February 1, 2024

Michael Krause, Assistant Deputy Executive Officer
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Submitted via electronic mail: mkrause@aqmd.org and hfarr@aqmd.gov

RE: Comments on Proposed Amended Rules 1111 and 1121

Dear Mr. Krause and Ms. Farr:

The organizations signed below respectfully submit the following comments regarding Proposed Amended Rules (PAR) 1111 and 1121 in response to the ongoing Working Group process and content. We appreciate the opportunity to provide comments.

General Comments

Residential and commercial buildings are a major source of air pollution for the South Coast Air Quality Management District ("Air District"). The 2022 Air Quality Management Plan (AQMP) states that the "only way to achieve the required nitrogen oxide (NO_x) reductions is through

extensive use of zero-NO_x technologies across all stationary and mobile sources."[1] Fossil fuel furnaces and water heaters in the Air District's residential and commercial buildings directly emit significant NO_x pollution and fine particulate matter ($PM_{2.5}$). NO_x emissions negatively impact respiratory and cardiovascular health. They also contribute to the formation of ozone and secondary $PM_{2.5}$,[2] [3] tied to serious health issues, including respiratory, pulmonary, cardiovascular, cognitive, reproductive, and developmental problems; cancer; and premature mortality.

Residential and commercial furnaces and water heaters release about 13,000 tons of NO_x pollution and 1,200 tons of $PM_{2.5}$ annually across the four counties covered by the Air District.[4] These emissions exceed the NO_x pollution from all regional power plants by more than five times, with more than double the direct $PM_{2.5}$, consistently impeding compliance with state and federal air quality standards for $PM_{2.5}$ and ozone.[5] [6] [7] [8] Residential appliances alone emit more NO_x than – and nearly comparable levels of direct $PM_{2.5}$ as – the South Coast region's oil and gas production, oil refineries, and cement production combined.[9]

To achieve its air quality targets and secure clean air in the region, the air basin must focus on reducing sources of direct $PM_{2.5}$ as much as possible. It's crucial that pollution reductions from fossil fuel appliances complement, rather than replace, the Air District's efforts to eliminate pollution from other sources, such as diesel trucks.

Applying zero-NO_x standards on furnaces and water heaters is critical for meeting National Ambient Air Quality Standards (NAAQS) and steering the region away from severe nonattainment. The Air District must continue its movement towards a zero-NO_x standard for all space heating and water heating appliances to improve air quality and public health. Specific comments and recommendations follow on the proposals.

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[1] South Coast Air Quality Management District (SCAQMD), 2022 Air Quality Management Plan, Executive Summary (December 2, 2022).
[2] Last JA, Pinkerton KE, Schelegle ES (2017). Ozone and Oxidant Toxicity. In: Respiratory Toxicology. Elsevier Inc., pp. 389-402.. https://doi.org/10.1016/B978-0-08-100601-6.02076-7
[3] WHO global air quality guidelines. Particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva: World Health Organization; 2021. Licence: CC BYNCSA 3.0 IGO.
[4] Emissions data from EPA 2020 National Emissions Inventory. Appliance emission estimates include residential & commercial emissions for the gas, oil, & other fuel categories, with commercial emissions adjusted to exclude certain non-appliance sources like pipeline compressor stations.
[5] While approximately 5% of the four-county population resides in other Air Districts, full county data are used in this letter.
[6] Emissions data from EPA 2020 National Emissions Inventory. Please see footnote 4 on page 1.
[7] EPA, "Criteria Pollutant Nonattainment Summary Report" (June 30, 2023).
[8] California Air Resources Board, "Ambient Air Quality Standards Designation Tool."
[9] Emissions data from EPA 2020 National Emissions Inventory. Appliance emission estimates include residential & commercial emissions for the gas, oil, & other fuel categories, with commercial emissions adjusted to exclude certain non-appliance sources like pipeline compressor stations.

The Air District Must Stay on Track to Adopt PAR 1111 and 1121 in 2024

The undersigned organizations greatly appreciate the Air District launching the Working Group process for PAR 1111 and 1121 and moving quickly to develop robust rule amendments for adoption in 2024, as the severe pollution burden from fossil fuel appliances demands rapid and robust action from this agency. We also want to reiterate the comments in the August 28, 2023 coalition letter to the Governing Board regarding the importance of timely adoption and implementation of rule amendments.

To achieve adoption of these key rule amendments in the fourth quarter of 2024 as currently proposed, the Air District must invest the necessary time and resources. Adoption in 2024 is central to ensuring adequate lead time for market and policy advancement – and to addressing environmental justice and equity concerns like housing security and affordability before regulations go into effect. An early forward market signal for the transition to a zero-emission future is crucial in ensuring a smooth, equitable, affordable, and timely implementation process.

Dual-Fuel Appliances That Perpetuate Fossil Fuel Pollution Must Be Prohibited

In Working Group Meeting #2, the Air District responded to public comments advocating for dual-fuel appliances to be compliant with PAR 1111 and 1121. There should be no carve-out or allowance for dual-fuel appliances in these or related rules. Continued combustion of fossil fuels for space heating and water heating appliances would worsen the Air District's ability to meet air quality standards and is unreasonable given the availability and cost-effectiveness of zero-NO_x technology.

The Air District's analysis in Working Group Meeting #1 clearly shows the array of zero-NO_x appliances – like highly efficient electric heat pumps – that are available and also work well at low temperatures. The Electric Power Research Institute found that cold climate heat pumps were able to meet 100% of home heating needs in 0 degree Fahrenheit conditions, and Efficiency Maine highlights heat pumps operating at temperatures as low as negative 22 Fahrenheit. According to National Weather Service records, even the coldest extreme temperature events recorded in southern California and the greater Los Angeles region rarely dropped to single or negative digits, suggesting that existing zero-emission technologies can meet the region's heating needs. Additionally, a dual-fuel appliance is not likely to be cost-effective because it entails purchasing both a heat pump and a furnace. More importantly, it is also nearly impossible to ensure that the gas side of a dual-fuel appliance would only function as a backup for extreme conditions.

Given the state's fast-approaching target for achieving carbon neutrality, continuing with modest amounts of fossil fuel use through even properly operated dual-fuel systems perpetuates the infrastructure that will make the eventual fossil fuel wind-down even more challenging and costly.

The Air District's proposal to allow "dual-fuel systems in areas where heat pump-only units are found to be impractical" is unacceptably broad and should be curtailed. Heat pump technology has already proven to work well in places like Maine and Norway, and it can work even better in the milder South Coast region. The Air District must clearly define what constitutes "impractical," demonstrate that such conditions exist, and prioritize standards that encourage market growth for zero-NO_x units in these potential areas.

The Clean Air Appliances Rebate Program Must Prioritize Vulnerable Communities First

The Air District's initial allocation of rebates under the Clean Air Appliance Rebate Program (CAARP) should focus on low-income households within environmental justice communities.[10]

Outdoor pollution associated with fossil fuel appliances resulted in over 500 premature deaths in California in 2017,[11] and the South Coast region's contribution alone drives over 13,000 respiratory complications, 24,000 lost work days, and $3.7 billion in total health impacts annually.[12]

With these impacts and disparities in mind, the Air District should allocate more than the proposed $10 million of the total $77 million available for the implementation of zero-emission appliances in residential units under its CAARP pilot program. The Air District can be more ambitious in this initial phase by increasing the financial allocation to $35 million for the pilot program, with a program distribution of 50% single family and 50% multifamily units.

It is essential to allocate resources to generate momentum and instill confidence in the multifamily market, as this is where the overburdened communities will benefit the greatest. This will demonstrate to property owners that the zero-emission technologies are available and accessible to meet their needs. Moreover, the Air District's proposal to direct 75% of the funds to low-income households in environmental justice communities should be based on increased total available funds.[13] The program should include coverage as needed for panel upgrades, load-sharing devices, and essential electrical wiring.

[10] Environmental justice communities in this letter are defined by the California Office of Environmental Health Hazard Assessment's (OEHHA) CalEnviroScreen.
[11] Based on RMI analysis using median estimates from the results of 3 reduced complexity models used in: Jonathan J. Buonocore et al., *A Decade of The U.S. Energy Mix Transitioning Away from Coal: Historical Reconstruction of the Reductions in the Public Health Burden of Energy*, 2021 Environ. Res. Lett. 16 054030, https://doi.org/10.1088/1748-9326/abe74c, as well as additional analysis from the study's lead author.
[12] Analysis using EPA, CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) with selected subsectors: commercial gas, commercial oil, and residential other.
[13] Data from South Coast AQMD Stationary Source Committee Meeting Packet. Pg. 60 (January 19, 2024).

Incentives like CAARP are necessary, however, they are no replacement for – and should not be prioritized over – strong regulations. No amount of CAARP funding would justify weakening regulatory direction in this important area.

CAARP Should Enable a Pathway to a Healthy and Resilient Home

With increased federal and state funding already coming from the Inflation Reduction Act and Equitable Building Decarbonization Program, respectively, pairing zero-NO_x standards with CAARP funding presents a unique opportunity to offer broader benefits to low-income and environmental justice communities. These communities are more likely to have additional needs beyond appliance replacement, such as insulation and other home improvements.

The Air District should collaborate with the California Energy Commission, community-based organizations, and others to align zero-NO_x standards and available funding. This alignment should aim to pave a path for complete whole-home upgrades, ensuring an equitable transition, particularly for the most vulnerable communities. A well-designed and executed plan has the potential to create significant social benefits, promoting healthy and resilient homes for all residents in low-income and environmental justice communities.

Zero-NO_x Solutions Can Foster Resiliency, Reliability, and Societal Benefits

Leveraging funding to deploy zero-NO_x solutions holistically offers critical community benefits, especially as climate change intensifies extreme weather events. The Air District's jurisdiction is disproportionately impacted by extreme heat, which particularly impacts environmental justice and low-income communities living in hotter neighborhoods and in housing that often lacks adequate air conditioning.

Nearly 22 percent of households in the Los Angeles area do not have air conditioning, and for low-income households that number is approximately 30 percent.[14] For households that do have air conditioning, they are likely inefficient units, making running life-saving cooling unaffordable due to high utility bills.[15] These communities also often lack the required electrical infrastructure to utilize cutting-edge distributed energy technologies such as solar panels and battery storage that can help lower energy costs over time. This puts low-income households further behind more affluent neighborhoods that have already embraced these technologies.

The Air District can address the challenges of affordability, energy equity, and air pollution reduction at the same time by focusing on deploying and funding highly efficient heat pumps for heating, ventilation, and air conditioning (HVAC), including targeted assistance to low-income

[14] Granda, C. (2020, April 24). Southern California prepares for heat wave amid Stay Home order, with or without air conditioning. https://abc7.com/heat-wave-covid-los-angeles-coronavirus/6127436

[15] Drehobl, A. and Ross, L. (2016, April). Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities. https://www.aceee.org/sites/default/files/publications/researchreports/u1602.pdf

households. HVAC heat pumps are much more efficient than traditional equipment and provide both heating and cooling in one, making them the ideal option for fostering community climate resilience.

Mobile Homes Should Not Be Exempt From These Rule Amendments

It is important to include mobile homes in the transition from fossil fuel appliances to ensure an equitable transition and secure healthy homes for vulnerable populations. Mobile homes house a disproportionately large low-income population. Exempting mobile homes from zero-NO_x technology benefits would further disadvantage vulnerable households in low-income and environmental justice communities.

The Air District should include this sector in all technology assessments and incentive programs and provide regulatory certainty to the mobile home heating equipment space through rule requirements where technologically feasible. Staff should conduct a deeper assessment of zero-emission technologies that are available and under development for mobile homes. Coupled with targeted support to low-income households, a clear regulatory mandate sends an animating market signal and creates the momentum to ensure these households have equal ownership opportunities for clean energy technologies.

Additionally, the Air District noted a challenge with panel size and community load in mobile homes. The Air District should consider incentivizing the deployment of zero-NO_x technologies at scale, taking a block-by-block approach rather than household-specific solutions.

The Cost-Effectiveness Threshold Is Misleading to Decisionmakers

While California's Health and Safety Code requires the District to assess the cost-effectiveness of each regulatory proposal, the Air District's cost-effectiveness threshold is not required by California law and fails to reflect cumulative benefits of emissions reductions in communities overburdened by pollution or valuation of co-benefits from reductions in greenhouse gases that will come from a transition to zero-emission heating equipment.

While staff has told stakeholders in Working Group Meetings that the cost-effectiveness threshold is just a screening tool, the Governing Board is nonetheless likely to see the threshold as a metric that serves to determine "cost-effectiveness" per se unless staff makes clear that it is not.

Inclusion of the additional health benefit streams noted above into a more comprehensive screening threshold would likely render additional zero-emission policy solutions "cost-effective" according to the new threshold, and imposing the current threshold that inaccurately purports to represent a "break-even point" may unduly influence thinking and decision-making by policymakers. Incomplete, flawed economics should not drive

decision-making on these important rule amendments for the health of the millions of residents in the Air District.

Especially when considering the holistic benefits of zero-NO_x HVACs and water heaters, these technologies are already cost-effective and becoming more so with state and federal funding.

Conclusion

In conclusion, the Air District should adopt PAR 1111 and 1121 as currently scheduled by **no later** than the end of this year. The evidence presented by staff in Working Group Meetings and summarized above underscores the necessity of transitioning to zero-NO_x technologies in the region's residential and commercial buildings. By prioritizing zero-NO_x technologies, particularly in vulnerable communities, the Air District can pave the way for comprehensive home upgrades that go beyond just appliance replacement. This approach promises broader social benefits, including improved public health, enhanced climate resilience, and greater energy equity.

Furthermore, when these rule amendments – and related amendments to Rule 1146.2 – are brought to the Stationary Source Committee and the Governing Board, staff should clearly explain the desired role of the screening threshold to members, as well as some of the benefits that are not captured in the current threshold calculation. The true value of zero-NO_x solutions transcends this metric, encompassing significant additional benefits such as greenhouse gas emission reductions and access to cooling during extreme heat.

Thank you again for the opportunity to comment. The collective effort towards cleaner air and healthier communities in the South Coast region is not just a regulatory responsibility but a moral one. We look forward to working with you on these efforts.

Sincerely,

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Active San Gabriel Valley

Lexi Hernandez
OC Climate Equity Advocate
Climate Action Campaign

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