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March 4, 2024

Via Email: eyen@aqmd.gov

Ms. Emily Yen
Planning, Rule Development, and Implementation
South Coast Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765

RE: Proposed Amended Rule 1146.2 – Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters

Dear Ms. Yen:

Rheem Manufacturing Company (Rheem) appreciates the opportunity to submit the following comments in response to the South Coast Air Quality Management District's (SCAQMD) Proposed Amended Rule 1146.2 – Control of Oxides of Nitrogen from Large Water Heaters, Small Boilers, and Process Heaters (Proposed Rule).

Rheem is an industry leader in total heating, cooling, refrigeration and water heating solutions and one of the few global brands with product offerings covering residential and commercial heating, cooling, conventional and hybrid storage water heaters (HPWH), tankless water heaters, solar water heating systems, pool and spa heaters, commercial boilers, residential hydronic and geothermal systems, commercial refrigeration products, indoor air quality accessories, and replacement parts for all categories. Rheem is headquartered in Atlanta, Georgia, and has U.S. based manufacturing facilities in Alabama, Arkansas, California, Connecticut, and North Carolina. The company also operates distribution facilities throughout the US, Canada, and many other countries around the world. Rheem manufactures commercial boilers and pool heating equipment at the Raypak facility in Oxnard, CA, both equipment types are affected by this Proposed Rule.

Rheem appreciates SCAQMD staff's efforts to update Rule 1146.2, and specifically to include and consider stakeholder input. To that end, we are pleased to see improvements in the latest Proposed Rule language that address many concerns raised during the last working group meeting. Rheem would like to affirm the latest changes and reiterate our concerns around the compliance dates and the newly added labeling and reporting requirements.

Definitions

Rheem supports the updated definitions of high temperature unit, instantaneous water heater, mobile home, and new building.

Building Type

Rheem recommends aligning the residential and multifamily structure definitions with California's Building Code (Title 24).[1] Title 24 exhaustively lists the building types in their "Residential Building" and "Multifamily Building" definitions, while also excluding certain types of dwellings that are for commercial purposes, such as hotels. Rheem notes that under the proposed definitions a hotel could be considered a dwelling for more than four families and fall under the multifamily structure definition.

High Temperature

Rheem appreciates SCAQMD amending the definitions of "high temperature unit" to include "designed" instead of "used" and 180°F instead of 190°F. These changes align with the historic understanding of high temperature applications and ease certification and compliance burden as the requirements will be around the unit and not the specific installed application.

It is becoming more well understood that electrification is only viable when there are heat pump solutions to an application.[2] Rheem notes that most heat pump water heaters can provide temperatures up to 140°F, with some capable of up to 160°F. Select heat pumps with higher temperature capability, have been identified, yet their market availability and suitability to replace existing equipment has not been reviewed. Also, it is not clear how much of the higher temperature rise is achieved with built-in electric resistance heating.

The US DOE definition of a "Residential-Duty Commercial Water Heater" includes, "Is not designed to provide outlet hot water at temperatures greater than 180 °F." Therefore, the US DOE has set >180°F as the starting point for commercial high temperature operation (where there is no longer a residential application) for water heaters. Above 180°F is also referenced throughout the ASHRAE Handbook as the recommended temperature for many applications such as sanitation, commercial kitchen, and laundry. Greater than 190°F is more typical of boiler applications. Many gas-fired water heaters and boilers operate within the 180-190°F range and, if the 190°F threshold was maintained, some of this equipment will likely be replaced with gas-fired equipment that can operate above 190°F, while other applications may not have viable solutions.

Finally, Rheem recommends added language to the rule to clarify how the high temperature qualification will be determined. More specifically, we recommend that a manufacturers declaration be used, with supporting certification standards documents to demonstrate high temperature operations.

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[1] See Section 100.1 of TITLE 24, PART 6, BUILDING ENERGY EFFICIENCY STANDARDS FOR RESIDENTIAL AND NONRESIDENTIAL BUILDINGS.

[2] Electric resistance equipment uses much more electricity than heat pump equipment, which significantly increases emissions at the source. Even as more renewables come online, if significantly more capacity is needed due to electric resistance equipment the non-renewable electrical generation will continue to be needed.

Compliance dates

Rheem appreciates SCAQMD amending the January 1, 2025 compliance date; however, Rheem recommends SCAQMD either include an exemption for buildings constructed under permits obtained under the 2022 code or set a January 1, 2027, date as new construction permitted under the 2022 code can be initiated up to 12 months after the permit issue date (with 180-day extensions allowed).[3] In addition, a later date would align more closely with the Bay Area AQMD zero emission date for this range of equipment.

Rheem also recommends that SCAQMD divide Type 2 units into above and below 1 MMBtu/h and set the greater than 1 MMBtu/h category as Phase III. Heating capacities greater than 1 MMBtu/h are significantly more difficult to produce with heat pump technology.

Labeling and Reporting

Rheem does not support the labeling and annual reporting requirements in section (j). Region-specific labeling adds significant complexity to the supply chain. Further, Rheem typically only has visibility to the first step in the distribution channel and has no clear way of determining where a unit is installed. This reporting requirement should be limited to distributors, retailers, and resellers operating within the South Coast region.

Exemptions

Rheem supports the exemption for "low usage" as described in sections (k)(2-3). However, Rheem recommends that the therms per year in section (k)(3) (*i.e.,* 3,000 therms) be scaled to the equipment input rate. For example, SCAQMD could determine a representative value of annual operating hours[4] at full firing rate.

Thank you for the opportunity to provide these comments. If there are questions, please contact me directly.

Sincerely,

James Phillips
Senior Regulatory Affairs Manager
Rheem Manufacturing Company

cc: Karen Meyers, Joe Boros

[3] See section 105.5.1 of the California Building Code: https://codes.iccsafe.org/content/CABC2022P3/chapter-1-scope-and-administration.

[4] The operating hours could be based on 1) the expected downtime to replace or repair the primary zero NOx equipment that has failed or 2) the heating degree days for the region above which the zero NOx equipment has trouble meeting the load.