



March 27, 2024

Dana Waters
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Post-workshop Comments of Peninsula Clean Energy Authority on CARB's Zero-Emission Space and Water Heater Standards

Dear Dana Waters,

Peninsula Clean Energy Authority (PCE) appreciates the opportunity to provide comments in response to the California Air Resources Board's (CARB) Public Workshop (Workshop) related to the Zero-Emission Space and Water Heater Standards (Standards).

PCE appreciates CARB's diligent efforts to develop the Standards to reduce emissions from new residential and commercial space and water heaters sold in California. The Standards were originally envisioned by the CARB as part of the adopted 2022 State Strategy for the State Implementation Plan (2022 SIP).¹ The 2022 SIP serves as a statewide plan to implement various CARB measures to meet federal EPA ozone standards, and controlling precursor emissions, in particular oxides of nitrogen (NOx) and reactive organic gases (ROG), is key to attaining the federal ozone standards. As the 2022 SIP articulates, residential and commercial buildings remain a major source of NOx and water and space heating account for almost 90 percent of building-related natural gas demand.²

As a not-for-profit organization guided by the desire of our member communities to expand access to clean energy technologies and solutions, PCE strongly supports the stated aims and goals of the Standards. PCE provides the following comments and recommendations to CARB in response to specific questions posed by staff during the Workshop.

1. **Regulatory Concept** - PCE encourages CARB to implement the Standards according to the 2030 Regulatory Concept as originally envisioned in the 2022 SIP. PCE believes it appropriately balances emissions reductions with the need to ensure that the market and end-users are properly prepared to comply with the Standards when they take effect; and
2. **Cost Analysis Data Sources** - PCE encourages CARB staff to consider various additional or alternative data sources when developing the cost analysis for the final Standards.

PCE Background

PCE is a Community Choice Aggregation (CCA) agency and the official electricity provider for San Mateo County and for the City of Los Banos. Founded in 2016 with a mission to reduce greenhouse

¹ California Air Resources Board, 2022 State Strategy for the State Implementation Plan (September 22, 2022), https://ww2.arb.ca.gov/sites/default/files/2022-08/2022_State_SIP_Strategy.pdf.

² CARB, 2022 SIP, p101.

gas emissions, the agency serves a population of 810,000 by providing more than 3,600 gigawatt hours annually of electricity that is 50 percent renewable, 100 percent clean and provided at lower cost than our area's investor-owned utility, Pacific Gas and Electric. The agency has earned investment grade credit ratings from both Moody's and S&P and since inception in 2016, PCE customers have saved over \$100 million in electricity costs.

As a community-led, not-for-profit joint powers agency comprised of 22 municipal governments, PCE makes significant investments in its communities to expand access to sustainable and affordable energy solutions. This includes a forecasted investment of \$100 million through FY28 for building and transportation electrification, as well as distributed energy resources. Our programs include commercial-scale solar and storage (~16 MW in-progress), incentives and finance for residential building decarbonization (over 2,000 measures in 2023), targeted low-income/disadvantaged community home upgrades, and EV charging installation in apartments (nearly 1,000 ports installed).

PCE Building Decarbonization

PCE building decarbonization programs were developed with the intention to scale the transition to clean buildings. PCE believes they are leading examples of local efforts that complement CARB's proposed Zero-emission Appliance Standards. PCE's specific initiatives that encourage building decarbonization include:

1. **Reach codes:** The nation-leading building code enhancement program in partnership with peer CCA Silicon Valley Clean Energy (SVCE) provides model decarbonization building codes and technical assistance for municipal and county governments. PCE and SVCE's partnership on the Reach Codes program has led to the adoption of reach codes by 32 local jurisdictions, until recently accounting for over half of the decarbonization building codes in the state of California. Two PCE member agencies have already implemented existing building reach codes for single family buildings, requiring electrification or pre-wiring at times of equipment replacement or renovation.
2. **Incentives and on-bill financing:** This broad customer program has supported the installation of over 2,200 heat pumps (HP) and heat pump water heaters (HPWH). This program includes both incentives (\$2,000 for HPWH, \$2,500 for HPs plus panel and low-income adders) and highly popular on-bill finance of up to \$10,000 at 0% interest to help minimize upfront equipment and installation costs.
3. **Income-qualified electrification direct-install:** The program provides a home assessment and targeted appliance fuel-switching replacement. Importantly, the program also provides home repairs to address basic needs that frequently top of mind for residents, such as window repair or handrails for the elderly. To date, the program has served nearly 300 homes and will expanding in mid-2024 to provide whole-home electrification.

4. **Technology pilots:** Execution of multiple technology pilots including space and water heating combo systems (4 homes),³ whole-home electrification pilots (4 of 10 completed), and 120 volt water heaters (7 homes).
5. **Commercial sector:** PCE has had a long-running technical assistance (TA) program focused on commercial property new and existing property electrification (nearly 100 TA calls).⁴ In addition, PCE is launching a local government electrification incentive and finance program to accelerate existing building electrification in public agencies.

These programs are supported by detailed building characterization and an in-depth engineering design strategy to reduce the costs of electrification. PCE's engineering design approach emphasizes avoiding service upgrades and associated costs through electrification of single-family homes within 100 amp service.⁵ This effort includes region-wide meter analytics showing sufficient electrical capacity in most homes, installation guidelines, whole-home electrification demonstration pilots, and novel technology pilots. Finally, PCE's Board of Directors has approved a substantial expansion of PCE's building decarbonization program with a multi-year turnkey electrification service that will provide whole-home electrification, expanded low-income direct install, emergency water heater replacement (with water heater loaner units), one-stop shop web services and concierge "hotline" technical assistance.⁶

Responses to Questions Posed by CARB Staff

1. Regulatory Concepts

PCE encourages CARB staff to pursue the 2030 Standard implementation timeline originally envisioned in the 2022 SIP (2030 Concept). The SIP proposed that by 2030, 100% of all new space and water heaters for all use sectors, whether new construction or for burned out equipment in existing buildings, sold in California must meet the zero-emission standard including NOx and ROG). The SIP calculated that the 2030 concept would result in estimated statewide emission reductions of 13.5 tons per day (tpd) of NOx and 1.5 tpd of ROG by 2037. At the workshop CARB staff presented an alternative concept for consideration that instead would scale up regional rules adopted by regional air quality management districts (AQMD Concept).⁷ The AQMD Concept would instead adopt a phased approach where equipment would need to comply with zero-emission standards as early as 2027, depending upon the capacity and the application of the specific equipment.

³ See Harvest Thermal Pilot Measurement and Verification Report, December 2023, <https://www.peninsulacleanenergy.com/wp-content/uploads/2024/02/PCE-Harvest-Pilot-MV-Final-Report.pdf>.

⁴ See Electrification Technical Assistance Program, allelectricdesign.org.

⁵ See Guidelines for electrifying homes within 100 amps and other resources: <https://www.peninsulacleanenergy.com/building-electrification-resources/>; Canary Media, *Yes, it's possible to electrify a home on just 100 amps*, <https://www.canarymedia.com/articles/electrification/yes-its-possible-to-electrify-a-home-on-just-100-amps>.

⁶ RFP for turnkey electrification service: <https://www.peninsulacleanenergy.com/solicitation/rfp-single-family-home-electrification-program-service/>.

⁷ The Bay Area Air Quality Management District has adopted the rules, while the South Coast Air Quality Management District has proposed but not yet adopted the rules.

PCE believes that the 2030 Concept is sound and establishes an appropriate balance between the need for rapid emissions reductions with the need to ensure that the market and end-users are properly equipped to comply with the new Standards. While PCE understands the draw of the AQMD concept in light of the potential for regulatory consistency across the state and mandating pollution reductions as soon as possible, PCE still favors the 2030 Concept for a few reasons. One, it sets a single compliance date that would apply to all equipment types and applications that would create certainty for vendors, manufacturers, installers, and building owners. It would also provide a longer lead time for compliance for many capacities and application types and allow for the further development of the type of complementary building decarbonization policies and programs that the SIP acknowledged would be critical to ensure the success of the Standards.⁸

Given California's goal to achieve carbon neutrality by 2045, and that the life of gas-fired equipment can range from 13-20 years, PCE notes that even 2030 is too late to transition some longer-lived equipment types. Therefore, PCE emphasizes that if the 2030 Concept is adopted for the Standards, it is imperative the implementation date is maintained. To delay or extend implementation of the Standards past 2030 would greatly imperil the ability for California to meet its building decarbonization and carbon neutrality goals.

2. Cost Analysis

PCE recommends that CARB consider various alternative or additional data sources when conducting their cost analysis as part of their preparation for the future process to consider the zero-emission appliance standards.

- **Equipment and Installation costs** – CARB staff should consider the various rebate programs offered by CCAs in the Bay Area. The CCA programs are a source for region-specific cost data for thousands of installations. CARB staff should also look to view data from various municipal utilities that offer their own zero-emission appliance rebate programs, such as Sacramento Municipal Utility District, Truckee Donner Public Utility District, and City of Palo Alto Utilities, which all may provide useful data sets for installations representative of their regions.⁹
- **On-bill Impacts** – Please see a recent study PCE conducted in partnership with SVCE. Our results demonstrate cost savings of \$32 per month for residential, single-family, whole-home electrification when compared to mixed fuel-buildings, with higher savings when installing high-efficiency electric appliances. Importantly, the potential for savings depends on the customers receiving electric service under the rates that are most optimal for all-electric use cases.¹⁰
- **Commercial Buildings** – PCE has so far been unable to find a useful data resource to better understand the level of commercial zero-emission appliance penetration in California. We recommend that CARB look to perform new research to better understand this topic and better inform the costs of complying with the Standards for commercial buildings. BayREN,

⁸ CARB, 2022 SIP, p101.

⁹ See <https://www.smud.org/en/Rebates-and-Savings-Tips/Rebates-for-My-Home>, <https://www.tdpud.org/departments/energy-and-water-conservation/residential-services-and-programs/residential-home-upgrades>, <https://www.cityofpaloalto.org/Departments/Utilities/Residential/Ways-to-Save/Switch-to-an-Electric-Water-Heater>.

¹⁰ See <https://svcleanenergy.org/wp-content/uploads/SVCE-PCE-Single-Family-On-Bill-Impacts-Results-2023.pdf>.

SVCE, and PCE have partnered on an effort to better understand commercial zero-emission appliance saturation in the Bay Area and hope to complete this work by the end of 2024.

Conclusion

In summary, PCE recommends that CARB staff move forward with the 2030 Concept for the Standards implementation to properly balance the need for California to rapidly decarbonize its building sector with the need to ensure that all market actors are adequately prepared to comply with the Standards. And PCE encourages that CARB staff explore additional data sources as part of their research of various cost categories in the development of the standards and preparation for any subsequent rulemaking process. PCE appreciates the opportunity to provide these comments in response to the recent workshop on the Zero-emission Space and Water Heater Standards and looks forward to continuing to work with the CARB and stakeholders. Please let us know if we can provide any additional information.

Respectfully submitted,

A handwritten signature in blue ink that reads "Rafael Reyes". The signature is fluid and cursive, with a horizontal line underneath the name.

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