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**COMMENTS OF SACRAMENTO MUNICIPAL UTILITY DISTRICT
ON LEAD COMMISSIONER WORKSHOP RE 2022 ENERGY CODE
COMPLIANCE METRICS**

COMMENTS OF SACRAMENTO MUNICIPAL UTILITY DISTRICT ON LEAD
COMMISSIONER WORKSHOP RE: 2022 ENERGY CODE COMPLIANCE METRICS

Additional submitted attachment is included below.

**STATE OF CALIFORNIA
BEFORE THE CALIFORNIA ENERGY COMMISSION**

In the matter of:)	Docket No. 19-BSTD-03
)	
<i>2022 Energy Code Pre-Rulemaking</i>)	SMUD Comments on LEAD
)	COMMISSIONER WORKSHOP
)	RE: 2022 Energy Code
)	Compliance Metrics
)	
)	November 26, 2019

**COMMENTS OF SACRAMENTO MUNICIPAL UTILITY DISTRICT
ON LEAD COMMISSIONER WORKSHOP RE: 2022 ENERGY CODE
COMPLIANCE METRICS**

The Sacramento Municipal Utility District (“SMUD”) respectfully submits the following comments to the California Energy Commission (“CEC”) regarding the October 17, 2019 Lead Commissioner Workshop on 2022 Energy Code Compliance Metrics (“2022 Energy Code”).

SMUD would like to express our support for the CEC’s 2022 Energy Code that prioritizes decarbonization. Climate change is a pressing concern, and fossil fuel consumption is a detriment to our customers, our communities, and the planet. We encourage the quick implementation of known strategies that will reduce consumption of fossil fuels, which is the only known way for California to achieve its landmark 2030 and 2045 climate change goals. To align building construction with the State’s decarbonization goals, it is important that the 2022 Energy Code compliance metrics accelerate and promote decarbonization.

We offer the following comments on how the 2022 Energy Code may reflect its commitment to decarbonization by:

- 1) Creating a single electric baseline for all energy sources and using energy valuation metrics that appropriately reflect the lower greenhouse gas (GHG) emissions of all-electric buildings, as opposed to separate standards for natural gas and electric construction.

- 2) Applying the two-step energy design rating approach to assess energy and grid impacts consistently across all building types, both residential and non-residential.

- 3) Updating the Time Dependent Valuation (TDV) metric--specifically the Retail Adjustment portion of the metric--to appropriately reflect the low value of midday electricity reduction.
- 4) Updating the TDV's underlying assumptions to reflect the carbon neutrality by 2045 mandate, an accelerated rate of building electrification, and a more realistic supply of bio- and synthetic gas.
- 5) Aligning refrigerants and methane leakage rates with more widely accepted estimates.

SMUD expands on these points in the sections below.

1. Create a single electric baseline for all energy sources and using energy valuation metrics that appropriately reflect the lower GHG emissions of all-electric buildings, as opposed to separate standards for natural gas and electric construction.

California's buildings are responsible for 25% of the state's climate emissions,¹ more than half of which come from gas or propane furnaces, gas water heaters, and other gas appliances.² Separating performance standards for natural gas and electric heating would allow the market to continue to construct gas-fueled buildings for at least another 3 years. Allowing gas-heated building construction in the 2022 Energy Code (for low rise residential buildings alone) will pollute an additional 10,500,000 tonnes of carbon that would take 40 years of carbon sequestration by 4,040,000 newly planted trees to neutralize.³

Gas-heated buildings are also more expensive to build, leaving Californians vulnerable to higher energy bills and steep housing prices; it will cost the state even more to retrofit these gas-heated buildings in the long-term.⁴ Continuing to expand the pipeline infrastructure to new communities when it is well understood that gas infrastructure will see, at most, a 25-year useful life is not in the best interest of the citizens of California. We must set a clean energy standard in new construction today—as more than 19 California cities have already done—to avoid paying major financial and climate costs tomorrow.

¹ Brook, M. California Energy Commission. "Building Decarbonization." June 14, 2018 IEPR Workshop on Achieving Zero Emission Buildings.

² <https://www.nrdc.org/experts/joe-vukovich/real-climate-impact-californias-buildings>

³ This is based on SMUD's projected build rate and our long-term marginal carbon emissions calculations.

⁴ E3 "Future of Natural Gas": <https://www.ethree.com/at-cec-e3-highlights-need-for-gas-transition-strategy-in-california/>

2. Apply the two-step energy design rating approach to assess energy and grid impacts consistently across all building types, both residential and non-residential.

The two-step Energy Design Rating (EDR) using Time Dependent Source energy (TDS) and TDV appropriately reflect both the climate and air pollution impacts, and the electricity grid system costs of buildings. It is vital that both metrics align with California's climate and housing affordability goals.

3. Update the TDV metric--specifically the Retail Adjustment portion of the metric--to appropriately reflect the low value of midday electricity reduction.

In the current model, the retail adder remains a constant value during every hour of the year. This "flat adder" does not properly reward the benefits of load flexibility technologies. Rather than near-zero or negative TDV prices at midday on some days, the TDV, at best, reflects half the peak price. This is an inaccurate representation of utility cost recovery through rates, which is mostly volumetric, with only a small share of cost recovery through fixed charges.

The proposed 2022 TDV metric produces only two-thirds of the value of load flexibility as compared to the 2019 TDV values. Load flexibility technologies (e.g., demand response, pre-cooling, and energy storage), are critical to a decarbonized future and should be properly rewarded for their benefits to the grid. The CEC should consider making the retail adjustment adder proportional to other TDV components in order to better reward the advantages of load flexibility technologies, support California's goal of carbon neutrality by 2045, and more accurately reflect customer cost recovery.

4. Update the TDV's underlying assumptions to reflect: the carbon neutrality by 2045 mandate, an accelerated rate of building electrification, and a more realistic supply of bio- and synthetic gas.

The proposed TDV for the 2022 Energy Code rests on several assumptions that do not factor in the climate imperative and financial advantages of zero emission buildings, such as: 1) an 80% emission reduction in 2050; 2) a slower rate of building electrification; 3) a 10% biogas pipeline blend by 2030; 4) the absence of gas connection fee to the building; and, 5) 100-year global warming potential (GWP) of methane.

Assuming an 80% reduction by 2050, instead of the more recent mandate of carbon neutrality by 2045, disregards widely accepted climate science and recommendations by the Intergovernmental Panel on Climate Change (IPCC). Although a strategy for achieving carbon neutrality is still in flux, California must plan for success and reflect the state's emission reduction edicts by using the Net Zero by 2045 model, including accelerated building decarbonization assumptions, accounting for the price of a gas hookup in the cost effectiveness study, and a 20-year GWP of methane.

Additionally, the Future of Natural Gas study found that achieving 80% GHG reductions by decarbonizing the gas grid would cost the state between \$5-\$20 billion dollars more than achieving similar reductions through the clean energy electrification of buildings.⁵ To capitalize on these cost savings, the 2022 Energy Code must encourage a faster rate of building electrification, while assuming a realistic supply of bio- and synthetic gas. Currently, the 2022 Energy Code assumes that by 2030, 10% of natural gas demand will be supplied by biogas; this is unrealistic given that biogas currently only fulfills less than 1% of the state's demand. The 10% estimate fails to acknowledge the extremely high price of bio- and synthetic gas⁶ and California has no policy in place to achieve 10% biogas supply by 2030. Therefore, the TDV should be updated to reflect a more realistic, lower supply of bio- and synthetic gas.

5. *Align refrigerants and methane leakage rates with more widely accepted estimates.*

We support accounting for non-combustion emissions and creating mechanisms to incentivize non-combustion emission reduction. This is especially important for methane leakage, as the use of natural gas in buildings results in much more than the combustion burden. However, the proposed 0.7% rate for methane leakage assumes there is only a rate of 0.2% leakage upstream, which is significantly less than the widely accepted rate of 2.3%.⁷ SMUD recommends estimating methane leakage at 2.8% to account for 2.3% upstream leakage and 0.5% behind-the-meter leakage.

Conclusion

While SMUD strongly supports a 2022 Energy Code that prioritizes decarbonization, we recognize that climate change is an urgent problem and the state must move swiftly to head off the worst impacts of this climate crisis. A 3 to 12-year path to an all-electric Energy Code is not fast enough. With the extensive data on climate, gas prices, electricity prices, and state policies in support of GHG reduction, the 2022 Energy Code presents a prime opportunity to update statewide building energy codes in accordance with the pace of the climate crisis.

As always, SMUD appreciates the opportunity to provide comments on the 2022 Energy Code. We look forward to continuing collaboration with CEC Staff to further California's Net Zero by 2045 policy.

⁵ E3 "Future of Natural Gas": <https://www.ethree.com/at-cec-e3-highlights-need-for-gas-transition-strategy-in-california/>

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⁷ Ramon Alvarez et al., "Assessment of Methane Emissions from U.S. Oil and Gas Supply Chain." *Science Magazine* Vol. 361, Issue 6398 (July 2018), pp. 186-188
<https://science.sciencemag.org/content/361/6398/186.full>

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