate & Energy Policy
NRDC (Natural Resources Defense
Council)



Fatima Abdul-Khabir, Senior Program
Manager of Energy Equity
The Greenlining Institute



Robert M. Gould, MD
President
San Francisco Bay Physicians for Social
Responsibility



Elle C. Chen, Senior Policy & Campaign
Manager
Asian Pacific Environmental Network



Theo Caretto, Associate Attorney
Communities for a Better Environment
**COMMUNITIES
FOR A BETTER
ENVIRONMENT**
established 1978

Grace Hut, Program Coordinator
Strategic Actions for a Just Economy



Jose Torres
California Director
Building Decarbonization Coalition



Mari Rose Taruc
Energy Justice Director
California Environmental Justice Alliance



Attachment 6

BEEP, Equity Considerations and Implementation Concerns for Flexibility Measures Outlined in
*Concepts for Rule 9-6 Amendments: Affordability and Availability Considerations for Zero NOx
Small Water Heaters* (Nov. 24, 2025)



**BUILDING ENERGY
EQUITY & POWER**

November 24, 2025

Bay Area Air District
375 Beale Street, Suite 600
San Francisco, CA 94105

**Subject: Equity Considerations and Implementation Concerns for Flexibility Measures
Outlined in *Concepts for Rule 9-6 Amendments: Affordability and Availability
Considerations for Zero NOx Small Water Heaters***

Dear Air District Staff,

The member organizations of the Building Energy, Equity and Power (BEEP) Coalition write to provide comments on the Bay Area Air District's Regulatory Development & Planning & Climate Protection Divisions' *Concepts for Rule 9-6 Amendments: Affordability and Availability Considerations for Zero NOx Small Water Heaters*. The BEEP coalition's comments are focused on how to continue to reduce barriers to compliance for low-income households and frontline communities and maintain a straightforward flexibility structure in order to facilitate equitable implementation of Rule 9-6.

The BEEP Coalition includes representatives from Emerald Cities Collaborative Northern California; PODER; Local Clean Energy Alliance; ACCE (Alliance of Californians for Community Empowerment); the Center on Race, Poverty & the Environment; the Central Valley Air Quality Coalition; Leadership Counsel for Justice & Accountability; Physicians for Social Responsibility-Los Angeles; Central California Asthma Collaborative; and Communities for a Better Environment. The BEEP Coalition represents environmental and housing justice communities in various parts of the state. We formed for a simple reason: low-income communities and communities of color are being left behind in conversations about home electrification and building decarbonization. A number of our members have engaged directly with the Air District on Rules 9-4 and 9-6, and are members of the Implementation Working Group convened beginning in 2023.

BEEP supports Rules 9-6 and 9-4, which will reduce the significant emissions of smog-forming nitrogen oxides (NOx) from water heaters and furnaces in the Bay Area, provide a key mechanism in whole-home electrification retrofit initiatives across our

environmental justice communities, and provide important guidance for greater statewide regulations. We support efforts to address affordability and equity concerns associated with Rule 9-6 and encourage the Bay Area Air District to continue to prioritize equity in its considerations of its flexibility measures, as well as maintain focus on streamlining the administrative process these flexibility measures require in order for frontline communities in the San Francisco Bay Area to reap the health and climate benefits purported by zero NOx emitting water heaters. While the BEEP Coalition stands in support of amending Rule 9-6 to support equity and affordability, minimize unintended harms to vulnerable communities, and provide additional workability for residents who need it, the coalition also strongly encourages the Air District to design and launch implementation programs to simultaneously reduce harms and ensure that the Bay Area's frontline communities are not left behind in the transition.

Comments on Specific Draft Concepts for Potential Rule Amendments

- Flexibility for Space and Electrical Constraints

BEEP appreciates the flexibility measures outlined by the Air District that account for concerns that arise consistently with the vintage of many homes in majority renter jurisdictions such as San Francisco, Oakland and Berkeley. BEEP supports the flexibility for these scenarios; however, we highlight that it points to the need for remediation resources to be made available to ensure that compliance gaps do not widen. We encourage the Air District to work with existing incentive programs and future program administrators to address this need. Rule 9-6 provides an opportunity to improve the health and resilience of homes across the nine county Bay Area, and we encourage the Air District to continue efforts to ensure maximum impact by providing resources and pathways for households to overcome existing space and electrical constraints so they also stand to benefit from the elimination of nitrous oxides and other pollutants in their homes.

- Certified Exemption for Low-Income Homeowners and Program Participants

BEEP recognizes the need to provide flexibility for low-income households in association with Rule 9-6 and we support the Air District's outline of the considerations for vulnerable households. BEEP further supports an income-qualified hardship for property-owners with 100% AMI or less. However, the coalition purports that without additional resources to vulnerable households the compliance gap will surely widen.

We encourage the Air District to plan for regular assessment of market conditions and installation costs in order to determine 1) the need for income-based flexibility based on incremental cost and 2) the effectiveness and impact of Rule 9-6 in priority frontline communities. Regulatory language should reflect the ability to adjust this flexibility based

on need. The Bay Area Air District should forcefully continue efforts to reduce the need for income-based flexibility through the provision of resources and investment in community-centered programming to address economic barriers to installation.

- Need for streamlined and straightforward flexibility structure

Flexibility measures should be designed so that provisions of Rule 9-6 that impact the sale and installation of new polluting tank water heaters with a heat input rating up to 75,000 Btu/hour can still go into effect within the original compliance dates (beginning in 2027). Additionally, the process for qualifying hardships should prioritize simplicity and ease of access for homeowners and contractors. BEEP supports the recommendations of local jurisdictions with experience in installing qualifying equipment in the design of that process.

Suggested Solutions to Reduce Barriers to Compliance

- Replacement Programs for Residential Water Heaters

BEEP strongly encourages the Air District to consider designing and launching a water heater replacement program in conjunction with Rule 9-6. This type of offering could be similar to other Air District Community Programs such as the [Bay Area Air District's Vehicle Buy Back Program](#) or its recently announced [Pilot Commercial Electric Lawn and Garden Equipment Exchange Program](#) offering funding to commercial operators of lawn and garden equipment operating in priority communities in its pilot phase. The Bay Area Air District is already demonstrating the viability of programs that incentivize residents to switch out older technology for cleaner, greener ones, and we believe can continue to do so with a water heater replacement program. Such a replacement program for households anticipated to experience a hardship in installing a zero NO_x water heater would be an important step in addressing concerns in frontline communities and alleviate the average upfront incremental cost of installing a new HPWH compared to a new NO_x emitting gas water heater. This cost difference is estimated to be between \$1,840, and \$3,496, depending upon the baseline appliance (tanked and tankless vs. tanked only)¹. The Vehicle Buy Back program offers a \$2000 check to participants who contribute a vehicle year 2000 or older. A water heater replacement program offering a \$2,000-\$3,000 rebate for residents who switch their water heaters would be immensely impactful for frontline communities in the Bay Area, if available to stack with other existing incentives or direct install programs. This would also be an important avenue for ensuring that installation of equipment was carried out correctly, and older technologies disposed of effectively to reduce e-waste.

¹[Installation Cost for Zero-NO_x Space and Water Heating Appliances](#); Bay Area Air Quality Management District, 2024

- Contractor Workforce Preparedness

The BEEP Coalition and its members believe that frontline contractor preparedness should be of the utmost priority for the Bay Area Air District as it considers how to equitably implement Rule 9-6. Frontline contractors are members of the Bay Area's frontline communities and thus play a critical role in both heat pump installations in low-income communities of color and in preparing frontline community residents for cost-effective home electrification. As trusted community members, frontline contractors are better positioned for frontline resident education on heat pump equipment, and for delivering consultations that support and/or require multiple upgrades and/or rehab to optimize energy consumption and cost savings. Supporting hyperlocal frontline contractors' capacity to install heat pump waters in Bay Area hyperlocal communities is also a natural mitigant of unethical abuses of proposed Rule 9-6 exceptions; community-led work promotes solution-driven installations as opposed to easy-way-out site assessments that yield a quick gas-powered water heater sale at the first encounter of panel or structural challenges, leaving emissions in low income communities of color.

Furthermore, supporting engagement of a hyperlocal contractor workforce on HPWH installs supports benefits of the clean energy transition flowing to frontline communities, ensuring that implementation of Rule 9-6 does not miss the mark on equity. For small, hyperlocal frontline contractors to have adequate training and capacity to perform the high quality HPWH installs low income communities also deserve, we urge consideration for and provision of funding for community-based frontline contractor workforce education and training programs that enhance technical skills but also build the capacity of small hyperlocal MWVDBEs. BEEP encourages the Air District to generally facilitate the availability of funding for these critical resources, but also to consider pairing funded frontline contractor support with granting of flexibility measures. If reporting hardships (e.g., space constraints, panel capacity limits, circumstances that may result in more than a 72-hour delay to restore hot water, etc.) will fall to contractors, this is a mandate for which contractors should receive support and equivalent compensation, which could include training to address hardships and mitigate exceptions. This will ensure that installation costs are not inflated, installation processes reduce hardship for residents, and the full benefits of zero NOx emitting equipment is realised.

The BEEP Coalition acknowledges the attempts made in the proposed flexibility concepts to address implementation concerns for vulnerable residents. However, these attempts will fall short for vulnerable households and communities if not paired with resources that alleviates cost burden in the installation of zero NOX emitting water heating equipment. While the Implementation Working Group for Rule 9-6's activity has been closed out by Air

District Staff and they were not re-convened to review these flexibility concepts outlined in the paper published in October 2025, there is still an opportunity to gather their input on implementation solutions. We encourage the Air District to continue its engagement of those working group members in the design of any program that could assist the Bay Area at large in reducing the occurrence of hardship exemptions for Rule 9-6 as the rule goes into effect beginning in 2027.

Sincerely,

The BEEP Coalition
Katie Valenzuela, facilitator
kbvale@gmail.com

Attachment 7

SCE Responses to Sierra Club Data Requests

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 9/3/2026

Question 01:

Please refer to the Statewide Energy Savings Assistance Program 2021–2026 Cycle Policy and Procedures Manual v1.5 (“Policy and Procedures Manual”), page 108, Section 7.4, titled “Cost Limits on Remediation.” This section of the manual states that the ESA Working Group has not yet recommended average cost limits for electrification-enabling remediation work, nor individual home limits for such remediation work, and states for both limits, “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”

- a. Please confirm that costs of the “auxiliary measures” listed on page 105 of the Policy and Procedural Manual are not counted toward remediation cost caps.
- b. What average cost limit does SCE currently use for electrification-enabling remediation work? Please interpret “electrification-enabling remediation work” to mean both electrical and non-electrical building remediation, as defined in the Policy and Procedures Manual v1.5 on pages 106–108, that are completed as necessary to enable installation of an electrification measure.
- c. What is the basis for SCE’s current average cost limit for electrification-enabling remediation work?
- d. What per-home cost limit does SCE currently use for electrification-enabling remediation work?
- e. What is the basis for SCE’s current per-home limit for electrification-enabling remediation work?
- f. Does SCE propose changing either the average or per-home cost caps for remediation work in the 2028–2033 program cycle? If yes, please explain what changes SCE proposes and why. If no, please explain why not.

Response to Question 01:

Responses to Questions 1.a through 1.f relate to Attachment G, Electrification Policy for the Main ESA Program, of the Statewide ESA Policy and Procedures Manual. In implementing fuel substitution measures in the ESA Main Program, SCE relied on implementation experience, lessons learned, and cost information obtained through administration of SCE's Building Electrification (BE) Pilot to develop internal implementation guidance. These guidelines are not intended to be adopted as a formal statewide remediation cost limits.

Response to Question 01.a:

Yes. SCE confirms that costs associated with auxiliary measures are not counted toward remediation cost limits.

Response to Question 01.b:

For implementation of fuel substitution measures in the ESA Main Program, SCE used an average remediation implementation guidance of **\$3,600** per home receiving electrification-enabling remediation work.

Response to Question 01.c:

The average remediation implementation guidance described in Response 1.b was based on implementation experience, lessons learned, and remediation cost information obtained through administration of SCE's BE Pilot. These data points were used to support program administration and project review during implementation of fuel substitution measures in the ESA Main.

Response to Question 01.d:

For implementation of fuel substitution measures in the ESA Main Program, SCE used a per-home remediation implementation guidance of **\$5,400**.

Response to Question 01.e:

The per-home remediation implementation guidance described in Response 1.d was informed by remediation cost information obtained through administration of SCE's BE Pilot and the framework described in Section 6.4 of the Statewide ESA Policy and Procedures Manual for Minor Home Repairs, SCE established an upper remediation implementation guidance equivalent to approximately 150 percent of the average remediation implementation guidance. The guidelines were developed to support program implementation and were not adopted as a formal statewide remediation cost limit.

Response to Question 01.f:

SCE anticipates evaluating potential modifications to remediation guidance and other provisions within Attachment G for the 2028-2033 program cycle. Currently, SCE has not developed specific recommendations regarding remediation cost guidance. Any future recommendations would be informed by implementation experience, lessons learned, program evaluations, stakeholder engagement, ESA Working Group discussions, and future Commission direction.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 02:

Does SCE include roof repairs in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

Response to Question 02:

SCE does not provide comprehensive roof repair services through the ESA Program.

Under the California Statewide ESA Program Policy and Procedures Manual, minor home repairs are limited to repairs needed to enable the installation of eligible ESA measures, reduce infiltration, or mitigate hazardous conditions. ESA remediations are similarly limited to building and electrical improvements necessary to facilitate the safe and code-compliant installation of electrification measures.

Minor home repairs and remediation activities are intended solely to enable installation of eligible ESA measures, rather than to perform comprehensive residential rehabilitation. Therefore, roof repairs are not provided as a standalone ESA Program service. However, in limited circumstances, roof-related work may be performed when necessary to enable installation of an eligible ESA measure, such as repair of the immediate area affected by a rooftop HVAC installation. Any such work is limited to the scope necessary to support the installation of the eligible ESA measure.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 03:

Does SCE include mold and/or moisture remediation/treatment in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

Response to Question 03:

No. SCE does not include mold and/or moisture remediation/treatment through the ESA Program minor home repair or remediation service.

Under the California Statewide ESA Program Policy and Procedures Manual, minor home repairs are limited to repairs needed to enable installation of eligible ESA measures, reduce infiltration, or mitigate hazardous conditions. ESA remediations are similarly limited to electrical and building improvements that are necessary to facilitate the safe and code-compliant installation of electrification measures.

Minor home repairs and remediations are intended solely to support the installation of eligible ESA measures, not to provide comprehensive residential rehabilitation. Mold and moisture issues often indicate broader housing conditions that may require environmental testing, structural repairs, or specialized remediation services beyond the scope of ESA measure installation. Accordingly, the ESA Program does not fund mold or moisture remediation activities.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 04:

Does SCE include asbestos or lead abatement/containment/remediation in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

Response to Question 04:

No. SCE does not include asbestos or lead abatement, containment, or remediation through the ESA Program minor home repair or remediation service.

Under the California Statewide ESA Program Policy and Procedures Manual, minor home repairs are limited to repairs needed to enable installation of eligible ESA measures, reduce infiltration, or mitigate hazardous conditions. ESA remediations are limited to electrical and building improvements that are necessary to facilitate the safe and code-compliant installation of electrification measures.

Minor home repairs and remediations are intended solely to support the installation of eligible ESA measures, not to provide comprehensive residential rehabilitation. Asbestos and lead hazards typically require specialized testing, containment, removal, and regulatory compliance activities that extend beyond the scope of ESA measure installation. Further, the California Installation Standards Manual lists asbestos as a criterion for non-feasibility for certain ESA installations. Accordingly, the ESA Program does not fund asbestos or lead abatement, containment, or remediation activities.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET S i e r r a C l u b - S C E - 0 0 2

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 05:

Does SCE refer deferred homes to other programs for pre-weatherization treatments that would cure the condition that led to the deferral? If yes, please list the programs that SCE refers deferred homes to.

Response to Question 05:

No. SCE does not refer deferred homes to other programs for pre-weatherization treatments or other work intended to cure the condition that resulted in the deferral.

While customers may independently pursue other resources or assistance programs, SCE does not maintain or track a formal referral process for deferred homes to resolve the underlying condition that prevented ESA treatment.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 06:

How many homes were deferred from ESA treatment in 2022, 2023, 2024, and 2025? For each year, please specify:

- a. The number of homes deferred;
- b. The percentage of homes deferred out of the total number of homes assessed for ESA;
- c. The breakdown of reasons for deferral among the deferred homes each year (i.e., lack of Property Owner Authorization, remediation needs exceeding cost cap, minor home repairs exceeding cost cap, etc.).

Response to Question 06:

As described in Question 5, SCE does not maintain or track deferred homes.

However, to the extent a home is unable to proceed with ESA treatment due to circumstances such as customer unavailability, landlord refusal to authorize participation, or inability to provide required documentation, SCE reports these specific reasons as categories in SCE’s ESA Annual Reports’ “ESA Table 8: ESA Homes Unwilling/ Unable to Participate” that could potentially be identified as “deferred” homes. See the table below for responses to question 06.a. to 06.c.

Year	Customer Unavailable – Scheduling Conflicts ¹	Landlord Refused to Authorize Participation ²	Unable to Provide Required Documentation ³	Total Potentially Deferred Homes	Homes Assessed ⁴	% Deferred
2022	686	531	2,751	3,968	39,617	10.0%

¹ 2022-2025 Annual Report’s ESA Table 8: ESA Homes Unwilling/ Unable to Participate

² 2022-2025 Annual Report’s ESA Table 8: ESA Homes Unwilling/ Unable to Participate

³ 2022-2025 Annual Report’s ESA Table 8: ESA Homes Unwilling/ Unable to Participate

⁴ 2022-2025 Annual Report’s ESA Table 2: ESA Outreach and Assessment Row

2023	1,589	192	5,507	7,288	17,177	42.4%
2024	680	288	808	1,776	51,779	3.4%
2025	549	237	696	1,482	58,515	2.5%
TOTAL	3,504	1,248	9,762	14,514	167,088	8.7%

These figures should not be interpreted as homes formally deferred through a separate deferral process, but rather as reported categories that may be responsive to Sierra Club's request for homes that did not proceed with ESA treatment.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 002

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 9/3/2026

Question 07:

Please refer to the Policy and Procedures Manual at page 109, which discusses per-home cost maximums for fuel substitution measures themselves (not remediation and/or repairs). The Manual states that the ESA Working Group has not yet established cost maximums and states that “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”

- a. Please confirm that the costs of auxiliary measures listed on page 105 of the Policy and Procedures Manual are included in the per-home cost limits on fuel substitution.
- b. What per-home cost cap does SCE currently use for fuel substitution measures?
- c. What is the basis for the cost cap?
- d. Does SCE propose to change the cost cap in the 2028–2033 program cycle? If yes, please explain what changes SCE proposes and why. If no, please explain why not.
- e. In 2022, 2023, 2024, and 2025, did SCE’s ESA contractors request permission from the utility Program Manager (as described in Policy and Procedures Manual section 8.1) to exceed the maximum cost cap per home for fuel substitution? Please provide a table indicating, in each of the listed years, the following:
 - i. How many times a contractor requested permission to exceed the maximum cost cap;
 - ii. How many times SCE granted permission to exceed the maximum cost cap;
 - iii. The percentage of households receiving fuel substitution measures whose costs exceeded the maximum cost cap;
 - iv. The average per-home cost of homes whose costs exceeded the cap; and
 - v. The highest per-home cost of a home that exceeded the cost cap.

Response to Question 07:

Responses to Questions 7.a through 7.e relate to Section 8, Cost Maximums, of Attachment G, Electrification Policy for the Main ESA Program, of the Statewide ESA Policy and Procedures Manual. In implementing fuel substitution measures in the ESA Main Program, SCE relied on implementation experience, lessons learned, and cost information obtained through administration of SCE's Building Electrification (BE) Pilot to develop internal implementation guidance.

Response to Question 07.a:

Yes. SCE included auxiliary measure costs when applying its fuel substitution implementation guidance. The implementation guidance reflected the total cost of delivering a fuel substitution project, including fuel substitution measures and associated auxiliary measures.

Response to Question 07.b:

For implementation of fuel substitution measures in the ESA Main Program, SCE used a fuel substitution project implementation guidance of **\$31,000** cost cap per home.

Response to Question 07.c:

The fuel substitution project implementation guidance described in Response 7.b was based on implementation experience, lessons learned, and project cost information obtained through administration of SCE's BE Pilot. The guideline reflected all-inclusive fuel substitution project costs, including customer enrollment, assessments, fuel substitution and non-fuel substitution measure installations, auxiliary measures, and permitting associated with the project.

Response to Question 07.d:

SCE anticipates evaluating potential modifications to fuel substitution implementation guidance and other provisions within Attachment G for the 2028-2033 program cycle. Currently, SCE has not developed specific recommendations regarding fuel substitution implementation guidance. Any future recommendations would be informed by implementation experience, lessons learned, program evaluations, stakeholder engagement, ESA Working Group discussions, and future Commission direction.

Response to Question 07.e:

No. SCE's ESA Main Program had no projects exceeding the fuel substitution implementation guidance. As a result, no contractors requested approval to exceed the implementation guidance, and SCE did not need to grant approval for any project to exceed the implementation guidance.

- **Response to Question 07.e.i.** None. No requests for projects exceeding implementation guidance.
- **Response to Question 07.e.ii.** None. No approvals for projects exceeding implementation guidance.
- **Response to Question 07.e.iii.** Not applicable. No requests or approvals for projects exceeding implementation guidance.

- **Response to Question 07.e.iv.** Not applicable. No projects exceed implementation guidance.
- **Response to Question 07.e.v.** Not applicable.

For informational purposes, SCE's ESA Main fuel substitution projects average per-home was approximately: **\$7,000**. These project costs were generally lower than costs observed through SCE's Building Electrification (BE) Pilot because ESA Main fuel substitution projects typically involve a narrower scope of work. By comparison, BE Pilot projects required installation of at least a heat pump HVAC system and heat pump water heater that often included higher-efficiency equipment and additional project components. As a result, BE Pilot project costs are more representative of costs for fuel substitution projects.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET S i e r r a C l u b - S C E - 0 0 2

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/14/2026

Response Date: 8/28/2026

Question 08:

For each year, in 2022, 2023, 2024, and 2025:

- a. How many homes assessed for SCE ESA treatment had knob-and-tube wiring?
- b. How many homes with knob-and-tube wiring were turned away from ESA treatment?
- c. How many homes with knob-and-tube wiring did SCE provide ESA treatments for? To the extent there are any such homes, please list the ESA measures that were provided to homes with knob-and-tube wiring.¹ [FOOTNOTE: This list can be aggregated across years and homes. Sierra Club understands that not all homes receive the same treatments or all identified treatments. The intent of the question is to identify whether knob-and-tube homes are receiving ESA treatments of any kind and if so, what types of treatments they are receiving.]

Response to Question 08:

- a. Not available. SCE does not track if an assessed home had knob-and-tube wiring.
- b. Not available. Please see the response to Question 08.a. The presence of knob-and-tube wiring does not automatically make a dwelling ineligible for ESA participation or make all ESA measures non-feasible.
- c. Not available. Please see the response to Question 08.a. and Question 08.b. Measure feasibility is evaluated on the conditions observed during the assessment, based on site-specific conditions and must comply with applicable electrical codes, program installation standards, and safety requirements, where applicable.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 003

To: Sierra Club
Prepared by: Valerie Pearce
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/28/2026

Question 01:

Exh. SCE-02 (ESA Testimony) at page 16 states the “misalignment with electrification goals and inconsistent customer experiences across service territories contributed to diminished impact and equity” in the Southern Multifamily Whole Building Program.

- a. Please explain what SCE means by “misalignment with electrification goals” in the above-referenced sentence.
- b. Please explain what “inconsistent customer experiences across service territories” SCE is referring to in the above-referenced sentence.
- c. Please explain how equity was diminished by the factors described in the above-referenced sentence.

Response to Question 01:

- a. SCE’s reference to “misalignment with electrification goals” means that the Southern Multifamily Whole Building (MFWB) Program structure did not fully support SCE’s evolving objectives related to electrification, decarbonization, and the deployment of clean energy technologies. As a regional program administered by San Diego Gas & Electric (SDG&E) on behalf of SCE and SoCalGas, the program was designed to accommodate the priorities of multiple utilities and therefore did not consistently prioritize electrification measures, fuel-substitution opportunities, or other activities intended to advance California’s climate goals. Therefore, program design limitations reduced opportunities to advance electrification projects.

Additionally, there is no established method for participating utilities to claim electrification savings. While calculation of claimable savings has not been adopted as a requirement for the ESA Main Program, SCE continues to calculate and report kWh savings through this methodology in its monthly and annual program reporting to demonstrate program benefits. Also, Claimable savings methodologies are utilized in SCE’s Building Electrification (BE) Pilot. In the absence of a claimable savings framework within ESA Main, electrification measures can appear to reduce reported kWh savings, which may create a disincentive to pursue electrification projects despite their broader decarbonization benefits.

- b. SCE’s reference to “inconsistent customer experiences across service territories” refers to customer impacts resulting from the regional administration model used for the Southern MFWB Program. Although the program applied a common set of eligibility and program

rules across participating utility territories, customers were served through a regional program structure that differed from the established ESA processes, customer communications, enrollment pathways, and service-delivery models traditionally associated with their local utility. As a result, customers often encountered different program touchpoints and service experiences than those they expected based on prior interactions with their local IOU. SCE's testimony outlined that centralized delivery, fragmented administration, and limited integration with the ESA Main Program resulted in a less seamless customer experience. A utility-administered model provides a more integrated and locally responsive approach.

- c. SCE's reference to "diminished equity" reflects how the Southern MFWB Program's design and administration created barriers that disproportionately affected certain multifamily customers, particularly those in older buildings, naturally occurring affordable housing, and smaller multifamily properties. Fragmented enrollment pathways, multiple program delivery channels, limited integration with the ESA Main Program, and centralized regional administration increased administrative complexity, reduced local responsiveness, and made it more difficult for some customers to successfully navigate and complete the program. These factors limit consistent access to program services and benefits, leaving some eligible households less able to receive comprehensive assistance. SCE's proposed local administration model is intended to improve equitable access through a more consistent delivery structure, flexible enrollment pathways, stronger local accountability, and a program design tailored to the needs of multifamily customers.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 003

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/31/2026

Question 02:

Please refer to SCE's 2025 Annual Report ESA Table 2 Main, lines 42 and 50, which indicate SCE installed 755 "Central A/C Replacement" measures and 121 "Heat Pump Replacement" measures in 2025.

- a. Does the Central A/C Replacement measure refer only to like-for-like Central A/C replacements? If no, please identify what types of equipment could be installed under the Central A/C Replacement measure other than central A/Cs.
- b. Please list all of the possible existing equipment that could be replaced under the "Heat Pump Replacement" measure (i.e., central A/Cs, existing heat pumps, etc.).
- c. If the "Heat Pump Replacement" measure includes replacement of existing equipment other than central A/Cs, please identify how many Central A/C to Heat Pump conversions SCE completed in 2025.
- d. When SCE identifies an existing central A/C eligible for replacement through ESA, how does it decide whether to provide the Central A/C Replacement measure or the Heat Pump Replacement measure?

Response to Question 02:

- a. Yes. The Central A/C Replacement measure only provides the like-for-like replacement of an eligible existing central A/C system.
- b. The Heat Pump Replacement measure only provides the like-for-like replacement of an existing heat pump that meets ESA eligibility requirements. It does not include the replacement of a central A/C system with a heat pump.
- c. Central A/C-to-Heat Pump conversions are not reported under the Heat Pump Replacement measure. Rather, they are reported separately in the fuel substitution/fuel switching categories of the Annual Report's ESA Table 2 (lines 51 and 52). Accordingly, none of the 121 Heat Pump Replacement measures reported on line 50 represent Central A/C-to-Heat Pump conversions.

The 121 Heat Pump Replacement measures reported on line 50 reflect like-for-like replacements of existing heat pumps that met ESA eligibility requirements. In contrast,

Central A/C-to-Heat Pump conversions are reported separately. In 2025, SCE completed 20 gas-to-Heat Pump conversions and 2 propane-to-Heat Pump conversions, for a total of 22 Central A/C-to-Heat Pump conversions.

- d. When a customer is eligible for either a Central A/C Replacement or a Central A/C to Heat Pump conversion measure, the customer is educated on the available options and may choose the measure that best meets their needs. SCE does not make the selection on the customer's behalf; rather, the customer makes an informed decision regarding the measure to be installed.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 003

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/28/2026

Question 03:

Does SCE currently offer air purifiers through any of its ESA services? Please explain why or why not.

Response to Question 03:

No. SCE does not currently offer air purifiers through the ESA program. The ESA program is designed primarily to provide energy efficiency measures and services that reduce household energy consumption and utility costs. While air purifiers may provide important health, comfort, and safety benefits, they are not currently included among SCE's ESA Program measures.

SCE continually evaluates emerging technologies and delivery approaches that may improve program efficiency, customer satisfaction, and customer outcomes. Consistent with the broader ESA Program design, SCE's approach is intended to be customer-centric, data-driven, and responsive to evolving market conditions. As part of these ongoing efforts, SCE monitors industry research, market developments, and program implementation experience to better understand technologies that may provide value to customers and support program objectives.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET S i e r r a C l u b - S C E - 0 0 3

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/28/2026

Question 04:

Does SCE propose to begin offering air purifiers through any of its ESA services in the 2028–2033 cycle? Please explain why or why not.

Response to Question 04:

No. Air purifiers are not currently included in SCE's proposed ESA portfolio for the 2028-2033 program cycle.

As discussed in response to Question 3, SCE continually evaluates emerging technologies and delivery approaches but does not currently propose air purifiers as an ESA Program measure.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 003

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/28/2026

Question 05:

Please refer to D.21-06-015 at 483, Ordering Paragraph (“OP”) 54, which requires the IOUs to waive Property Owner Approval/Authorization (“POA”) requirements for basic-tier ESA offerings provided to self-certifying income-qualified customers. The OP also notes that “measures requiring modifications to dwellings,” including grounding, “are exempt from this requirement to be provided to self-certifying customers.” SCE’s Basic Tier offerings appear to include major appliances, such as HVAC Heat Pumps and Heat Pump Water Heaters.¹ Please list all measures provided through the Basic Tier and for each measure, identify:

- a. Whether the measure is offered to self-certifying customers or if it requires income verification;
- b. Whether the measure is offered to renters who cannot provide POA. [PLEASE ADD FN See Exh. SCE-02, ESA Testimony, at 6 (“Basic customers are eligible for LEDs, smart power strips, refrigerators, smart communicating thermostats, clothes washers, dishwashers, freezers, pool pumps, evaporative coolers, weatherization services, Heat Pump (HP) Water Heaters (HPWH), and Heat Pump HVAC systems.”)]

Response to Question 05:

SCE notes that OP 54 does not categorically waive POA requirements for all Basic Tier measures.¹ Rather, OP 54 waives POA requirements for eligible households receiving Basic Tier services, while expressly providing that measures requiring modifications to dwellings are exempt from that waiver. Therefore, a measure's inclusion in the Basic Tier does not, by itself, determine whether POA is required. Instead, POA requirements depend on whether installation of the measure requires modification to the dwelling.

The table below identifies: (1) whether the measure is available to self-certifying customers or requires income verification, and (2) whether the measure may be provided to renters who are unable to provide POA. SCE notes that measures requiring modification to the dwelling may require POA consistent with OP 54 and applicable ESA Program requirements, regardless of

¹ D.21-06-015 Ordering Paragraph 54, “Pacific Gas and Electric Company, Southern California Edison Company, Southern California Gas Company and San Diego Gas & Electric Company must waive the Property Owner Approval/Authorization requirements for qualified households to receive the basic level of Energy Savings Assistance program services. Measures requiring modifications to dwellings, which includes grounding, such as refrigerators, portable air conditioners, and smart thermostats, are exempt from this requirement to be provided to self-certifying customers.”

whether the measure is included in the Basic Tier.

Measure	Basic Measure	Eligible with Self-Certified Income	Eligible with Proof of Income ¹	Available To Renters	Property Owners Agreement Required
Central HVAC (Non-Heat Pump)	Y	N	Y	Y	Y
Central Heat Pump HVAC	Y	N	Y	Y	Y
Evap Cooler Install	Y	N	Y	Y	Y
Refrigerator	Y	N	Y	Y	Y
Freezer	Y	N	Y	Y	Y
Pool Pump	Y	N	Y	Y	Y
HP Water Heater	Y	N	Y	Y	Y
LED Fixture Replacement- Exterior	Y	N	Y	Y	Y
LED A-Lamp Replacement	Y	Y	Y	Y	N
LED Reflector Lamp replacement (PAR, BR)	Y	Y	Y	Y	N
Tier 2 Advanced Power Strip	Y	Y	Y	Y	N
Faucet Aerators & Low Flow Showerheads	Y	Y	Y	Y	N
Thermostatically Controlled Valve (TSV) for Showers	Y	Y	Y	Y	N
Water Heater Tank & Pipe Insulation	Y	N	Y	Y	Y
Weatherization	Y	N	Y	Y	Y
Attic Insulation	Y	N	Y	Y	Y
Attic Insulation-Non-Electric Heating	Y	N	Y	Y	Y
Dishwasher	Y	N	Y	Y	Y
Clothes Washer	Y	N	Y	Y	Y
Evap Cooler Maintenance	Y	N	Y	Y	Y
HVAC-System Tune-Up	Y	N	Y	Y	Y
HVAC-Maintenance-Fan Control Adjustment	Y	N	Y	Y	Y
HVAC-Maintenance-Coil Cleaning	Y	N	Y	Y	Y
HVAC-Maintenance-Condensor Cleaning	Y	N	Y	Y	Y
HVAC-Maintenance-Fan Control Adjustment	Y	N	Y	Y	Y
HVAC-Maintenance-Refrigerant Charge Adjustment	Y	N	Y	Y	Y
HVAC-Maintenance-Air Filter Replacement	Y	N	Y	Y	N
Smart Communicating Thermostat (SCT)	Y	N	Y	Y	Y

1. Households which enroll via Basic with Proof of Income may also be eligible for all measures available to those who enroll using Self-Certified Income.

Southern California Edison
A.26-01-003 et al – 2026 IQP Application

DATA REQUEST SET Sierra Club - SCE - 003

To: Sierra Club
Prepared by: Galaxy H Kaji
Job Title: Advisor
Received Date: 8/17/2026

Response Date: 8/28/2026

Question 06:

Exh. SCE-02 at page 103 states that “[h]istorically, SCE’s ESA Program has only offered minimum-code compliant HVAC systems, and has limited installations to climate zones 13-15, where extreme heat conditions were most prevalent.”

- a. Please confirm whether under the current cycle’s rules and practices, SCE does or does not install HVAC replacements in Climate Zones 6, 8–10 and 16 if the customer’s existing equipment is inoperable/irreparable.
- b. Under the current cycle’s rules and practices, would SCE install an HVAC measure to replace inoperable electric baseboard heating in Climate Zones 6, 8–10 and 16? Why or why not?

Response to Question 06:

- a. SCE confirms that it does not install HVAC replacements in Climate Zones 6, 8 to 10 and 16, regardless of the customer’s existing equipment being inoperable or irreparable.
- b. SCE would not install an HVAC measure to replace an inoperable electric baseboard heating in Climate Zones 6, 8 to 10 and 16 under the current cycle’s rules and practices. Currently, the ESA program only allows HVAC installation in climate zones 13 to 15.

Attachment 8

PG&E Responses to Sierra Club Data Requests

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q004
PG&E File Name:	IQPPY28-33_DR_SierraClub_003-Q004
Request Date:	May 27, 2026
Requester DR No.:	003
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti – Customer and Enterprise Solutions

QUESTION 004

Attachment 2 to Chapter 4 of PG&E's testimony (PDF p. 368) notes that room heat pumps, central heat pump electrification measures, and heat pump water heater electrification measures were added to the ESA Program during the current program cycle, but there were "no installations as of August 2025."

- a. For each of these three measures, have there been any installations between August 2025 and the date of this data request? If so, please identify how many.
- b. Please identify when each of the three above-referenced measures were added to the ESA Program.
- c. In PG&E's view, why were there no installations of each of these measures?
- d. Does PG&E expect that installations of room heat pumps, central heat pump electrification measures, and heat pump water heater electrification measures will increase during the next program cycle? If so, why? If not, why not?

ANSWER 004

- a. Yes. PG&E MFWB program completed 12 ductless mini split HVAC and 2 heat pump water heater installations in September 2025, and 1 Heat Pump HVAC in April 2026. There have been no installations of these measures through ESA Main as of the date of this request.
- b. PG&E consulted the ESA Working Group to add heat pump water heater (HPWH) and central heat pump (CHP) electrification measures in May, 2023. Room heat pumps (RHP) were added through the same process in December, 2025.

- c. PG&E objects to this question on the grounds that it calls for speculation. PG&E reserves its right to object to the admissibility and use of such data in this proceeding.

Notwithstanding and subject to this objection, PG&E responds as follows:

PG&E interprets this question to refer to why, from PG&E's perspective, there were "no installations as of August 2025."

For room heat pumps, there were no installations as of August 2025 because the measure was not added to the program until the end of 2025.

For CHP and HPWH electrification measures, there were no installations in ESA Main because ESA Main was still developing implementation policies and standards and therefore did not prioritize their installation. The Commission in D.21-06-015 denied the prioritization of electrification measures and ordered IOUs to prioritize energy efficiency measures and leverage pilot and studies learnings to consider electrification later in the program cycle, stating:

[...] until more information is gathered from the various pilots, the IOUs shall continue to offer ESA treatments consisting of both gas and electric measures based on the customer's need or need states. Efficient electrification measures may be considered later in this program cycle following the mid-cycle progress report and/or results from the various ongoing pilots and studies.¹

Accordingly, PG&E ESA additionally utilized the Pilot Plus/Pilot Deep (PP/PD) programs to develop electrification learnings, and incorporated those learnings in the electrification proposals detailed in its application for the 2028-2033 program cycle.² Following the approval of electrification measures for ESA Main, PG&E—along with the other three California investor-owned utilities—developed policies and procedures for fuel switching, publishing the ESA Electrification Policy October 31, 2025.³

- d. Yes. PG&E expects installations of room heat pumps, central heat pump electrification measures, and heat pump water heater electrification measures to increase during the 2028–2033 program cycle. These reasons are detailed in PG&E's electrification proposals in Chapter 4, Sections G.1.b and G.3 of Opening Direct Testimony.⁴ Additionally, forecasted measure installation quantities are detailed in Appendix A, Tables A-1 and A-1a.⁵

¹ D.21-06-015, Sec. 6.5.8.6, p. 196.

² Exhibit 1, Chapter 4, pp. 4-37 to 4-53.

³ ESA Statewide Installation Standards Manual, Version 1.5. (Published October 31, 2025)

⁴ Exhibit 1, Chapter 4, pp. 4-37 to 4-53.

⁵ Exhibit 1, Appendix A, Tables A-1 and A-1a.

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q006
PG&E File Name:	IQPPY28-33_DR_SierraClub_003-Q006
Request Date:	May 27, 2026
Requester DR No.:	003
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 006

Attachment 3 to Chapter 4 of PG&E’s testimony (PDF p. 370) notes that air purifiers are included in the Plus tier of ESA Main with “DAC/Tribal/Rural” listed in the “Special Segments” column.

- a. Are air purifiers only offered to ESA participants in the listed special segments, or are they available to any ESA-qualified participant? If they are restricted to special segments, please explain why.
- b. Please explain why air purifiers are in the Plus tier and not the Basic tier.

ANSWER 006

- a. Air purifiers are only offered to customers identified in specific need states, which includes Disadvantaged Communities (DACs), Rural, Tribal, and Medically vulnerable due to poor air quality (Medical Baseline), as outlined in the Statewide ESA Policies and Procedures Manual.¹ The Commission in D.21-06-015 approved these prioritizations of customer “need-states,” which included targeting portable air purifiers to vulnerable households with documented health and smoke-exposure risks rather than all ESA customers.²

¹ Statewide ESA Program Policies and Procedures Manual, Table A-1: Eligible IOU Measures, <[20250418-statewide-esa-program-pp-manualv14.pdf](#)>. Last accessed June 1, 2026.

² D. 21-06-015, pp. 481-482, Ordering Paragraph (OP) 49. See Advice Letter SDG&E 3842-E/3012-G et. al. on the Energy Savings Assistance (ESA) Program Design and Delivery of Measure Treatment Tiers for Program Year 2022-2026 (September 1, 2021); approved on December 22, 2021 (effective October 1, 2021).

- b. D.21-06-015 authorized the categorization of air purifiers as plus tier because they are seen as Health, Comfort, and Safety (HCS) or resiliency measures.³ HCS measures, being more specialized and higher-cost than some widely-deployable basic measures, were authorized to require verification of ESA income eligibility.

³ D. 21-06-015, pp. 481-482, Ordering Paragraph (OP) 49. See Advice Letter SDG&E 3842-E/3012-G et. al. on the Energy Savings Assistance (ESA) Program Design and Delivery of Measure Treatment Tiers for Program Year 2022-2026 (September 1, 2021); approved on December 22, 2021 (effective October 1, 2021).

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q008
PG&E File Name:	IQPPY28-33_DR_SierraClub_003-Q008
Request Date:	May 27, 2026
Requester DR No.:	003
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 008

Attachment 3 to Chapter 4 of PG&E’s testimony lists “water heater replacement” as a measure in the Plus tier of ESA Main.

- a. Does this measure include both gas and electric water heaters?
- b. If the answer to Question 8(a) is yes, please provide a breakdown for each program year 2023 to present (2026 YTD) of how many water heater replacements were completed with new gas storage water heaters, new gas tankless water heaters, and new electric water heaters, respectively.

ANSWER 008

- a. No, “water heater replacement” in the Plus tier of ESA Main includes only gas water heater replacement.¹
- b. Not applicable.

¹ PG&E Prepared Direct Testimony, Ch. 4, Attachment 3, p. 4-Atch03-1, Line 7. PG&E does also offer a separate measure, titled “Heat Pump Water Heater” that installs heat pump water heaters as replacements for existing electric units. See PG&E Prepared Direct Testimony, Ch. 4, Attachment 3, p. 4-Atch03-1, Line 27.

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q009
PG&E File Name:	IQPPY28-33_DR_SierraClub_003-Q009
Request Date:	May 27, 2026
Requester DR No.:	003
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 009

Attachment 3 to Chapter 4 of PG&E’s testimony lists “Central A/C replacement” as a measure in the Plus tier of ESA Main.

- a. For Program Years 2023, 2024, 2025, and YTD 2026, how many central A/C replacements did PG&E complete through ESA?
- b. Does this measure refer only to like-for-like replacements of air conditioners with newer air conditioners, or does it include replacements of air conditioners with heat pumps?
- c. If this measure includes A/C-to-heat pump replacements, please identify what percentage of the installations in each program year (identified in response to 9(a)) were A/C-to-A/C versus A/C-to-heat pump.
- d. Please identify the total costs for program years 2023, 2024, 2025, and YTD 2026 spent on Central A/C Replacements.
- e. Does PG&E intend to continue performing like-for-like A/C replacements? If so, why? If not, why not?

ANSWER 009

- a. See the following table for the number of central A/C replacements installed through ESA Main from 2023-2026 through April 2026:

Year	Central A/C Replacement
2023	32
2024	47
2025	20
Through April 2026	2

b. This measure only refers to like-for-like replacement of air conditioners with newer air conditioners. PG&E categorizes Heat Pump HVAC replacements, which may include replacing an air conditioner, as “Heat Pump Replacement” in its monthly and annual reports.¹

c. Not applicable.

d. See the following table for the total cost of central A/C replacements installed through ESA Main from 2023-2026 April YTD.

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

e. Yes. For 2028-2033, PG&E proposes to continue offering like-for-like A/C replacements. PG&E proposes to continue this because PG&E anticipates situations where customers will benefit from like-for-like A/C replacements.

¹ For example, see PG&E’s 2023 ESA Annual Report, Appendix A, ESA Table 2.

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Data Response

PG&E Data Request No.:	SierraClub_003-Q010
PG&E File Name:	IQPPY28-33_DR_SierraClub_003-Q010
Request Date:	May 27, 2026
Requester DR No.:	003
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 010

Attachment 3 to Chapter 4 of PG&E’s testimony lists “furnace replacement” as a measure in the Plus tier of ESA Main.

- a. Is it correct that this measure refers to like-for-like replacement of gas furnaces with new gas furnaces?
- b. Does PG&E intend to continue offering like-for-like replacement of gas furnaces in the 2028–2032 ESA program cycle? If yes, please explain under what circumstances and why.
- c. Please walk through the steps taken under the current program procedures when PG&E or its ESA subcontractors identify that an ESA participant’s furnace is eligible for replacement. For example:
 - i. Does the ESA implementer give the customer the option to opt for a heat pump versus a new furnace? If not, why not?
 - ii. Does the ESA implementer provide the customer with educational materials regarding the energy efficiency and HCS benefits of heat pumps? If not, why not?
 - iii. Does the ESA implementer or PG&E have any standard procedure for assessing feasibility, bill impacts, or energy savings that would flow from electrification versus like-for-like furnace replacement? If so, please provide those procedures.
- d. Please identify any changes to PG&E’s procedures described in response to Question 10(c) that it plans to implement as part of its modification of the R&R service “to include electrification service” (Testimony page 4-39).

ANSWER 010

- a. Yes.
- b. Yes, until fully transitioned to electrification. For 2028-2033, PG&E has proposes to continue offering like-for-like gas furnace replacements temporarily. However, PG&E also propose the transition of gas furnace replacement to the installation of Heat Pump HVAC systems, intending to complete phasing out the installation of gas furnace replacements by 2031.¹
- c. The current procedure detailing furnace replacement eligibility assessment process is outlined in the Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual.²
 - i. No, PG&E's ESA Contractors do not currently offer heat pumps as an option in gas furnace replacement scenarios because they are not included as a measure in the current program cycle for repair & replacement.
 - ii. PG&E's ESA Contractors currently offer energy efficiency education materials, though not including heat pump-specific information, as these are not currently included in the ESA Main current program cycle for repair & replacement.
 - iii. No, PG&E does not install HVAC Heat Pump systems in ESA Main as a measure in its current cycle for repair & replacement and thus does not have a standard process for accessing feasibility, bill impacts or energy savings. However, PG&E intends to leverage the learnings from its Pilot Plus, Pilot Deep program to develop a standard process for accessing feasibility, potential bill impacts, and energy savings for customers who qualify for a HVAC Heat Pump system.
- d. PG&E has not yet changed its furnace replacement eligibility assessment procedures as noted in question 10(c), but plans to review current ESA Contractor eligibility assessment procedures for furnace replacement eligibility—including fuel substitution replacements with HVAC heat pumps—where applicable pending the decision issued for this proceeding. A sample of potential modifications to the standard R&R workflow to include electrification service are detailed in Figure 4-5, Chapter 4, of Opening Direct Testimony.³

¹ Exhibit PGE-01, PG&E Prepared Direct Testimony, Chapter 4, pp. 4-37 to 4-53.

² Statewide Energy Assistance Program 2021-2026 cycle Policy & Procedures Manual.

³ <[20250418-statewide-esa-program-pp-manualv14.pdf](#)> (Last accessed 12:57pm, June 4, 2026)

³ Exhibit 1, Chapter 4, Figure 4-5, p. 4-46.

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q011
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 011

For Program Years 2023, 2024, 2025, and YTD 2026, please identify how many like-for-like gas furnace replacements PG&E completed through its ESA Main program.

ANSWER 011

See the table below for the total number of like-for-like furnace replacements PG&E completed through its ESA Main program from 2023-2026 April YTD:

Year	Furnace Replacement
2023	1498
2024	1647
2025	1116
Through April 2026	307

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Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q012
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 012

Pages 4-40 to 4-44 of PG&E’s testimony describe PG&E’s planned rollout of R&R electrification by geographical region.

- a. Please explain why PG&E is proposing a phased rollout rather than offering electrification to all regions concurrently.
- b. Specifically, please explain why PG&E proposes to wait until 2029 to expand R&R electrification to the Central Valley Region, and 2032 for the Northern and Central Coast Regions.

ANSWER 012

- a. PG&E’s phased approach to roll out R&R electrification by geographical region is designed to allow the program to transition from like-for-like to fuel substitution offerings over several years effectively while maintaining program delivery and positive customer outcomes. As demonstrated in Figure 4-4, *Forecasted R&R Replacements by Technology*,¹ the proposed roll-out is designed to allow for the annual volume of R&R electrification to increase annually.

The incremental transition can allow ESA subcontractor workforces to realistically build capacity to service thousands of annual fuel-substitution projects,² allow program implementers to develop and scale the staff and processes that support new activities necessary for electrification. It also allows PG&E to develop the administrative supports and systems necessary to transition R&R to

¹ Exh. (PGE-01), Prepared Direct Testimony, Chapter 4, p. 4-42.

² Subcontractor capacity building may include but are not limited to: hiring additional skilled professionals, training and upskilling existing staff, developing the administrative capabilities to support novel permitting requirements.

electrification. PG&E expects that transitioning all R&R offerings to electrification to PG&E's entire service territory in a single year—which would require shifting from fewer than 100 annual electrification projects to over 1,500³—would significantly strain the ability to deliver ESA programs effectively and introduce disruptions to ESA treatment volume, the ESA subcontractor workforce, ESA customer service and satisfaction.

- b. As a preliminary matter, PG&E corrects Sierra Club in that the Northern and Central Coast regions are expected to roll out R&R electrification beginning in 2030 and 2031, respectively, as detailed in Table 4-19 below.⁴

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

See PG&E's answer to subpart (a) of this question for the reasoning behind a phased rollout. The proposed roll-out is designed to allow for the R&R electrification transition to occur over an incremental period while initially corresponding to Bay Area Air District (BAAD) zero emissions rules. As such, after launching each respective technology in the Bay Area when BAAD zero emissions rules take effect, PG&E proposed expanding electrification in the order detailed in Table 4-19, beginning 2029, because:

[the] roll out of R&R Electrification to the remaining ESA regions intends to prioritize bill savings opportunities by starting with those ESA regions with higher opportunities for bill savings. For example, customers in regions that warrant central heating and air conditioning may benefit the most from heat pump HVAC electrification.⁵

³ Exh. (PGE-01), Prepared Direct Testimony, Chapter 4, p. 4-42, Figure 4-4.

⁴ Exh. (PGE-01), Prepared Direct Testimony, Chapter 4p. 4-44, Table 4-19.

⁵ Exh. (PGE-01), Prepared Direct Testimony, Chapter 4, p. 4-44 at line 17 to p. 4-45 at line 2.

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Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_003-Q014
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 014

Page 4-78 of PG&E's testimony (PDF p. 314) notes that some electrification projects "will necessitate electrification-enabling home remediation and upgrades," including "electric panel upgrades."

- a. In the last program cycle, what percentage of PG&E's ESA electrification projects necessitated electric panel upgrades?
- b. Out of all the projects that needed electric panel upgrades, please identify what electrification measures were installed that triggered the need for an upgrade, broken down by percentage. Please provide the data in a table like the following illustrative example, where Column 2 should add up to 100%:¹

¹ For clarity, this question is seeking to understand what specific electrification measures or combinations of electrification measures are driving the need for panel upgrades.

Measures Installed	Percentage Out of Total Projects Where a Panel Upgrade Was Needed
Ducted Heat Pump HVAC + Heat Pump Water Heater	X%
Only Ducted Heat Pump HVAC	X%
Only Heat Pump Water Heater	X%
Induction Cooking Appliance	X%
[any other measures or measure combinations that triggered panel upgrades]	X%

- c. How does PG&E determine whether a panel upgrade is needed to install an electrification measure through ESA?
- d. Does PG&E offer or perform any panel optimization strategies to avoid panel upgrades when electrifying appliances through ESA?
- e. In the last program cycle, when electrification measures triggered panel upgrades, what was capacity of the existing panels that needed to be replaced? Please break this data down by percentage into the following categories:

Existing Panel Size	Percentage of Total Projects Where Panel Upgrade Was Needed
<50 amps	
50-75 amps	
76-100 amps	
101-150 amps	
151-200 amps	

ANSWER 014

- a. In the last program cycle, 2021 through 2026 to date, about 4.3% of projects that received electrification upgrades received a panel upgrade through the ESA Pilot Plus/Pilot Deep (PP/PD) program.

No panel upgrades were installed under the MFWB program. The program is designed to prioritize projects that do not require electrical panel upgrades, as such upgrades are not within the current program scope. As part of project screening and measure selection, the program ensures that the existing electrical load capacity of participating properties is sufficient to support the proposed electrification measures.

No panel upgrades were installed under the ESA Main program, which did not offer electrician measures.

- b. PG&E provides the information below for 2021 through 2026 to date.

Measures Installed	Percentage ² Out of Total Projects Where a Panel Upgrade Was Needed [PP/PD]	Percentage Out of Total Projects Where a Panel Upgrade Was Needed [MFWB]
Ducted Heat Pump HVAC + Heat Pump Water Heater	14.3%	0%
Only Ducted Heat Pump HVAC	57.1%	0%
Ducted Heat Pump HVAC + Induction Cooking Appliance	14.3%	N/A
Only Heat Pump Water Heater	7.1%	0%
Induction Cooking Appliance	0%	N/A
Ducted Heat Pump HVAC + Heat Pump Water Heater + Induction Cooking Appliance	7.1%	N/A

- c. Current panel upgrade standards and procedures are documented in Section 804, Electrical Auxiliary Measure Standards, of the ESA Statewide Installation Standards Manual.³

² Percentages provided in this table may not sum exactly to 100% due to rounding.

³ Statewide ESA Installation Standards Manual, Version 1.5.

- d. Yes. Several panel optimization strategies have been considered through the ESA Pilot Plus/Pilot Deep program. These strategies include smart panels, circuit splitters, and lower voltage heat pump water heaters. At the time of this response, only lower voltage heat pump water heaters have been deployed while other strategies are under consideration and evaluation.
- e. As PP/PD is the only ESA program that installed panel upgrades, the table below includes only information relating to ESA PP/PD for 2021 through 2026, to date.

Existing Panel Size	Percentage ⁴ of Total Projects Where Panel Upgrade Was Needed (PP/PD only)
<50 amps	0%
50-75 amps	0%
76-100 amps	71.4%
101-150 amps	21.4%
151-200 amps	0%
Unspecified	7.1%

⁴ Percentages provided in this table may not sum exactly to 100% due to rounding.

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Data Response

PG&E Data Request No.:	SierraClub_003-Q016
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	June 10, 2026
PG&E Witness(es):	Jack Pilutti– Customer and Enterprise Solutions

QUESTION 016

Does PG&E currently offer or plan to offer 120V induction ranges or permanently- installed cooktops (i.e., not portable countertop models but fixtures installed into the counter itself) through ESA? If not, why not?

ANSWER 016

PG&E objects to this question on the grounds that it calls for speculation and is vague and ambiguous as to time. PG&E reserves its right to object to the admissibility and use of such data in this proceeding.

Notwithstanding and subject to this objection, PG&E responds as follows:

No, PG&E does not currently offer permanently installed 120V induction ranges/cooktops. PG&E's 2028-2033 proposals do not include installation of 120V induction ranges/cooktops.

Two reasons that PG&E has not yet incorporated these into ESA are that (1) 120V cooking appliances are relatively new to the market, and (2) induction cooking appliances are not prioritized in either the current 2021-2026 cycle¹ or PG&E's 2028-2033 proposals due to low forecasted cost-effectiveness, as measured by the ESACET test.²

¹ In 2025, PG&E's ESA Main Program partnered with TECH Clean California and ESA funded the installation of one induction range.

² Exhibit 1, Chapter 4, Table 4-27, footnote (a), p. 4-78.

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Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_004-Q008
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	August 26, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 008

Under PG&E's proposed Plus and Targeted Deep Savings tiers, if a customer was not part of the targeted group for Targeted Deep Savings but requested electrification of a gas end-use for their Plus Tier treatment, would PG&E provide the electrification measure? Please explain why or why not, and please indicate whether the answer to this question would vary based on the appliance in question. If the answer varies by appliance, please provide an answer for each of the four electrification appliance measures.

ANSWER 008

PG&E objects to this question on the grounds that it calls for speculation to the extent that it requires PG&E to speculate on a customer's actions. PG&E reserves its right to object to the admissibility and use of such data in this proceeding.

Notwithstanding and subject to this objection, PG&E responds as follows:

If a customer was not part of the targeted group for the Targeted Deep Savings Tier but requested electrification of a gas end-use for their Plus Tier treatment, PG&E could first screen the customer for eligibility for the Targeted Deep Savings Tier.¹ If the customer is determined to be ineligible for the Targeted Deep Savings tier, then PG&E does not anticipate providing electrification of a gas end-use through the Plus Tier. This is because ESA's priority through the Plus Tier is the electrification of appliances experiencing emergency replacement or burnout, not those that may be aging or inefficient.²

¹ PG&E-01E, pp. 4-51 to 4-52.

² Exh. (PG&E-01) pp. 4-38 to 4-49.

PG&E may consider modifying its measure offerings, and the associated feasibility, throughout 2028-2033 using the measure modification process.³

³ Exh. (PG&E-01E) p. 4-109, lines 26-28.

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Data Response

PG&E Data Request No.:	SierraClub_005-Q001
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	August 27, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 001

Please refer to the Statewide Energy Savings Assistance Program 2021–2026 Cycle Policy and Procedures Manual v1.5 (“Policy and Procedures Manual”), page 108, Section 7.4, titled “Cost Limits on Remediation.” This section of the manual states that the ESA Working Group has not yet recommended average cost limits for electrification-enabling remediation work, nor individual home limits for such remediation work, and states for both limits, “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”

- a. Please confirm that costs of the “auxiliary measures” listed on page 105 of the Policy and Procedural Manual are not counted toward remediation cost caps.
- b. What average cost limit does PG&E currently use for electrification-enabling remediation work? Please interpret “electrification-enabling remediation work” to mean both electrical and non-electrical building remediation, as defined in the Policy and Procedures Manual v1.5 on pages 106–108, that are completed as necessary to enable installation of an electrification measure.
- c. What is the basis for PG&E’s current average cost limit for electrification enabling remediation work?
- d. What per-home cost limit does PG&E currently use for electrification-enabling remediation work?
- e. What is the basis for PG&E’s current per-home limit for electrification-enabling remediation work?
- f. Does PG&E propose changing either the average or per-home cost caps for remediation work in the 2028–2033 program cycle? If yes, please explain what changes PG&E proposes and why. If no, please explain why not.

ANSWER 001

- a. Yes, the costs of auxiliary measures are not counted towards remediation cost caps. The ESA Policy and Procedures Manual notes this in Section 7.4: “Cost limits in this section do not include costs associated with auxiliary measures described in Section 6 herein.”
- b. ESA Main does not currently install fuel substitution measures, and has not established an average cost limit for electrification-enabling remediation work at the time of this response. The ESA Pilot Plus/Pilot Deep (Pilot) program does install electrification measures during the current program cycle and does not have an average cost limit for electrification-enabling remediation work.
- c. See PG&E’s response to subpart (b). As PG&E has not yet established an average cost limit for electrification enabling remediation work, there is no basis to report in this response.
- d. ESA Main does not currently install fuel substitution measures, and thus has not yet established a per-home cost limit for electrification-enabling remediation at the time of this response. The Pilot provides up to \$2,500 per project for remediation, but in certain situations may exceed that amount with the PG&E program manager’s approval.¹
- e. See PG&E’s response to subpart (d). The per home remediation limit for the Pilot is based on the limit for Minor Home Repairs from ESA Main.² One objective of the Pilot is to generate learnings on costs and typical remediation measures needed to enable electrification.
- f. As PG&E has not established average or per-home cost caps for remediation work in the current program cycle, there are no changes proposed for 2028-2033.³ PG&E plans to establish a cost cap procedure that will identify appropriate costs, maximum cost thresholds and feasibility standards for these types of measures. PG&E will continue to consult with the ESA Technical WG, P&P manual, and other resources to refine the cost cap procedure.

¹ 2024-2027 Evaluation of Pacific Gas and Electric’s ESA Pilot Plus and Pilot Deep, Pg.49. July 2025.

² D.21-06-015, OP 68, p. 486.

³ PG&E does forecast remediation costs as a component of the total installation costs for respective electrification measures, as detailed in PG&E-01E, Appendix A, Tables A-1 and A-1a.

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Data Response

PG&E Data Request No.:	SierraClub_005-Q005
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	August 27, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 005

Does PG&E refer deferred homes to other programs for pre-weatherization treatments that would cure the condition that led to the deferral? If yes, please list the programs that PG&E refers deferred homes to.

ANSWER 005

As a preliminary matter, PG&E interprets the term “defer” to mean “delay until a later time” and refer to the concept that ESA may temporarily delay a home treatment with the intention that the home will be treated later. Given this interpretation, PG&E responds as follows:

PG&E does not defer treatment. Instead, ESA subcontractors install all feasible and eligible measures for which the household/premise qualifies. Any measures that are not feasible due to remediation work needed that is outside of scope of ESA program will not be installed. ESA subcontractors may refer the customer to another program such as LIHEAP that may be able to assist with conditions that prevented measure installation. However, PG&E does not track or report the programs subcontractors may refer customers to related to pre-weatherization treatments other than what is reported in ESA Table 13B of its Annual Reports.¹

The customer could reapply to ESA for any additional feasible measures that have not been installed through the referred third-party operated program.

¹ PG&E ESA Annual Reports. <<https://liob.cpuc.ca.gov/annual-reports/>> (Accessed August 20, 2026)

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Data Response

PG&E Data Request No.:	SierraClub_005-Q007
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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	August 27, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 007

Please refer to the Policy and Procedures Manual at page 109, which discusses per-home cost maximums for fuel substitution measures themselves (*not* remediation and/or repairs). The Manual states that the ESA Working Group has not yet established cost maximums and states that “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”

- a. Please confirm that the costs of auxiliary measures listed on page 105 of the Policy and Procedures Manual are included in the per-home cost limits on fuel substitution.
- b. What per-home cost cap does PG&E currently use for fuel substitution measures?
- c. What is the basis for the cost cap?
- d. Does PG&E propose to change the cost cap in the 2028–2033 program cycle? If yes, please explain what changes PG&E proposes and why. If no, please explain why not.
- e. In 2022, 2023, 2024, and 2025, did PG&E’s ESA contractors request permission from the utility Program Manager (as described in Policy and Procedures Manual section 8.1) to exceed the maximum cost cap per home for fuel substitution? Please provide a table indicating, in each of the listed years, the following:
 - i. How many times a contractor requested permission to exceed the maximum cost cap;
 - ii. How many times PG&E granted permission to exceed the maximum cost cap;
 - iii. The percentage of households receiving fuel substitution measures whose costs exceeded the maximum cost cap;
 - iv. The average per-home cost of homes whose costs exceeded the cap; and
 - v. The highest per-home cost of a home that exceeded the cost cap.

ANSWER 007

- a. The Policy and Procedure Manual does not specify whether auxiliary measures should be included in the per-home cost limits on fuel substitution. Per the Manual, until cost limits have been established by the ESA Working Group, each utility is directed to establish its own cost limits.¹ PG&E does not have electrification measure cost limits established and has not yet determined whether the measure cost limit will include auxiliary measures or if auxiliary measures will have their own separate cost limits.
- b. ESA Main does not currently install fuel substitution measures, and has not established a per-home cost limit for fuel substitution at the time of this response.

The ESA Pilot Plus/Pilot Deep program, which does install electrification measures during the 2021-2026 program cycle, has not established a per-home cost cap for fuel substitution.
- c. Please see PG&E's response to subpart (b) of this question. For PP/PD, as the goal of the Pilot is to understand the cost associated with achieving deeper energy savings, such as electrification measures, no cost cap is ordered by the Commission.
- d. As PG&E has not established average or per-home cost caps for remediation work in the current program cycle, there are no changes proposed for 2028-2033.¹ PG&E plans to establish a cost cap procedure that will identify appropriate costs, maximum cost thresholds and feasibility standards for these types of measures. PG&E will continue to consult with the ESA Technical Working Group, Policy & Procedures manual, and other resources to refine the cost cap procedure.
- e. Please see PG&E's response to subpart (b) of this question. As no cost cap for electrification has been established, ESA contractors have not requested permission to exceed the maximum cost cap per home for program measures.

i-v. Not Applicable.

¹ ESA Statewide Policy and Procedures Manual, p. 109.

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Data Response

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Requester:	Rebecca Barker
Date Sent:	September 3, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 001

Please refer to ESA Table 2 and Table 2A of PGE's ESA, CARE, and FERA Programs 2025 Annual Report:

- a. Were each of the Furnace Repair and Furnace Replacement measures installed in 2025 HCS measures as defined in footnote 7?
- b. If the answer to sub-question (a) above is no, for program year 2025, please identify how many furnaces were installed through ESA or ESA subprograms as a "Furnace Replacement" HCS measure.
- c. What was the total amount of therm savings (or negative therm savings) for furnace replacement HCS measures in Program Year 2025?
- d. If the answer to sub-question (a) above is no, for program year 2025, please identify how many furnaces were installed through ESA or ESA subprograms as a "Furnace Replacement" non-HCS, HVAC measure.
- e. What was the total amount of therm savings (or negative therm savings) for furnace replacement non-HCS measures in Program Year 2025?
- f. For Program Year 2025, please identify the total costs spent on furnace replacement measures through the HCS category and through the HVAC category, respectively.

ANSWER 001

- a. Yes. Each Furnace Repair and Furnace Replacement measure installed in 2025 is classified as an HCS measure, as defined in footnote 7.
- b. Not applicable.

- c. As detailed in PG&E's 2025 ESA Annual Report, furnace replacements resulted in total Therm savings of (29,660).¹
- d. Not applicable.
- e. Not applicable. Please see PG&E's response to subparts (a) and (d).
- f. According to PG&E's 2025 Annual Report, total spending on furnace replacements was \$6,603,444.²

¹ Because the objective metric of ESA is energy savings, an increase in energy consumption such as Therms is reported as a negative value.

² PG&E 2025 ESA Annual Report, Appendix A, Table 2.

PACIFIC GAS AND ELECTRIC COMPANY
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Application 26-01-003
Data Response

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Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	September 3, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 002

Please refer ESA Tables 2 and 2A of PG&E's ESA, CARE, and FERA Programs Annual Reports for Program Years 2021 through 2024:

- a. Did the company install any Furnace Repair/Replacement measures as HCS measures in Program Years 2021-2024?
- b. If (a) is confirmed, how many Furnace Repair/Replacement measures did the company install as HCS measures for ESA Main in Program Years 2021, 2022, 2023, and 2024?
- c. If (a) is confirmed, how many Furnace Repair/Replacement measures did the company install as HCS measures for ESA MFWB in Program Years 2021, 2022, 2023, and 2024?
- d. If (a) is confirmed, how many therm savings (or negative therm savings) did the company record for HCS Furnace Repair/Replacement measures for ESA Main in Program Years 2021, 2022, 2023, and 2024?
- e. If (a) is confirmed, how many therm savings (or negative therm savings) did the company record for HCS Furnace Repair/Replacement measures for ESA MFWB in Program Years 2021, 2022, 2023, and 2024?
- f. What were the total costs for ESA Main HCS Furnace Repair/Replacement measures for each of the Program Years 2021, 2022, 2023, and 2024?
- g. What were the total costs for ESA MFWB HCS Furnace Repair/Replacement measures for each of the Program Years 2021, 2022, 2023, and 2024?

ANSWER 002

- a. Yes, all furnace repair and replacement measures were considered HCS measures in Program Years 2021-2024, as defined in IQPPY28-33_DR_SierraClub_006-Q001.
- b. Please see Table 1, below.
- c. Please see Table 1, below.
- d. Please see Table 2, below.
- e. Please see Table 2, below.
- f. Please see Table 3, below.
- g. Please see Table 3, below.

All data summarized in Tables 1-3 is reported in PG&E's 2021, 2022, 2023, and 2024 Annual Reports. [REDACTED] As the MFWB program launched in 2023, there is no MFWB data to report for 2021-2022.

Table 1: Furnace Repair/Replacement Quantity from 2021-2024

Program Year	(b) ESA Main Installations	(c) MFWB Installations
2021	2,006	N/A
2022	1,729	N/A
2023	1,848	419
2024	1,960	1,867

Table 2: Furnace Repair/Replacement Therms Savings from 2021-2024

Program Year	(d) ESA Main Therm Savings	(e) MFWB Therm Savings
2021	(48,978)	N/A
2022	(42,218)	N/A
2023	(45,215)	(377)
2024	(47,851)	(1,885)

Table 3: Furnace Repair/Replacement Costs from 2021-2024

Program Year	(f) ESA Main Total Costs	(g) MFWB Total Costs
2021	\$6,370,975	N/A
2022	\$6,434,934	N/A
2023	\$7,752,875	\$48,965
2024	\$8,424,506	\$231,209

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_006-Q003
PG&E File Name:	IQPPY28-33_DR_SierraClub_006-Q003
Request Date:	August 21, 2026
Requester DR No.:	Sierra Club-PGE-06
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	September 3, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 003

Please refer to the testimony of J. Pilutti in Chapter 4, sections I.2.b and I.2.d of PGE IQP Testimony filed June 30, 2026. Please identify which proposed measures will be health, comfort, and safety (HCS) measures.

ANSWER 003

Proposed HCS measures include Air Purifier, Portable A/C, Natural Gas Furnace Repair/Replacement, and Natural Gas Water Heater Repair/Replacement.¹

¹ PG&E-01E, Chapter 4, Attachment 3.

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_006-Q004
PG&E File Name:	IQPPY28-33_DR_SierraClub_006-Q004
Request Date:	August 21, 2026
Requester DR No.:	Sierra Club-PGE-06
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	September 3, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 004

Please refer to Exh. PG&E-01E at AppA-7, Table A-1, Planning Assumptions.

- a. Please provide an Excel version of this spreadsheet.
- b. Please confirm that the Heat Pump Water Heater measure listed under Domestic Hot Water is not a fuel substitution measure and refers to HPWHs installed to replace existing electric water heaters.
- c. Please confirm that the Induction Cooking Appliance – FS measure listed under Appliances refers only to Fuel Substitution measures where the Induction Cooking Appliance replaces existing gas equipment. If this is the case, please also explain why these measures are counted under the “Appliances” category and none are counted under the “Induction Cooking App” measure listed under the “Electrification” category.
- d. Why does the “Remediation/Upgrade Costs” measure listed under the “Electrification” category of this spreadsheet have no budgeted costs?
- e. Does the “Deeper Savings” category of this spreadsheet refer to installations within the Targeted Deep Savings Tier?

ANSWER 004

- a. Please see “IQPPY28-33_DR_SierraClub_006-Q004Atch01.xlsx”
- b. Confirmed - Heat Pump Water Heater measure listed under Domestic Hot Water is not a fuel substitution measure and refers to HPWHs installed to replace existing electric water heaters.
- c. Confirmed - “Induction Cooking Appliance – FS” refers to fuel substitution measures where the Induction Cooking Appliance replaces existing gas equipment.

PG&E, in collaboration with the other IOUs and the Energy Division, developed standardized appendix templates for the 2028-2033 program cycle. The measure is listed under the “Appliances Category” because this is consistent with the current

program cycle reporting template and the appendix template developed in coordination with the Commission. PG&E does not intend to communicate a material difference by listing the measure under “Appliances” in lieu of the “Electrification” category in Table A-1. PG&E ESA proposes refining and modifying reporting collaboratively, similar to current processes, during the 2028-2033 cycle.¹

- d. The row titled “Remediation/Upgrade costs” does not include budget or costs because remediation and electrical upgrade costs associated with an electrification measure are included in the measure installation costs for respective electrification measures, such as Heat Pump Water Heater and Heat Pump HVAC. This is similar to how PG&E reports minor home repair costs.² For more information on PG&E’s forecasted 2028-2033 remediation and upgrade costs, please see PG&E’s response to IQPPY28-33_DR_TURN_006-Q008.
- e. Yes.

¹ PG&E-01E, p. 5-23, lines 10-16.

² Statewide ESA Policy & Procedures Manual, Version 1.6 (June 30, 2026). pp. 35-36.

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs PY28-33
Application 26-01-003
Data Response

PG&E Data Request No.:	SierraClub_006-Q005
PG&E File Name:	IQPPY28-33_DR_SierraClub_006-Q005
Request Date:	August 21, 2026
Requester DR No.:	Sierra Club-PGE-06
Requesting Party:	Sierra Club
Requester:	Rebecca Barker
Date Sent:	September 3, 2026
PG&E Witness(es):	Jack Pilutti

QUESTION 005

Please refer to the last two measures on the TableA-1 Planning Assumptions spreadsheet, which are “Heat Pump Water Heater, Residential, Fuel Substitution (With remediation and non-msr)” and “Heat Pump HVAC, Residential, Fuel Substitution (With remediation and non-msr).”

- a. What does “non-msr” mean in this context? Please explain in detail.
- b. Does “remediation” in this context refer specifically and exclusively to the measures identified as “remediation” in Section 7 of the ESA Policy and Procedures Manual v1.5? If no, please identify all of the types of work that PG&E refers to as “remediation” in this context.

ANSWER 005

- a. “Non-msr,” where “msr” is an abbreviation of “measure,” refers to installation costs not related to materials or direct installation labor, including permits, enhanced home assessments, and modeling.
- b. Yes.

PG&E notes that, in addition to remediation and non-msr costs, the costs forecasted for the two measures referenced in this question also include costs such as electrical upgrades, which the ESA Policy and Procedures Manual defines as “Auxiliary Measures”.¹

¹ California Statewide ESA Policy and Procedures Manual, Version 1.6 (June 30, 2026). p. 105.

Attachment 9

SDG&E Responses to Sierra Club Data Requests

Sierra Club
AMENDMENT to Sierra Club-SDG&E-01
DATE RECEIVED: April 22, 2026
DATE RESPONDED: May 6, 2026

Data Request:

1. The ESA Policy and Procedures Manual¹ from the current cycle states that “inoperable gas appliances may be replaced through fuel substitution” when: (1) all other appliances in the home are electric and the inoperable gas appliance is the last remaining gas appliance, or (2) the cost to repair the inoperable gas appliance is more than the cost to replace with a new gas appliance. In the Prepared Direct Testimony of Roland Mollen, Horace (Ty) Tatum, and Mia Graff (hereinafter “Mollen et al Direct Testimony”) at ESA-48:3–4, the witness states that “SDG&E is not proposing fuel substitution measures within ESA Main.”
 - a. Is it correct to interpret this testimony to mean that, outside of the proposed ESA Electrification Pilot, SDG&E’s ESA Main Program’s approach to an inoperable gas appliance would be to either (a) repair the appliance or (b) replace the appliance with a new gas appliance? If no, please explain what options an ESA Main contractor would have upon discovering an inoperable gas appliance in a participating customer’s home.
 - b. Is it correct to interpret this testimony to mean that SDG&E’s ESA Main program would replace an inoperable gas appliance with a new gas appliance even when that appliance is the last remaining gas appliance in the home? If no, please explain why not.
 - c. In a scenario where an ESA Main participant has an inoperable gas appliance, would SDG&E provide the customer with information regarding both gas and electric replacement appliances? Please explain why information regarding electric options would or would not be offered.
 - d. In a scenario where an ESA Main participant has an inoperable gas appliance, would SDG&E offer to enroll the customer in its ESA Electrification Pilot rather than replace the inoperable gas appliance through the ESA Main program?
 - e. If the answer to Question 1(d) is yes, would the customer be referred to the ESA Electrification Pilot even if their home does not have the characteristics listed on page ESA-90:5–15 of Mollen et al Direct Testimony?
2. When replacing an inoperable gas appliance with a new gas appliance through the ESA Main Program, does SDG&E analyze the cost of installing the new gas appliance versus the cost of installing a new electric appliance?
3. Mollen et al Direct Testimony at ESA-94:6–12 notes that one element of the ESA Electrification Pilot will be bill impacts analysis regarding fuel substitution measures.

¹ Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual (v1.4), at 104 (rev. Apr. 18, 2025), <https://www.cpuc.ca.gov/-/media/cpuc-website/consumer-support/documents/20250418-statewide-esa-program-pp-manualv14.pdf>.

Sierra Club
AMENDMENT to Sierra Club-SDG&E-01
DATE RECEIVED: April 22, 2026
DATE RESPONDED: May 6, 2026

- a. Has SDG&E conducted any analysis of bill impacts of electrification to date outside of this proposed pilot? If yes, please provide the analysis.
4. Please refer to SDG&E CARE Table 15 from the PY 2024 Low Income Annual Report.²
 - a. Please provide the most up-to-date numbers for the categories in this table from PY 2025. Please also provide any available data from PY 2026.
 - b. Please identify the total number of customers enrolled in PY 2025 through categorical eligibility. Please also provide any available data from PY 2026.
 - c. Please identify the total number of customers enrolled in PY 2025 who were not enrolled through categorical eligibility. Please also provide any available data from PY 2026.

END OF REQUEST

² https://liob.cpuc.ca.gov/wp-content/uploads/sites/14/2025/10/A1911003-SDGE_2024_AR_Tables_ESA_CARE_FERA_6-27-25.xlsx

Sierra Club
AMENDMENT to Sierra Club-SDG&E-01
DATE RECEIVED: April 22, 2026
DATE RESPONDED: May 6, 2026

On May 5th, 2026, SDG&E submitted its response to the Sierra Club-SDG&E-01 data request. However, after further review of the data provided for question 4.a, SDG&E noted a discrepancy in the figures provided. As such, SDG&E hereby submits this amended response to this data request. Please note that SDG&E has redlined the incorrect numbers for question 4.a and provided the correct numbers. All other responses remain unchanged.

San Diego Gas & Electric Company's (SDG&E) responses are as follows:

1. The ESA Policy and Procedures Manual³ from the current cycle states that “inoperable gas appliances may be replaced through fuel substitution” when: (1) all other appliances in the home are electric and the inoperable gas appliance is the last remaining gas appliance, or (2) the cost to repair the inoperable gas appliance is more than the cost to replace with a new gas appliance. In the Prepared Direct Testimony of Roland Mollen, Horace (Ty) Tatum, and Mia Graff (hereinafter “Mollen et al Direct Testimony”) at ESA-48:3–4, the witness states that “SDG&E is not proposing fuel substitution measures within ESA Main.”
 - a. Is it correct to interpret this testimony to mean that, outside of the proposed ESA Electrification Pilot, SDG&E’s ESA Main Program’s approach to an inoperable gas appliance would be to either (a) repair the appliance or (b) replace the appliance with a new gas appliance? If no, please explain what options an ESA Main contractor would have upon discovering an inoperable gas appliance in a participating customer’s home.

SDG&E Response to Q.1.a:

Yes, the interpretation is correct: SDG&E’s ESA Main Program’s approach to an inoperable gas appliance would be to either (a) repair the appliance or (b) replace the appliance with a new gas appliance. Given SDG&E’s mild climate, diverse housing stock, and limited data on electrification impacts for income-qualified customers in its service territory, SDG&E will implement the ESA Electrification Pilot at a small scale to identify the most effective approach before including fuel substitution measures in ESA Main.⁴ This strategy will help prevent unintended cost increases or hardships for low-income customers and provide critical insights into program design and implementation.⁵

- b. Is it correct to interpret this testimony to mean that SDG&E’s ESA Main program would replace an inoperable gas appliance with a new gas appliance even when that appliance is the last remaining gas appliance in the home? If no, please explain why not.

³ Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual (v1.4), at 104 (rev. Apr. 18, 2025), <https://www.cpuc.ca.gov/-/media/cpuc-website/consumer-support/documents/20250418-statewide-esa-program-pp-manualv14.pdf>.

⁴ Mollen et al Direct Testimony at ESA-89:20-ESA-90:3

⁵ Mollen et al Direct Testimony at ESA-90:3-5

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AMENDMENT to Sierra Club-SDG&E-01
DATE RECEIVED: April 22, 2026
DATE RESPONDED: May 6, 2026

SDG&E Response to Q.1.b:

Yes, it is correct to interpret this testimony to mean that SDG&E's ESA Main program would replace an inoperable gas appliance with a new gas appliance even when that appliance is the last remaining gas appliance in the home. As described above, SDG&E will pilot electrification measures before broader ESA Main deployment in order to avoid increasing energy costs for low-income customers.

- c. In a scenario where an ESA Main participant has an inoperable gas appliance, would SDG&E provide the customer with information regarding both gas and electric replacement appliances? Please explain why information regarding electric options would or would not be offered.

SDG&E Response to Q.1.c:

In the scenario described, information about electric appliance alternatives is not explicitly included or excluded from ESA Main Energy Education. If an ESA Main participant specifically inquired about electric appliance alternatives, how to respond would be at the discretion of the contractor providing the Energy Education. The ESA Policy and Procedures Manual describes Energy Education approved and adopted by the California Public Utilities Commission (CPUC).⁶ Energy education covers the following general areas: heating and cooling usage, water heating system usage, major electric and gas appliance usage, small appliance usage, benefits of energy efficiency programs in reducing greenhouse gas emissions, water conservation, and lighting usage.⁷

- d. In a scenario where an ESA Main participant has an inoperable gas appliance, would SDG&E offer to enroll the customer in its ESA Electrification Pilot rather than replace the inoperable gas appliance through the ESA Main program?

SDG&E Response to Q.1.d:

No, in general the ESA Main program would not offer to enroll a customer with an inoperable gas appliance in its ESA Electrification Pilot. The ESA Electrification Pilot proposes to use data-driven targeting to identify homes where electrification or fuel substitution is both feasible and beneficial.⁸ However, ESA Main may refer the customer to other programs or services as part of SDG&E's overall program coordination efforts as described in ESA 140 of Mollen et al Direct Testimony.

- e. If the answer to Question 1(d) is yes, would the customer be referred to the ESA Electrification Pilot even if their home does not have the characteristics listed on page ESA-90:5–15 of Mollen et al Direct Testimony?

⁶ Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual (ESA Policy and Procedures Manual) (v1.5), at 9 (rev. Oct. 31, 2025).

⁷ ESA Policy and Procedures Manual (v1.5), at 31

⁸ Mollen et al Direct Testimony at ESA-52:1-3

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DATE RECEIVED: April 22, 2026
DATE RESPONDED: May 6, 2026

SDG&E Response to Q.1.e:

As described above, ESA Main does its best to meet the needs and interests of its customers and may refer customers to other programs or services as part of SDG&E's overall program coordination efforts.

2. When replacing an inoperable gas appliance with a new gas appliance through the ESA Main Program, does SDG&E analyze the cost of installing the new gas appliance versus the cost of installing a new electric appliance?

SDG&E Response to Q.2:

No, when replacing an inoperable gas appliance with a new gas appliance, the ESA Main Program does not analyze the cost of installing a new gas appliance versus the cost of installing a new electric appliance. ESA Main does not currently offer fuel substitution measures as alternatives to standard measures; therefore, a cost analysis at the time of installation is not applicable. ESA Main offers a fixed list of measures, as identified in Attachment A of the California Statewide Energy Savings Assistance Program Policy and Procedures Manual (v1.4).⁹ Measures are installed at pre-established prices) and SDG&E does not evaluate pricing at the time of installation. SDG&E will implement the ESA Electrification Pilot to test a billing analysis tool at a small scale before deploying ESA Main.

3. Mollen et al Direct Testimony at ESA-94:6–12 notes that one element of the ESA Electrification Pilot will be bill impacts analysis regarding fuel substitution measures.
 - a. Has SDG&E conducted any analysis of bill impacts of electrification to date outside of this proposed pilot? If yes, please provide the analysis.

SDG&E Response to Q.3.a:

The billing analysis tool for the Electrification Pilot will use advanced data modeling to estimate energy use and costs, focusing on heating and cooling through variable base temperature in a regression analysis. The tool will utilize customer-specific billing data, current and forecasted rates, appliance usage (e.g., dryers, water heaters, furnaces, and cooking systems) for customized evaluations before and after electrification. The tool will inform the customer of the bill impacts of changing gas appliances to electric appliances.

Analysis for any bill impact projections in the current cycle will be conducted during the evaluation for the Pilot Plus/ Pilot Deep Program. To date, there has been no analysis conducted regarding the bill impacts from electrification efforts.

4. Please refer to SDG&E CARE Table 15 from the PY 2024 Low Income Annual Report.¹⁰

⁹ https://pda.energydataweb.com/api/downloads/4144/2025-04-18%20Statewide%20ESA%20Program%20P%26P%20Manual_v1.4.pdf.

¹⁰ Amended Annual Report of SDG&E on Energy Savings Assistance, California Alternate Rates for Energy, Family Electric Rate Assistance Programs for 2024, CARE Table 15 at A-43

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- a. Please provide the most up-to-date numbers for the categories in this table from PY 2025. Please also provide any available data from PY 2026.SDG&E

Response to Q.4.a:

2025 data can be found in the 2025 Annual Report.¹¹ 2026 data covers January to March,¹²

Year	Type of Enrollment	Number of Customer Enrollments ¹³
2025	Bureau of Indian Affairs	60
2025	CalFresh/Supplemental Nutrition Assistance Program	17,814
2025	CalWORKs/Temporary Assistance for Needy Families	1,730
2025	Head Start Income Eligible (Tribal Only)	143
2025	Healthy Families A&B	3
2025	Low-Income Home Energy Assistance Program (LIHEAP)	1,601
2025	Medicaid/Medi-Cal	30,904
2025	National School Lunch Program (NSLP)	5,292
2025	Supplemental Security Income (SSI)	4,261
2025	Tribal TANF	0
2025	Women, Infants, and Children Program (WIC)	4,619
2026	Bureau of Indian Affairs	14 13
2026	CalFresh/Supplemental Nutrition Assistance Program	4,320 4,298
2026	CalWORKs/Temporary Assistance for Needy Families	387 382
2026	Head Start Income Eligible (Tribal Only)	38
2026	Low-Income Home Energy Assistance Program (LIHEAP)	348 342
2026	Medicaid/Medi-Cal	8,243 8,184
2026	National School Lunch Program (NSLP)	1,473 1,451
2026	Supplemental Security Income (SSI)	1,105 1,093
2026	Women, Infants, and Children Program (WIC)	1,148 1,143

¹¹ Annual Report of SDG&E on Energy Savings Assistance, California Alternate Rates for Energy, Family Electric Rate Assistance Programs for 2025, CARE Table 16

¹² Id., Ad-hoc analysis based on January to March 2026 data.

¹³ Number of customers enrolled reflects categorical programs selected by customers. Customers may select more than one eligible program for a single account. 2026 number of customer enrollments reflects January to March, 2026 using the same reporting methodology.

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- b. Please identify the total number of customers enrolled in PY 2025 through categorical eligibility. Please also provide any available data from PY 2026.

SDG&E Response to Q.4.b:

Year	Number of Customer Enrollments
2025	42,577
2026	11,272

- c. Please identify the total number of customers enrolled in PY 2025 who were not enrolled through categorical eligibility. Please also provide any available data from PY 2026.

SDG&E Response to Q.4.c:

Year	Number of Customer Enrollments
2025	18,207
2026	4,093

END OF RESPONSE

Sierra Club
Sierra Club-SDGE-04
DATE RECEIVED: August 14, 2026
DATE RESPONDED: August 28, 2026

Data Request:

1. Please refer to the Statewide Energy Savings Assistance Program 2021–2026 Cycle Policy and Procedures Manual v1.5 (“Policy and Procedures Manual”), page 108, Section 7.4, titled “Cost Limits on Remediation.” This section of the manual states that the ESA Working Group has not yet recommended average cost limits for electrification-enabling remediation work, nor individual home limits for such remediation work, and states for both limits, “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”
 - a. Please confirm that costs of the “auxiliary measures” listed on page 105 of the Policy and Procedural Manual are not counted toward remediation cost caps.
 - b. What average cost limit does SDG&E currently use for electrification-enabling remediation work? Please interpret “electrification-enabling remediation work” to mean both electrical and non-electrical building remediation, as defined in the Policy and Procedures Manual v1.5 on pages 106–108, that are completed as necessary to enable installation of an electrification measure.
 - c. What is the basis for SDG&E’s current average cost limit for electrification-enabling remediation work?
 - d. What per-home cost limit does SDG&E currently use for electrification-enabling remediation work?
 - e. What is the basis for SDG&E’s current per-home limit for electrification-enabling remediation work?
 - f. Does SDG&E propose changing either the average or per-home cost caps for remediation work in the 2028–2033 program cycle? If yes, please explain what changes SDG&E proposes and why. If no, please explain why not.
2. Does SDG&E include roof repairs in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.
3. Does SDG&E include mold and/or moisture remediation/treatment in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.
4. Does SDG&E include asbestos or lead abatement/containment/remediation in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.
5. Does SDG&E refer deferred homes to other programs for pre-weatherization treatments that would cure the condition that led to the deferral? If yes, please list the programs that SDG&E refers deferred homes to.
6. How many homes were deferred from SDG&E’s ESA program in 2022, 2023, 2024, and 2025? For each year, please specify:

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- a. The number of homes deferred;
 - b. The percentage of homes deferred out of the total number of homes assessed for ESA;
 - c. The breakdown of reasons for deferral among the deferred homes each year (i.e., lack of Property Owner Authorization, remediation needs exceeding cost cap, minor home repairs exceeding cost cap, etc.).
7. Please refer to the Policy and Procedures Manual at page 109, which discusses per-home cost maximums for fuel substitution measures themselves (not remediation and/or repairs). The Manual states that the ESA Working Group has not yet established cost maximums and states that “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”
 - a. Please confirm that the costs of auxiliary measures listed on page 105 of the Policy and Procedures Manual are included in the per-home cost limits on fuel substitution.
 - b. What per-home cost cap does SDG&E currently use for fuel substitution measures?
 - c. What is the basis for the cost cap?
 - d. Does SDG&E propose to change the cost cap in the 2028–2033 program cycle? If yes, please explain what changes SDG&E proposes and why. If no, please explain why not.
 - e. In 2022, 2023, 2024, and 2025, did SDG&E’s ESA contractors request permission from the utility Program Manager (as described in Policy and Procedures Manual section 8.1) to exceed the maximum cost cap per home for fuel substitution? Please provide a table indicating, in each of the listed years, the following:
 - i. How many times a contractor requested permission to exceed the maximum cost cap;
 - ii. How many times SDG&E granted permission to exceed the maximum cost cap;
 - iii. The percentage of households receiving fuel substitution measures whose costs exceeded the maximum cost cap;
 - iv. The average per-home cost of homes whose costs exceeded the cap; and
 - v. The highest per-home cost of a home that exceeded the cost cap.
8. For each year, in 2022, 2023, 2024, and 2025:
 - a. How many homes assessed for SDG&E ESA treatment had knob-and-tube wiring?

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- b. How many homes with knob-and-tube wiring were turned away from ESA treatment?
- c. How many homes with knob-and-tube wiring did SDG&E provide ESA treatments for? To the extent there are any such homes, please list the ESA measures that were provided to homes with knob-and-tube wiring.¹

END OF REQUEST

¹ This list can be aggregated across years and homes. Sierra Club understands that not all homes receive the same treatments or all identified treatments. The intent of this subquestion is to identify whether knob-and-tube homes are receiving ESA treatments of any kind and if so, understand what types of treatments they are receiving.

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DATE RECEIVED: August 14, 2026
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San Diego Gas & Electric Company's (SDG&E) responses are as follows:

1. Please refer to the Statewide Energy Savings Assistance Program 2021–2026 Cycle Policy and Procedures Manual v1.5 (“Policy and Procedures Manual”), page 108, Section 7.4, titled “Cost Limits on Remediation.” This section of the manual states that the ESA Working Group has not yet recommended average cost limits for electrification-enabling remediation work, nor individual home limits for such remediation work, and states for both limits, “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”
 - a. Please confirm that costs of the “auxiliary measures” listed on page 105 of the Policy and Procedural Manual are not counted toward remediation cost caps.

SDG&E Response to Question 1.a:

The costs of the “auxiliary measures” listed on page 105 of the Policy and Procedural Manual are not considered remediation costs in any of SDG&E ESA programs. It’s important to note that SDG&E’s ESA Main Program does not offer electrification.

With Pilot Plus/Pilot Deep (PPPD), the auxiliary measures listed on page 105 of the Policy and Procedures Manual are counted toward the PPPD home mitigation cost caps. As described on page 14 of SDG&E’s Advice Letter 4099-E/3134-G, mitigation includes all efforts necessary to bring properties up to code prior to the installation of equipment and measures. Therefore, auxiliary measures are considered as mitigation activities and are included within the applicable home mitigation cost caps, which are \$5,000 per home for Pilot Plus projects and \$7,500 per home for Pilot Deep projects. Table 17 of Advice Letter 4099-E/3134-G (pp. 33-34) provides illustrative examples of mitigation measures and associated mitigation cost ranges that may be incurred under the Pilot and included within those home mitigation cost caps

- b. What average cost limit does SDG&E currently use for electrification-enabling remediation work? Please interpret “electrification-enabling remediation work” to mean both electrical and non-electrical building remediation, as defined in the Policy and Procedures Manual v1.5 on pages 106–108, that are completed as necessary to enable installation of an electrification measure.

SDG&E Response to Question 1.b:

SDG&E's ESA programs do not currently utilize an average cost limit for electrification-enabling remediation work. This applies to both electrical and non-electrical building remediation activities, as defined in the Policy and Procedures Manual v1.5 (pp. 106–108), when those activities are necessary to enable installation of an electrification measure.

Where electrification is offered through the PPPD, remediation costs are managed within the program's existing mitigation caps, rather than through a separate remediation cost limit as filed in SDG&E's PPPD Implementation plan (Advice Letter 4099E/3134G, Table 3).²

- c. What is the basis for SDG&E's current average cost limit for electrification-enabling remediation work?

SDG&E Response to Question 1.c:

Please see SDG&E's response to Question 1.b above. Therefore, there is no specific methodology, calculation, or Commission-approved basis used to establish such a limit.

- d. What per-home cost limit does SDG&E currently use for electrification-enabling remediation work?

SDG&E Response to Question 1.d:

Please refer to SDG&E's response to Question 1.c above. In the absence of an established electrification remediation cap for MFWB, SDG&E is using the existing MFWB Minor Home Repair (MHR) cost caps as an interim benchmark while gaining implementation experience and lessons learned from electrification projects. SDG&E may modify this approach as additional project scope, cost data, contractor feedback, and implementation experience become available.

- e. What is the basis for SDG&E's current per-home limit for electrification-enabling remediation work?

SDG&E Response to Question 1.e: (Assigned to Program Ops)

Please see SDG&E's responses to Questions 1.c and 1.d above.

- f. Does SDG&E propose changing either the average or per-home cost caps for remediation work in the 2028–2033 program cycle? If yes, please explain what changes SDG&E proposes and why. If no, please explain why not.

SDG&E Response to Question 1.f:

No, SDG&E is not proposing changes to average or per-home remediation cost caps for the 2028-2033 program cycle. As discussed in SDG&E's responses to Questions 1.b through 1.e, SDG&E has limited experience with electrification-enabling remediation activities under the current ESA portfolio. As a result, SDG&E does not have sufficient implementation experience

² <https://tariffsprd.sdge.com/view/filing/?utilId=SDGE&bookId=ELEC&flngKey=6521&flngId=4099-E&flngStatusCd=Approved>.

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to support revisions to remediation cost assumptions or the establishment of new electrification-specific cost caps.

2. Does SDG&E include roof repairs in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

SDG&E Response to Question 2:

No. SDG&E ESA programs do not include roof repairs as part of its remediation or MHR services.

As defined in Section 9.1 of the Statewide ESA MFWB Program Policy and Procedures Manual, *MHR are repairs required to: (a) facilitate the installation of eligible in-unit measures, (b) reduce in-unit infiltration, or (c) mitigate a hazardous in-unit condition. Minor repairs do not include non-functional appliance repair or replacement, or repairs unrelated to the installation of approved measures.*

Similarly, under section 7.1.1 remediations *are defined as building improvements, outside the scope of standard measure installation procedures, necessary to facilitate safe and code compliant installation of fuel substitution measures. Remediations are divided into two categories: (a) electrical remediations and (b) building remediations.*

Because roof repairs are generally considered structural building repairs rather than activities directly associated with the installation of ESA measures, they are outside the scope of both MHR and remediate services under the ESA Program. Accordingly, roof repairs are not typically treated as either a remediation measure or a MHR measure.

However, under the PPPD, roof repair may be included as a mitigation cost when necessary to support the installation of certain measures. Table 17 of Advice Letter 4099-E/3134-G (pp. 33-34) identifies roof repair as a mitigation effort associated with multiple eligible measures.

3. Does SDG&E include mold and/or moisture remediation/treatment in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

SDG&E Response to Question 3:

No, SDG&E's ESA Main and Multifamily Whole Building (MFWB) Programs do not include mold remediation or moisture remediation as eligible remediation or Minor Home Repair (MHR) services because it is outside the scope of standard services provided by the ESA program. Including such work would increase project costs and reduce cost-effectiveness.

For the Pilot, mold and moisture remediation are included in minor home repair services. Attachment 2 to D.21-06-015 states that "pest or mold mitigation may be included if needed to

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facilitate the installation of efficiency measures or create a safe working environment (for contractors)” as part of the Pilot's minor home repairs allowance.

4. Does SDG&E include asbestos or lead abatement/containment/remediation in its remediation or minor home repairs services? Why or why not? If yes, please indicate whether this would be a remediation treatment or a minor home repair treatment.

SDG&E Response to Question 4:

No. SDG&E ESA contractors do not currently provide asbestos or lead abatement, containment, or remediation services as part of remediation or minor home repair activities. These services are outside the standard scope of ESA program work and would increase project costs, reducing overall program cost-effectiveness.

Consistent with ESA program requirements, hazardous material abatement is not an eligible activity for furnace or water heater repair and replacement projects. While SDG&E does not provide asbestos or lead abatement services as part of MHR, ESA contractors are required to comply with all ESA Installation Standards, program policies and procedures, and applicable federal, state, and local regulations and codes when encountering asbestos containing materials or lead painted surfaces during the performance of authorized work.^{3,4} Contractors must also follow required lead-safe work practices when working in pre-1978 homes.^{5,6} As such, asbestos and lead abatement, containment, and remediation activities are neither remediation treatments nor minor home repair treatments under the current SDG&E ESA Program.

5. Does SDG&E refer deferred homes to other programs for pre-weatherization treatments that would cure the condition that led to the deferral? If yes, please list the programs that SDG&E refers deferred homes to.

SDG&E Response to Question 5:

Historically, SDG&E has not referred deferred homes to other programs for pre-weatherization treatments. If ESA Main program contractors encounter hazardous conditions such as mold, asbestos, or knob-and-tube wiring that prevents the installation of weatherization measures, then the customer is informed as to why the measure(s) could not be installed.

6. How many homes were deferred from SDG&E's ESA program in 2022, 2023, 2024, and 2025? For each year, please specify:

³ California Statewide Energy Savings Assistance Program Policy and Procedures Manual (v1.6)

⁴ Energy Savings Assistance Program California Installation Standards (v1.5)

⁵ California Statewide Energy Savings Assistance Program Policy and Procedures Manual (v1.6) Section 7.2.6

⁶ Energy Savings Assistance Program California Installation Standards (v1.5) Appendix E Lead Safe Weatherization Risk Factors

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- a. The number of homes deferred;
- b. The percentage of homes deferred out of the total number of homes assessed for ESA;
- c. The breakdown of reasons for deferral among the deferred homes each year (i.e., lack of Property Owner Authorization, remediation needs exceeding cost cap, minor home repairs exceeding cost cap, etc.).

SDG&E Response to Question 6:

SDG&E interprets ‘deferred’ to mean homes that are ‘unable or unwilling to participate’ in SDG&E’s ESA programs.

- a. The number of homes identified as unable or unwilling to participate in ESA is from ESA Table 8 ESA Homes Unwilling/Unable to Participate in SDG&E’s Low Income Program Annual Reports for PY 2022, PY 2023, PY 2024, and PY 2025, and is summarized below

Reasons Provided	2022	2023	2024	2025
Customer Unwilling/Declined Program Measures	11,927	7,997	6,777	6,437
Customer Unavailable - Scheduling Conflicts	28,105	15,874	16,613	15,343
Hazardous Environment (unsafe/unclean)	25	15	-	-
Landlord Refused to Authorize Participation	-	-	-	-
Household Income Exceeds Allowable Limits	1,765	3,199	4,487	4,844
Unable to Provide Required Documentation	1,262	444	186	156
Other Infeasible/ Ineligible	5,711	2,931	2,193	2,052
Total	48,795	30,460	30,256	28,832

- b. No homes were ‘deferred’ out of the number of homes assessed between 2022-2025.
 - c. Please see SDG&E’s response to Question 6.a above.
7. Please refer to the Policy and Procedures Manual at page 109, which discusses per-home cost maximums for fuel substitution measures themselves (not remediation and/or repairs). The Manual states that the ESA Working Group has not yet established cost maximums and states that “[u]ntil statewide cost limits are in place, each investor-owned utility should establish their own cost limits.”

- a. Please confirm that the costs of auxiliary measures listed on page 105 of the Policy and Procedures Manual are included in the per-home cost limits on fuel substitution.

SDG&E Response to Question 7.a:

For the Southern MFWB Program, Auxiliary Measures are maintained as separate measure line items and are not included within the cost of the fuel substitution measure itself. SDG&E's ESA Main Program does not offer Fuel substitution.

In 2026, SDG&E added Auxiliary Measures as distinct measures within the Southern MFWB contract to support future fuel substitution projects where electrical infrastructure upgrades or other enabling work may be required. To date, no MFWB projects have required or utilized Auxiliary Measures.

Costs associated with Auxiliary Measures are subject to review and approval by SDG&E prior to installation and are evaluated based on project-specific conditions and the necessity of the work to support the fuel substitution measure. Accordingly, Auxiliary Measure costs are tracked separately from the associated fuel substitution measure costs.

Under PPPD, the costs of the auxiliary measures listed are included in the applicable per-home mitigation cost limits. See question 1.a for PPPD.

- b. What per-home cost cap does SDG&E currently use for fuel substitution measures?

SDG&E Response to Question 7.b:

Please see SDG&E's response to Question 1.d above. In the absence of an established statewide fuel substitution cost cap for MFWB, SDG&E is using the existing MFWB Minor Home Repair (MHR) cost caps as an interim benchmark while gaining implementation experience and lessons learned from fuel substitution and electrification projects.

- c. What is the basis for the cost cap?

SDG&E Response to Question 7.c:

Please see SDG&E's response to Question 1.e above.

- d. Does SDG&E propose to change the cost cap in the 2028–2033 program cycle? If yes, please explain what changes SDG&E proposes and why. If no, please explain why not.

SDG&E Response to Question 7.d:

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No. SDG&E is not proposing changes to fuel substitution measure cost caps for either the MFWB Program or the Electrification Pilot for the 2028-2033 program cycle. Please also see SDG&E's response to Question 1.f above.

- e. In 2022, 2023, 2024, and 2025, did SDG&E's ESA contractors request permission from the utility Program Manager (as described in Policy and Procedures Manual section 8.1) to exceed the maximum cost cap per home for fuel substitution? Please provide a table indicating, in each of the listed years, the following:
- i. How many times a contractor requested permission to exceed the maximum cost cap;
 - ii. How many times SDG&E granted permission to exceed the maximum cost cap;
 - iii. The percentage of households receiving fuel substitution measures whose costs exceeded the maximum cost cap;
 - iv. The average per-home cost of homes whose costs exceeded the cap; and
 - v. The highest per-home cost of a home that exceeded the cost cap.

SDG&E Response to Question 7.e:

No. SDG&E is not aware of any instances in 2022, 2023, 2024, or 2025 in which an ESA contractor requested permission to exceed a maximum cost cap for fuel substitution measures.

8. For each year, in 2022, 2023, 2024, and 2025:
- a. How many homes assessed for SDG&E ESA treatment had knob-and-tube wiring?

SDG&E Response to Question 8.a:

SDG&E does not know how many ESA participating homes have knob-and-tube wiring. The ESA Implementer assesses all ESA participating homes for measure feasibility per the requirements of the IS Manual. The presence of knob and tube wiring is one of several non-feasibility criteria listed for Attic Insulation in the IS Manual (Section 205).

- b. How many homes with knob-and-tube wiring were turned away from ESA treatment?

SDG&E Response to Question 8.b:

No homes were turned away from participating in ESA due to having knob-and-tube wiring. Homes with knob-and-tube wiring are not eligible for insulation per IS Manual Section 205.

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Otherwise, homes with knob-and-tube wiring may participate in ESA and receive measures that qualify.

- c. How many homes with knob-and-tube wiring did SDG&E provide ESA treatments for? To the extent there are any such homes, please list the ESA measures that were provided to homes with knob-and-tube wiring.⁷

SDG&E Response to Question 8.c:

As described in SDG&E's response to Question 8.a above, homes with knob-and-tube wiring do not qualify for insulation; all other measures may be provided as long as measure specific eligibility requirements are met. SDG&E ESA Main eligible measures are listed in Table A-1 of the Policy and Procedures Manual.

END OF RESPONSE

⁷ This list can be aggregated across years and homes. Sierra Club understands that not all homes receive the same treatments or all identified treatments. The intent of this subquestion is to identify whether knob-and-tube homes are receiving ESA treatments of any kind and if so, understand what types of treatments they are receiving.

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Data Request:

1. Please provide a map (in PDF form) that indicates all areas of SDG&E's service territory that are not included in any of the proposed primary identifier locations under SDG&E's proposed new location-based customer segmentation plan.¹
2. How many of the total households SDG&E estimates are eligible for ESA treatment are located outside of the proposed priority segment locations? Please provide both an estimated number of households and a percentage of the total number of ESA-eligible households in SDG&E's service territory.
3. Exh. SDG&E-03 at ESA-51 states that the Electrification Pilot will "include fuel substitution measures where appropriate, such as replacing natural gas furnaces or gas stoves with high-efficiency electric alternatives, especially in homes where gas infrastructure is aging or costly to maintain."
 - a. Please provide one or more examples of scenarios in which a fuel substitution measure would be considered not "appropriate" for a customer receiving treatment through the Electrification Pilot.
 - b. Will SDG&E also install gas like-for-like appliance replacements in homes participating in the Electrification Pilot if it decides that a fuel substitution measure is not "appropriate"?
4. Exh. SDG&E-03 at ESA-77 sets forth SDG&E's proposal to adopt a \$3.4 million remediation budget to support MFWB electrification treatments, noting that the budget is intended to "offset the financial burden of necessary infrastructure improvement and encourage broader adoption of electrification measures," but that it "is not expected to cover the full cost" of such upgrades.
 - a. How does SDG&E plan to decide how much money to allocate for any given property or project's remediation needs?
 - b. SDG&E references the Minor Home Repair per-home cost cap of \$2,500 on this page. Does SDG&E intend to set a per-property cost cap for MFWB remediation work? If yes, what is the proposed cost cap and what is the basis for it?
 - c. How did SDG&E arrive at the \$3.4 million budget request for remediation?

¹ The primary identifiers are those in Exh. SDG&E-03, page ESA-8, Table 1, under the "Proposed PY 2028-2033" column).

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5. Exh. SDG&E-03 at ESA-77:12–14 states that “SDG&E budgeted approximately 10% of treated households and 10% of CAM projects to participate in electrification efforts during PY 2028-2033.”
 - a. What is the basis for the 10% of treated households and 10% of CAM projects, as opposed to higher or lower percentages?
 - b. Please define “participate in electrification efforts” as used in the above-referenced sentence.
 - c. What budget would be required for the MFWB program if SDG&E budgeted for approximately 50% of treated households and 50% of CAM projects to participate in electrification efforts during PY 2028-2033?
 - d. What budget would be required for the MFWB program if SDG&E budgeted for approximately 80% of treated households and 80% of CAM projects to participate in electrification efforts during PY 2028-2033?
 - e. What budget would be required for the MFWB program if SDG&E budgeted for approximately 100% of treated households and 100% of CAM projects to participate in electrification efforts during PY 2028-2033?
6. Exh. SDG&E-03 at ESA-76:23–77-2 state that “[m]any older multifamily buildings lack the electrical infrastructure needed to support increased loads, and the cost upgrading these systems can be prohibitive.”
 - a. Did SDG&E track remediation costs that were considered “prohibitive” and resulted in MFWB properties not pursuing whole-building electrification in the current ESA cycle? If yes, please provide an Excel spreadsheet listing:
 - i. The number of units of the property;
 - ii. The measures considered for installation;
 - iii. The remediation costs that would have been triggered by the measures;
 - iv. What the remediation measures were that carried those costs (i.e., wiring upgrade, panel upgrade, etc.)
 - v. The measures ultimately installed in the property.
7. Exh. SDG&E-03 at ESA-90 provides a list of attributes a household might have, and states that the Electrification Pilot “plans to enroll 300 to 350 income-qualified homes with the following characteristics” prior to providing the list.
 - a. Does a household need to have multiple of the characteristics enumerated on page ESA-90 to qualify for the pilot, or could a household with only one of the listed characteristics qualify? If a household must have multiple characteristics, please

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identify which and how many of the characteristics are necessary for a household to qualify.

8. Exh. SDG&E-03 states on page ESA-92 that “Fuel switching is already permitted in ESA Main,” but on page ESA-12 states that ESA program benefits are “diminished in these primarily rural and semi-rural climate zones 14 and 15 due to the use of propane over natural gas as a fuel source, which disqualifies households from receiving most ESA Program services (e.g., infiltration measures, natural gas appliance testing, and many appliance upgrades).”
 - a. Please state whether SDG&E believes fuel switching from propane to electricity is currently allowed in ESA Main.
 - b. If SDG&E believes that fuel switching measures are currently allowed in ESA Main, why are propane-reliant households “disqualified” from receiving appliance upgrades through its ESA Program?
9. Exh. SDG&E-03 at ESA-94 states that the Electrification Pilot will offer induction cooktops to replace gas stoves. Does this measure include induction ranges, or only cooktops?
10. Exh. SDG&E-03 at ESA-95 states that in the Electrification Pilot, “full panel upgrades will only be recommended when lower-cost remediation strategies are not feasible and when the customer’s upgrade costs fall within the available funding.” Please identify the “lower-cost remediation strategies” SDG&E plans to use in the Electrification Pilot.

END OF REQUEST

San Diego Gas & Electric Company's (SDG&E) responses are as follows:

1. Please provide a map (in PDF form) that indicates all areas of SDG&E's service territory that are not included in any of the proposed primary identifier locations under SDG&E's proposed new location-based customer segmentation plan.²

SDG&E Response to Question 1:

Please see the attached map, titled "Non-Primary Identifier Locations v2" in PDF. The locations identified on the map are not proposed primary identifier locations under SDG&E's proposed location-based customer segmentation plan. However, customers in these non-primary areas are not excluded from targeted marketing efforts, as they may qualify through secondary identifiers or be otherwise eligible for program outreach.

2. How many of the total households SDG&E estimates are eligible for ESA treatment are located outside of the proposed priority segment locations? Please provide both an estimated number of households and a percentage of the total number of ESA-eligible households in SDG&E's service territory.

SDG&E Response to Question 2:

The number of total households estimated to be eligible for ESA treatment outside of the priority segment locations is 101,645 as discussed in Exhibit (Ex.) SDGE-03 at ESA-8 to ESA-9. This number represents approximately 33% of the total 310,250 ESA-eligible households in SDG&E's service territory at the time of filing Application (A.) 26-01-010.

3. Exh. SDG&E-03 at ESA-51 states that the Electrification Pilot will "include fuel substitution measures where appropriate, such as replacing natural gas furnaces or gas stoves with high-efficiency electric alternatives, especially in homes where gas infrastructure is aging or costly to maintain."
 - a. Please provide one or more examples of scenarios in which a fuel substitution measure would be considered not "appropriate" for a customer receiving treatment through the Electrification Pilot.

SDG&E Response to Question 3.a:

As discussed in Ex. SDGE-03 at ESA-88 and ESA-91, a fuel substitution measure would be considered "not appropriate" whenever there is an issue with technical feasibility regarding installation, the customer has brand new gas appliances, or there is a negative bill impact where the bill forecast results in cost increases that may cause hardship for the customer.

² The primary identifiers are those in Exh. SDG&E-03, page ESA-8, Table 1, under the "Proposed PY 2028-2033" column).

- b. Will SDG&E also install gas like-for-like appliance replacements in homes participating in the Electrification Pilot if it decides that a fuel substitution measure is not “appropriate”?

SDG&E Response to Question 3.b:

If a fuel substitution measure is deemed not “appropriate” under the Electrification Pilot, the home may be treated with a like-for-like gas appliance replacement under SDG&E's ESA Main program.

- 4. Exh. SDG&E-03 at ESA-77 sets forth SDG&E’s proposal to adopt a \$3.4 million remediation budget to support MFWB electrification treatments, noting that the budget is intended to “offset the financial burden of necessary infrastructure improvement and encourage broader adoption of electrification measures,” but that it “is not expected to cover the full cost” of such upgrades.
 - a. How does SDG&E plan to decide how much money to allocate for any given property or project’s remediation needs?

SDG&E Response to Question 4.a:

SDG&E intends to evaluate remediation needs on a project-specific basis. Funding allocations will be based on factors such as condition of the building, feasibility of proposed measures, and the scope of electrical or non-electrical upgrades required to support fuel substitution. In the absence of established statewide guidance on remediation funding, SDG&E developed planning assumptions for remediation activities and will review funding requests from the contractor and/or implementer on a case-by-case basis, subject to SDG&E approval. Remediation costs and program participation assumptions will be further evaluated through future solicitation activities, implementation experience, and available program budgets, treatment targets, energy savings goals, and portfolio cost-effectiveness requirements. Additionally, SDG&E will seek opportunities to leverage other available programs and funding sources, such as the TECH Initiative, to maximize support for remediation and electrification projects.

- b. SDG&E references the Minor Home Repair per-home cost cap of \$2,500 on this page. Does SDG&E intend to set a per-property cost cap for MFWB remediation work? If yes, what is the proposed cost cap and what is the basis for it?

SDG&E Response to Question 4.b:

SDG&E is not proposing a separate per-property cost cap specifically for MFWB remediation work at this time. For budgeting, planning and measure forecasting purposes, SDG&E utilized planning assumptions that included remediation cost estimates for in-unit and Common Area Measure (CAM) projects. These assumptions were developed to forecast remediation funding needs and are not intended to establish a formal remediation cost cap for the MFWB Program.

Remediation needs will continue to be evaluated on a project-specific basis and may vary depending on building conditions, measure feasibility, and the improvements necessary to support fuel substitution measures. Remediation cost assumptions and expenditures will be evaluated through future implementation experience, contractor feedback, solicitation activities, and any additional statewide guidance that becomes available.

- c. How did SDG&E arrive at the \$3.4 million budget request for remediation?

SDG&E Response to Question 4.c:

SDG&E developed the proposed \$3.4 million remediation budget based on input from its current Southern MFWB Program implementer and assumptions regarding anticipated participation in fuel substitution projects and the level of remediation that may be required to facilitate electrification measures.

For forecasting purposes, SDG&E combined remediation and Auxiliary Measure activities into a single remediation budget. The forecast utilized not-to-exceed (NTE) cost assumptions averaging \$2,587 per in-unit treatment and \$8,625 per Common Area Measure (CAM) project across the proposed six-year cycle. These averages incorporate a 3% annual escalation factor. SDG&E also forecasted that approximately 10% of treated dwelling units and 10% of CAM projects would include at least two fuel substitution measures.

To balance electrification objectives with overall program budgets, savings goals, and portfolio cost-effectiveness, SDG&E's proposed approach allocates remediation funding primarily to support electrification projects involving heat pump water heaters, heat pump HVAC systems, and heat pump pool heaters. Remediation funding was not forecasted for induction cooktops and clothes dryers because those measures can often be installed without additional remediation work or may leverage remediation work already performed for other fuel substitution measures within the project.

5. Exh. SDG&E-03 at ESA-77:12–14 states that “SDG&E budgeted approximately 10% of treated households and 10% of CAM projects to participate in electrification efforts during PY 2028-2033.”

- a. What is the basis for the 10% of treated households and 10% of CAM projects, as opposed to higher or lower percentages?

SDG&E Response to Question 5.a:

Please see SDG&E's response to Question 4.c above.

Based on the 10% participation assumption, SDG&E forecasted approximately \$9.1 million in fuel substitution measure costs and approximately \$3.4 million in remediation costs, representing

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a combined investment of approximately \$12.5 million, or approximately 38% of the MFWB measures budget. SDG&E believes this level of investment represents a reasonable planning assumption given its limited implementation experience with electrification projects while still allowing the program to gain meaningful lessons learned that can inform future program design, delivery, and cost assumptions.

- b. Please define “participate in electrification efforts” as used in the above-referenced sentence.

SDG&E Response to Question 5.b:

As noted in Ex. SDG&E-03 at ESA-77, “participate in electrification efforts” refers to dwelling units or CAM projects that receive one or more fuel substitution measures. Examples include, but are not limited to, induction cooktops, Heat Pump Water Heaters, Heat Pump HVAC systems, Heat Pump Pool Heaters, and electric clothes dryers. Please also see SDG&E’s responses to Questions 4.c and 5.a above.

- c. What budget would be required for the MFWB program if SDG&E budgeted for approximately 50% of treated households and 50% of CAM projects to participate in electrification efforts during PY 2028-2033?

SDG&E Response to Question 5.c:

There have been no studies or analyses performed by SDG&E assuming higher percentages of treated dwelling units and CAM projects would participate in electrification efforts. Therefore, SDG&E did not forecast the budget requirements associated with such scenarios.

- d. What budget would be required for the MFWB program if SDG&E budgeted for approximately 80% of treated households and 80% of CAM projects to participate in electrification efforts during PY 2028-2033?

SDG&E Response to Question 5.d:

Please see SDG&E's response to Question 5.c above.

- e. What budget would be required for the MFWB program if SDG&E budgeted for approximately 100% of treated households and 100% of CAM projects to participate in electrification efforts during PY 2028-2033?

SDG&E Response to Question 5.e:

Please see SDG&E's response to Question 5.c above.

6. Exh. SDG&E-03 at ESA-76:23–77-2 state that “[m]any older multifamily buildings lack the electrical infrastructure needed to support increased loads, and the cost upgrading these systems can be prohibitive.”

- a. Did SDG&E track remediation costs that were considered “prohibitive” and resulted in MFWB properties not pursuing whole-building electrification in the current ESA cycle? If yes, please provide an Excel spreadsheet listing:
 - i. The number of units of the property;
 - ii. The measures considered for installation;
 - iii. The remediation costs that would have been triggered by the measures;
 - iv. What the remediation measures were that carried those costs (i.e., wiring upgrade, panel upgrade, etc.)
 - v. The measures ultimately installed in the property.

SDG&E Response to Question 6.a:

No. SDG&E did not track remediation costs that were considered prohibitive and resulted in Southern MFWB properties not pursuing whole-building electrification during the current program cycle.

The statement cited in SDG&E’s testimony reflects general implementation considerations associated with electrification projects in existing multifamily buildings, including electrical infrastructure limitations, project feasibility, equipment compatibility, customer and property owner preferences, available space constraints, and project costs. Electrification project feasibility is determined based on a combination of these factors rather than remediation costs alone.

7. Exh. SDG&E-03 at ESA-90 provides a list of attributes a household might have, and states that the **Electrification Pilot** “plans to enroll 300 to 350 income-qualified homes with the following characteristics” prior to providing the list.
 - a. Does a household need to have multiple of the characteristics enumerated on page ESA-90 to qualify for the pilot, or could a household with only one of the listed characteristics qualify? If a household must have multiple characteristics, please identify which and how many of the characteristics are necessary for a household to qualify.

SDG&E Response to Question 7.a:

A household does not need to have multiple of the characteristics to qualify for the pilot. As explained in Ex. SDG&E-03 at ESA-89 to ESA-91, the characteristics are descriptors of the prioritized customer segments that face higher energy burdens and structural barriers to clean energy access. These segments will be prioritized for outreach and enrollment. Pilot qualification is based on household income and the feasibility of installation for one or more of the electrification measures offered.

8. Exh. SDG&E-03 states on page ESA-92 that “Fuel switching is already permitted in ESA Main,” but on page ESA-12 states that ESA program benefits are “diminished in these primarily rural and semi-rural climate zones 14 and 15 due to the use of propane over

natural gas as a fuel source, which disqualifies households from receiving most ESA Program services (e.g., infiltration measures, natural gas appliance testing, and many appliance upgrades).”

- a. Please state whether SDG&E believes fuel switching from propane to electricity is currently allowed in ESA Main.

SDG&E Response to Question 8.a:

First, SCE’s ESA Monthly and Annual Reports include measure installations on ESA Table 2 - Main (SF, MH) Summary. There are two measures available for propane replacement. They are Heat Pump Water Heater – Propane, and Heat Pump Replacement - CAC Propane.

Further, the California Statewide Energy Savings Assistance Program Policy and Procedures Manual Version 1.5 (revised October 31, 2025) Electrification Policy at 90, Section A Fuel Switching states: “The replacement of equipment powered by non-utility (unregulated) fuels with electric measures for the same end use. Unregulated fuels include, but are not limited to, solid heating fuels, propane or fuel oil. Fuel switching measures may be allowed in the Main ESA Program as authorized by the Commission.”

Lastly, Section 6.3 Fuel Switching Policy at 103 states: “Fuel switching measures are currently not allowed in the Main ESA Program, unless specifically authorized by the Commission. Fuel Switching is defined in Section A herein as the replacement of equipment powered by non-utility (unregulated) fuels with electric measures for the same end use. Unregulated fuels include, but are not limited to, solid heating fuels, propane or fuel oil.”

- b. If SDG&E believes that fuel switching measures are currently allowed in ESA Main, why are propane-reliant households “disqualified” from receiving appliance upgrades through its ESA Program?

SDG&E Response to Question 8.b:

SDG&E's ESA Main Program has not sought Commission approval for fuel switching measures; therefore, propane-reliant households are currently ineligible for replacement measures.

9. Exh. SDG&E-03 at ESA-94 states that the Electrification Pilot will offer induction cooktops to replace gas stoves. Does this measure include induction ranges, or only cooktops?

SDG&E Response to Question 9:

The Electrification Pilot will offer both cooktops and induction ranges.

10. Exh. SDG&E-03 at ESA-95 states that in the Electrification Pilot, “full panel upgrades will only be recommended when lower-cost remediation strategies are not feasible and

when the customer's upgrade costs fall within the available funding." Please identify the "lower-cost remediation strategies" SDG&E plans to use in the Electrification Pilot.

SDG&E Response to Question 10:

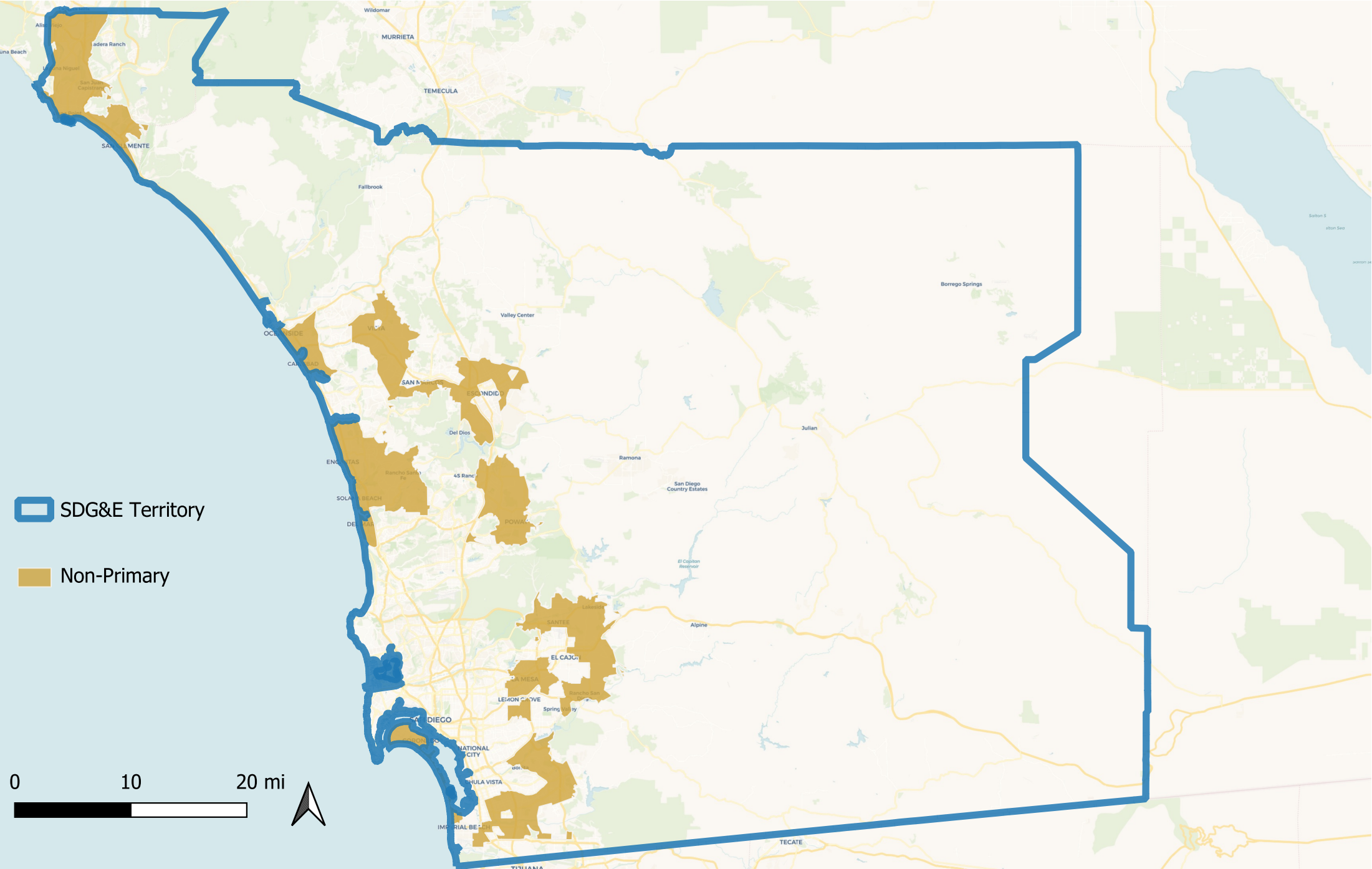
SDG&E intends to consider lower-cost alternatives to a full electrical panel upgrade, which may include load-management devices, dedicated circuit installations, circuit-sharing technologies, or other electrical modifications that enable appliance electrification while avoiding major service upgrades. Examples include but are not limited to:

- **Load management devices (smart panels or load-control devices):** These allow new electric appliances to be added without increasing panel capacity by automatically managing when major loads operate.
- **Dedicated circuit installation:** If the existing panel has sufficient capacity and space, adding a new circuit for the appliance is much less expensive than replacing the entire panel.
- **120-volt induction ranges/cooktops:** Some newer induction products can operate on standard 120V circuits, avoiding the need for a 240V circuit and potentially eliminating panel upgrades.
- **Circuit-sharing technologies:** Devices that safely allow two appliances to share a single 240V circuit, provided they do not operate simultaneously.
- **Subpanel installation:** In some cases, installing a small subpanel is less expensive than replacing the main service panel.

END OF RESPONSE

Non-Primary Identifier Locations

SDG&E Service Territory



Attachment 10

SoCalGas Responses to Sierra Club Data Requests

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

RECEIVED: MARCH 20, 2026

SUBMITTED: APRIL 17, 2026

Question 3.

Verduzco and Christian Direct at OV and RC-117:12–13, states that “A few ESA Program HCS measures produce marginal, negligible, or even negative energy savings.”

- a. Please identify all HCS measures that SoCalGas offered through ESA at any point during the last full program cycle.**
- b. Please identify which HCS measures produced “marginal” or “negligible” energy savings, as described in the above-referenced sentence.**
- c. Please identify which HCS measures produce “negative energy savings,” as described in the above-referenced sentence.**

SoCalGas Response:

See table below in response to questions 3a, 3b, and 3c.

Measure	HCS Type
Air Sealing/Envelope 5	Marginal/Negligible Savings
CO and Smoke Alarm	Marginal/Negligible Savings
Comprehensive Home Health and Safety Check-up	Marginal/Negligible Savings
Furnace Clean and Tune	Negative Savings
Furnace Repair/Replacement	Negative Savings

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

RECEIVED: MARCH 20, 2026

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Question 6.

Does SoCalGas provide any measures through ESA whose primary operational fuel is electricity? Please explain why or why not, and please identify any such measures.

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas Supplemental-02 Response:

It depends on the type of end use equipment. In accordance with ESA Program 2021-2026 Cycle Policy and Procedures (P&P) Manual (v.1.5)² and the ESA Program California Installation Standards (IS) Manuals,³ SoCalGas provides measures and services when the water heating and/or space heating energy source is supplied by SoCalGas. If any measure provided by SoCalGas operationally runs on electricity, such as a High-Efficiency Clothes Washer, the energy source fueling the water heating to that measure is supplied by SoCalGas.

² Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual (v1.5) at page (9).

³ Energy Savings Assistance Program California Installation Standards (v1.5) at page i.

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 7.

Verduzco and Christian Direct at OV and RC-124:2–4 state that “SoCalGas anticipated a steady increase in the appliances measures category, driven by the growing availability of High-Efficiency (“HE”) washers and rising customer interest in impactful, high-value home appliances.”

- a. Are the high-efficiency washers referenced in this statement fueled by gas or fueled by electricity?
- b. If a customer has an electric water heater, are they eligible to receive a high-efficiency washer through SoCalGas’ ESA program? If yes, please explain how energy savings would be calculated. If no, please explain why a customer would be ineligible if they use electricity for water heating.
- c. Please list all appliance types that are included in the “appliances measures” category.
- d. For each appliance type, please identify what percentage of the ESA budget funded measures of that type in Program Years 2025, 2024, 2023, and 2022.

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

- a. Please see the response provided to Question 6 regarding High-Efficiency Clothes Washers.
- b. Please see the response provided to Question 6. Regarding the installation of High-Efficiency Clothes Washers, at Section 105 under Installation Policies, “The water heating energy source must be supplied by the utility providing ESA Program services.” For homes where an electric water heater supplies the clothes washer with hot water, SoCalGas would not be able to provide a High-Efficiency Clothes Washer.
- c. The appliance type is High-Efficiency Clothes Washer.
- d. The expenditure percentage of the ESA budget for each appliance type for PYs 2022, 2023, 2024, and 2025 is not available because Decision (D.) 21-06-015 provided authorized budgets based on cost category per program year; the decision did not provide authorized budget base on the type of energy efficiency measures.⁴ Energy efficiency measures are installed based on individual household needs and expenses should be within the authorized amount.

⁴ D.21-06-015, Attachment 1 at Table 10.

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**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 10.

Please refer to Verduzco and Christian Direct at OV and RC-124:10–14.

- a. In this passage, please explain what equipment the testimony is referring to with the phrase “high-impact, modern home upgrades.”
- b. In the sentence: “Customers are especially drawn to the advanced technology and EE these systems offer,” please explain what “advanced technology” refers to, and please explain what “these systems” refers to.

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas Supplemental-01 Response:

- a. The phrase “high impact, modern home upgrades” refers to the installation of tankless water heaters.
- b. The terms “advanced technology” and “these systems” refer to tankless water heaters.

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**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 15.

Does SoCalGas install any wall furnaces through ESA? If yes, please identify:

- a. How many wall furnaces were installed through ESA, or any ESA subprograms, in Program Years 2025, 2024, 2023, and 2022;**
- b. Total costs by year for the wall furnaces identified in response to Question 10(a);**
- c. ESACET scores for each wall furnace measure identified in response to Question 10(a) during the relevant Program Year.**

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

a.

Program Year	2022	2023	2024	2025
Wall Furnaces Installed	2,233	1,002	816	1,005

b.

Program Year	2022	2023	2024	2025
Wall Furnaces Total Costs	\$4,689,200	\$2,229,875	\$1,946,665	\$2,876,056

- c. ESACET is reported at the ESA portfolio level, consistent with Commission direction,⁷ not at the individual measure level (e.g., per wall furnace measure).

⁷ D.21-06-015 at 248.

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 16.

Verduzco and Christian Direct at OV and RC-125:10–16 explains that “anticipated updates to Title 24 regulations, particularly changes to baseline efficiency standards, may influence the distribution and prioritization” of HVAC measures, and provides the example that “while initial budgets may allocate units and funding under the HE FAU Burnout measure, revised Title 24 language may necessitate reallocation to the HE FAU Early Replacement measure to support compliance and maximize program effectiveness.”

- a. Under what circumstances does SoCalGas offer early replacement of furnaces through ESA?**
- b. Please explain why revised Title 24 baseline efficiency standards would result in early replacement of a customer’s furnace through ESA.**

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas Supplemental-02 Response:

a. Per the ESA Program 2021-2026 Cycle Policy and Procedures Manual (v.1.5) at p. 57, SoCalGas offers early replacement of furnaces, “...1) when necessary to mitigate Natural Gas Appliance Testing (NGAT) fails and pursuant to the installation of infiltration-reduction measures, or 2) when replacement has been identified through natural gas appliance evaluation ... a High Efficiency FAU may also be installed as an early replacement for an existing operational FAU, provided all the following conditions are met:

- The existing FAU has an Annual Fuel Utilization Efficiency (AFUE) <80%.
- The customer’s winter season usage is >100% of baseline.”

b. Revisions to baseline efficiency definitions informed by federal appliance efficiency standards could result in increased use of the Early Replacement measure under SoCalGas’s ESA Program because the definition of a baseline compliant furnace would change. Under the current framework, furnaces with efficiencies at or above the baseline standard are considered compliant and therefore ineligible for early replacement incentives unless they fail and qualify under the burnout pathway.

If revisions to baseline efficiency assumptions occur as a result of federal appliance efficiency standards adopted by the U.S. Department of Energy (DOE), which require residential non-weatherized gas furnaces to meet a minimum efficiency of 95 percent AFUE for units

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manufactured on or after December 18, 2028⁸, SoCalGas anticipates that a larger population of existing furnaces would no longer meet the revised baseline. Specifically those in the 80 to 94 percent AFUE range—which previously met baseline standards —would no longer be considered compliant under a revised efficiency threshold. As a result, these units could become eligible for early replacement, even if still operational, should a customer choose this option.

Accordingly, a larger population of heaters could meet both the applicable AFUE criteria and seasonal usage thresholds for early replacement, which may necessitate reallocation of resources within SoCalGas’s authorized ESA budget. Under such circumstances, ESA Program delivery could shift toward earlier replacement of furnaces that no longer meet baseline efficiency standards rather than relying on equipment burnout. This change could require adjustments to measure deployment and the allocation of installations between HE FAU Burnout and HE FAU Early Replacement measures to reflect changes in the distribution and prioritization of eligible units resulting from revised baseline efficiency definitions informed by federal standards.

⁸ Energy Conservation Program: Energy Conservation Standards for Consumer Furnaces, 88 Fed. Reg. 87502, 87503–87504 (Dec. 18, 2023).

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SUPPLEMENTAL-02**

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Question 18.

If an ESA customer's home is eligible for a furnace replacement (either early or upon burnout), does SoCalGas offer electric heat pumps as an option for the replacement equipment? If not, why not?

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas Supplemental-02 Response:

No, SoCalGas does not offer electric heat pumps as an option for the replacement equipment. Per the installation requirements established in the IS Manual, found in Section 310 under Furnace Repair/Replacement policies, "Furnace repairs and replacements will be provided only if the fuel used by the furnace is supplied by the utility providing ESA Program services." In the example mentioned, SoCalGas is prohibited from offering an electric heat pump as an option as the fuel used by that type of furnace is electricity, which is not the fuel supplied by SoCalGas.

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**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 19.

Verduzco and Christian Direct explains at OV and RC-125:20 that “Furnace Repair/Replacement” is among the HCS measures offered by SoCalGas through ESA.

- a. How does SoCalGas determine whether a given furnace replacement should be considered a “Furnace Repair/Replacement” HCS measure or a furnace burnout HVAC measure?
- b. For Program Years 2025, 2024, 2023, and 2022, please identify how many furnaces were installed through ESA or ESA subprograms as “Furnace Repair/Replacement” HCS measures.
- c. For Program Years 2025, 2024, 2023, and 2022, please identify how many furnaces were installed through ESA or ESA subprograms as non-HCS, HVAC measures.
- d. For Program Years 2025, 2024, 2023, and 2022, please identify the average per installation cost of furnaces through the HCS category and through the HVAC category, respectively.
- e. For Program Years 2025, 2024, 2023, and 2022, please identify the total costs spent on furnace replacement measures through the HCS category and through the HVAC category, respectively.

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

- a. In accordance with California Statewide Energy Savings Assistance (ESA) Program 2021-2026 Cycle Policy and Procedures Manual (v.1.5) p. 57, “ A High Efficiency FAU may be installed when the existing FAU has failed NGAT and *cannot be repaired* (also known as “burnout”). For SoCalGas, a High Efficiency FAU may also be installed as an early replacement or an existing *operational* FAU, provided all the following conditions are met:
 - The existing FAU has an AFUE <80%.
 - The customer’s winter season usage is >100% of baseline.”

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SUPPLEMENTAL-02**

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- b. See tables provided below.
 - c. See tables provided below.
 - d. See tables provided below.
 - e. See tables provided below.

Program Year	Furnaces Installed		
	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]	1,486	1,314	2,800

Program Year	Average Cost	
	HCS Furnaces ^[2]	Non-HCS Furnaces ^[2]
2022	\$ 2,900.77	\$ 4,215.28
2023	\$ 2,705.12	\$ 4,161.15
2024	\$ 3,094.64	\$ 4,599.94
2025 ^[1]	\$ 3,702.27	\$ 4,939.96

Notes:

- 1. 2025 data is not finalized.
- 2. Includes only the cost of the furnace.

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**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 25.

Verduzco and Christian Direct at OV and RC-145:23–26 states that “by consolidating gas, electric, and water-saving measures under one umbrella, SoCalGas is able to remove complexities for property owners,” with regard to its Single Point of Contact (“SPOC”) model for the Multifamily Whole Building (“MFWB”) Program.

- a. With regard to “electric measures,” does this statement refer exclusively to the “power strips, light bulbs, and refrigerators” that municipal electric utilities provide, referenced on OV and RC-144:24–29? If not, please identify all electric measures to which SoCalGas is referring on OV and RC-145:23–26.
- b. Under SoCalGas’ proposal to transition MFWB back to localized management, does SoCalGas intend to coordinate participation of its customers in SCE’s ESA Program through its SPOC account executives if the customer is also an SCE customer? If not, please explain why not.

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

- a. The electric measures referenced on OV and RC 144:24–29 are examples of electric measures that have been leveraged through coordination with municipal electric utilities under Memoranda of Understanding (“MOUs”) and co-funding agreements established in prior program years.

More generally, the reference to electric measures reflects SoCalGas’s Single Point of Contact (“SPOC”) delivery model, under which SoCalGas account executives coordinate and facilitate multifamily customer participation in electric programs administered by municipal electric utilities, where such coordination is supported by existing agreements and program availability. Any additional electric measures beyond those cited in the testimony would be subject to the terms and conditions of future MOUs or co-funding agreements and applicable program requirements.

- b. Yes. As part of its proposal to transition the Multifamily Whole Building (“MFWB”) Program back to localized management, SoCalGas’s intent is to continue maximizing customer participation in all applicable programs, including those administered by other IOUs, where feasible and within existing regulatory and programmatic frameworks.

Consistent with the SPOC model, if a multifamily customer receives natural gas service from SoCalGas and electric service from SCE, SoCalGas intends for its SPOC

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SUPPLEMENTAL-02**

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account executives to identify opportunities to coordinate referrals and participation in SCE administered programs, such as SCE's ESA or EE programs, when doing so would benefit the customer and support comprehensive project delivery. Any such coordination would remain subject to: Each utility's authorized program rules and eligibility requirements; applicable data sharing, privacy, and consent limitations; and the absence or presence of formal co-funding or joint delivery agreements between the utilities.

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SUPPLEMENTAL-02**

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Question 27.

Verduzco and Christian Direct at OV and RC-151:20–21 states that “[t]he tankless water heater requires ½-inch piping, which is often absent in older homes.

Remediation to upgrade existing piping frequently exceeds minor home repair limits.”

- a. In the last program cycle, what percentage of ESA tankless water heater installations required piping upgrades?**
- b. Please identify the lowest per-household cost, highest per-household cost, and average per-household cost of piping upgrades incurred by SoCalGas to facilitate the installation of tankless water heaters through ESA programs in the last program cycle.**
- c. Please further explain what types of work are included under the term “remediation” as it is used in the above-referenced sentence.**
- d. Please confirm whether the term “minor home repair limits” as used in the above-referenced sentence refers to the \$2,500 limit found in the Statewide Energy Savings Assistance Program 2021-2026 Cycle Policy and Procedures Manual.**
- e. What types of piping does SoCalGas find are common in “older homes” where “1/2-inch piping” is “often absent”?**
- f. Are the “older homes” referenced in this sentence multifamily homes, single-family homes, or both?**
- g. Please further explain the term “older homes” as used in the above-referenced sentence.**

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

In testimony, the reference regarding the tankless water heater ½ - inch piping was inadvertent because it should be ¾- inch piping. Therefore, the response to this question refers to ¾-inch piping.

- a. SoCalGas objects to this request because the request data is not in the custody of SoCalGas and calls on SoCalGas to perform studies or analysis that do not currently exist.**
- b. SoCalGas objects to this request because the request data is not in the custody of SoCalGas and calls on SoCalGas to perform studies or analysis that do not currently exist.**

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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- c. In this context, “remediation” refers to physical modifications to a home’s existing gas infrastructure that are necessary to meet the installation requirements for a tankless water heater when those conditions are not already present. Consistent with the IS Manual, installation of a tankless water heater requires adequate gas delivery capacity and a compliant piping configuration to support the unit’s higher input requirements¹³. Where existing conditions do not meet those requirements, remediation typically involves modifying the home’s gas piping system, such as replacing or upsizing portions of piping and re-routing gas lines through building spaces to establish a compliant gas supply path.
- d. Yes.
- e. Older homes that qualify for the ESA Program are commonly served by lower-capacity gas piping configurations that were designed to support conventional residential appliances, such as standard furnaces and storage-tank water heaters. In these homes, gas piping is often configured to serve lower aggregate gas loads and may be routed through shorter or simpler branch systems.
- By contrast, piping configurations designed to accommodate higher BTU residential appliances are less common in this housing stock. As a result, older ESA-eligible homes more frequently have gas piping systems that reflect the original, lower-load appliance configuration rather than piping sized or routed for higher gas demand.
- f. It is for Single-Family Homes.
- g. For purposes of the ESA Program, “older homes” generally refers to smaller residential properties that tend to be older and were typically designed to support lower aggregate gas loads associated with conventional residential appliances, such as standard furnaces and storage-tank water heaters.

¹³ Energy Savings Assistance Installation Standards Manual, Version 1.5 (effective January 1, 2026), Section 507(a)–(b) (Tankless Water Heaters).

SOUTHERN CALIFORNIA GAS COMPANY

**DATA REQUEST NO. SIERRA CLUB-SCG-01 DATA REQUEST
SUPPLEMENTAL-02**

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Question 28.

Verduzco and Christian Direct at OV and RC-153:1–5 states that “by 2030 SoCalGas aims to reduce methane emissions 40% below 2015 levels, deliver 20% renewable natural gas to core customers, and get Commission approval to conduct a pilot project to safely blend up to 20% hydrogen in a pipeline system.”

- a. Has SoCalGas evaluated potential bill impacts to customers that would result from SoCalGas delivering gas that is 20% renewable natural gas?**
- b. Has SoCalGas evaluated potential bill impacts to customers that would result from SoCalGas delivering gas that is 20% hydrogen by volume?**

SoCalGas Response:

SoCalGas will provide its response by Friday, April 17, 2026 or as soon as the data becomes available.

SoCalGas-02 Response:

- a. No, this has not been evaluated.**
- b. No, this has not been evaluated.**

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-04

RECEIVED: AUGUST 13, 2026

SUBMITTED: AUGUST 27, 2026

III. RESPONSES

Question 1:

Please refer to Data Request Sierra Club-SCG-01, Question 19(a) through (e).

- a. Under the HCS Furnace Repair/Replace measure, does SoCalGas replace an existing furnace with a new one if the existing furnace is operable? If yes, please explain under what circumstances SoCalGas would find an operable furnace eligible for replacement through the HCS Furnace Repair/Replace measure.
- b. Under the HCS Furnace Repair/Replace measure, does SoCalGas replace a customer's existing furnace with a new one if the existing furnace is inoperable?
- c. Under the *non*-HCS High Efficiency FAU – Burnout measure, does SoCalGas replace inoperable furnaces?
- d. Under what circumstances would SoCalGas replace a customer's existing furnace with a new furnace as part of the HCS Furnace Repair/Replace measure?
- e. Please explain in detail how the non-HCS "High Efficiency Forced Air Unit – On Burnout" measure differs from a replacement of a furnace through the HCS Furnace Repair/Replacement measure.

SoCalGas Response:

- a. See attached file: "2026-06-03 Statewide ESA Program PP Manual_v1.6.pdf". Yes, an operable furnace may be eligible for replacement under the Health, Comfort, and Safety (HCS) Furnace Repair/Replace measure when, through the ESA Program's Natural Gas Appliance Testing (NGAT) or Natural Gas Appliance Evaluation determines that repair or replacement is necessary pursuant to ESA Program policies and procedures.¹

The ESA Program provides furnace repair and replacement as a HCS measure. The Program requires furnaces that fail NGAT or appliance evaluation protocols to be provided service/adjustment and, if necessary, repaired or replaced in accordance with ESA Program policies. The ESA Program also establishes repair cost thresholds, under which the cost to repair a central furnace should not exceed 50 percent of the replacement cost (excluding compliance items²). If repair is not feasible or appropriate under these criteria, replacement may occur. Additionally, the response provided for question 1.a distinguished HCS Furnace Repair/Replacement from the High Efficiency

¹ California Statewide Energy Savings Assistance Program Policy and Procedures Manual V.1.6 at 47-49.

² *Id.* at 42.

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SIERRA CLUB

Data Request No. Sierra Club-SCG-04

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FAU measure and did not limit HCS replacements solely to failed or inoperable furnaces.

When a furnace is approved for replacement under the above conditions the furnace is evaluated to have it replaced with a High Efficiency furnace first, 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.

- b. See attached file: "ESAP ISv1.5_January 1, 2026_s.pdf". Yes, potentially. An inoperable furnace may be replaced under the HCS Furnace Repair/Replace measure when program evaluation determines that repair is not feasible, appropriate, or cost-effective under ESA Program requirements.

The Installation Standards Manual V1.5³ defines an inoperable appliance as a natural gas combustion appliance that cannot be operated without first performing service or repair. Inoperable appliances are referred for service, and under ESA Program policies a furnace may ultimately be repaired or replaced depending on the nature of the deficiency and applicable repair versus replace criteria. Therefore, an inoperable furnace may qualify for replacement under the HCS Furnace Repair/Replace measure when repair is not the appropriate remedy.

- c. Yes, a High Efficiency FAU may be installed when an existing furnace has failed NGAT and cannot be repaired, which the ESA Program refers to as a burnout condition.

As stated in SoCalGas's prior response to Sierra Club-SCG-01 Question 19.a., consistent with the ESA Policy and Procedures Manual (v.1.5) p. 57, "A High Efficiency FAU may be installed when the existing FAU has failed NGAT and cannot be repaired (also known as burnout)." Therefore, furnaces that have failed and cannot be repaired are eligible under the non-HCS High Efficiency FAU burnout measure.

- d. A furnace may be replaced under the HCS Furnace Repair/Replace measure when:
- The furnace fails NGAT or appliance evaluation protocols and replacement is necessary to address a health, comfort, or safety concern.
 - Service/adjustment is insufficient to correct the problem.
 - Repair is not feasible or would exceed applicable ESA Program repair cost limits.
 - The furnace has safety-related conditions warranting replacement in accordance with ESA Program policies and procedures.

³ California Installation Standards V1.5 dated January 1, 2025 at xix.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-04

RECEIVED: AUGUST 13, 2026

SUBMITTED: AUGUST 27, 2026

In general, the HCS Furnace Repair/Replace measure is intended to address existing furnace deficiencies affecting customer's health, comfort, and/or safety, whereas the High Efficiency FAU measure is an energy-efficiency HVAC measure that may be installed either upon burnout or under certain early-replacement criteria.

When a Furnace is approved for replacement under above conditions the furnace is evaluated to have it replaced with a High Efficiency furnace first, if deemed not feasible due to the new specifications the HE 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.

- e. The two measures serve different program purposes and are triggered by different eligibility criteria.

HCS Furnace Repair/Replace

- Primarily intended to address health, comfort, and safety needs.
- Focuses on correcting existing furnace deficiencies through service, repair, or replacement.
- May involve repair or replacement of a furnace that has failed NGAT, failed appliance evaluation, has safety concerns, or otherwise requires corrective action.
- Eligibility is driven principally by health, comfort, and safety considerations.

High Efficiency FAU – On Burnout

- Primarily an HVAC energy-efficiency measure.
- Installed when an existing furnace has failed NGAT and cannot be repaired (i.e., burnout).
- As identified in SoCalGas's prior response, a High Efficiency FAU may also be installed as an early replacement of an operational furnace when:
 - The existing furnace has an AFUE below 80%; and
 - The customer's winter season usage exceeds 100 percent of baseline.
- Focuses on replacing existing equipment with higher-efficiency equipment to achieve energy savings.

Accordingly, the HCS Furnace Repair/Replace measure is generally a corrective measure intended to restore safe and functional space heating service, while the High Efficiency FAU measure is an HVAC efficiency measure that replaces equipment due to burnout or, in certain circumstances, through an approved early-replacement pathway.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-04

RECEIVED: AUGUST 13, 2026

SUBMITTED: AUGUST 27, 2026

Question 2:

Please explain the difference in the terms “burnout” and “inoperable” as used by SoCalGas in administering furnace measures in ESA.

SoCalGas Response:

The two terms are related but not synonymous.

Inoperable

- Defined in the Installation Standards Manual as a natural gas combustion appliance that cannot be operated without first performing service or repair⁴.
- An inoperable furnace may still be repairable.
- Being inoperable alone does not necessarily mean the furnace will be replaced.

Burnout

- As described in SoCalGas's response to Q1c and Q1e, a burnout condition exists when an FAU has failed NGAT and cannot be repaired.
- Burnout therefore represents a subset of failed furnace conditions in which repair is no longer a viable option⁵.
- Burnout is the condition that triggers eligibility for the non-HCS High Efficiency FAU On-Burnout measure.

In summary, all burnout furnaces are effectively inoperable or failed furnaces that cannot be repaired, but not all inoperable furnaces are burnouts because some inoperable furnaces can be restored through service or repair rather than replacement.

⁴ California Installation Standards V1.5 dated January 1, 2025, p. xix.

⁵ See SoCalGas response to Sierra Club SCG-01 data request Q19a.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-04

RECEIVED: AUGUST 13, 2026

SUBMITTED: AUGUST 27, 2026

Question 3:

How many high efficiency, forced-air unit (HE FAU) furnaces (as defined in the Installation Standards manual under section 310) did SoCalGas install in 2022, 2023, 2024, and 2025?

SoCalGas Response:

Program Year	HE FAU Installations
2022	1,300
2023	1,492
2024	953
2025	1,311

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-04

RECEIVED: AUGUST 13, 2026

SUBMITTED: AUGUST 27, 2026

Question 4:

How many high efficiency (i.e., 95% AFUE minimum) furnaces did SoCalGas install as HCS measures versus as non-HCS measures in 2022, 2023, 2024, and 2025?

SoCalGas Response:

95% AFUE minimum furnaces are installed as part of the “High Efficiency Forced Air Unit (HE FAU)” designation on ESA Table 2 (ESA Main) of the annual reports. As such, they are considered non-HCS measures. Installation counts are below, for reference:

Program Year	HE FAU Installations
2022	1,300
2023	1,492
2024	953
2025	1,311

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

Question 1:

Referring to a SoCalGas witness statement that “[t]he tankless water heater requires ½ inch piping, which is often absent in older homes,” Data Request Sierra Club-SCG-01, Q.27(a) requested the “percentage of ESA tankless water heater installations [that] required piping upgrade.” SoCalGas’ response objected to this question on the grounds that “the request data is not in the custody of SoCalGas and calls on SoCalGas to perform studies or analysis that do not currently exist.”

- a. Please provide all data supporting the statement that ½ inch piping is “often” absent in older homes.¹
- b. If SoCalGas does not have data regarding the percentage of tankless water heater installations that require ½ inch piping, please explain the basis for the witness’ statement.
- c. Regarding SoCalGas’ objection, please specify what analysis SoCalGas would be required to perform to respond to this question.
- d. If the objection is to performing analysis to determine a percentage, please provide an Excel spreadsheet that lists the tankless water heaters installed through ESA in 2023, 2024, and 2025 and indicates for each one whether plumbing upgrades were needed or not.

SoCalGas Response:

- a. SoCalGas does not possess a dataset, study, or quantitative analysis regarding the prevalence of the ¾ inch piping configuration in older homes.
- b. SoCalGas’s Exhibit (Ex.) SCG-01,² incorporates input from the ESA Whole Home Pilot implementer regarding challenges associated with delivery of tankless water heaters. This statement included in SoCalGas’s testimony was based on anecdotal feedback provided by ESA Program contractors, reflecting their experiences and lessons learned from interactions with customers and participant households, and included as part of broader considerations that may be relevant to future evaluation of measure delivery within the ESA portfolio.
- c. SoCalGas objects to the extent that the request would impose an undue burden on SoCalGas by requiring it to perform studies, analyses or calculations or to create documents that do not currently exist.

¹ Sierra Club acknowledges that SoCalGas’ response to Question 27 specified that the reference to ½-inch pipe in the testimony was an error and the actual size pipe required is ¾-inch pipe. Given that SoCalGas did not include this change in its August 11, 2026 corrections to testimony, this question still refers to ½ inch pipe because that is what is referenced in SoCalGas’ testimony. If the actual size pipe that SoCalGas meant to refer to in testimony is ¾-inch pipe, please answer these questions with reference to ¾-inch pipe and specify that in the answer.

² Ex. SCG-01 at OV and RC 151-152.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

Notwithstanding and subject to these objections, SoCalGas responds as follows:

SoCalGas will need to identify tankless water heater installations and determine whether plumbing or gas piping upgrades were required for each installation. Then calculate the percentage of installations meeting that condition. The information necessary to determine the requested percentage has not been previously compiled or analyzed for that purpose and is not maintained as an existing report or dataset.

- d. The table below provides tankless water heater installations completed in the ESA Whole Home Pilot during Program Years 2023-2025:

Program Year	Tankless Water Heater Installations through ESA Whole Home Pilot	Were Plumbing Upgrades Needed?
2023	0	See response to Q.1.c
2024	3	See response to Q.1.c
2025	23	See response to Q.1.c

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

Question 2:

Referring to a SoCalGas witness statement that “Remediation to upgrade existing piping frequently exceeds minor home repair limits,” Data Request Sierra Club-SCG-01, Q.27(b) asked SoCalGas to “identify the lowest per-household cost, highest per household cost, and average per-household cost of piping upgrades incurred by SoCalGas to facilitate the installation of tankless water heaters through ESA programs in the last program cycle.” SoCalGas objected to this question on the grounds that “the request data is not in the custody of SoCalGas and calls on SoCalGas to perform studies or analysis that do not currently exist.”

- a. What is the basis for the finding that the piping “frequently” exceeds the minor home repairs limits if SoCalGas does not have data regarding the per-project costs of piping upgrades triggered by tankless water heater installations?
- b. Regarding SoCalGas’ objection, please specify what analysis SoCalGas would be required to perform to respond to this question.
- c. If SoCalGas objects to providing high, low, and average costs due to the analysis involved, please provide an Excel spreadsheet that lists disaggregated, per-project piping upgrade costs incurred for tankless water heater installations in 2023, 2024, and 2025.

SoCalGas Response:

- a. SoCalGas’s Exhibit (Ex.) SCG-01,³ incorporates input from the ESA Whole Home Pilot implementer regarding challenges associated with delivery of tankless water heaters, including instances where work needed to accommodate the measure could exceed available minor home repair allowances. The testimony was included as part of a broader description of implementation experience, lessons learned, and considerations that may be relevant to future evaluation of measure delivery within the ESA portfolio. The testimony was not based on a quantitative analysis of project-level piping upgrade costs.
- b. SoCalGas objects to the extent that the request would impose and undue burden on SoCalGas by requiring it to perform studies, analyses or calculations or to create documents that do not currently exist.

Notwithstanding and subject to these objections, SoCalGas responds as follows: SoCalGas will need to identify projects involving piping modifications or upgrades associated with tankless water heater installations, determine the costs attributable to that work, and calculate the minimum, maximum, and average values requested. The information necessary to determine the requested cost metrics has not been

³ Ex. SCG-01 at OV and RC 151-152.

SOUTHERN CALIFORNIA GAS COMPANY

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Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

previously compiled or analyzed for that purpose and is not maintained as an existing report or dataset.

- c. SoCalGas objects to the extent that the request would impose an undue burden on SoCalGas by requiring it to perform studies, analyses or calculations or to create documents that do not currently exist.

Notwithstanding and subject to these objections, SoCalGas responds as follows: See response to Question 2.b.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

Question 3:

Please refer to SoCalGas' 2025 Income-Qualified Report Tables, at ESA Table 2 (ESA Main), Lines 20 and 21.

- a. Please explain what is included in the "Water Heater Repair/Replacement" measure versus the "Tankless Water Heater" measure and how they differ.
- b. Are tankless water heaters ever installed as the "water heater repair/replacement" measure?
- c. For the "Water Heater Repair/Replacement" measure, please indicate how many water heaters were repaired and how many were replaced in 2025.
- d. For water heater replacements that were completed as the "Water Heater Repair/Replacement" measure in 2025, please provide a breakdown of what types of water heaters were installed and how many of each type (i.e., tankless water heater, storage water heater). Please indicate the UEF of each storage water heater type installed and break down by UEF if SoCalGas offers storage water heaters of multiple UEFs.

SoCalGas Response:

- a. The "Water Heater Repair/Replacement" measure addresses existing domestic storage water heaters that require repair or replacement to restore safe and functional hot water service. Under ESA Program policies, natural gas water heaters that fail Natural Gas Appliance Testing (NGAT) or appliance evaluation protocols may be repaired or replaced in accordance with applicable Program requirements.⁴ See attached file: "2026-06-30 Statewide ESA Program PP Manual_v1.6.pdf".

The "Tankless Water Heater" measure is a separate ESA Program measure that provides for the installation of a qualifying natural gas tankless water heater.⁵ Unlike the "Water Heater Repair/Replacement" measure, which focuses on restoring hot water service through the repair or replacement of an existing water heater, the

⁴ Statewide ESA Program Policy & Procedures Manual v1.6, §§ 10.5, 11.2.1, and 11.3.2, pp. 48-49; Installation Standards Manual v1.5, Section 504, Natural Gas Storage Water Heater Replacement (pp. 504-1 through 504-4) and Section 505, Natural Gas Water Heater Repair (pp. 505-1 through 505-3).

⁵ Statewide ESA Program Policy & Procedures Manual v1.6, Table A-1, p. 54, and ESA Program Installation Standards Manual v1.5, Section 511, Tankless Water Heater Replacement (pp. 511-1 through 511-6).

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-05

RECEIVED: AUGUST 19, 2026

SUBMITTED: SEPTEMBER 2, 2026

“Tankless Water Heater” measure provides for the installation of high-efficiency tankless water-heating technology. Eligible installations may include replacement of a failed storage water heater or early replacement of a qualifying operable storage water heater that meets applicable Program requirements.⁶ See attached file: “ESAP ISv1.5_January 1, 2026_s.pdf”.

Accordingly, the “Water Heater Repair/Replacement” measure is intended to restore hot water service through repair or replacement of existing water-heating equipment, whereas the “Tankless Water Heater” measure provides for the installation of qualifying tankless water-heating technology pursuant to separate ESA Program eligibility criteria and installation standards.⁷

- b. No, tankless water heater installations are not reported in the “Water Heater Repair/Replacement” category; those are reported in the “Tankless Water Heater” category.
- c. In 2025, eight water heaters were repaired and 2,465 water heaters were replaced.⁸
- d. All water heater replacements reported in the “Water Heater Repair/Replacement” category in 2025 were storage water heaters with sizes of 30-gallon, 40-gallon, or 50-gallon. Please see the table below for the number of each size that was installed. Please refer to **Table 504-1: Minimum Uniform Energy Factor (UEF) for Gas Storage Water Heaters, Based on First Hour Rating (FHR)** in the **Installation Standards Manual v1.5, Section 504-1** for the minimum UEF for storage water heaters that are installed as part of SoCalGas’ ESA Program.

Storage Water Heater Replacements - 2025	
Size	Replacements
30-gallon	575
40-gallon	1,508
50-gallon	382

⁶ ESA Program Installation Standards Manual v1.5, Section 511, Tankless Water Heater Replacement (pp. 511-1 through 511-6).

⁷ Statewide ESA Program Policy & Procedures Manual v1.6, Table A-1, p. 54, and ESA Program Installation Standards Manual v1.5, Section 511, Tankless Water Heater Replacement (pp. 511-1 through 511-6).

⁸ Amended Annual Report of Southern California Gas Company filed June 26, 2026 ESA Table 2 (ESA Main).

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-06

RECEIVED: AUGUST 25, 2026

SUBMITTED: SEPTEMBER 9, 2026

Question 1:

For the ESA Main Furnace Repair/Replace measure, please indicate how many furnaces were repaired and how many furnaces were replaced in 2025, 2024, 2023, and 2022.

SoCalGas Response:

The table below provides the number of furnaces repaired and replaced under the ESA Main Furnace Repair/Replacement measure for Program Years (PYs) 2022 through 2025. Replacement data is provided by furnace type and associated Annual Fuel Utilization Efficiency (AFUE) rating(s).

Furnace Repair/Replacement Measure*					
	AFUE ^[1]	2022	2023	2024	2025
Furnace Repairs	N/A	1,671	70	116	225
Furnace Replacements					
Standard Wall	66/70	2,375	975	844	1,038
Direct Vent	66	135	18	5	26
Forced Air Unit	80	1,050	343	279	468

Notes:

*Data represent the number of furnace units repaired or replaced under the ESA Main Furnace Repair/Replacement measure. These totals may differ from values reported in Annual Reports because Annual Report data are reported on a per-home basis, whereas the data provided herein are reported on a per-unit basis.

[1] AFUE is a measure of furnace efficiency, installations that may include either 66 AFUE or 70 AFUE units are reported collectively as "66/70".

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-07

RECEIVED: AUGUST 27, 2026

SUBMITTED: SEPTEMBER 11, 2026

Question 1:

Please refer to ESA Program Table 2 of Southern California Gas Company's Low Income Programs Annual Report Tables for Program Year ("PY") 2025 detailing Main ESA Program Expenses and Energy Savings by Measure Installed by the Company for PY 2025:

- a. Please confirm that, as per the table titled "Health Comfort and Safety (HCS) Measures," 1,524 Furnace Repair/Replacement measures were installed in SoCalGas service territory as HCS measures in PY 2025.
- b. If (a) is confirmed, please identify the total costs spent on Furnace Repair/Replacement measures in the HCS category for ESA Main in PY 2025.
- c. If (a) is not confirmed, how many Furnace Repair/Replacement HCS measures were installed in PY2025 for ESA Main?
- d. If (a) is not confirmed, please identify the total costs spent on Furnace Repair/Replacement HCS measures in PY2025 for ESA Main.

SoCalGas Response:

- a. No, 1,524 Furnace Repair/Replacement measures were not installed in 2025.
- b. N/A
- c. 1,757 Furnace Repair/Replacement units were installed in 2025.¹
- d. The total costs spent on the Furnace Repair/Replacement units in 2025 was \$4,379,929.62.

¹ Data represents the number of units repaired or replaced under the ESA Main Furnace Repair/Replace measure. These totals may differ from values reported in Annual Reports because Annual Report data are reported on a per-home basis, whereas the data provided herein are reported on a per-unit basis.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-07

RECEIVED: AUGUST 27, 2026

SUBMITTED: SEPTEMBER 11, 2026

Question 2:

Please refer to SoCalGas's response to question 19(b) and 19(c) of Sierra Club's First Set of Data Requests to SoCalGas ("Sierra Club-SCG-01") that the Company submitted on April 17, 2026 ("Supplemental-02"):

- a. Please provide finalized 2025 data for amount of HCS furnaces installed, amount of non-HCS furnaces installed, and the resulting total, across all ESA and ESA subprograms.
- b. Please identify which ESA subprograms installed non-HCS furnace measures in PY 2025.
- c. How many non-HCS furnace measures installed in SoCalGas territory in PY 2025 did the company categorize as "Furnace Repair/Replacement"?
- d. How many non-HCS furnace measures installed in SoCalGas territory in PY 2025 did the company categorize as "Furnace Repair"?
- e. How many non-HCS furnace measures installed in SoCalGas territory in PY 2025 did the company categorize as "Furnace Replacement"?
- f. How many non-HCS furnace measures installed in SoCalGas territory in PY 2025 did the company categorize as "Furnace Clean and Tune"?
- g. How many non-HCS furnace measures installed in SoCalGas territory in PY 2025 were installed as part of the Pilot Plus and Pilot Deep ESA programs?

SoCalGas Response:

- a. Finalized 2025 data show that 1,757 HCS "Furnace Repair/Replacement" units, and 1,295 non-HCS furnace units were installed through the ESA Main program, for a total of 3,052 unit installations.² The figures do not include Multifamily Whole Building (MFWB) or Pilot Plus/Pilot Deed (PPPD) subprogram activity.
- b. For SoCalGas-administered ESA Main activities, non-HCS furnace installations were reported in the High Efficiency Forced Air Unit (HE FAU) measures. SoCalGas does not administer or implement the MFWB or PPPD subprograms. Data regarding furnace installations within those subprograms would need to be requested from the applicable program administrators or implementers.
- c. Zero non-HCS furnace installations were categorized as "Furnace Repair/Replacement". The measure "Furnace Repair/Replacement" is reported as a Health, Comfort, and Safety (HCS) measure. Although certain furnace replacements within this category may achieve positive therm savings, they are reported within the aggregate "Furnace Repair/Replacement" measure, which produces net negative therm savings on an annual basis.

² *Id.*

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-07

RECEIVED: AUGUST 27, 2026

SUBMITTED: SEPTEMBER 11, 2026

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- d. Zero, because all “Furnace Repair” measures are classified and reported as HCS measures.
 - e. Zero non-HCS furnace installation were categorized as “Furnace Replacement.” Furnace replacements reported under the “Furnace Repair/Replacement” measure are classified and reported as HCS measures. The IOUs define a HCS measure as one with 1 or fewer first year therms saved. The Furnace Repair/Replacement measure has individual components that can have positive or negative savings. As a whole, over the course of a program year, this measure has a net negative savings, thus meeting the definition of HCS as defined above in the response.
 - f. Zero, because all “Furnace Clean and Tune” measures are classified and reported as HCS measures.
 - g. The SoCalGas/SCE Joint ESA Whole Home Pilot (aka Pilot Plus and Pilot Deep) is administered and reported through a separate pilot reporting structure from the ESA Main Program. The Joint Pilot does not classify or report furnace installation measures using HCS and non-HCS designations, and SoCalGas does not assign such classifications to pilot furnace installations. Therefore, SoCalGas cannot identify a subset of pilot furnace installations as non-HCS measures.

SOUTHERN CALIFORNIA GAS COMPANY

SIERRA CLUB

Data Request No. Sierra Club-SCG-07

RECEIVED: AUGUST 27, 2026

SUBMITTED: SEPTEMBER 11, 2026

Question 3:

Please refer to SoCalGas's response to question 15(a) and 15(b) of Sierra Club's First Set of Data Requests to SoCalGas ("Sierra Club-SCG-01") that the Company submitted on April 17, 2026 ("Supplemental-02"):

- a. How many wall furnaces were installed as part of ESA Main in PY 2025?
- b. How many of the wall furnaces installed in ESA Main in PY 2025 were HCS measures?
- c. How much did SoCalGas spend on wall furnaces that were installed as HCS measures for ESA Main in PY2025?

SoCalGas Response:

- a. 1,044 wall furnace units were installed through ESA Main in 2025.³
- b. In Program Year (PY) 2025, within the ESA Main Program 1,044 wall furnace units were installed, and a total of 1,038 standard wall furnace units were reported/achieved positive therm savings within the HCS "Furnace Repair/Replacement" measure.

The IOUs define a HCS measure as one with 1 or fewer first year therms saved. The "Furnace Repair/Replacement" measure has individual components that can have positive or negative savings. As a whole, over the course of a program year, this measure has a net negative savings, thus meeting the definition of HCS as defined above in the response.

- c. The cost to install standard wall furnace units as HCS measures for ESA Main in 2025 was \$2,853,855.56.

³ *Id.*

Attachment 11

PG&E Responses to TURN Data Requests

PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs – Program Years 2028-2033
Application 26-01-003
Data Response

PG&E Data Request No.:	TURN_006-Q008
PG&E File Name:	IQPPY28-33_DR_TURN_006-Q008
Request Date:	July 29, 2026
Requester DR No.:	006
Requesting Party:	The Utility Reform Network
Requester:	Reina Yanagiba
Date Sent:	August 12, 2026
PG&E Witness(es):	Jack Pilutti

SUBJECT: ENERGY SAVINGS ASSISTANCE PROGRAM – ELECTRIFICATION

Please refer to PG&E's Application 26-01-003 et al. and Supporting Testimony, and responses to TURN-PG&E-01

QUESTION 008

Is there funding to support remediation measures such as Electric Panel Upgrades in the plan? If so, how much in each year and in total for all the years of the plan and where does it appear in the budget?

ANSWER 008

Yes, there is funding provided to support electrification remediation measures, such as electric panel upgrades. Please see Table 1, below for the estimated total by year. Remediation costs are bundled together based on the fuel substitution measure type, along with labor and materials costs associated with that measure. The bundled measure budgets for all electrification measures, including remediation, can be found in Appendix A, Table A-1 and A-1a for each respective electrification measure.²

Table 1: Forecasted Electrification Remediation Costs for 2028-2033

Year	Forecasted Electrification Remediation Costs
2028	\$ 557,059
2029	\$ 2,346,858
2030	\$ 3,501,243
2031	\$ 4,212,875
2032	\$ 4,506,587
2033	\$ 4,302,874

² Exhibit (PG&E-01E), Appendix A, Table A-1.

Total 2028-2033	\$ 19,427,496
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PACIFIC GAS AND ELECTRIC COMPANY
Income Qualified Programs – Program Years 2028-2033
Application 26-01-003
Data Response

PG&E Data Request No.:	TURN_007-Q001
PG&E File Name:	IQPPY28-33_DR_TURN_007-Q001
Request Date:	August 5, 2026
Requester DR No.:	007
Requesting Party:	The Utility Reform Network
Requester:	Reina Yanagiba
Date Sent:	August 19, 2026
PG&E Witness(es):	Jack Pilutti

SUBJECT: ENERGY SAVINGS ASSISTANCE PROGRAM

Please refer to PG&E's Application 26-01-003 et al. and Supporting Testimony and responses to TURN-PG&E-01:

Gas Equipment Investments

QUESTION 001

For the gas portfolio, please provide a breakout of spending, savings, benefits, and ESACET cost-effectiveness for gas equipment replacement measures and for all other measures that do not involve gas equipment replacements. Please provide this breakout for 2021 to 2025 actuals by ESA program, by year, and for all these years in aggregate.

ANSWER 001

As a preliminary matter, TURN confirmed via email August 7, 2026, that "gas equipment replacement measures" does not include electrification measures.

PG&E interprets TURN's request "For the gas portfolio" as requesting a similar split between gas and electric portfolio as TURN has previously requested in *IQPBridgeFundingPY27_DR_TURN_002-Q001* and in *IQPPY28-33_DR_TURN_001-Q001*. Accordingly, and to promote consistency, PG&E utilizes the same assumptions for budgets, savings, benefits, and ESACET cost-effectiveness for this request as utilized in the aforementioned data requests.

Please see *IQPPY28-33_DR_TURN_007_Q001Atch01.xlsx*.

PY 2021	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ (593,991)	\$ 5,934,551	0.602	-	(37,676)	\$9,303,131
All other	\$ 12,916,749	\$ 30,164,731	0.732	-	129,387	\$68,089,483

PY 2022	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ (643,516)	\$ 4,677,736	0.430	-	(31,096)	\$9,820,903
All other	\$ 29,292,574	\$ 25,657,761	0.866	-	1,227,830	\$73,223,264

PY 2023	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ (656,828)	\$ 5,032,490	0.380	-	(27,618)	\$12,282,961
All other	\$ 21,332,450	\$ 20,925,485	0.857	-	1,331,872	\$61,555,345

PY 2024	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ (930,461)	\$ 4,928,113	0.341	-	(32,869)	\$12,605,199
All other	\$ 18,562,790	\$ 22,039,312	1.072	-	1,419,598	\$50,458,026

PY 2025	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ (694,844)	\$ 4,288,247	0.350	-	10,034	\$6,460,381
All other	\$ 29,197,793	\$ 14,560,777	0.991	-	704,040	\$55,339,038

FootNotes

- 1) ESACET is calculated based on the total benefits, including Electric Benefits, Gas Benefits, and Non-Energy Benefits (NEBs), relative to program costs.
- 2) "Gas Equipment Replacement" include measures that replace or repair of gas appliances (furnaces and water heaters).

PY 2028	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 3,934,779	0.366	-	-	\$11,381,019
All other	\$ 21,548,834	\$ 14,415,044	0.978	-	1,169,136	\$48,152,006

PY 2029	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 2,921,880	0.370	-	-	\$8,349,248
All other	\$ 25,979,678	\$ 16,419,000	0.934	-	1,364,923	\$53,707,283

PY 2030	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 1,414,619	0.385	-	-	\$3,891,466
All other	\$ 27,766,058	\$ 16,843,740	0.881	-	1,418,013	\$54,512,892

PY 2031	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 420,972	0.381	-	-	\$1,166,582
All other	\$ 29,220,106	\$ 18,255,384	0.876	-	1,445,539	\$55,330,555

PY 2032	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 129,634	0.369	-	-	\$371,427
All other	\$ 30,503,223	\$ 18,150,730	0.866	-	1,457,794	\$56,549,234

PY 2033	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)		\$ 122,203	0.374	-	-	\$345,485
All other	\$ 29,696,822	\$ 17,356,156	0.872	-	1,366,814	\$54,254,711

FootNotes

- 1) ESACET is calculated based on the total benefits, including Electric Benefits, Gas Benefits, and Non-Energy Benefits (NEBs), relative to program costs.
- 2) "Gas Equipment Replacement" include measures that replace or repair of gas appliances (furnaces and water heaters).

PY 2023	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement	\$ (4,739)	\$ 64,166	0.395	-	(119)	\$125,850
All other	\$ 454,250	\$ 355,827	0.198	-	36,438	\$4,085,453

PY 2024	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement	\$ 54,004	\$ 122,405	0.234	-	4,275	\$642,557
All other	\$ 2,606,016	\$ 3,427,499	0.547	-	196,444	\$9,942,322

PY 2025	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement	\$ 473,317	\$ 27,689	0.216	-	27,891	\$1,807,789
All other	\$ 3,369,575	\$ 2,372,117	0.481	-	162,480	\$11,771,995

FootNotes

- 1) ESACET is calculated based on the total benefits, including Electric Benefits, Gas Benefits, and Non-Energy Benefits (NEBs), relative to program costs.
- 2) "Gas Equipment Replacement" include measures that replace or repair of gas appliances (furnaces and water heaters).

PY 2028	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 429,100	\$ 211,796	0.303	-	16,466	\$1,460,920
All other	\$ 3,958,961	\$ 2,980,233	0.581	-	212,798	\$11,926,901

PY 2029	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 319,429	\$ 215,311	0.457	-	8,714	\$780,569
All other	\$ 5,268,095	\$ 3,643,831	0.611	-	266,439	\$14,569,182

PY 2030	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 329,130	\$ 183,320	0.450	-	8,798	\$792,088
All other	\$ 6,009,883	\$ 3,882,603	0.623	-	278,906	\$15,870,069

PY 2031	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 306,978	\$ 161,624	0.463	-	8,014	\$699,977
All other	\$ 6,397,233	\$ 3,988,076	0.630	-	283,169	\$16,462,033

PY 2032	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 277,294	\$ 58,037	0.490	-	7,076	\$392,679
All other	\$ 6,667,180	\$ 4,085,292	0.622	-	281,705	\$17,284,238

PY 2033	Gas Benefit	NEBs	ESACET(1)	kWh	Therms	Expenses
Gas Equipment Replacement (2)	\$ 583,298	\$ 113,371	0.468	-	5,350	\$306,356
All other	\$ 4,877,815	\$ 3,115,417	0.544	-	211,563	\$14,679,450

FootNotes

- 1) ESACET is calculated based on the total benefits, including Electric Benefits, Gas Benefits, and Non-Energy Benefits (NEBs), relative to program costs.
2) "Gas Equipment Replacement" include measures that replace or repair of gas appliances (furnaces and water heaters).

Gas Replacement Measures

Measure	Program
New: Non-Condensing Domestic Hot Water Boiler	MFWB
New: Condensing Domestic Hot Water Boiler	MFWB
Storage Water Heater	MFWB
Water Heater Repair/Replacement	ESA Main & MFWB
Space Heating Boiler	MFWB
Furnace Repair/Replacement	ESA Main & MFWB
High Efficiency Forced Air Unit (HE FAU)	ESA Main & MFWB

Attachment 12

SCE Presentation Slides to ESA Working Group on BE Pilot



SCE'S ESA BE PILOT

Interim findings

Katie Evans (E Source) & Ethan Barquest (Verdant) – 60 min

Southern California Edison

ESA Building Electrification (BE) Pilot Project-Midpoint Evaluation Findings

August 2026



Embedded Evaluation Team

The evaluation team consists of SCE program administrators (Building Electrification & Equity Programs), SCE research team (EM&V: Customer Programs & Services), E Source, and Verdant working together.



SCE EM&V Team:

PM: Andres Fergadiotti

Support: Aaiysha Khursheed & Reginald Wilkins

Evaluation Team:

E Source: Matt Haffner, Katie Evans, & Pace Goodman

Verdant: Ethan Barquest, Jean Shelton, & Jenny Hughes

Agenda

1. Pilot Background and Research Objectives

- Eligibility
- Participant Targeting
- Installations to date

2. Preliminary Impact Analysis Finding*

- Pre-Period Energy Characteristics
- Energy and Bill Impacts

3. Process Findings*

- Who We Talked To
- Customer Motivations
- Customer Journey
- Customer Satisfaction

4. Interim Summary and Recommendations

- Next Steps and Unanswered Questions

*The evaluation team shares interim, non-synthesized, post-install survey and billing analysis results to support Pilot planning efforts. The evaluation team will provide a full report of results, findings, and recommendations in the final evaluation.

Pilot Background

Policy: Decision 19-06-022

Pilot Objectives

- Support statewide clean energy and GHG reduction goals
- Deliver affordable, clean energy solutions for low-income customers
- Demonstrate and validate electrification retrofit strategies that reduce customer energy costs
- Target high-impact customers using data-driven approaches to maximize benefits
- Leverage partnerships and Pilot learnings to scale programs, improve customer adoption, and support workforce development

Pilot Measures

- Required Core Equipment
 - Heat Pump HVAC (HP HVAC)
 - Heat Pump Water Heaters (HPWH)
- Additional Eligible Equipment
 - Induction Cooktop
 - Electric Dryers
 - Thermostats
- Other Pilot Measures
 - Weatherization
 - Home Repairs and Safety Upgrades
 - Electric Panel Upgrades & Other Electric Work

Pilot Eligibility

- Active, SCE residential, electric customer with individually metered account, with 1 – 4 units.
- Home must currently have a gas furnace and water heater that can be replaced by high efficiency heat pump equipment.
- Income eligible (see chart)
- Pass the Pilot-sanctioned home assessment*
- Bill savings must either lower or not change current household energy costs.
- Written landlord approval for renters as needed.

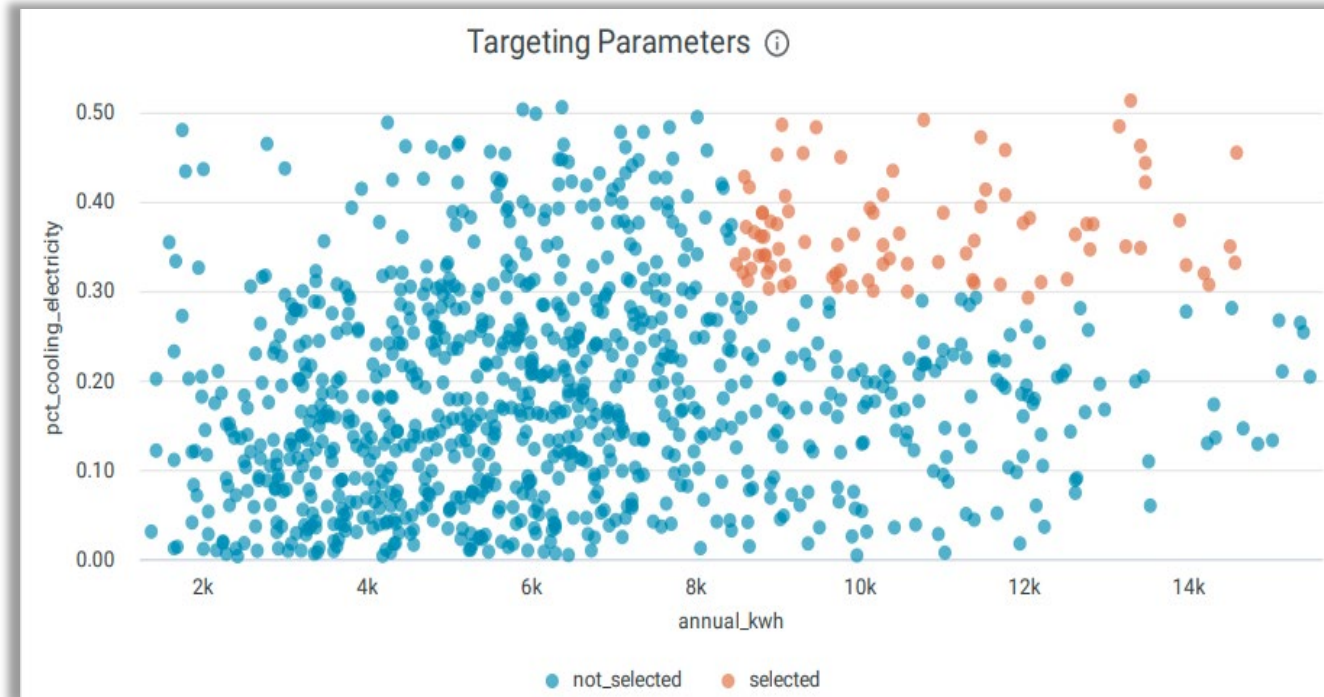
*Home must be ready for project implementation, with some remediations available through the Pilot.

ESA Income Guidelines	
Household Size	Income Eligibility Upper Limit
1	\$39,900
2	\$54,100
3	\$68,300
4	\$82,500
5	\$96,700
6	\$110,900
7	\$125,100
8	\$139,300
Each Additional Person	\$14,200
Effective June 1, 2026 to May 31, 2027	

Participant Targeting

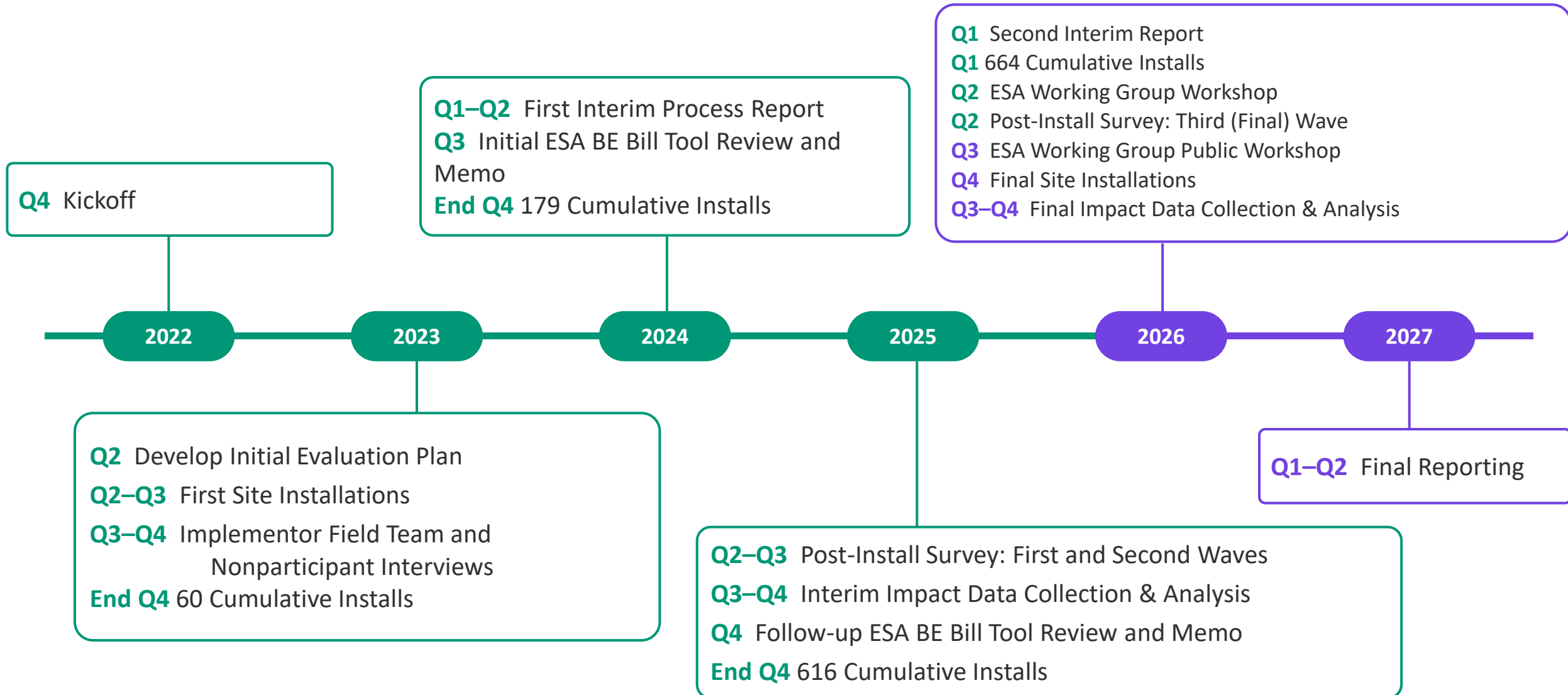
- Initial selection criteria for Targeting:
 1. Top quartile of annual kWh consumption
 2. Top quartile of cooling loads
- 22,397 customers were initially selected (TECH List Jan. 2025)
- Due to low enrollment, customer targeting metrics and the recruitment approach were adjusted in 2024, opening the Pilot to many more low-income customers.
- Expanded recruitment strategies resulted in increased participation
 - Improved contact information
 - Adjusted recruitment success metrics
 - Increased in-person recruitment

Initial ESA BE TECH Targeting Parameters



Source: *TECH_RECURVE_SCE Targeting_Sample of Dashboard_2023-01-19.pdf*

Pilot and Evaluation Roadmap



Research Goals: Impacts

Evaluation Objective	Key Result
Energy Impacts by Source	Weather-normalized, total and average change in electric and natural gas use per customer
Greenhouse Gas Reduction	Total and average-per-customer reduction in GHG during the first year of savings after installs and over the effective measure life
	Cost of total GHG reduction, including Pilot administrative costs
Billing Impact by Source	Weather-normalized, average change in customer energy bills
	Weather-normalized, distribution of changes in customer energy bills

Research Goals: Market Potential and Barriers

Evaluation Objective	Key Result
Market Potential	Estimate of potential number of participants across SCE’s service territory, incorporating results from evaluating customer bill impacts and targeting effectiveness
Participation Barriers	Participant and nonparticipant responses related to barriers to customer participation
	Implementer field team feedback on the barriers to customer participation

Research Goals: Process

Evaluation Objective	Key Result
Targeting Effectiveness	Summary of participant demographics
	Correlation between customer satisfaction with targeting metrics
General Process Evaluation	Participant responses related to motivations to participate
Coordination with other Initiatives and Agencies	Participant and nonparticipant responses on the number of touchpoints and number of organizations involved
	Participant and nonparticipant responses on any issues around eligibility related to participation in other offerings
Customer Education and Baseline Knowledge	Participant self-reported responses on survey questions related to their change in knowledge and awareness of electrification benefits, limitations, and technologies prior to and after engaging with the Pilot
Customer Satisfaction	Participant experience with contractors, the equipment, energy bills, and energy usage changes
	Participant and nonparticipant responses on satisfaction and experience with the Pilot, SCE, the implementation team, and home disruptions
	Participant and nonparticipant responses regarding interactions with their landlords (e.g., permission to participate)



Overall Participation Trends To Date

Summary of Installations

The table below shows the number of sites that have installed a given Pilot measure. Through August 5, 2026, 888 sites have begun or completed installations. The Pilot requires participants to install heat pump space and water heating. Other measures are optional and not always necessary.

Measure	Number of Sites with Installed Measure	% of Sites with Installed Measure
Heat pump water heater (HPWH) (core measure)	882	99%
Heat pump space heating and cooling (core measure)	868	98%
Electrical Circuit	751	85%
Minor home repair	711	80%
Duct seal and test	677	76%
Thermostat	383	43%
Electric Panel	309	35%
Induction Stove	288	32%
Electric Dryer	286	32%
Insulation	241	27%
Electric Subpanel	131	15%

Source: ESA BE_CustomerList and Measure Report, August 2026.xlsx

Distribution of ESA Electrical Upgrades To Date

Current Tracking Data: Installations through August, 5 2026

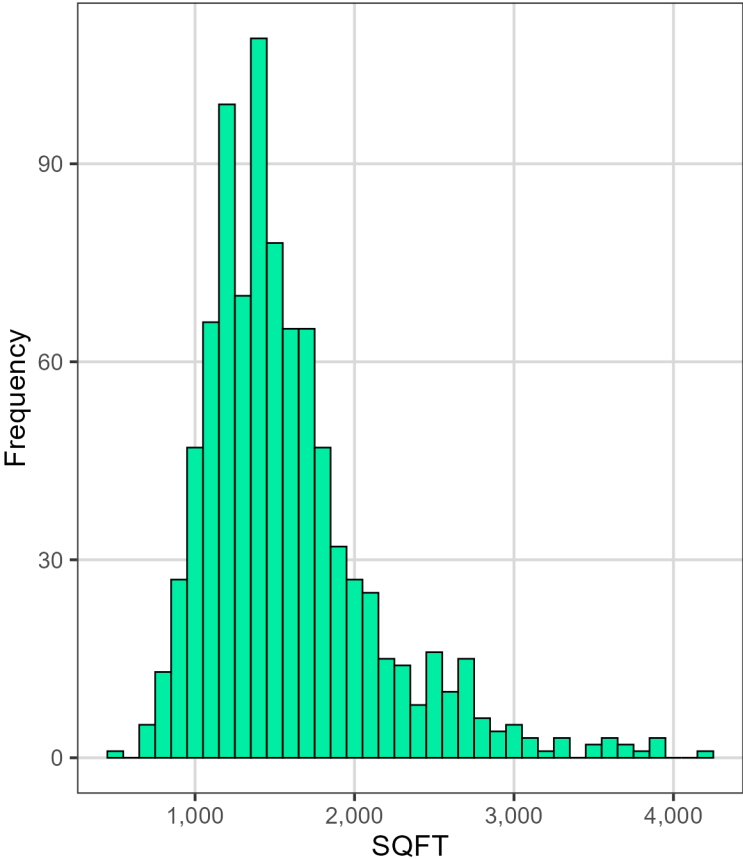
Measure Group	n	No Electric Upgrade	Panel Upgrade	Sub Panel Upgrade	Circuit Upgrade
Core Only	446	11%	35%	10%	89%
Core + Dryer	137	23%	26%	15%	77%
Core + Stove	136	13%	43%	20%	88%
Core + Dryer + Stove	144	24%	35%	24%	77%
Other / Incomplete Core	25	16%	36%	24%	84%
Total	888	15%	35%	15%	85%

Note: “Core” measures are HP HVAC and HPWH, the required measures for ESA BE participation. “Incomplete Core” reflects projects where either the HP HVAC and HPWH are not currently recorded in the Pilot tracking data.

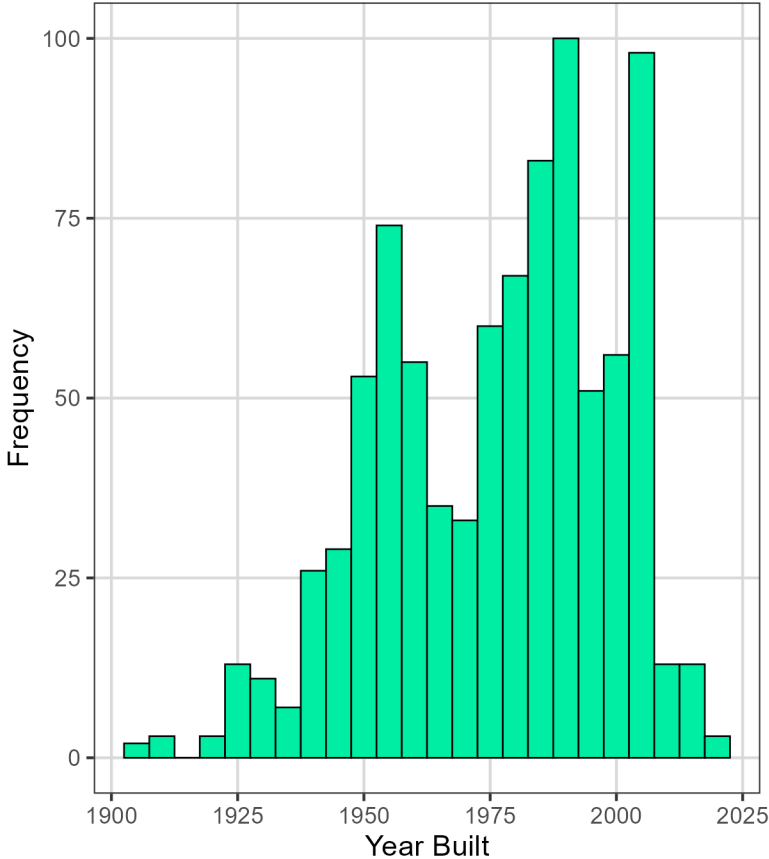
Participant Home Characterization

Square Footage, Vintage, and Climate Zones

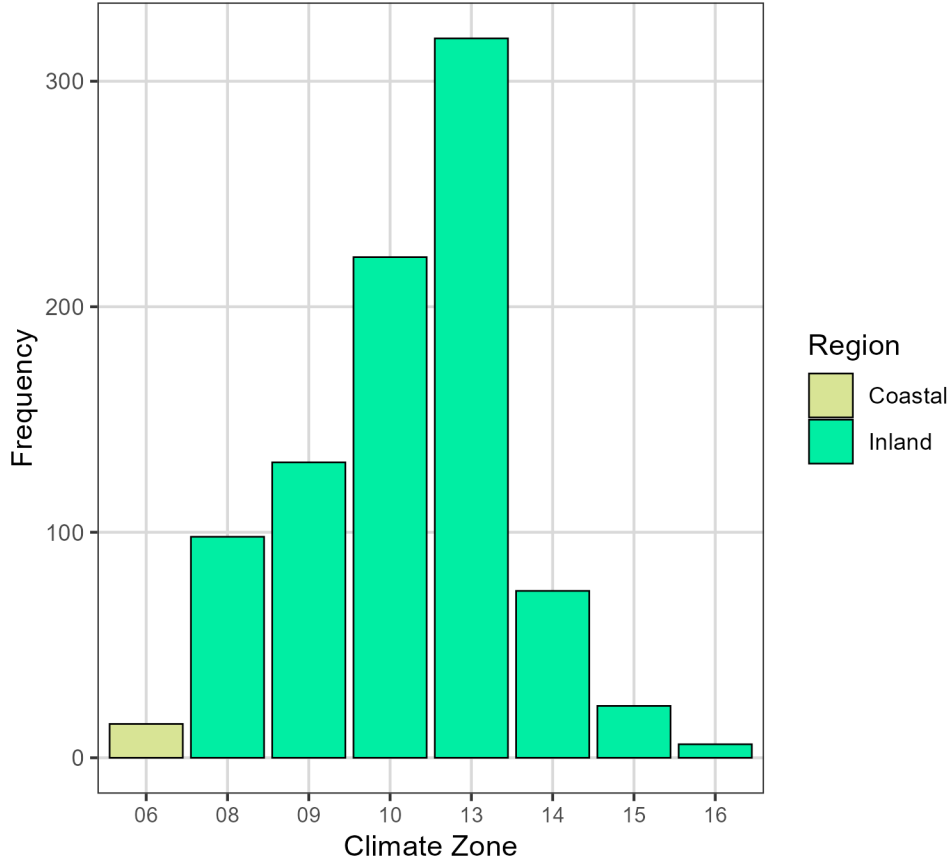
Distribution of SQFT



Distribution of Year Built



Distribution of Climate Zone



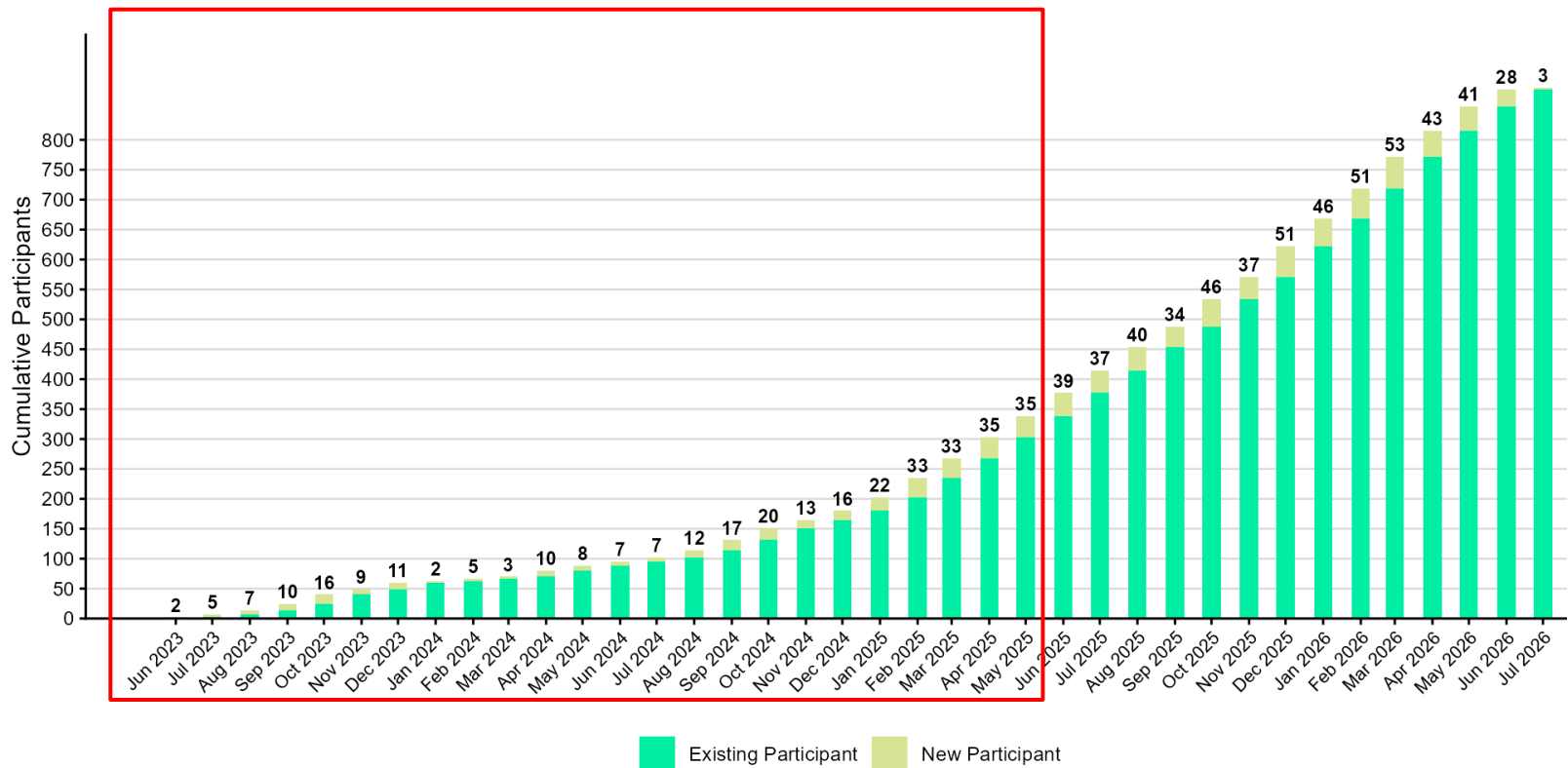


Interim Impact Findings: Energy and Bill Impacts

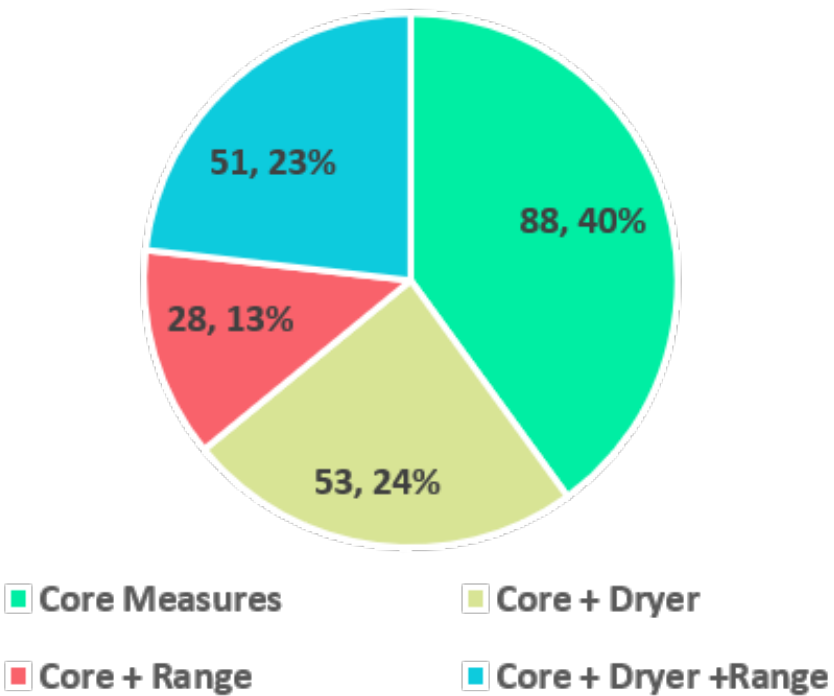
Impact Analysis Timeframe

First Installation Date and Measures Installed

Cumulative and New Monthly Participation
by First Installation Date



Preliminary Impact Analysis
Sample by Electrification
Measure Groups



Impact Methodology

Electricity Modeling: Two Staged DiD Model

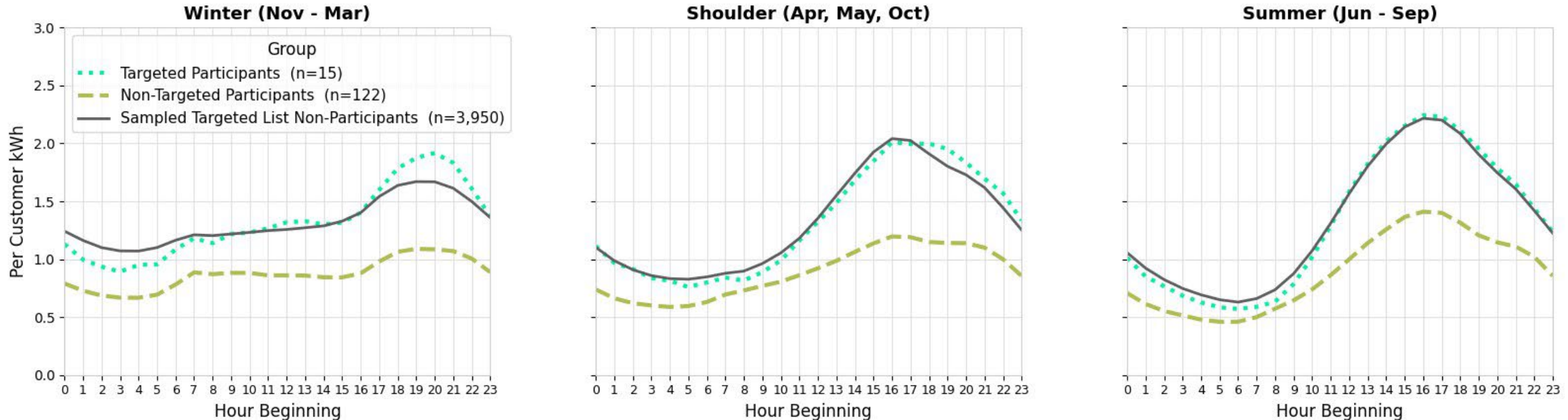
- **Non-participants primarily sampled from uncontacted customers on the TECH targeting List**
- **Control group developed using Euclidean distance matching**
- **Stage 1: Control for time trends and customer fixed effects**
 - Using participant and control group data to account for:
 - Customer fixed effect; common time trends
 - Results in detrended customer-adjusted usage
- **Stage 2: Treatment Effect Estimation**
 - Uses participant and control group data and results from stage 1 to compare treatment and control group electricity usage

Gas Modeling: Simple Comparison of Pre and Post Consumption

- Participants Only (No non-participant data readily available)
- Methodology to be updated to a regression approach for the final evaluation (Q2 2027)

Pre-Period Loads

Daily Average Load Shape By Season (Non -Exporting Customers)



In all seasons, targeted participants and non -participants have larger “pre -period” loads than participants that were not initially targeted.

Average SCE SF homes consume 7,510 kWh annually (RASS); ESA BE homes consume 8,890 kWh annually; Sampled non participants from the targeted list consume 11,555 kWh annually

Average SoCalGas homes consume 432 therms annually (RASS); ESA BE homes consume 374 therms annually

Data Attrition

Electricity Analysis

Attrition Type	Dropped	Remaining
Initial n	—	220
Those without install dates	9	211
Less than 8+ months pre and post data	84	127
PV installed within eight months of Pilot participation	19	108
Those with bad control matches (>= 0.4 Euclidean distance)	4	104
Bad weather normalization (no control available)	1	103
Electricity Analysis Dataset	—	103

Notes: Participants were matched to controls based on similarity in pre-period electricity consumption patterns using Euclidean distance matching. Euclidean distance calculates the straight-line distance across a vector of covariates between the participant and each control, with the closest controls selected as matches (those with the minimum distance).

Gas Analysis

Attrition Type	Dropped	Remaining
Initial n	—	220
Those without gas data	30	190
Those without install dates	4	186
Insufficient pre-data	3	183
Outliers and insufficient post data (customer with no post gas use or unrealistic therm savings)	16	167
Gas Only Analysis Dataset	—	167
Included in electricity analysis	82	85
Net Fuel Analysis Gas Dataset	—	85

Notes: Two datasets were developed for the analysis to examine overall gas savings and produce gas savings that more closely align with the sample used in the electricity analysis.

Reduction in Gas Usage

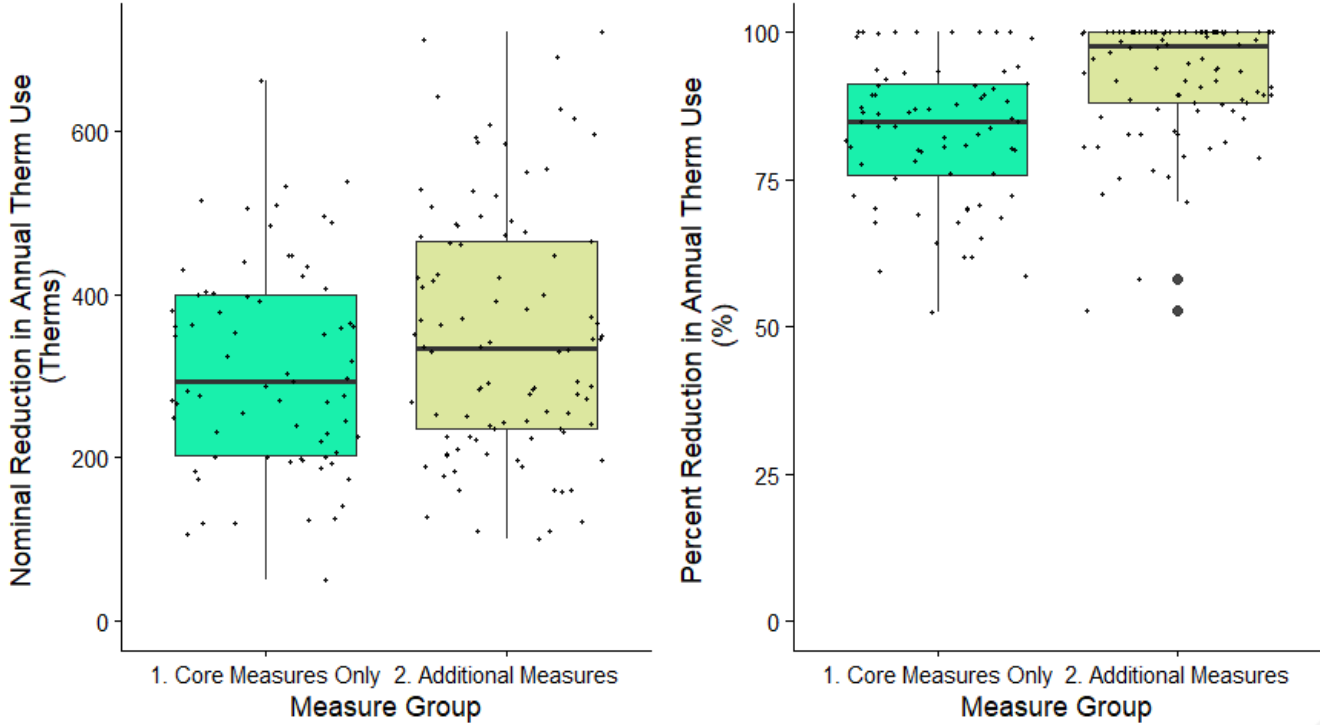
All Participants - Annual Therm Reduction

Therm Impact	Core Measures	Core + Additional Measures	All Participants
Customers (n)	71	96	167
Pre-Period	373.1	375.6	374.6
Post-Period	62.2	24.5	40.5
Reduction Total	310.9	351.1	334.0
Reduction %	83.3%	93.5%	89.2%

Notes: Average usage for SoCalGas SF homes is 432 Therms.
41 of 190 customers who we received data for fully electrified. 93% of fully electrified customers installed more than the core measures.

Overall Gas Realization Rate: 89%
(334/374 Therms)

Distribution of Customer Therm Reductions



Gas Impacts By Season

Average Impacts By Season

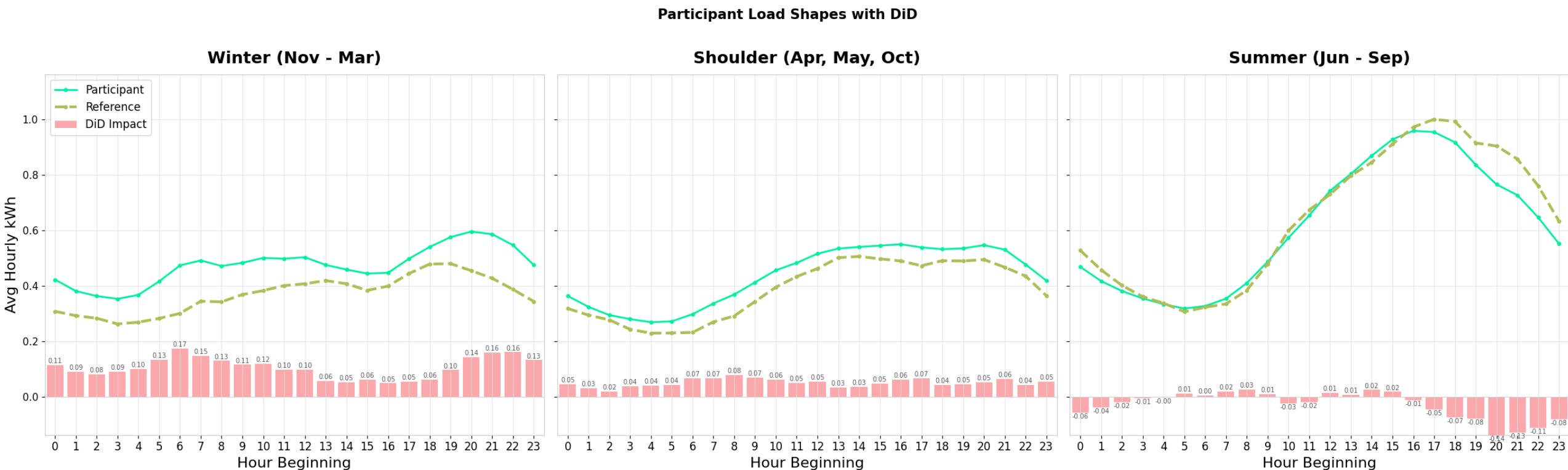
Seasonal Gas Use Impacts (Therms)							
Analysis Type Season		Months	Average Pre Monthly Use	Average Post Monthly Use	Average Monthly Therm Reduction	Total Season Therm Reduction	Percent Therm Reduction
Annual	Annual	All	31.2	3.4	27.8	334.0	89%
Seasonal	Winter	November through March	47.1	3.4	43.5	217.5	92%
	Shoulder	April, May and October	24.5	3.4	21.1	63.3	86%
	Summer	June Through September	16.3	3.1	13.2	52.8	81%

Seasonal Bill Impacts (\$)							
Analysis Type Season		Months	Average Pre Monthly Bill	Average Post Monthly Bill	Average Monthly Bill Reduction	Total Season Bill Reduction	Percent Bill Reduction
Annual	Annual	All	\$46.41	\$2.29	\$ 44.11	\$529.37	95%
Seasonal	Winter*	November through March	\$74.42	\$2.62	\$71.80	\$359.00	96%
	Shoulder*	April, May and October	\$28.01	\$-4.84	\$32.85	\$98.56	117%
	Summer	June Through September	\$25.19	\$7.24	\$17.95	\$71.81	71%

*Winter and shoulder months include Climate Credit payments in March and April.

Electric Impacts

Simple DiD Seasonal Changes in Load Shapes



Electric Impacts By Season

Average Impact By Season

Seasonal Electricity Use Impacts (kWh)						
Model Type	Season	Months	Average Daily kWh Increase	Average 30-Day kWh Increase	Total Season kWh Increase	Significance (p-Value)
Annual	Annual	All	3.04	91.20	1,109.60	0.001
Seasonal	Winter	November Through March	7.57	227.10	1,143.07	0.001
	Shoulder	April, May and October	2.51	75.30	230.92	0.001
	Summer	June Through September	-2.16	-64.80	-263.52	0.05

Seasonal Bill Impacts (\$)						
Model Type	Season	Months	Average Daily Bill Impact (\$)	Average 30-Day Bill Impact (\$)	Total Season Bill Impact (\$)	Significance (p-Value)
Annual	Annual	All	\$0.61	\$18.27	\$222.29	0.05
Seasonal	Winter	November Through March	\$1.76	\$52.91	\$266.31	0.001
	Shoulder	April, May and October	\$0.72	\$21.56	\$66.12	0.05
	Summer	June Through September	-\$0.87	-\$26.10	-\$106.14	0.05

Overall Electricity Realization Rate: 47% (-1,109/-2,381 kWh)

Net Gas and Electricity Impacts

Revisiting Gas Impacts: Gas Customers in the Electricity Analysis

Therm Impact	Core Measures	Core + Additional Measures	All Participants
Customers (n)	37	48	85
Pre-Period	365.0	325.7	342.8
Post-Period	62.9	24.6	41.3
Reduction Total	302.1	301.1	301.5
Reduction %	83%	92%	88%

Bill Impact	Core Measures	Core + Additional Measures	All Participants
Customers (n)	37	48	85
Pre-Period	\$540.36	\$482.0	\$507.40
Post-Period	\$49.53	\$6.82	\$25.41
Reduction Total	\$490.82	\$475.19	\$482.00
Reduction %	91%	99%	95%

The gas-only impact analysis includes more customers than the bill impact analysis. As a result, the gas data is subset to those in the electric analysis, although the alignment is not perfect.

Net Gas and Electric Savings

Energy

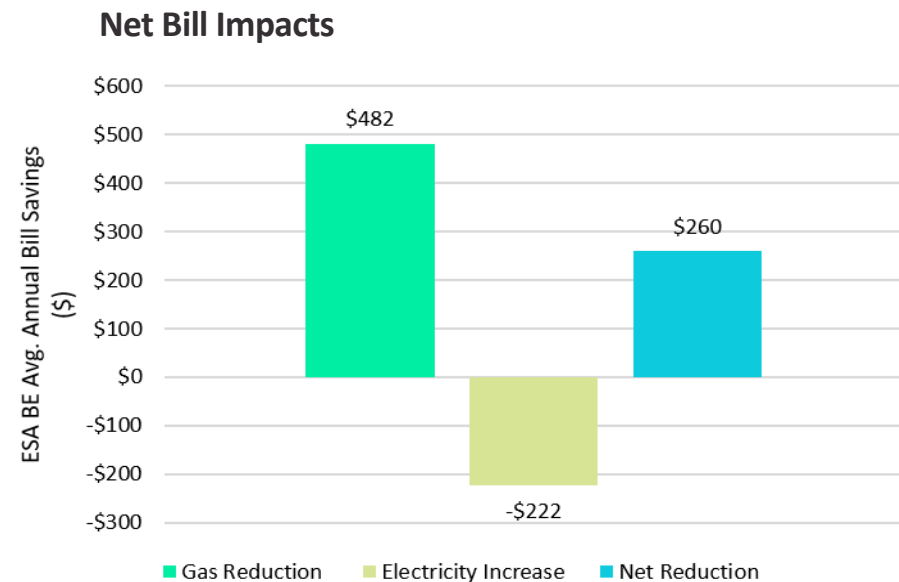
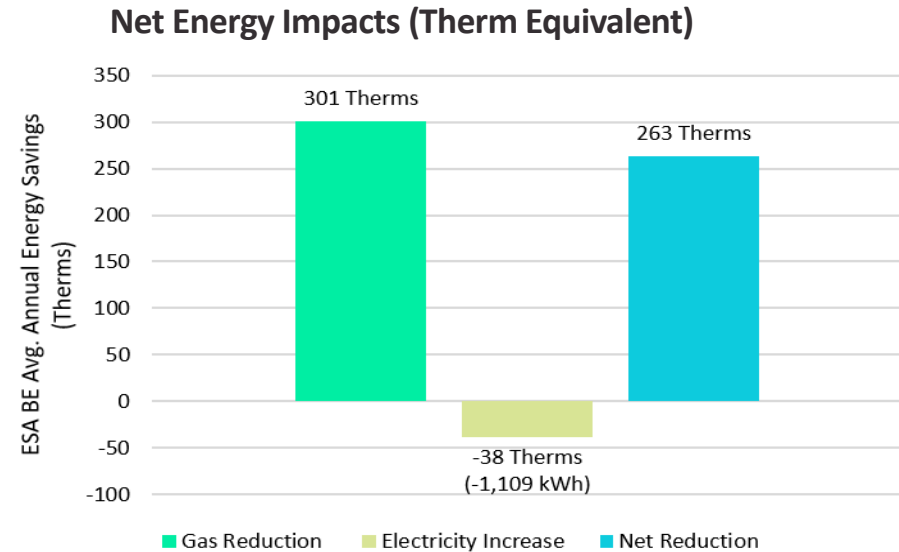
- Average annual gas reduction: 301 Therms
- Average annual electricity increase: 1,109 kWh
- Net annual reduction Therm Equivalent: 263 Therms

Bills

- Average annual gas bill reduction: \$482
- Average annual electricity bill increase: \$222
- Average participant annual utility bill savings: \$260

Realization Rates

- Gas: 89% (334/374 Therms)
- Electricity: 47% (-1,109/-2,381 kWh)



Next Steps

Final Impact Analysis

- Request additional electricity and gas usage and bill data for ESA BE customers (Late Fall 2026)
- Develop a matched control group from CARE customers who have not recently participated in ESA main or the ESA Pilots (within two years of participant installation dates)
- Re-run a similar usage and bill impact analysis with an update to the impact analysis methods
 - Characterize impacts by more domains of interest due to larger participant counts
- New analysis made possible by additional participation will include:
 - Green House Gas impact analysis
 - Additional segmentation of the results:
 - Nem versus non-NEM
 - Climate Zone
 - Pre-Pilot Rate
 - Pre-Installation Energy Consumption Size



SCE BE Pilot Interim Process Results

Process Evaluation Tasks Overview

- The BE Pilot launched in 2023 alongside two evaluation activities: field team and non-participant interviews.
- As the implementation team adjusted their targeting strategy and recruitment increased, the evaluation team executed rolling post-participation surveys in 2025.



Field Team Interviews (n=2)



Non-Participant Interviews (n=9)



Participant Post-Install Surveys
(n=54)

From Challenge to Resolution

Non-participant and implementer research insights

Challenges Identified through Non-Participant and Field Team Interviews

- Low awareness of the BE Pilot and electrification options
- Customer concerns about electric bills and energy resiliency
- Difficulty recruiting eligible customers
- Bill screening tool had early usability issues

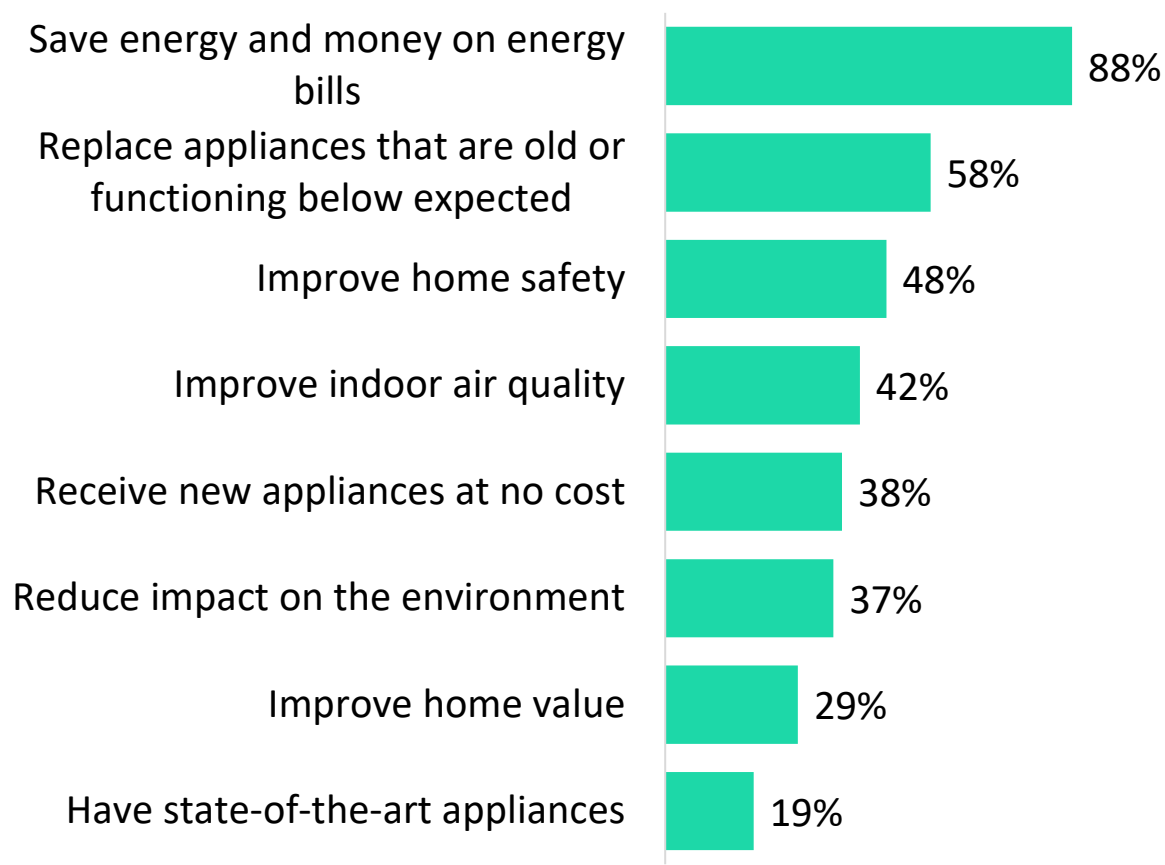
Real-Time Pilot Team Process Adjustments

- Recruitment barriers overcome — 660+ participants
 - Diverting from the original 'target participant' list, Pilot awareness is growing through MAROMA (42%, n=26) and word of mouth (19%, n=12)
- Bill screening tool reviewed and improved
 - Customer eligibility process has improved accuracy



Participant Survey Results: Motivations to Participate

Survey respondents participated to save on energy bills and replace underperforming or outdated appliances.



- Most (88%, n=46) respondents were motivated to participate to save money on energy bills and/or save energy.
 - More than half (58%, n=30) were motivated to participate to replace appliances that were old or functioning below expected.
 - 48% (n=25) participated to improve home safety¹.
- Related, participants original equipment tended to be 8 years or older (66%), not functioning well (49%) or was non-operational (4%).

This was a multiple response question (n=54).

¹Words and concepts such as “safety” or “comfort” are intentionally not defined in the survey, so it can reflect the customers’ perception in this context.

Participant Survey Results: Pilot Pathway

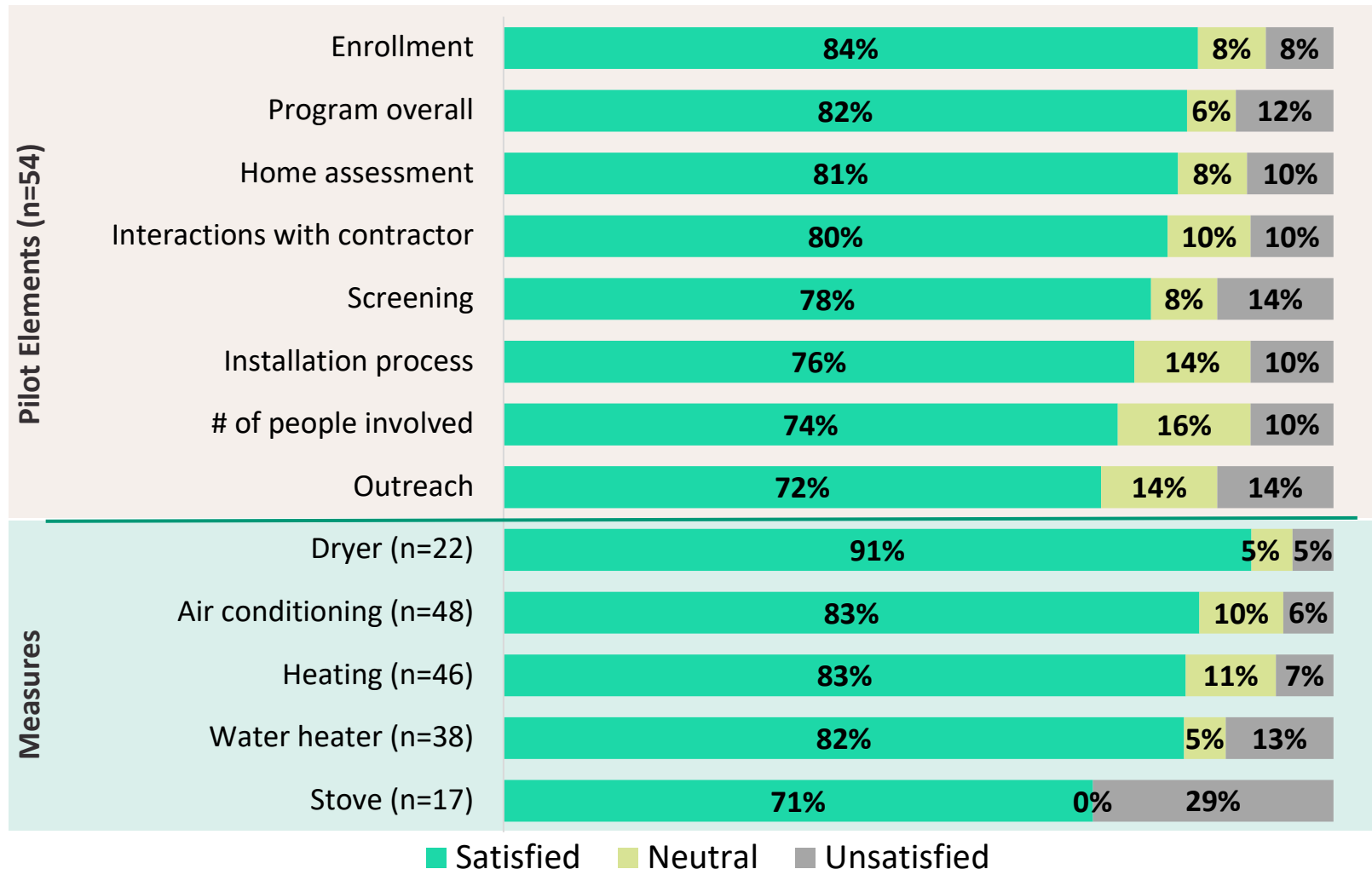
The Pilot is operating as expected.

- Outreach: Respondents primarily learn of the Pilot from direct outreach by MAROMA (42%; n= 26), and some via word of mouth (19%; n =12) or the utility website (18%, n=11).
- Assessment: All respondents (n=54) confirmed a home assessment was completed before equipment installation.
- Installation: 65% of respondents (n=33) progressed through each project step within two weeks of the previous one.
- Education: 80% (n=43) received guidance on using new equipment; over 50% (n=30) learned about the advantages of electric vs. gas appliances, maximizing equipment efficiency, and energy bill impacts.



Participant Survey Results: Pilot Satisfaction

Satisfaction with the Pilot is high.



Customer open-ended feedback (n=8) focused on:

- Improving communication from the installation contractors.
- Decreasing the wait time at various steps in the Pilot process.
- Improving the installation and equipment experience.
- Providing more upfront information on customer bill impacts.



Interim Results: Findings and Recommendations

Key Interim Findings

Impact Analysis: Energy and Bill Impacts

1. Annual (average) Natural gas usage and bills declined substantially
 - Gas use declined by 301 therms; Gas bills declined by \$482 (Net Fuel Sample)
 - 21% of participants appear to have fully electrified; 10% no longer have gas bills/service
2. Annual (average) Electricity usage and bills increased substantially
 - Electricity use increased by 1,109 kWh; bills increase by \$222
3. The average annual total utility bill decreased by \$260

Process Analysis

1. The customer journey through the Pilot steps are operating smoothly and as expected.
2. Customers are motivated to participate in the Pilot to reduce their energy usage, save money on their bills, and replace old or malfunctioning appliances.
3. Satisfaction with major Pilot elements and the offered measures is high.

Interim Recommendations

1. **Recruitment:** Recruitment can be challenging, even for generous offerings. Traditional recruitment pathways may be more effective than usage-based targeting. Relatedly, use participant responses around motivations to inform marketing (e.g., include messages about saving money, new equipment, home safety and indoor quality).
2. **Bill Screening:** Identifying customers most likely to save from electrification is complex. Screening tools should be regularly validated against actual customer outcomes, even using relatively small samples.
3. **Gas Fixed Charges:** Fixed gas charges can erode electrification bill savings when customers retain gas service after fully electrifying. California utilities and the CPUC should explore ways to streamline gas account closure after customers have fully electrified.
4. **Variable Outcomes and Continuous Monitoring:** While the team has yet to estimate the distribution of impacts, we are interested in options for monitoring customer impacts using AMI or other available data to address any of the worst bill outcomes.

Additional Unanswered Pilot Questions

- 1. Finding Customers who will Save at Scale:** Bill outcomes have been positive on average but likely have some distribution. With additional research (e.g., comparing customer results to their bill screening estimates, and segmenting results by participation channel, pre-upgrade usage, and NEM-status), the Pilot could help inform processes for protect customer bill outcomes moving forward and at scale, ideally even at lower costs per project.
- 2. Understand Scale of EE Needs and Panel Costs:** Scaling effectively requires understanding when complementary EE measures are needed to support positive bill outcomes and when costly panel upgrades can be avoided. These insights can help reduce project costs and expand participation.
- 3. Cost Efficiency:** The Pilot has demonstrated that electrification offerings can deliver benefits for the program and its customers. However, there are still learnings and refinements for how to operate the Pilot efficiently to enable it to serve as many customers as possible, such as exploring how best to work with other potential funding partners.
- 4. Further Understanding Pitfalls at Scale:** Currently, the Pilot has predominantly reached a narrow subset of customers with a relatively small sample size compared to a scaled program. As the Pilot touches additional customers, including renters, there may be important challenges uncovered.

Forward-Looking Evaluation Opportunities

- **Expansion to New Customer Segments (Underway / Planned)**
 - Evaluate electrification outcomes for propane and other non -IOU fuel customers
 - Assess implementation, cost, and customer impacts for mobile/manufactured homes
 - Identify segment -specific delivery challenges and scalability considerations
- **Leveraged Funding & Partnership Effectiveness**
 - Evaluate whether the Pilot successfully leveraged external funding and partnerships to enhance outcomes
 - Assess incremental value of coordination with programs such as TECH, BAAEC, Pomona Power Up and other local initiatives
 - Identify conditions under which program stacking and partnerships improve customer outcomes and cost effectiveness
- **Advancing Building Electrification through Innovation & Collaboration**
 - Assess how Pilot participation supports emerging efforts to address electrification barriers
 - Evaluate the role of Pilot projects in informing tools, technologies, and delivery strategies for scale
 - Generate actionable insights to support future ESA program design and integration



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Thank you

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Attachment 13

Air Purifier Searches

Popular filters



198 results for "air purifier"



Bestseller

\$49.99 - \$59.99

When purchased online

Rarely returned

Levoit™ Core Mini Air Purifier with Night Light

4.5 ★ (248)

Loved for: **compact size**

Only 7 left at East Lake Street and Hwy 55

Pickup ready within 2 hours

Shipping arrives Fri, Sep 11

Shipping dates may vary

Add to cart



Highly rated

\$89.99 reg \$99.99

Sale

Rarely returned

Levoit™ Core 300 Air Purifier White

4.6 ★ (565)

Loved for: **effective for allergies**

Only 4 left at East Lake Street and Hwy 55

Pickup ready within 2 hours

Delivery as soon as 2pm PDT

Shipping arrives Fri, Sep 11

Ships free - exclusions apply

Add to cart



Highly rated

\$74.99 reg \$99.99

Sale

Rarely returned

Levoit™ Core 200s Smart Air Purifier Gray: 1-Year Warranty, 4 Settings, ETL & CARB Certified, 100-...

4.6 ★ (945)

Loved for: **effective odor removal**

Only 3 left at East Lake Street and Hwy 55

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Add to cart



Highly rated

\$111.99 reg \$118.99

Sale

When purchased online

Blueair™ Blue Pure 511 Max HEPA Silent Air Purifier for Small Rooms up to 1138 sq ft

4.6 ★ (286)

Loved for: **effective air cleaning**

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\$179.99 reg \$199.99

Sale

Rarely returned

Levoit™ Vital Pet Pro Smart Air Purifier White

4.5 ★ (55)

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\$229.99

Shark™ Never Change Breathe Clear Compact Pro HP062

4.7 ★ (61)

Loved for: **easy setup**

FSA/HSA eligible

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\$59.99 reg \$74.99

Sale

Rarely returned

Honeywell™ Allergen Plus True HEPA Air Purifier Black HPA120

4.8 ★ (113)

Loved for: **compact design**

Shipping arrives Fri, Sep 11

Ships free - exclusions apply

Add to cart



Highly rated

\$159.99 reg \$179.99

Sale

Levoit™ PlasmaPro 300-P Air Purifier for Rooms up to 1043 sq ft

4.6 ★ (153)

Loved for: **Smart App Control**

Shipping arrives Fri, Sep 11

Ships free - exclusions apply

Add to cart



400+ bought in last month

\$180.00

When purchased online

Shark™ NeverChange Compact Pro Air Purifier with 5 Year Filter Life 250 sq ft Dove HP072

4.4 ★ (473)

FSA/HSA eligible

Only 1 left at East Lake Street and Hwy 55

See price in cart



900+ bought in last month

\$34.99

When purchased online

HoMedics™ Portable HEPA Air Purifier with Aromatherapy

700+ bought in last month

See price in cart

When purchased online

Shark™ Never Change Air Purifier Max HP302: True HEPA, 5 Settings, 1200-1500 sq. ft., ...

4.5 ★ (271)

Loved for: **effective air cleaning**

FSA/HSA eligible

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Delivery as soon as 2pm PDT
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3.8 ★ (88)
Shipping arrives Fri, Sep 11
Shipping dates may vary

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4.4 ★ (492)
FSA/HSA eligible
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700+ bought in last month

\$229.99

Blueair™ Blue Pure 311i Max HEPA Air Purifier for Medium Rooms up to 1858 sq. ft.

4.7 ★ (449)

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600+ bought in last month

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Shark™ Never Change Breathe Clear HP162

4.8 ★ (62)

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Ships free - exclusions apply

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600+ bought in last month

\$99.99

Rarely returned

Dreo™ Air Purifier 337S for Mid-Size Rooms up to 1066 sq ft

4.9 ★ (235)

Only 1 left at San Francisco Central

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★ Highly rated

\$299.99

When purchased online

Dyson™ HushJet Compact Purifier Engineered for Whisper-Quiet Whole-room Air Purification with ...

4.5 ★ (1,106)

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700+ bought in last month

\$109.99 reg \$149.99

Sale

Rarely returned

Winix™ T500 Air Purifier for Home Room up to 1204 sq ft with Air Quality Monitor True HEPA ...

4.2 ★ (7)

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★ Highly rated

\$92.99

When purchased online

Germ Guardian™ GermGuardian Intelligent 22in Tower Air Purifier HEPA Filter UV-C Intellisense ...

4.8 ★ (76)

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400+ bought in last month

\$79.99

Rarely returned

Dreo™ Macro AP606 Air Purifier for Mid-Size Rooms up to 758 sq ft

4.8 ★ (277)

Loved for: **quiet operation**

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400+ bought in last month

\$159.99 reg \$179.99

Sale

Winix™ C545 Air Purifier for Home Large Room up to 1742 sq ft with Air Quality Monitor True HEPA ...

4.0 ★ (75)

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★ Highly rated

\$119.99

Canopy™ Air Purifier-Multi-Stage HEPA Filtration Reduces 99.97% of Air, Dust, Pollen & ...

4.8 ★ (667)

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Ships free - exclusions apply



\$262.99 reg \$449.99

Sale

When purchased online

Blueair™ Blue Pure 211i Max HEPA Air Purifier for Extra Large Room over 3000 sq. ft.

4.6 ★ (632)

Loved for: **effective air purification**



400+ bought in last month

\$179.99

Clorox™ Large Room True HEPA Air Purifier 11010

4.7 ★ (77)

Only 2 left at East Lake Street and Hwy 55

Pickup ready within 2 hours

Delivery as soon as 2pm PDT



\$549.99

Dyson™ Air Purifier Cool PC1 White

4.0 ★ (588)

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Ships free - exclusions apply

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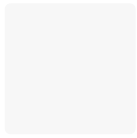


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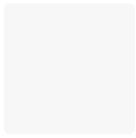
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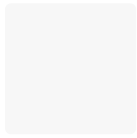
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★★★★★ 248 reviews

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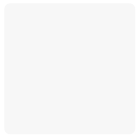
★ Highly rated
\$89.99
reg \$99.99 Sale
Levoit Core 300 Air Purifier White
★★★★★ 565 reviews

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★ Highly rated
\$74.99
reg \$89.99 Sale
Levoit Core 200s Smart Air Purifier Gray: 1-Year...
★★★★★ 845 reviews

Add to cart



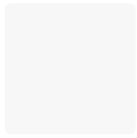
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Shark Never Change Air Purifier 5-Year Filter Life 650 sq ft HP152: HEPA...
★★★★★ 473 reviews

Add to cart



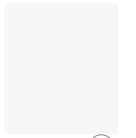
\$44.49 - \$49.99
Levoit Core Mini-P Air Purifier
★★★★★ 545 reviews

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★ Highly rated
\$111.99
reg \$119.99 Sale
Blueair Blue Pure 511i Max HEPA Silent Air...
★★★★★ 286 reviews

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\$229.99
Shark Never Change Breathe Clear Compac Pro HP062
★★★★★ 61 reviews

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☐ 207 to 373 ft²
☐ 374 to 540 ft²
☐ 541 ft² & above

Price

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Levoit Air Purifier for Home Pets Hair Allergens in Bedroom Quiet Purifiers | Quiet HEPA Sleep Mode,...

4.7 ★★★★★ (108.7K)

40K+ bought in past month

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\$84⁹⁹ List: \$99.99

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Levoit Air Purifiers for Bedroom Home Pets Dorm Room, Small Air Purifiers | Filter Cleaner with Fragrance Spong...

4.6 ★★★★★ (45.4K)

50K+ bought in past month

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\$43⁹⁹ List: \$49.99

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VOOPNU Air Purifiers for Home, High Efficiency Filter Up to 1076 Ft², White | for Pet Hair, Odors, Pollen, Smoke,...

4.4 ★★★★★ (4.8K)

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Features

- Electric Stovetop Compatible
- Manual
- Portable
- Programmable
- Washable Filter

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Purpose

- Removing Odor
- Reducing Allergens
- Sleeping
- Asthma Relief
- Traveling

Contaminant Filtration Capability

- Cigarette Smoke
- Dust
- Odors
- Pet Dander
- Pet Hair
- Pollen
- Volatile Organic Compounds (VOCs)

See more



LEVOIT Smart Air Purifier for Home Large Room up to 1875 Ft² Vital 200S-P | For Quiet Bedroom at 27dB, AH...

4.7 (14.9K)

10K+ bought in past month

Limited time deal

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Air Purifiers for Bedroom, FULMINARE H13 True HEPA Filter | Remove Pet Hair, Smoke, Odors, Quiet Air Clean...

4.4 (5.7K)

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Ozone Generator 48,000mg, Ozone Machine Odor Eliminator Removal, O3 Ionizer | Commercial High...

4.4 (1.9K)

10K+ bought in past month

\$39⁸³ (\$39.83/count)

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\$36.03 (2+ used & new offers)



BLUEAIR Blue Pure 511i Max Smart Air Purifier for Bedroom & Small Rooms up to 1,138 Sq Ft, HEPASilent ...

4.4 (5.2K)

7K+ bought in past month

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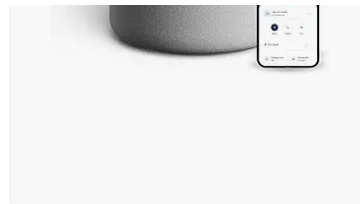
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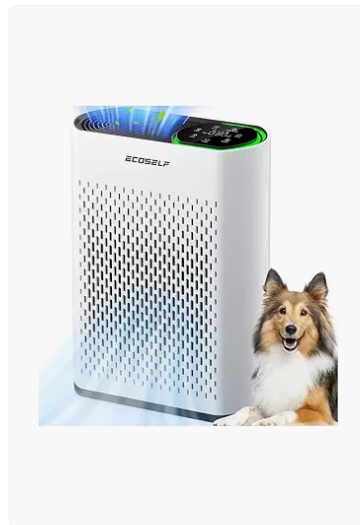
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- Works with Alexa
- Energy efficiency

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Air Purifier for Large Room, Cleans 2,400 ft² in 30 Mins, 3-Stage True HEPA, 360° Airflow, Large Touch Display...

4.8 (178)
7K+ bought in past month

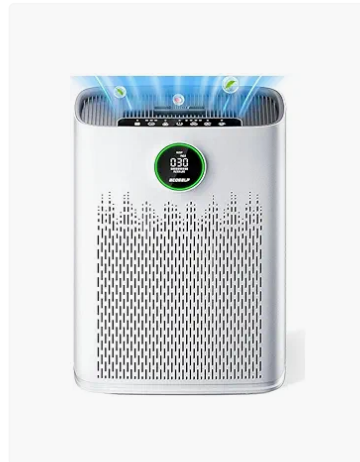
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\$89⁹⁹ (\$89.99/count)
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- Recycled materials +2 more

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Air Purifiers for Home Large Room, Up to 2400 Ft² with True HEPA Filter | Smart Mode, PM2.5 Air Quality Displa...

4.8 (97)
3K+ bought in past month

Limited time deal

\$89⁹⁸ (\$89.98/count)
Typical: \$292.99

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- Recycled materials +2 more

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Air Purifiers for Home Large Room up to 2200sq.ft, MOOKA Air purifier for Home Pets with Washable Filter,...

4.5 (4.7K)
10K+ bought in past month

\$79⁹⁹ (\$79.99/count)
List Price: \$99.99
Save 10% at checkout

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- Recycled materials +2 more

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MOOKA Air Purifier for Home Bedroom Large Room 2200 Ft², HEPA Filter, White | Washable Pre-Filter, Auto Mode,...

4.5 (6.2K)
9K+ bought in past month

\$102⁹⁹ (\$102.99/count)



You pay **\$74.99** with coupon

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Recycled materials +2 more

Add to cart



ECOSELF Air Purifiers for Home Large Room Up to 1800 Ft², HEPA Air Purifier | Air Purifiers for Bedroom with 36...

4.8 (191)

5K+ bought in past month

\$69⁹⁹ (\$69.99/count)

Typical price: ~~\$195.99~~

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Recycled materials +2 more

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AROEVE Air Purifiers for Bedroom with Sleep Mode Speed Control-MK01A(White) | Energy Star Efficiency, Meet...

4.5 (42.4K)

5K+ bought in past month

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\$35⁹⁸ (\$35.98/count) List: ~~\$45.99~~

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Small Business

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\$34.38 (5+ used & new offers)



KNKA Air Purifiers for Home Bedroom Up to 1,695 Ft² in 1 Hr, APH4000, White | HEPA Sleep Mode Air Cleaner with...

4.6 (2.7K)

5K+ bought in past month

\$129⁹⁹ (\$129.99/count)

List Price: ~~\$259.99~~

Save 5% on 2 select item(s)

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COWAY Airmega Mighty2 Air Purifier, Next Gen of AP-1512HH, for Large Room & Home Cleans up to 1,800 ft²...

4.6 ★★★★★ (29K)

4K+ bought in past month

\$269⁹⁹ (\$269.99/count)

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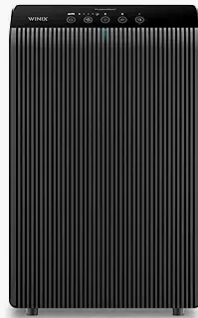
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More Buying Choices

\$253.93 (2+ used & new offers)



WINIX 5510 Air Purifier (New Generation of 5500-2 with App Support) for Home Large Room Up to 1881 Ft² in 1...

4.6 ★★★★★ (32.1K)

4K+ bought in past month

\$179⁹⁹ (\$179.99/count)

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More Buying Choices

\$160.19 (3+ used & new offers)



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FreAire Air Purifiers for Home Large Room Up to 2600 Ft², HAP605, White | HEPA Air Purifier with Washable Filter...

4.8 ★★★★★ (334)

700+ bought in past month

Limited time deal

\$89⁹⁹ (\$89.99/count)

Typical: ~~\$249.99~~

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Sponsored ⓘ

DREO Air Purifier for Home, HEPA Sleep Mode, AHAM VERIFIDE Air Purifiers for Bedroom, Pets, Smoke, Dust,...

4.7 ★★★★★ (319)

2K+ bought in past month

Limited time deal

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Energy efficiency ▾

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3

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20

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🇺🇸 United States

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Amazon Ads
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Air Purifiers

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PurifiersAir Quality
Room Size:
Large (501...

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Air Purifier Features ▾

Number of Cleaning Stages ▾

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Price: \$0 - \$200 X

Top Rated

**LEVOIT** Core 300-P (Coverage 220 sq.ft.) Activated Carbon Filter Large Room Air Purifier in White

★★★★★ (4.7 / 679)

Model# EAPAPLVNUS0132Y

\$84.99 ~~\$99.99~~
Save \$15.00 (15%) **Pickup Nearby:** 6 in stock at **Sunset** (3.6 mi) **Delivery:** Free | Today

Express Delivery Available

Add to Cart**LEVOIT** Core Mini-P (Coverage 178 sq. ft.) Activated Carbon Filter Small Room Air Purifier in Gray with Aromatherapy

★★★★★ (4.7 / 382)

Model# HEAPAPLVNUS0107

\$44.98 ~~\$49.98~~
Save \$5.00 (10%) **Pickup:** 3 in stock at **Wilshire/Union** **Delivery:** Free | Today

Express Delivery Available

Add to Cart

Sponsored

**Edendirect** 2152 sq. ft. H13 HEPA True Personal Console Air Purifier in Whites, 99.97% Cleaner, 235 CFM, Air Quality Indicator

★★★★★ (4.6 / 56)

Model# KTJEAP0109

Limit 10 per order

\$172.99 ~~\$244.99~~
Save \$81.00 (32%)

Buy More, Save More

Ship to Store: Free | Pickup **Delivery:** Free | Thu, Sep 17**Add to Cart**



Sponsored



Winix A230 360° All-in-One 4-Stage True HEPA Air Purifier with PlasmaWave Technology
★★★★★ (4.7 / 173)
Model# 1022-0226-00

\$99⁹⁹

Ship to Store: Free | Pickup
 Delivery: Free | Today

Add to Cart



[+more options](#)

Winix D360 True HEPA 3-Stage Air Purifier, AHAM Verified for 360 sq. ft.
★★★★★ (4.6 / 744)
Model# 1022-0222-02

\$149⁰⁰

Pickup: 2 in stock at [Wilshire/Union](#)
 Delivery: Free | Today

Express Delivery Available

Add to Cart



[+2 more](#)

Edendirect 1100 sq. ft. H13 HEPA Personal Air Purifier in Black, with PM2.5 Sensor, 25dB Sleep Mode, Activated Carbon, Ozone-Free
★★★★★ (4.6 / 57)
Model# HD-X004ATHXAN

\$103¹⁹ ~~\$161⁴⁴~~
Save \$58.22 (36%)

Buy More, Save More

Ship to Store: Free | Pickup
 Delivery: Free | Thu, Sep 17

Add to Cart



[+2 more](#)

Edendirect 1100 sq. ft. H13 HEPA Personal Air Purifier in White with PM2.5 Sensor, Sleep Mode, for Pet Fur, Pollen, Cooking Smell
★★★★★ (4.6 / 57)
Model# HD-X004AR859X

\$102⁹⁹ \$166.79
Save \$63.71 (38%)

Buy More, Save More

Ship to Store: Free | Pickup

Delivery: Free | Thu, Sep 17

Add to Cart

Rated 4 Stars & Above



Winix
D360 True HEPA 3-Stage Air Purifier, AHAM Verified for 360 sq. ft.

★★★★★ (4.6 / 744)

\$149⁰⁰



Pure Enrichment
PureZone 300 sq. ft. True HEPA Filter Room Air Purifier in White with 3-Fan Speeds, UV-C Light, Automatic Timer

★★★★★ (4.9 / 706)

\$99⁹⁹



Crane
True HEPA Air Purifier with Germicidal UV Light for Small to Medium Rooms up to 250 sq.ft. - Standard

★★★★★ (4.6 / 202)

\$89⁹⁹



Crane
HEPA Air Purifier with 3 Speed Settings for Small to Medium Rooms up to 300 sq.ft.

★★★★★ (4.3 / 124)

\$50⁹¹



Winix
A230 360° All-in-One 4-Stage True HEPA Air Purifier with PlasmaWave Technology

★★★★★ (4.7 / 172)

\$99⁹⁹



GermGuardian
870 sq. ft. HEPA 5-Speed Tower Air Purifier 28 in. in White for Home, UV-C, Wildfire Smoke, Dust, Odors, Allergens

★★★★★ (4.6 / 108)

\$179⁹⁹



Lasko
Pure Platinum Slim Profile Air Purifier with HEPA-Type Filtration and Auto Clean

★★★★★ (4.5 / 13)

\$184²⁹

< 1/2 >

Top Rated



more options

Shark NeverChange 650 sq.ft HEPA Filter Outlet Plug Air Purifier and Cleaner in Grey w/ Timer, for Dust, Smoke, Bedroom, Office

★★★★★ (4.5 / 641)

Model# HP152

Limit 5 per order

\$179⁰⁰ \$249.99
Save \$70.00 (28%)

Buy 2 or More, Get 10% Off

Pickup: 2 in stock at Wilshire/Union

Delivery: Free | Today

Express Delivery Available

Add to Cart



Edendirect 1200 sq. ft. True H13 HEPA True Personal Room Air Purifier in Whites, 99.97% Cleaner, 153 CFM, Sleep Mode, Kid Lock

★★★★★ (4.6 / 56)

Model# KT602URJE

\$86⁹⁹ \$196.99
Save \$110.00 (56%)

Buy More, Save More

Ship to Store: Free | Pickup

Delivery: Free | Thu, Sep 17

Add to Cart



more options

Edendirect 1485 sq. ft. 3-Speed HEPA-True Console Air Purifier in Whites, with True HEPA 3-Stage and Remove 99.97% Hair, Dust, Smoke

★★★★★ (4.1 / 8)

Model# HD-AP230ANEW

\$90⁹⁹ \$161.99
Save \$71.09 (44%)

Ship to Store: Free | Pickup

Delivery: Free | Thu, Sep 17

Add to Cart

Top Rated

Feedback



GermGuardian 743 sq. ft. HEPA Filter Tower Air Purifier 22 in. in Gray for Home, UV-C, Wildfire Smoke, Dust, Odors, Allergens
★★★★★ (4.7 / 724)
Model# AC4825E

\$80⁷⁴

Ship to Store: Free | Pickup
 Delivery: Free | Sep 15 - Sep 16

Add to Cart



[+more options](#)

Edendirect 1655 sq. ft. HEPA-True Console Air Purifier in Black, 147 CFM, 5-Fan Speed with Auto and Sleep Mode Best for Bedroom
★★★★★ (4 / 2)
Model# HD-AP250ANEW

\$74⁹⁹ ~~\$156.37~~
Save \$81.38 (52%)

Ship to Store: Free | Pickup
 Delivery: Free | Thu, Sep 17

Add to Cart



[+1 more](#)

Shark True Console 500 sq. ft. HEPA Filter Air Purifier and Cleaner in Whites with Nanoseal, Cleansense IQ and Odor Lock
★★★★★ (4.6 / 613)
Model# HP102

Limit 5 per order

\$199⁹⁹

Buy 2 or More, Get 10% Off

Ship to Store: Free | Pickup
 Delivery: Free | Tomorrow

Add to Cart



[+2 more](#)

Edendirect 3000 sq. ft. True HEPA H13 Personal Room Air Purifier in Whites, 99.97% Cleaner, 270 CFM, Air Quality Indicator
★★★★★ (5 / 10)
Model# ED-KJ450-KT

\$159⁹⁹ \$177.49
Save \$17.41 (10%)

 Buy More, Save More

 Ship to Store: Free | Pickup

 Delivery: Free | Thu, Sep 17

Add to Cart



Pure Enrichment PureZone 300 sq. ft. True HEPA Filter Room Air Purifier in White with 3-Fan Speeds, UV-C Light, Automatic Timer
★★★★★ (4.9 / 706)
Model# PEAIRPLG

\$99⁹⁹

 Ship to Store: Free | Pickup

 Delivery: Free | Sep 15 - Sep 16

Add to Cart

New



[+more options](#)

Windmill The Air Purifier 3-in-1, Ultra-Quiet, Medical Grade, True HEPA Filter, AHAM Verifide, Up to 975 Sq Ft, in White
★★★★★ (5 / 209)
Model# SAP1V1

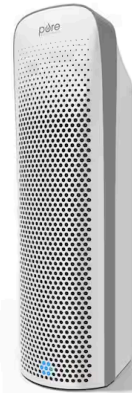
\$199⁹⁹

 Buy More, Save More

 Ship to Store: Free | Pickup

 Delivery: Free | Tomorrow

Add to Cart



Pure Enrichment PureZone 990 sq.ft. True HEPA Room Air Purifier in White w/3-Fan Speeds, Smart Air Quality Monitor, Filter Reset Indicator
★★★★★ (4.9 / 353)
Model# PEAIRTW9

\$137⁹⁹

 Ship to Store: Free | Pickup

 Delivery: Free | Sep 17 - Sep 18

Add to Cart

Feedback

New



Honeywell QuietClean Tower Air Purifier, 170 Sq. ft.
★★★★★
Model# 985125290M

\$132⁰⁰

 Ship to Store: Free | Pickup

 Delivery: Free | Sep 11 - Sep 14

Add to Cart

New



GermGuardian Pluggable UV-C UV-C Air Purifier 7.5 in. White for Home, Odors, Viruses, VOCs, Odors and Mold Spores
★★★★★ (4.4 / 57)
Model# GG1000

\$34⁹⁸

Ship to Store: Free | Pickup
 Delivery: Free | Sep 15 - Sep 16



[+more options](#)

Edendirect 2250 sq. ft. HEPA Personal Air Purifier in White, with 5-Level Speed, PM2.5 Real-time Display, Low Noise, 16 H Timer
★★★★★
Model# HD-QRAP020TKV01

\$118¹⁰ ~~\$157.47~~
Save \$39.37 (25%)

Ship to Store: Free | Pickup
 Delivery: Free | Thu, Sep 17

[Add to Cart](#)



LG PuriCare AeroHiT Up to 1000 sq. ft. True HEPA Personal Smart Air Purifier
★★★★★
Model# AS351GW30

\$199⁹⁹

Ship to Store: Free | Pickup
 Delivery: Free | Wed, Sep 16

[Add to Cart](#)

The Air Filter (on the left)
ONLY goes with **OUR**
1100 sq.ft. True HEPA 13
Air Purifier

2 PCS Included

Model# HD-X004AR859X
Model# HD-X004ATHXAN

[+2 more](#)

Edendirect Room Air Purifier Replacement Filters, White, True HEPA for Wildfire, Smoke, Pollen, 2-Piece for 1100 sq.ft. Air Purifier
★★★★★ (4.6 / 57)
Model# HD-X004RP28EN

\$39⁹⁹

Ship to Store: Free | Pickup
 Delivery: Free | Thu, Sep 17

[Add to Cart](#)

Feedback

Attachment 14

Zhu et al., *Indoor Air Quality in California: New Evidence and Environmental Justice* (July 10, 2026)

Indoor Air Quality in California: New Evidence and Environmental Justice

Yifang Zhu, PhD, Professor
Jing Li, PhD, Associate Project Scientist

Department of Environmental Health Sciences
UCLA Fielding School of Public Health

Final Seminar – July 10th, 2026

Outline

	1 Project overview		Pages 3–8
	2 Priority Indoor Air Pollutants of Concern		Pages 9–15
	3 Health Effects of Indoor Air Pollution		Pages 16–19
	4 Vulnerable and Susceptible Groups		Pages 20–21
	5 Regulatory Framework: Global, US, and California		Pages 22–28
	6 Pathway to Healthier Indoor Air		Pages 29–31
	7 Future Priorities: Research, Policy & Environmental Justice		Pages 32–33



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5 Regulatory Framework



6 Pathway to Healthier IAQ



7 Future Priorities

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UCLA Fielding School of Public Health



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*University of³
Colorado Boulder*



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Background



Cr. EnergyLogic

As required by Assembly Bill 1173, CARB staff compiled a comprehensive report in 2005 on indoor air pollution.

2002

Report preparation

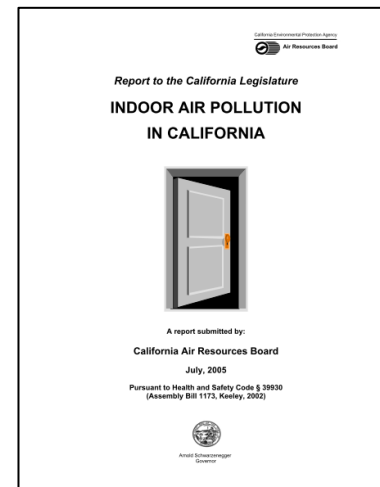
- Indoor air pollutants
- Existing regulations and practices
- Possible mitigation options

Externally scientific review

Kirk R. Smith, UC Berkeley
S. Katharine Hammond, UC Berkeley
William W. Nazaroff, UC Berkeley
Richard Sextro, LBNL

2005

Submission to the Legislature



2023?



Project Objectives

- ☐ What are the priority indoor air pollutants in California?
- ☐ How can exposures to these pollutants be mitigated to enhance human health protection?





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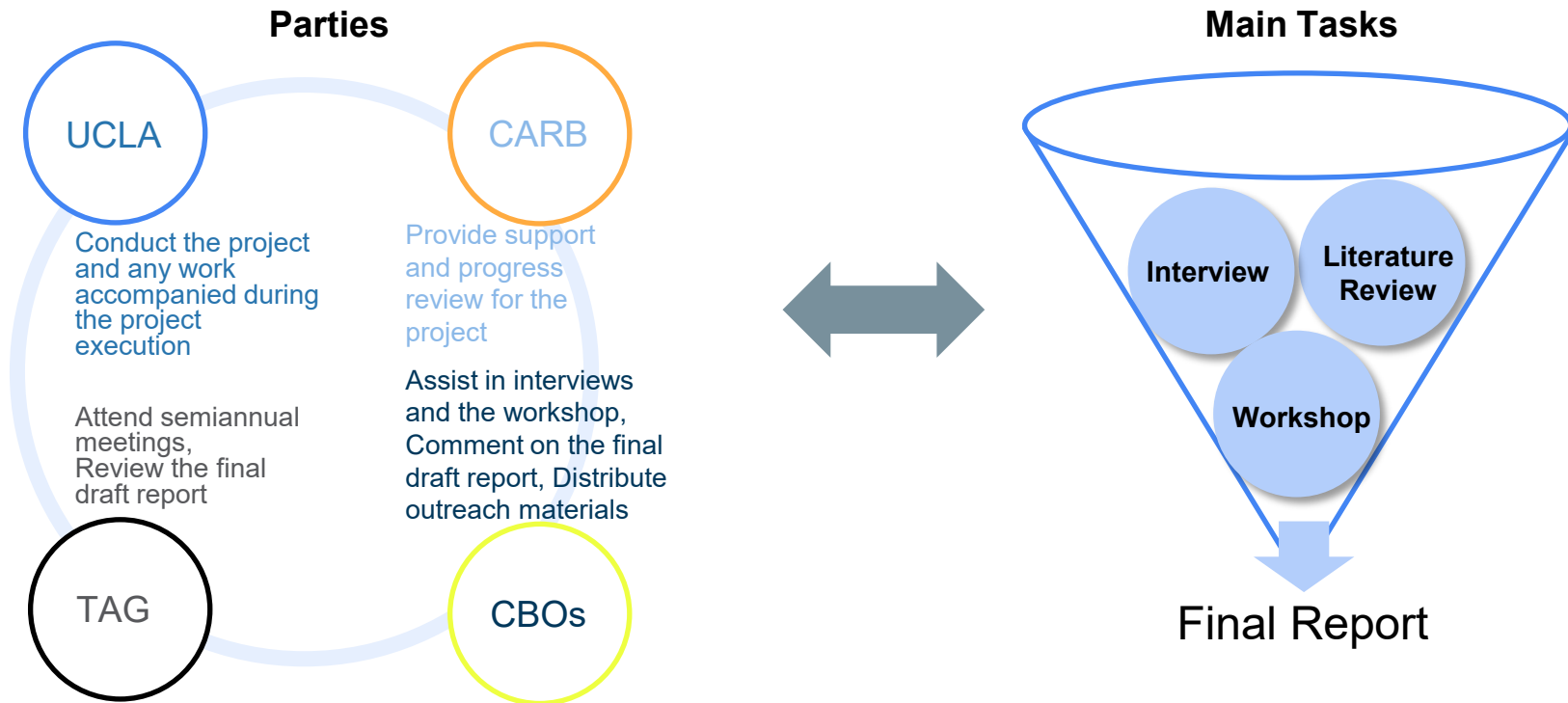


6 Pathway to Healthier IAQ



7 Future Priorities

Project Approach





Literature Review

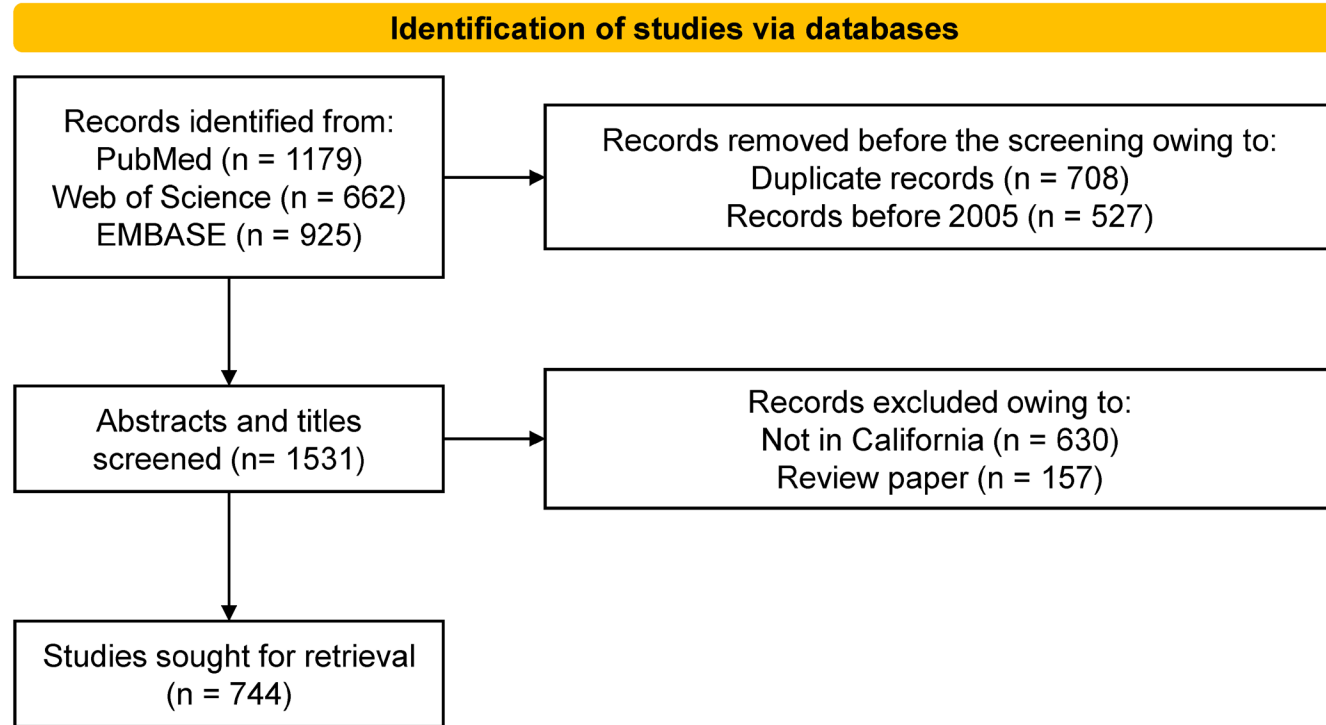
PRISMA Systematic Review

- ❑ Searched with terms: ('indoor air pollution' or 'indoor air quality' or 'household air pollution' or 'household air quality') and 'California'
- ❑ Cut-off date 10/12/2023
- ❑ Post-cutoff wildfire studies included to reflect findings related to the 2025 Los Angeles Fires
- ❑ Post-cutoff regulatory and agency documents included to reflect most recent policies

Identification

Screening

Included





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Interviews



PHYSICIANS FOR
SOCIAL RESPONSIBILITY
SAN FRANCISCO BAY CHAPTER

CCAC

Central California
Asthma Collaborative



PSR LA
Physicians for Social Responsibility Los Angeles

- 32 community members, 17 in English and 15 in Spanish.
- 10 interviewees from government agencies, academia, organizations, and manufacturers.

HELP SHAPE CALIFORNIA'S
INDOOR AIR POLICY
Share your insights and concerns on
indoor air quality by participating in our
interviews



Community Members!
We invite you to participate in an
interview to help update California's
Indoor Air Quality Report. Your
personal experience and insights
will help provide an environmental
justice perspective which is key to
making sure CA's new air standards
protect all our communities.

How Can You Participate?

- Each interview will last about 45 minutes.
- Interviews may be done in person or by video call, based on your preference.
- All interviews will be recorded with your informed consent and kept strictly confidential.

**RECEIVE \$100 FOR
PARTICIPATING IN
INDOOR AIR
QUALITY
INTERVIEWS!**

Who Can Participate?

- Anyone aged 18 or older
- No prior expertise in air quality is necessary
- Individuals from diverse backgrounds are encouraged to apply

Interested? Contact us to sign up or learn more!
Name, Email address

UCLA Fielding
School of Public Health

PHYSICIANS FOR
SOCIAL RESPONSIBILITY
SAN FRANCISCO BAY CHAPTER

The interviews are funded by the California Air Resources Board (CARB) and collaborated with SF Bay Physicians for Social Responsibility (PSR-Bay). #BOS1000776

AYUDE A DEFINIR LA
POLÍTICA DE AIRE
INTERIOR DE CALIFORNIA
Comparta sus perspectivas e
inquietudes sobre la calidad del aire
interior participando en nuestras
entrevistas.



¡Miembros de la comunidad!
Los invitamos a participar en una entrevista
para ayudar a actualizar el **Reporte de
Calidad del Aire Interior** de California. Su
experiencia y perspectivas personales nos
ayudarán a brindar una perspectiva de
justicia ambiental, clave para garantizar que
los nuevos estándares de calidad del aire de
California protegen a todas nuestras
comunidades.

¿Cómo participar?

- Cada entrevista tendrá una duración aproximada de 45 minutos.
- Las entrevistas pueden realizarse en persona o por videollamada, según sus preferencias.
- Todas las entrevistas se grabarán con su consentimiento informado y se mantendrán estrictamente confidenciales.

¿Quién puede participar?

- Mayor de 18 años.
- No se requiere experiencia previa en calidad del aire.
- Se anima a personas de diversos orígenes a participar.

¿Te interesa? ¡Contáctanos para registrarte o
para obtener más información!

Name, Email Address, maybe Phone Number as well

UCLA Fielding
School of Public Health

PSR LA
Physicians for Social Responsibility Los Angeles

The interviews are funded by the California Air Resources Board (CARB) and collaborated with Physicians for Social Responsibility Los Angeles (PSR-LA). #BOS1000776



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7 Future Priorities

Indoor Air Pollutants of Concern and Sources

Indoor air quality is shaped by two dominant pathways:



Indoor emissions
gas appliances, cooking, consumer products, building materials, smoking/vaping



Outdoor infiltration
wildfire smoke, traffic pollution, ozone, ambient PM



TRADITIONAL



EMERGING

PRIORITY INDOOR AIR POLLUTANTS



PM_{2.5}



NO₂



VOCs
(benzene, formaldehyde, acrolein)



Wildfire Smoke



PFAS

MAJOR INDOOR SOURCES



Cooking
(especially frying)



Gas stoves



Candles



Smoking



Outdoor infiltration



Combustion appliances
(Gas stoves)



Gas stoves



Cooking/
heating processes



Cleaning products



Paints



Consumer products



Furnishings



Building materials



Outdoor smoke



Infiltration into homes and buildings



Treated textiles



Carpets



Stain-resistant products



Cookware



Consumer products

OTHER POLLUTANTS OF CONCERN



Carbon Monoxide (CO)



Ozone (O₃)



Radon



SVOCs
(phthalates, flame retardants)



Lead & Legacy Contaminants



Cannabis Smoke



Vaping Aerosols



Microplastics



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Indoor Levels in California



Residential settings

~ 7–13
 $\mu\text{g}/\text{m}^3$



Schools and childcare facilities

~ 18–19
 $\mu\text{g}/\text{m}^3$



Most commercial settings

~ 7–36
 $\mu\text{g}/\text{m}^3$



Vape shops
(highest observed)

up to 276
 $\mu\text{g}/\text{m}^3$



Key Takeaway

Many California indoor environments exceed WHO recommendations.



Benchmarks (PM_{2.5})



World Health Organization (WHO)

15 $\mu\text{g}/\text{m}^3$
24-hour

5 $\mu\text{g}/\text{m}^3$
Annual



U.S. EPA NAAQS

35 $\mu\text{g}/\text{m}^3$
24-hour

9 $\mu\text{g}/\text{m}^3$
Annual



Comparison with 2005 Report



PM_{2.5} remains a **major indoor pollutant** of concern.



Cooking and **smoking/vaping** continue to be important indoor sources.



PM_{2.5}



Infiltration of Outdoor PM_{2.5}

1 Typical Infiltration Factors



Infiltration factors reported in North America and Europe ranged from **0.2–0.8**.



Most California studies reported infiltration factors between **0.2** and **0.5**.

i What is the Infiltration Factor (F_{inf})?

The infiltration factor is the fraction of outdoor PM_{2.5} that infiltrates a building and remains indoors over a certain period, excluding contributions from indoor sources.

- Range: 0 to 1
- Accounts for both pollutant penetration through the building envelope and removal processes indoors (e.g., deposition or filtration).

2 Wildfire Smoke Can Infiltrate Indoors

Northern California homes showed different infiltration factors depending on wildfire conditions.

During Fire Days

0.23



Behavioral changes, such as closing windows, can lower infiltration of outdoor PM_{2.5}.

Non-Fire Days

0.42

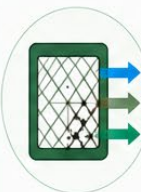


Under typical conditions, higher infiltration allows more outdoor PM_{2.5} to enter indoors.

3 Building Characteristics Matter



Newer, tighter buildings generally have lower infiltration.



Effective Ventilation and High-Efficiency Filtration are Essential for Reducing Indoor PM_{2.5}

MERV 13 or higher filters can significantly lower indoor particle levels, with MERV 16 filters reducing PM_{2.5} by up to 98% in supply ventilation systems.



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1

Gas Cooking Significantly Increases Indoor NO_2



Gas Cooking Homes
(Typical Conditions)



16–18 ppb

Typical indoor NO_2

Gas Cooking Homes
(During Cooking Events)



78–546 ppb

Peak indoor NO_2



Electric Cooking Homes



~7 ppb

Much lower indoor NO_2



Gas cooking is a major source of indoor NO_2 and can lead to high short-term exposures.

NO_2

2

Ventilation Reduces Exposure



Gas Cooking with Ventilation



18 ppb

Without ventilation



8 ppb

With ventilation

High-Performance Green Homes



~9 ppb

Relatively low indoor NO_2

Key Takeaway



Effective kitchen exhaust systems can substantially reduce occupant exposure.



Ventilation and building performance play a critical role in reducing indoor NO_2 exposure.

3

Health-Based Guidelines May Be Exceeded



1-Hour Health-Based Guidelines

U.S. EPA NAAQS
(ambient NO_2)



100 ppb

1-hour

Health Canada
(residential guideline)



170 $\mu\text{g}/\text{m}^3$
(~90 ppb)
1-hour

World Health Organization
(WHO guideline)



200 $\mu\text{g}/\text{m}^3$
(~106 ppb)
1-hour



Peak NO_2 levels during gas cooking exceeded these health-based benchmarks in some homes.



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1. Indoor Levels in California

Formaldehyde



5–68
 $\mu\text{g}/\text{m}^3$

Benzene



0.2–5
 $\mu\text{g}/\text{m}^3$

Acrolein



0.2–5
 $\mu\text{g}/\text{m}^3$



Exceedances Reported?



Formaldehyde: Yes



Benzene: Occasionally



Acrolein: Yes



2. Benchmarks (California OEHHA Chronic RELs*)

Formaldehyde

California OEHHA
Chronic REL

9
 $\mu\text{g}/\text{m}^3$

Benzene

California OEHHA
Chronic REL

3
 $\mu\text{g}/\text{m}^3$

Acrolein

California OEHHA
Chronic REL

0.35
 $\mu\text{g}/\text{m}^3$



OEHHA Chronic RELs are health-based exposure guidelines designed to protect sensitive populations during long-term exposure.



3. Comparison with 2005 Report



VOCs remain **important** indoor pollutants of concern.



Building materials, consumer products, and combustion activities remain **major sources**.



Since 2005, California has **strengthened formaldehyde** controls and **expanded** VOC regulations to **>130** consumer product categories.

VOCs



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Wildfire Smoke

WHY IT MATTERS



>7,400 wildfires annually in California (2020–2025), burning ~1.41 million acres/year.



In 2020, >4.5 million Californians were exposed to $PM_{2.5}$ >100 $\mu g/m^3$ for **at least one day** (21-fold increase vs. 2010).



People spend ~90% of their time indoors, making indoor exposure a major concern.

DURING ACTIVE WILDFIRES

SMOKE COMPOSITION



$PM_{2.5}$ (primary exposure indicator)



VOCs and hazardous air pollutants



Black carbon and organic aerosols



Heavy metals



Increasingly toxic emissions from WUI fires (homes, vehicles, and synthetic materials)

INDOOR EXPOSURE



- Smoke readily infiltrates buildings through ventilation, leaks, windows, and doors.
- Monitoring of >1,400 California buildings showed indoor $PM_{2.5}$ concentrations **tripled** during wildfire events.
- Portable HEPA filtration can reduce indoor $PM_{2.5}$ by ~50–80%.

POST-FIRE INDOOR CONTAMINATION



Exposure may continue after visible smoke dissipates.



VOCs, PAHs, and metals can persist indoors on surfaces, in dust, and in building materials.



Important knowledge gaps remain:

- Indoor persistence and re-emission
- Long-term exposure pathways
- Effective cleanup and remediation strategies



Future policies should support indoor environmental assessment and recovery following wildfire events.



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1 Indoor Levels of PFAS in California and Other Settings

Setting Type (Study Location)	Sample	Mean Concentration Range* (Units)
 California residential and commercial carpet life cycle	PFAS emissions to air during carpet use	0.5 – 4.6 ng/m ²
	PFAS emissions to dust during carpet use	0.03 – 4.6 ng/m ²
 Residential homes in California (Northern and Central Valley)	Serum from children	4.46 – 6.28 ng/ml
	Serum from parents	1.86 – 4.73 ng/ml
	Serum from seniors	2.98 – 10.8 ng/ml
 Clothing stores (California)	Air samples	30 – 200 ng/m ³
 Childcare facilities (California)	Air samples	2 – 600 ng/m ³
	Carpet fibers	7.29 – 69.9 ng/g
 Childcare facilities	Dust	28.0 – 88.2 ng/g
	Dust	6.44 – 1440 ng/g
 Residential homes (North Carolina)	Dust	6.44 – 1440 ng/g
 Fire stations (U.S. and Canada)	Dust	216 – 760 ng/g

* Range reflect total PFAS unless otherwise noted.

2 Indoor Exposure Pathways



Inhalation

PFAS in indoor air and resuspended dust can be inhaled.



Ingestion

PFAS in indoor dust can be ingested hand-to-mouth.



Dermal Contact

PFAS can transfer through skin contact with treated materials and dust.



PFAS exposure is widespread and can occur at low levels in everyday indoor environments.

3 Key Points



PFAS are detected in both **indoor air and dust** across a **variety of indoor environments**, including homes, schools, retail spaces, and workplaces.



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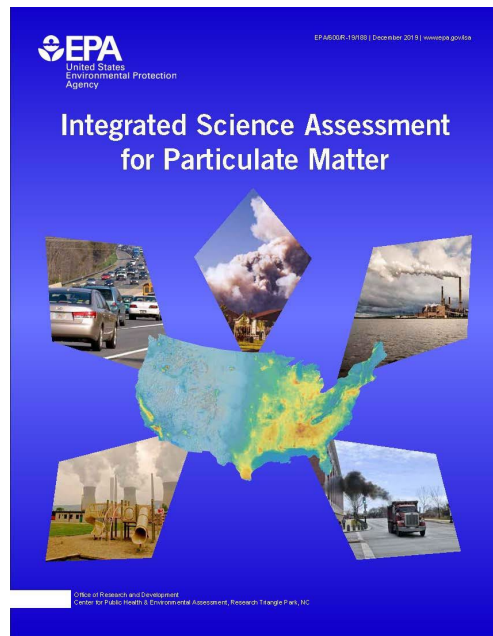


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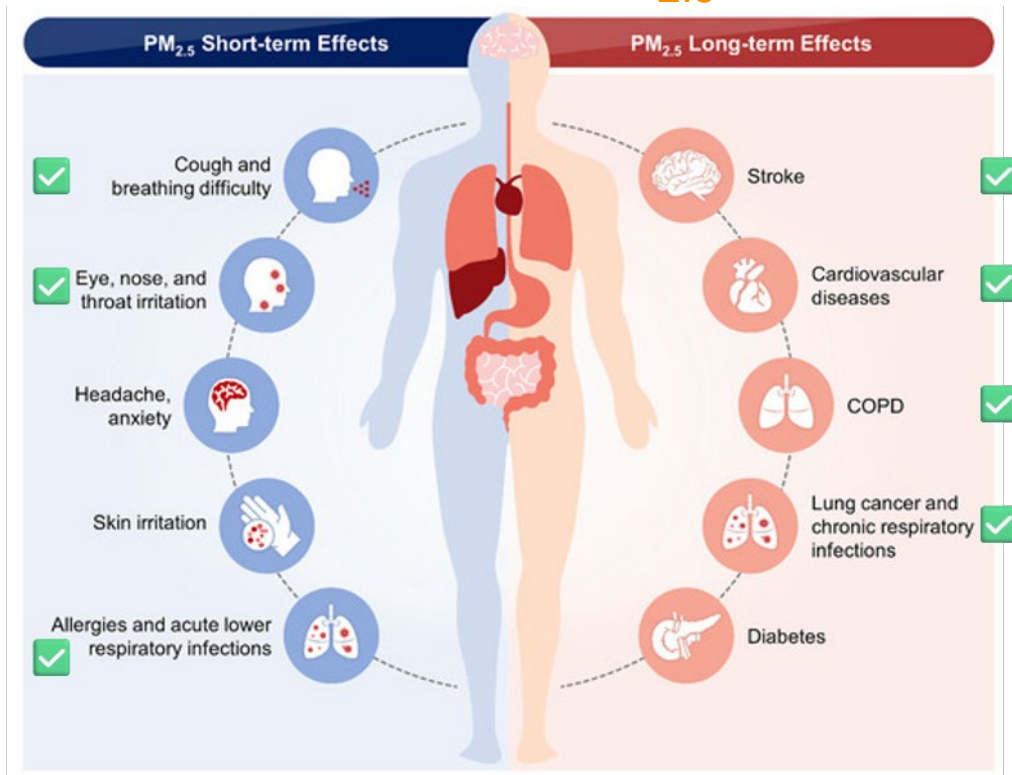
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The U.S. EPA's 2019 Integrated Science Assessment (ISA) for Particulate Matter Report



✓ Causal or likely to be causal

Ambient PM_{2.5}





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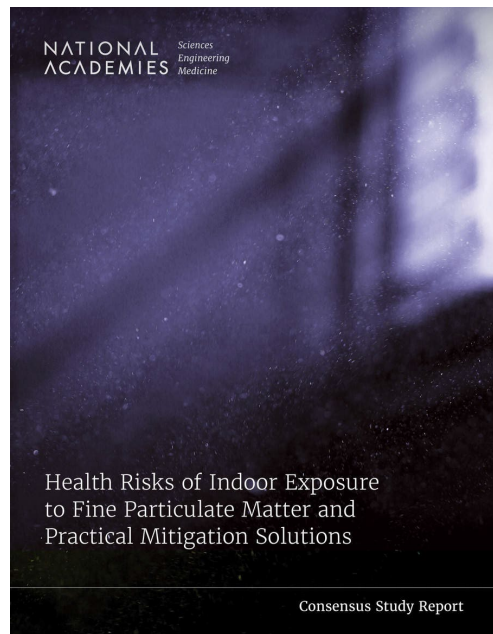
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The 2024 National Academies of Sciences, Engineering, and Medicine (NASEM) Report

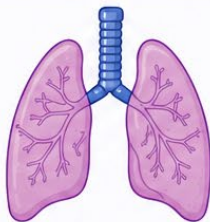
Indoor PM_{2.5}



Health Outcome	Evidence Strength
Respiratory effects (asthma, lung function decline, respiratory infection)	High
Cardiovascular effects (heart attack, cerebrovascular disease)	High
Neurological effects (cognitive decline, neurodevelopment)	Medium
Pregnancy & birth outcomes (preterm birth, low birth weight)	Medium
Cancer	Low



VOCs



RESPIRATORY EFFECTS

Irritation, oxidative stress, and inflammation of the airways can lead to:

- Coughing, wheezing, chest tightness, shortness of breath
- Asthma onset or exacerbation
- More severe asthma symptoms

Associated VOCs:

Benzene, Toluene, p-Dichlorobenzene, o-Xylene, m,p-Xylene, Ethylbenzene



LIVER EFFECTS

Disruption of lipid metabolism and lipid homeostasis

- ↓ Triglycerides & diacylglycerol
- ↑ Phosphatidic acid & phosphatidylcholine
- Potential compromise of liver function with chronic exposure

Associated VOCs:

Mixtures from decorative paints



NEUROLOGICAL EFFECTS

Effects on the central nervous system can cause:

- Nausea
- Tremors
- Headaches
- Dizziness

Associated VOCs:

Benzene, Toluene, Butadiene, and other VOCs



CANCER & DEVELOPMENTAL EFFECTS

Linked to increased risks of:

- Leukemia (e.g., benzene, formaldehyde)
- Other cancers (e.g., nasopharyngeal cancer, squamous cell carcinoma, Hodgkin's lymphoma)
- Low birth weight from prenatal exposure

Associated VOCs:

Benzene, Butadiene, Formaldehyde, and other VOCs



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COMPLEX MIXTURE OF POLLUTANTS



PM_{2.5}
(Fine particles)



VOCs
(Volatile organic compounds)



PAHs
(Polycyclic aromatic hydrocarbons)



Heavy metals
(e.g., Pb, As, Cd, Hg)



Other toxicants
(e.g., dioxins, furans)

Wildfire-derived PM_{2.5} may cause more severe biological effects per unit mass than PM_{2.5} from other sources.

HEALTH EFFECTS ON MULTIPLE ORGAN SYSTEMS

1. RESPIRATORY & INFECTIOUS DISEASES



- Immediate respiratory symptoms (cough, wheeze, irritation)
- Exacerbation of asthma and COPD
- Increased hospitalizations and emergency visits
- Linked to infectious diseases (e.g., 23% ↑ in tuberculosis diagnoses when PM_{2.5} > 35 µg/m³)

2. CANCER RISKS & LONG-TERM EXPOSURE



- Repeated or chronic exposure increases cancer risk
- Linked to carcinogenic components (PAHs, heavy metals, dioxins, furans)
- Higher risks observed for populations living near wildfires over long periods
 - Lung cancer incidence (4.9% increase)
 - Brain tumor occurrence (10% increase)

3. MATERNAL & FETAL HEALTH



- Affects placental function through:
 - Oxidative stress
 - Inflammation
 - Endocrine disruption
 - Genomic instability
- Associated with adverse pregnancy outcomes (e.g., preterm birth, low birth weight)

4. NEUROINFLAMMATORY & IMMUNE DISRUPTION



- Short-term exposure can cause persistent neuroinflammation
- Microglial activation and changes in endothelial markers observed
- May increase vulnerability to neurodegenerative diseases and immune dysfunction

Wildfire Smoke



Susceptible Groups at Higher Risk from Indoor Air Pollution

1

Infants and Children



- Developing organs and immune systems
- Higher breathing rates per body weight
- Greater exposure from floor-level activities and hand-to-mouth behaviors

2

Pregnant and Perinatal People



- Increased absorption and physiological sensitivity
- Exposure can affect placental function and fetal development

3

Elderly Populations



- Age-related decline in lung and immune function
- Higher prevalence of chronic diseases
- Increased sensitivity to toxic exposures

4

People with Preexisting Health Conditions



Asthma or COPD Cardiovascular Disease Autoimmune Disorders Diabetes

- Immune dysregulation or weakened defenses
- Greater vulnerability to infections and neuroinflammatory impacts
- Certain medications may increase susceptibility to air pollutants



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Socioeconomic Drivers of Indoor Air Pollution Inequities



HOUSING CONDITIONS

- Older housing stock
- Multifamily / high-density housing
- Poor ventilation
- Legacy contaminants (lead, PCBs, PBDEs, etc.)



Low-income households and renters more likely to live in older, under-maintained housing.



NEIGHBORHOOD ENVIRONMENT

- Proximity to highways and industrial facilities
- Outdoor air pollution infiltration
- Wildfire smoke



More likely to live in polluted neighborhoods with higher outdoor air pollution.



INDOOR SOURCES



- Gas stoves and cooking emissions
- Secondhand smoke
- Building materials, furnishings, cleaning products



Fewer resources to choose lower-emission products or upgrade appliances.



OCCUPATIONAL EXPOSURE



- Restaurant kitchen workers
- Nail salon workers
- Service-sector workers
- Vape shop workers



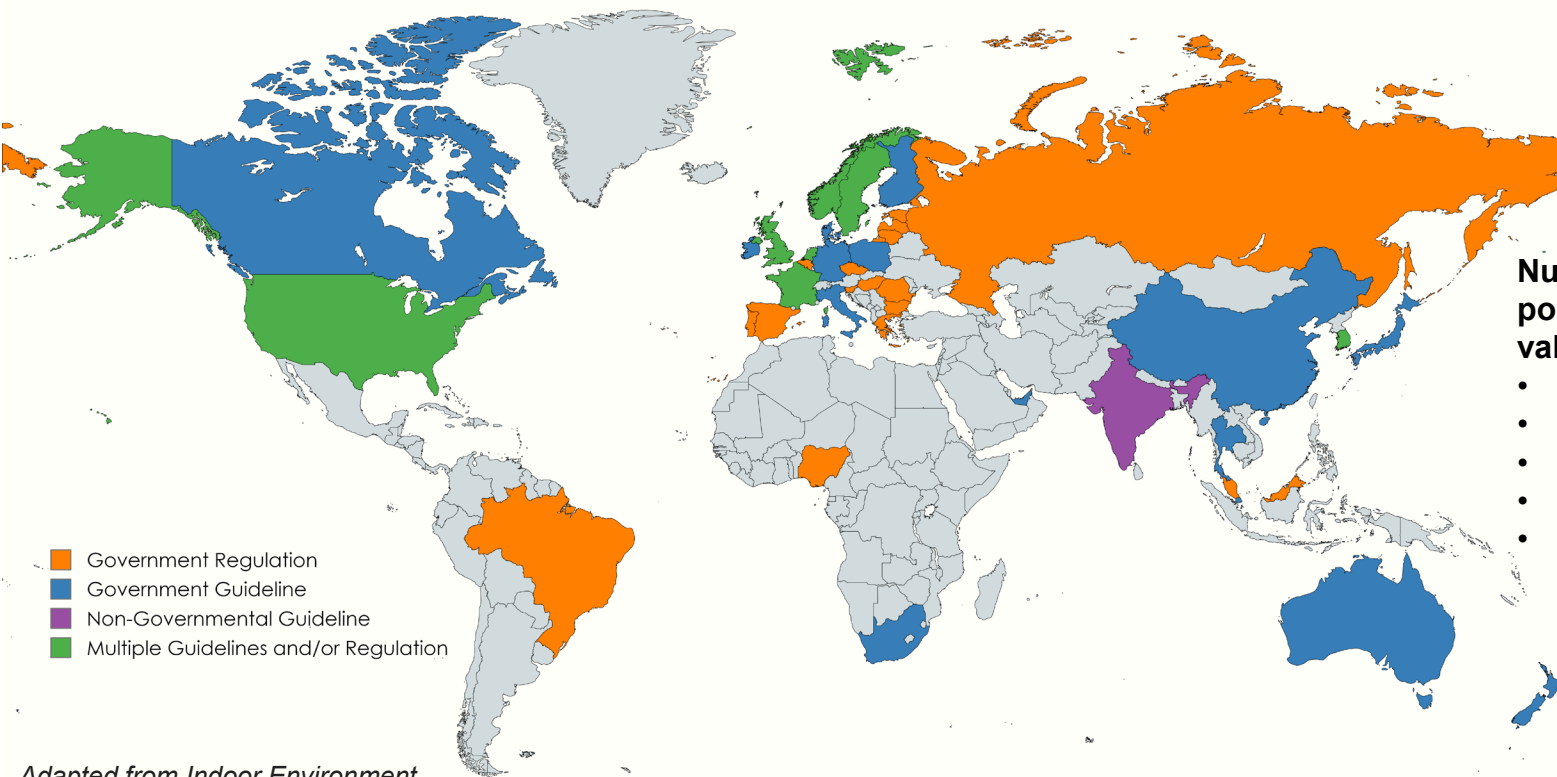
Low-wage workers often face elevated exposures in their workplaces.



GREATER HEALTH RISKS



38 Countries Established IAQ Guidelines

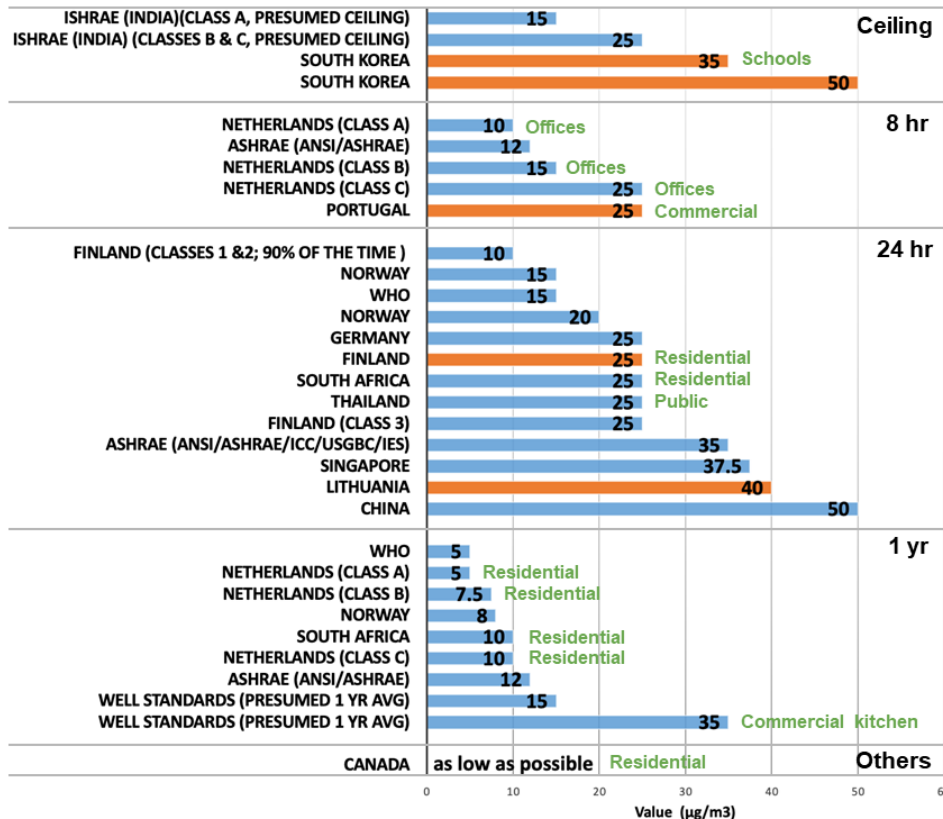


Number of indoor air pollutants with guideline values (examples)

- Germany: 56
- Canada: 30
- China: 20
- South Africa: 16
- New Zealand: 1 (CO₂ only)



Worldwide Indoor PM_{2.5} Guideline Limits



Regulations

Guidelines

CARB 2005 PM_{2.5} Recommendation:
65 µg/m³ (24-hour average)

This recommendation is now considered outdated, and California is currently evaluating updated health-based guideline values.



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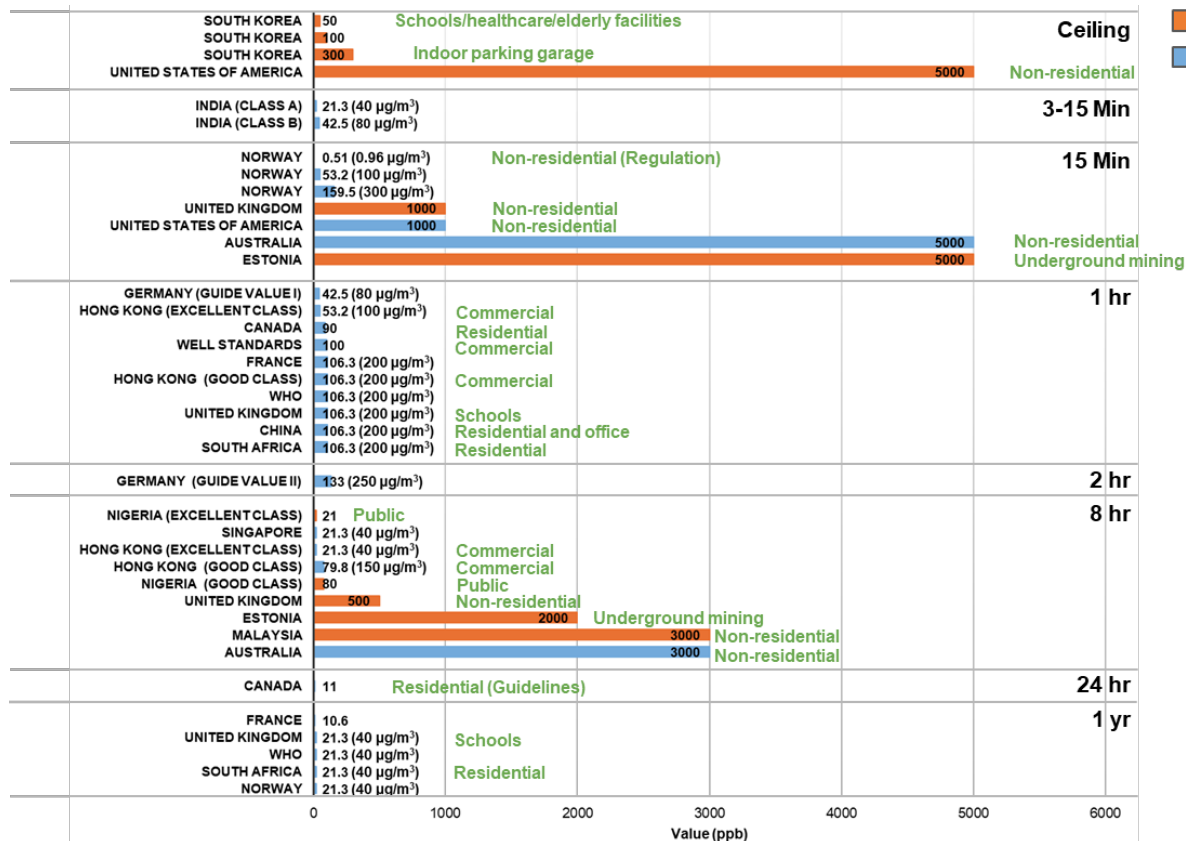


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Worldwide Indoor NO₂ Guideline Limits



CARB 2005 NO₂ Recommendation:
250 ppb (1-hour average)
80 ppb (24-hour average)

This recommendation is now considered outdated, and California is currently evaluating updated health-based guideline values.



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Agency / Organization



Environmental Protection Agency (EPA)



Occupational Safety and Health Administration (OSHA)



National Institute for Occupational Safety and Health (NIOSH)



American Conference of Governmental Industrial Hygienists (ACGIH®)



Guidelines, Standards, or Key Documents

- **Indoor Radon Abatement Act (1988)**
- Residences and Schools
- Radon

Indoor Air Quality in Commercial and Institutional Buildings (2011)

- **Act:** Occupational Safety and Health Act (1970)
- **Standards:** 1910.94 (Ventilation) • 1910.1000 (Air Contaminants) • 1910.1001 (Asbestos) • 1910.1048 (Formaldehyde) • 1910.1096 (Radon)
- **PELs:** Permissible Exposure Limits (PELs) for workplace contaminants
- **Alternatives:** Cal/OSHA, NIOSH, ACGIH

- **NIOSH Pocket Guide to Chemical Hazards (2007)**

- **Threshold Limit Values (TLVs®) and Biological Exposure Indices (BEIs®)**
- Guidelines • Periodically updating • Copyrighted



Example:
Indoor NO₂
Exposure Limits

Example	OSHA	Cal/OSHA	NIOSH
NO ₂	5 ppm Ceiling	1 ppm 15 min	1 ppm 15 min

US Federal Regulatory Framework for IAQ



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State Agency

Guidelines, Standards, or Documents and Pollutants Addressed



IDPH
ILLINOIS DEPARTMENT OF
PUBLIC HEALTH
**Illinois Department
of Public Health**

Guidelines for IAQ (2011)

Relative Humidity (RH), Temperature, Carbon Dioxide (CO₂), Carbon Monoxide (CO), Hydrogen Sulfide (H₂S), Ozone (O₃), PM_{2.5}, PM₁₀, Formaldehyde, Nitrogen Dioxide (NO₂), Tobacco Smoke, Radon



TEXAS
Health and Human
Services
**Texas Department
of Health**

Voluntary IAQ Guidelines for Government Buildings (2002)

Relative Humidity (RH), Temperature, Air Velocity, Asbestos, Carbon Dioxide (CO₂), Carbon Monoxide (CO), Ozone (O₃), PM_{2.5}, PM₁₀, Formaldehyde, Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Hydrogen Sulfide (H₂S), Volatile Organic Compounds (VOCs), Tobacco Smoke, Lead, Mercury, Radon, Allergens, Fungi, Legionella, Pesticides



NJHealth
New Jersey Department of Health
**New Jersey
Department of Health**

IAQ Standard for Public Employees (2007)

Temperature, Carbon Dioxide (CO₂)



pennsylvania
DEPARTMENT OF HEALTH
**Pennsylvania
Department of Health**

IAQ Guidelines for Pennsylvania Schools (1999)

Carbon Monoxide (CO), Carbon Dioxide (CO₂), Pesticides, Radon, Mercury, Lead, Biological Agents, Volatile Organic Compounds (VOCs)

IAQ Guidelines & Standards & from Other States



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California Regulatory Framework for IAQ

Agency / Program



CARB

California Air Resources Board



CEC / Title 24 Part 6

California Energy Commission



CALGreen (Title 24 Part 11)

California Green Building Standards Code



OEHHA

California Office of Environmental Health Hazard Assessment



Cal/OSHA & CDPH

California Division of Occupational Safety and Health & California Department of Public Health

Primary IAQ Role



Consumer product VOC regulations; formaldehyde ATCM; ozone limits for air cleaners; indoor air pollutant guidelines



Ventilation, filtration, kitchen exhaust, energy code requirements



Low-emitting materials, moisture control, construction IAQ practices



Reference Exposure Levels (RELs), Proposition 65



Workplace exposure standards; schools and public health guidance



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2008–Present



Residential Mechanical Ventilation Requirements

California Energy Code (Title 24)

Ensures minimum outdoor air exchange in new homes, improving IAQ in increasingly airtight buildings.

2022
(Title 24)



Stronger Kitchen Range Hood Standards

California Energy Code (Title 24)

Requires health-based airflow and capture efficiency for range hoods, reducing cooking-related PM_{2.5} and NO₂.

2022–2025 Updates



MERV 13 Filtration Requirements

California Energy Code (Title 24)

Higher filtration in buildings and during construction improves protection from outdoor PM_{2.5} and wildfire smoke.

2007



Formaldehyde Limits for Composite Wood Products

CARB Airborne Toxic Control Measure (ATCM) for Formaldehyde

Reduces formaldehyde emissions from wood products, lowering indoor formaldehyde exposure.

2005–Present



Expanded Consumer Product VOC Regulations

CARB Consumer Product Regulations (130+ product categories)

Significantly reduces VOC emissions from consumer products used daily in homes and workplaces.

2008



California Air Cleaner Regulation

California Air Resources Board

Limits ozone emissions from indoor air cleaning devices and requires CARB certification for air cleaners sold in California.

Major Progress Since 2005



Source Control

Reduce or eliminate pollutants at their source to prevent them from entering the indoor environment

1 Zero-emission appliances



- Replace fossil fuel combustion appliances with zero-emission alternatives.
- Zero-emission alternatives reduce combustion-related emissions, including NO₂, CO, benzene, and PM_{2.5}.
- However, cooking activities can still generate PM_{2.5}, ultrafine particles (UFPs), and VOCs, regardless of appliance type; effective ventilation remains essential.

↓ NO₂, CO, benzene, PM_{2.5}

2 Use Low-Emission Materials



- Replace older furniture and materials that emit formaldehyde, VOCs, PFAS, and flame retardants.

↓ VOCs, SVOCs, and long-term chemical exposures



3 Eliminate Indoor Smoking & Vaping



- Restrict tobacco, cannabis, and e-cigarette use indoors.
- In multifamily housing, smoke and aerosols can migrate between units, exposing neighboring residents.

↓ PM_{2.5}, VOCs, ultrafine particles, toxic air contaminants

4 Supplemental Source Reduction Strategies



Choose low-emission cleaning products, reduce fragranced products, and maintain combustion appliances.

↓ VOCs and other indoor-generated pollutants

[CARB resources on how to reduce your exposure to indoor air pollution](#)



Pollutant Capture & Removal

Remove pollutants from indoor air through effective ventilation and filtration

[List of CARB-Certified Air Cleaning Devices](#)



1 Kitchen Exhaust & Range Hoods

- Use vented range hoods during cooking to remove PM_{2.5}, NO₂, VOCs, and UFP near the source.



2 Wildfire Smoke Protection

- Create a designated "clean room" with a portable HEPA air cleaner during smoke events.
- Keep windows and doors closed when outdoor air quality is poor.



3 Cleaner Air During School Transportation

- High-efficiency cabin air filtration can substantially reduce students' exposure to traffic-related PM_{2.5}, black carbon, and ultrafine particles.



4 Air Filtration in Homes & Schools

- Upgrade HVAC filters (MERV-13+) and use portable HEPA air cleaners to reduce indoor particles.
- Schools and childcare facilities can benefit substantially from enhanced filtration.



MERV 8



- ✓ Captures larger particles
- ✓ Basic filtration
- ✓ Lower cost

MERV 13



- ✓ Captures smaller particles
- ✓ Better for allergies
- ✓ Higher cost



Dilution, Ventilation, and Building Design

Proper ventilation and high-performance building design work together to dilute indoor pollutants, minimize outdoor contamination, and create healthier indoor environments



1 Residential Ventilation & Air Exchange

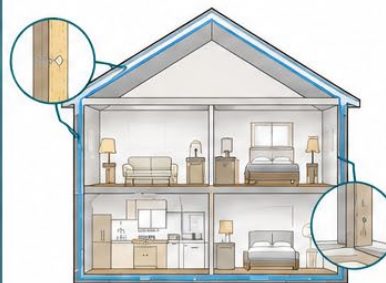
- Mechanical ventilation systems dilute pollutants from cooking, cleaning products, furnishings, and occupants.
- Open windows when outdoor air quality is good; reduce outdoor air intake during wildfire smoke events.



2 Building Airtightness & High-Performance Design

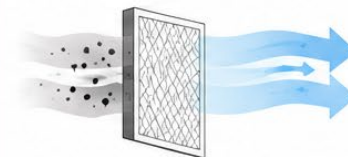
- Airtight building envelopes reduce infiltration of wildfire smoke, traffic pollution, and other outdoor contaminants.
- MERV-13+ filtration can substantially reduce particle infiltration; MERV-16 filters have achieved up to 98% $PM_{2.5}$ reduction.

Airtight Building Envelope



Sealed gaps and high-performance materials reduce unwanted air infiltration.

High-Efficiency Filtration



MERV 13+

- ✓ Reduces particle infiltration
- ✓ Improves indoor air quality

MERV 16

- ✓ Up to 98% $PM_{2.5}$ reduction
- ✓ Highest particle removal efficiency



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Future Research Priorities

1 Long-term (> 6-month) indoor monitoring

across seasons, housing types, and climate regions



Spring



Summer



Fall



Winter



Single-family Homes



Multifamily Housing



Mobile/Manufactured Homes



Rural Homes



Capture seasonal and regional variability in exposures



2 Developing robust low-cost air sensors

Advance accurate, reliable, and affordable sensors for widespread IAQ monitoring and equity-focused applications.



Low-cost sensors



Data transmission



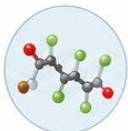
Data analytics & validation



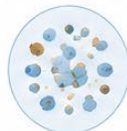
Actionable insights

3 Improve understanding of emerging pollutants

(PFAS, microplastics, cannabis smoke, wildfire residues, post-fire off-gassing)



PFAS



Microplastics



Cannabis Smoke



Wildfire Residues



Post-fire Off-gassing

Identify sources, characterize exposures, and assess health impacts.

4 Evaluate real-world effectiveness of mitigation technologies and behavioral interventions



Technologies (e.g., air purifiers, ventilation)



Behaviors (e.g., window use, cooking practices)



Real-world performance & acceptability



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Future Policy Priorities

- 1** Develop comprehensive statewide IAQ performance guidelines



Establish science-based, enforceable IAQ standards for homes, buildings, and communities across California.

- 2** Strengthen ventilation, filtration, and low-emission material requirements in buildings



Ensure adequate ventilation, high-efficiency filtration, and low-emission materials in new construction and retrofits.

- 3** Integrate IAQ into housing, climate resilience, public health, and energy policies



Embed IAQ considerations across interconnected policy areas for co-benefits and resilient communities.

- 4** Support post-wildfire indoor environmental assessment and recovery guidance



Develop clear guidance and resources for indoor air assessment, cleanup, and safe re-occupancy after wildfires.

- 5** Prioritize vulnerable populations, including children, older adults, and individuals with pre-existing health conditions



Ensure policies and programs address the greater risks and unique needs of those most susceptible to poor IAQ.

- 6** Expand access to filtration, ventilation upgrades, and appliance replacement programs



Invest in incentive and rebate programs that make healthy indoor air solutions affordable and accessible.

- 7** Address barriers faced by renters, low-income households, and disadvantaged communities



Remove structural, financial, and policy barriers to ensure equitable IAQ protections for all communities.

- 8** Improve risk communication, community engagement, and culturally appropriate outreach



Build trust and empower communities through clear messaging, two-way engagement, and culturally relevant materials and channels.

Key Takeaways

WHY IT MATTERS

Californians Spend
~87% Time Indoors



Indoor air pollutant levels
are often higher than
those outdoors

RESEARCH APPROACH

1

Literature
Review



Over 700 Papers

2

Interviews



32 Community
Members

3

Public
Workshop



40 Participants

PRIORITY INDOOR AIR POLLUTANTS

TRADITIONAL

EMERGING



PM_{2.5}



Wildfires



PFAS
"forever
chemicals"

HEALTH IMPACTS



Respiratory



Cardiovascular



Neurological

VULNERABLE & SUSCEPTIBLE GROUPS



Pregnant



Existing Conditions



Seniors



Children



Minority



Low-Income

MITIGATION STRATEGIES



Control
Emission
Sources

Improve
Ventilation
& Filtration



Increase Education
& Awareness

GUIDELINES & REGULATORY FRAMEWORKS

Global



From over 50 international
governments & entities

United
States



ASHRAE (Ventilation Std.)
OSHA/NIOSH (Workplace Limit)
Selected States (IL, PA, TX)

California



CARB (Emission Regulations)
CEC (Title 24 Bldg. Codes)
OEHHA (Ref. Exposure Lvl.)

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Thank You
