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Correction: Joint Comments on Multifamily and Commercial Building Modeling and System Mapping

Additional submitted attachment is included below.

March 1, 2019

Commissioner McAllister
California Energy Commission
1516 9th St, Sacramento, CA 95814

Re: Joint Comments on Multifamily and Commercial Building Modeling and System Mapping in the Draft Alternative Calculation Method Reference Manuals and Compliance Software Tools

Dear Commissioner McAllister:

On behalf of our organizations, we write to respectfully request that the commission expeditiously resolve remaining issues in the 2019 Building Energy Efficiency Standards compliance software that hinder the adoption of high-efficiency and low-emissions electric domestic hot water (DHW) and heating, ventilation, and cooling (HVAC) systems in multi-family and commercial buildings.

We very much appreciate the commission's efforts to ensure that the 2019 standards do not hinder the adoption of efficient electric DHW and HVAC systems when they reduce greenhouse gas emissions relative to gas-fired alternatives. We strongly support the changes made in the 2019 residential standards for residential buildings to remove the disincentive for all-electric buildings by introducing an independent baseline for all-electric buildings. This disincentive in the 2016 standards stemmed from the use of a single gas baseline in the performance path, and to the time-dependent valuation (TDV) performance metric which sets the compliance bar higher for electric systems despite their lower source energy and GHG emissions.

Unfortunately, this disincentive remains in the proposed 2019 Alternative Compliance Method (ACM) and software in the non-residential sector, including mid- and high-rise residential and commercial buildings. This is due to the 2019 ACM's alignment with the ASHRAE 90.1-2016 baseline system mapping for DHW and HVAC, which uses gas systems. The use of the TDV metric with this baseline makes it difficult for efficient buildings with efficient electric systems to comply with the 2019 standards. A similar situation also remains in CBECC-Res for central DHW system with recirculation.

In some cases, the disincentive for low-emissions electric systems is worse than in the 2016 code: air-to-water heat pumps for DHW can't be installed at all because they're not allowed under the prescriptive path and can't be modeled under the performance path. And the change of the HVAC baseline for multifamily buildings up to 7 stories to a single zone constant volume system with furnace would also make electric designs more challenging under the 2019 code.

This is particularly problematic for multifamily and office buildings, which represent a large percentage of California's new construction. We appreciate the harmonization benefits of aligning California's building code with ASHRAE 90.1, but harmonization should not hinder California from pursuing its climate and clean air goals. Unfortunately, the current gas systems baseline in ASHRAE 90.1 is not compatible with California's goals. Instead, we recommend adding an independent electric baseline for buildings that use electricity for space or water heating in the proposed design. This preserves general alignment with ASHRAE while also being in line with California's goals.

If unresolved, this issue will not only hinder the adoption of efficient electric DHW and HVAC systems in multifamily and commercial buildings built over the next three years, locking in significantly higher emissions over the life of these buildings, **it will also impact the implementation of SB 1477 in multi-family buildings and make it more difficult and costlier to achieve AB 3232's goal of reducing emissions in California's building sector by 40 percent by 2030 below 1990 levels.**

The BUILD program in SB 1477, currently being implemented by the California Public Utilities Commission (CPUC), will most likely rely on the Title 24 compliance software to calculate the GHG emissions savings of new buildings and enable builders and developers to claim the BUILD incentives. The inability to model electric heat pumps for central water loops for DHW and HVAC systems in multi-family buildings greater than 3 stories would preclude these systems from being used and therefore incentivized under BUILD. And even where electric systems can be modeled, comparing them with a gas baseline would discourage developers from using electric systems, which are a critical way to achieve low-emissions cost-effectively in new construction.

This is important because mid-rise multi-family buildings (4 to 7 stories) represent a large share of new construction in California and are key to being able to fulfil the 30-percent minimum target for affordable housing requirement in the SB 1477's BUILD program. The inability to use efficient electric systems in commercial construction would also significantly impact California's ability to transition to high-efficiency, low-emissions electric heating systems, and jeopardize the state's ability to achieve its climate goals.

We respectfully ask that the commission expeditiously resolves these issues in the CBECC-Com and CBECC-Res software by allowing the modeling of electric heat pumps for central water loops for DHW and HVAC, and updating the system mapping as recommended in NRDC's comments, to provide an independent compliance pathway for gas and electric DHW and HVAC systems and allow California's developers and builders to design and build low-emissions buildings.

Our organizations strongly support the 2019 building standards as an important tool for advancing low-emission buildings in California. Thank you for your leadership on this issue.

Sincerely,

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