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**City of Palo Alto Comments on Achieving Building Decarbonization
through Fuel Substitution Programs**

Additional submitted attachment is included below.



UTILITIES DEPARTMENT

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**City of Palo Alto Comments on Achieving Building Decarbonization
through Fuel Substitution Programs
Docket 18-IEPR-06**

June 28, 2018

The City of Palo Alto (“Palo Alto”) appreciates this opportunity to comment on the recent IEPR Commissioner Workshop on June 14, 2018 regarding Achieving Zero Emission Buildings.

In order to achieve California’s deep decarbonization goals, the CEC research report “Deep Decarbonization in a High Renewables Future”¹ (“Decarb Report”) has identified building electrification as one of the high priority strategies that require significant market transformation effort. The Decarb Report also states that “this transition needs to start by 2020 and achieve significant market share by 2030” (p.32) to avoid the additional cost burden of early retirements of functional equipment. Palo Alto submits that the time to begin the market transformation effort is now rather than waiting until 2020. Palo Alto offers the following comments related to the urgency to expedite the implementation of fuel substitution programs to achieve the state’s climate protection goals.

The CEC should clarify in the 2018 IEPR update that energy efficiency savings and greenhouse gas reductions from utility and CCA fuel substitution programs will be accounted for as utility programs for the purpose of tracking progress towards the SB 350 goals.

In the CEC report “Senate Bill 350: Doubling Energy Efficiency Savings by 2030”² (“SB 350 Report”), the CEC pointed out that “fuel substitution measures were not evaluated as part of the utility potential and goals study”³, and therefore, “energy savings from fuel substitution were assessed as part of the nonutility programs.”⁴ It is important for the CEC to recognize utility investments in fuel substitution programs to promote building electrification, especially among the existing building stock. Rather than waiting for the next round of SB 350 Energy Efficiency (EE) targets update, Palo Alto urges the CEC to clarify in the 2018 IEPR update that EE savings and greenhouse gas (GHG) reductions from utility and CCA fuel substitution programs will be accounted for as utility programs for the purpose of tracking progress towards the SB 350 doubling of EE savings by 2030. This clarification will encourage utilities to commit resources to fuel substitution outreach and incentive programs. The annual EE report can be modified to accommodate a “building electrification program” category to facilitate tracking of EE savings from fuel substitution.

Palo Alto’s hope is that the CEC’s recognition of the role of utilities and CCAs in implementing fuel substitution programs will motivate these entities to fund these programs. Transforming the existing building stock to low or zero emission buildings will take years and requires significant commitment from all market actors on a statewide and regional basis. We can start the transformation now and join others

¹ CEC-500-2018-012, June 2018

² CEC-400-2017-101-CMF, Oct 2017

³ SB 350 Report, p. 42

⁴ SB 350 Report, p. 41

who already have. For example, there is an immediate opportunity for utilities and CCAs in the Bay Area to participate in a regional market transformation program for heat pump water heaters as a fuel substitution measure. StopWaste, on behalf of the San Francisco Bay Area Regional Energy Network (BayREN), was recently awarded the 2018 Climate Protection Grant by the Bay Area Air Quality Management District to implement a “Heat Pump Water Heater (HPWH) Regional Market Transformation” program. The program is designed to address multiple market barriers to transform the water heater market at a regional level for maximum impact. The success of this program, however, is predicated on a regional effort to coordinate the marketing message, incentivize distributors to stock and promote HPWHs, and train plumbers to install HPWHs. In the coming months, BayREN will be seeking partnership with utilities and CCAs to fund the midstream incentive to distributors for HPWH units installed in their respective service territory. The CEC’s recognition of the role of utilities and CCAs in implementing fuel substitution programs will hopefully spur them to participate in the BayREN program.

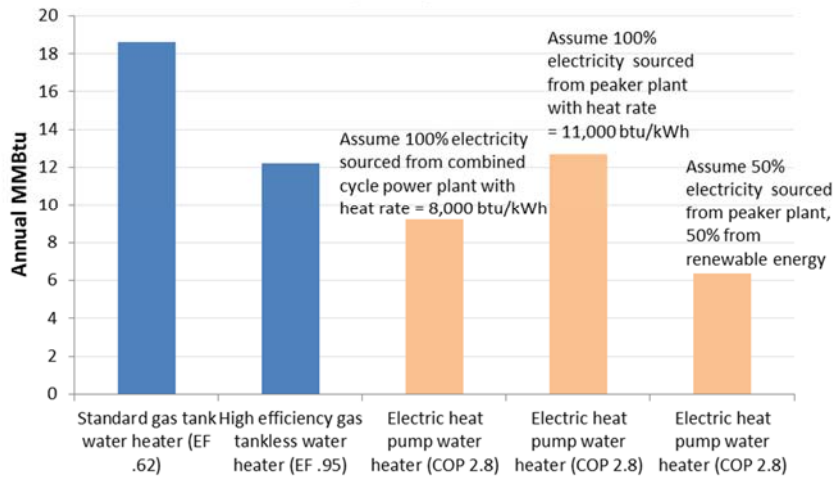
The CEC and CPUC should jointly set forth a schedule to address the immediate issues related to fuel substitution programs.

The SB 350 Report lays out a myriad of contentious issues related to fuel-substitution programs:

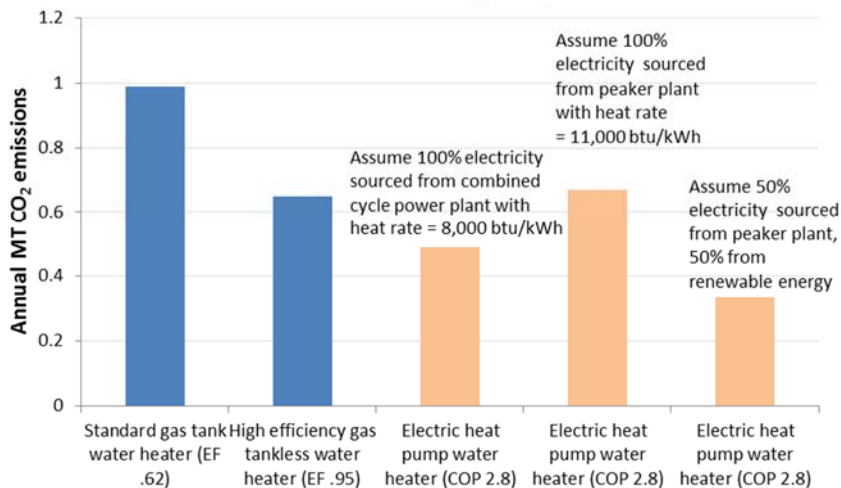
- (i) As the electricity resource mix shifts over time to become more decarbonized, how does that affect the source GHG emissions for an electric alternative to a gas appliance lower than that of the gas appliance? In other words, is there source GHG emission reductions based on the current electricity resource mix to justify fuel substitution measures?
- (ii) Are the SB 350 requirements for cost-effective energy savings and GHG reduction sufficient to justify fuel substitution programs, or are there additional criteria such as the CPUC’s three-prong test that need to be met?
- (iii) Should the CEC develop a methodology to aggregate electricity and natural gas end-use energy efficiency savings when establishing EE savings target? Also, there needs to be a set of consistent reporting guidelines to estimate the savings to baseline and to avoid double-counting of EE savings from fuel substitution measures.

In response to issue (i), Palo Alto offers the following graphs that compares the source energy consumption and carbon emission for a standard gas tank water heater, a high efficiency gas tankless water heater, and a high efficiency electric heat pump water heater. In the unlikely scenario that an electric heat pump water heater is powered 100% of the time by a peaker plant with a heat rate of 11,000 btu/kWh, its source energy usage and carbon footprint would be roughly equivalent to that of a high efficiency gas tankless water heater. In a more realistic scenario, a heat pump water heater that is partially powered by a combined cycle power plant or a renewable energy source will have a lower source energy usage and carbon footprint than a high efficiency gas tankless water heater.

Source-based Energy comparison of gas versus electric heat pump water heaters



Source-based Carbon Emissions comparison of gas versus electric heat pump water heaters



For the remaining issues, Palo Alto recommends that the CEC and CPUC work together to set forth a timeline to address the issues that need immediate resolution. In particular, it is important for investor-owned utilities and CCAs to be able to tap energy efficiency funding to support fuel substitution programs. Urgency is particularly important for the current Bay Area effort; unless the funding issue is resolved within the next few months, there will likely be inadequate support for the midstream incentive component of BayREN's program.

Palo Alto looks forward to continuing to work with the CEC and stakeholders to facilitate building electrification at a statewide level to achieve California's climate protection goals.

Respectfully,

DocuSigned by:
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