

**DOCKETED**

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*Comment Received From: Pierre Delforge*  
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**NRDC comments on 2025 TDV**

*Additional submitted attachment is included below.*

**TO:** CALIFORNIA ENERGY COMMISSION  
**FROM:** PIERRE DELFORGE, NRDC  
**SUBJECT:** TITLE 24 PART 6 2025 COMPLIANCE METRICS  
**DATE:** MARCH 18, 2022

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The Natural Resources Defense Council (NRDC) submits the following comments in advance of the California Energy Commission's (CEC's) process to develop the 2025 Title 24 Standards on behalf of its more than 450,000 members and activists who are advocating for affordable and equitable decarbonization and clean air policies to help mitigate the climate crisis and advance a sustainable economy. The following comments specifically address the development of the energy code compliance metrics – time dependent valuation (TDV) and time dependent source energy (TDS) – which underpin the standards development process and ultimately compliance with the code. The compliance metrics are a critical component of the standards process as they are integral to the cost-effectiveness analyses that inform new code measures. They also affect fuel choice in combination with the baseline systems chosen, as they are used for determining how a proposed building compares to the baseline design.

Since the development of TDV and TDS typically occurs in advance of the standards process, NRDC submits these comments to highlight key issues that should be considered during the metric development process. The 2022 code made significant progress towards encouraging electrification in new buildings, particularly in California's single-family homes and to a more limited extent in large multi-family and non-residential buildings. However, more needs to be done to fully align the 2025 metrics with the economic reality of a decarbonized future.

The CEC's study on the Challenge of Retail Gas in California's Low Carbon Future<sup>1</sup> shows a significant increase in gas rates under all scenarios that meet California's goal of reducing greenhouse gas emissions by 80% from 1990 levels by 2050. These include both the high-electrification scenario – the lowest-cost, lowest-risk pathway to decarbonize California's building sector – as well as the no electrification scenario, which relies on expensive decarbonized gas to meet emissions reductions goals. The study makes it clear that there is no future in which retail gas prices continue on a business-as-usual or even a modest price increase trend. California Senate Bill SB 32 requires a 50 percent reduction in economy-wide greenhouse gas emissions by 2030 and Executive Order B-55-18 requires economywide carbon neutrality by 2045. These targets are not compatible with the continued use of fossil gas in volume and at prices that are reflected in the 2022 TDV values.

The expected sharp increases in retail methane gas prices must be fully reflected in TDV, so they provide true price signals and allow builders and building owners to make informed decisions. Not reflecting expected increases in gas prices risks aggravating the situation by expanding the number of new buildings using fossil gas and therefore of customers that will be stranded on an increasingly

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<sup>1</sup> <https://www.energy.ca.gov/sites/default/files/2021-06/CEC-500-2019-055-F.pdf>

unaffordable gas system, when the right price signals would have allowed them to avoid this situation in the first place.

It is therefore critical that the TDV values developed in the 2025 code cycle adequately incentivize electrification, particularly in non-residential and multifamily buildings. As the CEC develops these values, we ask that the following are taken into consideration:

- Increase the retail rate scaling factor to at least 30 percent variable.** In the 2022 code cycle, the CEC implemented a scaled retail rate adder for the first time. Whereas previously the retail rate adder was a flat value added to every hour of the year to align TDV values with projected retail rates, the scaled retail rate adder includes two components: a constant value which is applied equally to every hour of the year and a proportional value which is allocated proportionally to the other components of TDV. In 2022, the CEC set 85% of the retail rate adder as flat, with the remaining 15% variable in proportion to the other components of TDV, as shown in below.

The scaling factor is important because the retail rate adder makes up the majority of the overall TDV values and the flat component of the adder dampens the time of use signal provided by TDV. This time of use signal is critical to get right to make sure that time of energy use is appropriately rewarded. This will continue to be even more critical in 2025 than it was in 2022: California’s duck curve gets more pronounced every year and will continue to do so if complementary measures are not introduced as the percentage of renewables on the grid continues to increase and as more buildings electrify. It is therefore critical that TDV adequately incentivizes technologies that can shift load, store energy, and/or reduce load at peak times. This will also align with the rates that consumers are likely to pay: investor-owned utilities are in process of transitioning to default time of use (TOU) rates for their residential customers, meaning that most Californians will be paying TOU rates going forward.

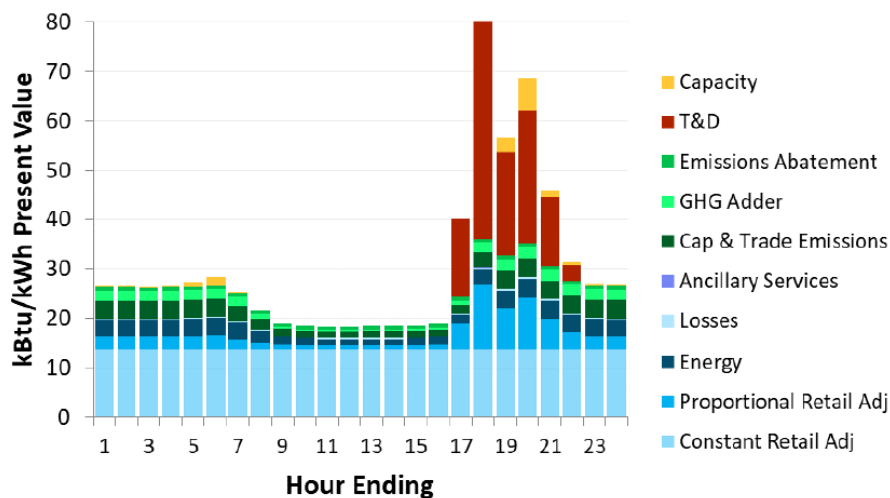
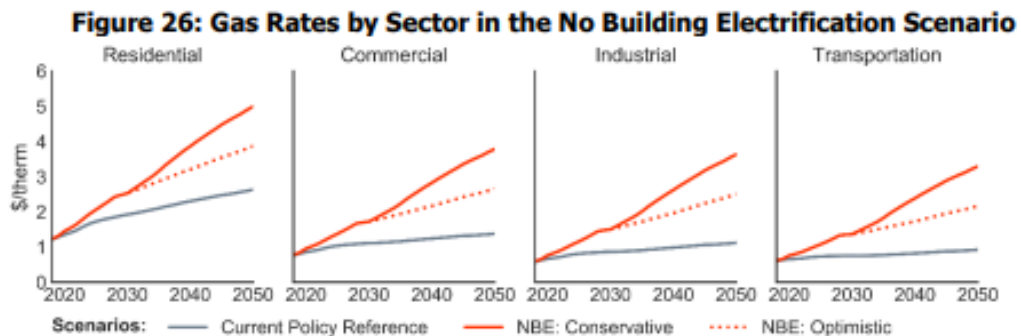
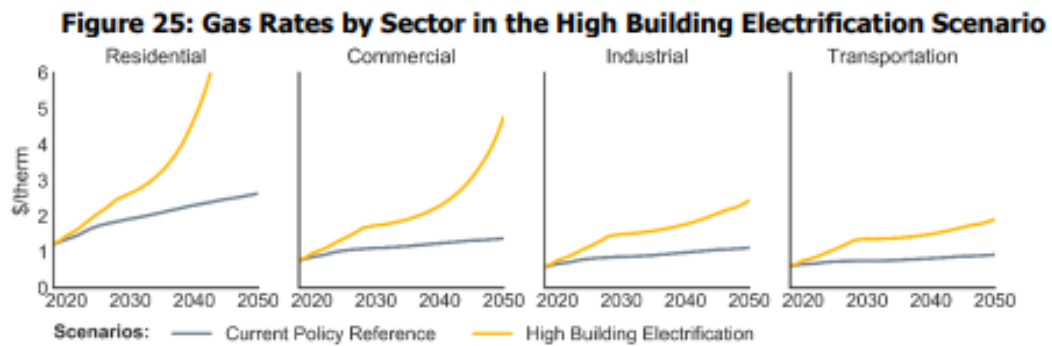


Figure 1: Climate Zone 12 2022 TDV cost components and retail rate adjustment.<sup>2</sup>

<sup>2</sup> Time Dependent Valuation of Energy for Developing Building Efficiency Standards: 2022 Time Dependent Valuation (TDV) and Source Energy Metric Data Sources and Inputs, May 2020, p.56

We therefore recommend that the CEC analyze an increased retail adder scaling factor in 2025. During the 2022 cycle, the CEC looked at scaling factors of 15, 50, and 100% and chose 15 percent to avoid too large of a change in TDV values. In the 2025 update, we recommend assessing 30% and other scaling factors between 15 and 50% to find a factor that appropriately values the time value of use, including the expected grid impacts, emissions, and consumer costs.

- Update gas prices to reflect the cost of methane gas in a scenario aligned with California’s climate goals.** We recommend that the CEC use future gas prices that reflect the cost of methane gas under a least-cost scenario that achieves California’s climate goals as identified in the CEC’s report *The Challenge of Retail Gas in California’s Low Carbon Future*. As shown in the two graphs below, methane gas prices are expected to increase significantly under all scenarios that meet California’s emissions reduction goal of 80% below 1990 levels by 2050. Appropriately accounting for these costs now will help reduce the burden on Californians by avoiding unnecessary and costly stranded gas infrastructure.



**Notes: “Conservative” and “Optimistic” refer to the respective P2G cost scenarios.**

Figure 2: Gas rate projections in High Building Electrification and No Electrification scenarios.<sup>3</sup>

<sup>3</sup> *The Challenge of Retail Gas in California’s Low Carbon Future*, p. 51-52.

- **Include out-of-state emissions in leakage values.** We support the inclusion of methane and refrigerant leakage values included in the 2022 TDV values. Leakage is important to include because both methane and HFC refrigerants are powerful greenhouse gases that contribute significantly to global warming if released into the atmosphere. We recommend that the CEC maintain the inclusion of leakage for 2025, but also include methane emissions that occur out of state, upstream in the gas distribution system, that are associated with the use of gas in proposed buildings.<sup>4</sup> The reduction in gas use in California’s building sector will lead to fewer gas wells and fewer transmission and distribution pipelines and therefore lower methane leakage. The Air Resource Board already accounts for out-of-state emissions for electricity imported into California, it should use a consistent methodology with methane imports into California. CEC should also revise its estimate of behind-the-meter leakage based on the latest studies that show that leakage rates at the appliance are higher than previously thought for water heaters and cook stoves.<sup>5 6</sup>

We appreciate the opportunity to submit these comments and would welcome any further discussion on these issues as the CEC works to develop the 2025 TDV and TDS values.

Sincerely,

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<sup>4</sup> Alvarez et. Al., “Assessment of methane emissions from the U.S. oil and gas supply chain”, Science, June 2018, <https://www.science.org/doi/10.1126/science.aar7204>

<sup>5</sup> “Quantifying Methane Emissions from Natural Gas Water Heaters,” Eric D. Lebel, Harmony S. Lu, Simone A. Speizer, Colin J. Finnegan, and Robert B. Jackson, Environmental Science & Technology 2020 54 (9), 5737-5745, DOI: 10.1021/acs.est.9b07189

<sup>6</sup> “Methane and NOx Emissions from Natural Gas Stoves, Cooktops, and Ovens in Residential Homes,” Eric D. Lebel, Colin J. Finnegan, Zutao Ouyang, and Robert B. Jackson, Environmental Science & Technology 2022 56 (4), 2529-2539, DOI: 10.1021/acs.est.1c04707