

DOCKETED

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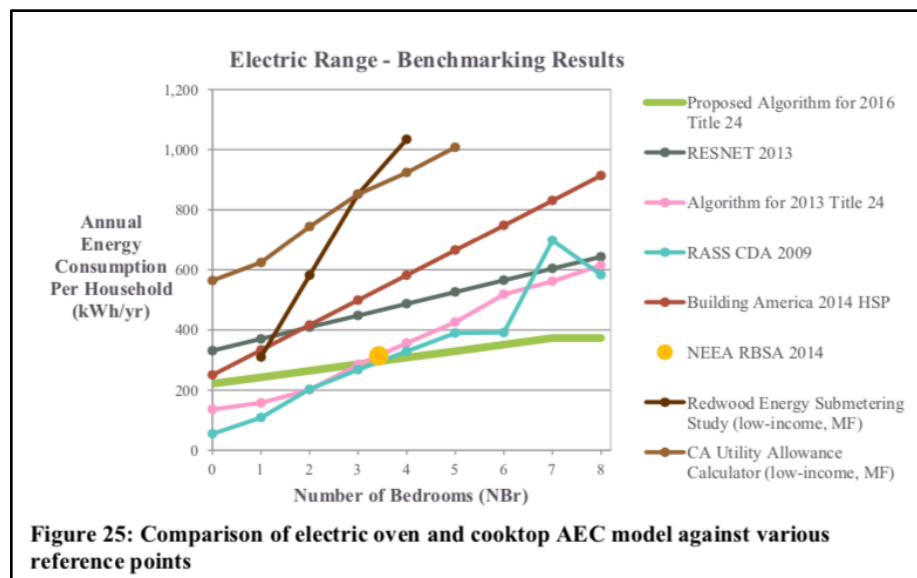
Honorable Energy Commissioners and Staff,

Redwood Energy firm specializes in designing all-electric ZNE low-income multifamily housing. Since 2014 we have tracked the stove energy use in 500 apartments in 9 developments, four of which are within an EPIC-funded study on ZNE Multifamily housing. I am appealing to you on behalf of low-income households who are harmed by the CASE team’s IAQ proposal to provide voluntary control of cooking hoods, and instead require:

1. **A 100 CFM, 1 Sone, always-on hood for all ranges**
2. **Hoods over gas stoves operate up to 300 CFM at 3 Sones or less.**

Redwood Energy makes this proposal for the following reasons:

1. **Ranges in low-income apartments are used 2-3 times as much as is predicted by the 2016/19/22 Code algorithms, creating 2-3 times as much air pollution:** see Figure 25, p.65 of 2016-RES-ACM-D, reprinted below. This dramatic discrepancy harms low income households with far more gas stove air pollution than is being assumed, and low income households are disproportionately people of color, immigrants, the handicapped and LGBTQ households. This tripling of stove-caused air pollution is documented both in Redwood Energy’s field data and the CEC-authored, low-income housing specific software called the California Utility Allowance Calculator (CUAC).



2. **Hoods are not used voluntarily the majority of the time, requiring an always-on solution.** As reported in the CASE study, LBNL found in 2011 that hoods are used 31% of the time. Our EPIC team found in 2019 that hoods are used for 49% of all cooking events, but only 14% of the total time the range is in use. **Combustion exhaust venting is Code-mandated to be in use over gas water heaters, gas furnaces and gas dryers, all of which produce similar amounts of combustion pollution as a gas stove in an apartment.** Code mandates that this

similar amount of combustion pollution not be exhausted within 10' of an openable window to the apartment, yet gas stoves are allowed to pollute the entire home. Keep in mind that children cannot protect themselves from the mistakes and accidents of their parents—it is up to society and the CEC to require gas stoves be automatically vented.

3. **An always-on hood operating at 100 CFM is a more effective whole-house bathroom IAQ fan**--bathroom fans struggle to succeed in their IAQ role when the bathroom door is closed, while a kitchen hood is rarely separated by a door from the rest of the house, providing improved indoor air quality.

Please adopt a safer approach to ventilating kitchens with gas ranges than guaranteed failure that harms vulnerable populations.

Sincerely,

A handwritten signature in blue ink that reads "Sean Armstrong". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Sean Armstrong

Managing Principal
Redwood Energy