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18-IEPR-09 - EDF - Comments Decarbonizing Buildings

Additional submitted attachment is included below.

June 26, 2018

Heather Raitt, Program Manager
California Energy Commission
Integrated Energy Policy Report Docket
1516 9th Street, Sacramento, CA 95814
Submitted via CEC e-file process

Dear Ms. Raitt,

The Environmental Defense Fund ("EDF") respectfully submits these comments in support of the building electrification and decarbonization strategies outlined in the Integrated Energy Policy Report ("IEPR") Commissioner Workshop on Achieving Zero Emission Buildings held on June 14, 2018.

Building electrification is a critical strategy that must be deployed with careful planning and deliberate speed for California to reach its greenhouse gas ("GHG") emission reduction goals. The importance of this effort is made even more certain when considered in light of EDF's newly released peer-reviewed study that shows the damaging effects of methane emissions throughout the natural gas supply chain.[1] This study, the result of years of scientific analysis and engagement by academic institutions and industry partners across the country expands upon and makes clear the shortcomings of data on methane emissions from the oil and gas supply chain previously collected by the Environmental Protection Agency ("EPA").

Published in the journal *Science* on June 21, 2018 the "Assessment of methane emissions from U.S. oil and gas supply chain" shows that methane emissions from oil and gas are 60% greater than the EPA previously estimated.[2] As a result of this new analysis, it is clear that the domestic oil and gas industry emits 13 million metric tons of methane per year.[3] To put that into perspective, 13 million metric tons of methane per year is equivalent to the climate pollution from nearly 70 million passenger vehicles driven for just one year. Put another way, over 382

[1] Full text of the report can be found at: http://science.sciencemag.org/content/sci/early/2018/06/20/science.aar7204.full.pdf
[2] *New Study Find U.S. Oil and Gas Methane Emissions Are 60% Higher Than EPA Reports* (Environmental Defense Fund), https://www.edf.org/media/new-study-finds-us-oil-and-gas-methane-emissions-are-60-percent-higher-epa-reports-0.
[3] Ibid.

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million acres of US forests would be needed to sequester that much pollution in one year.[4] These methane emissions are particularly harmful to the climate because methane has roughly 80 times the climate warming impact of carbon dioxide over a 20-year period.

The majority of US domestic methane emissions occur from leakages throughout the natural gas supply chain. Previously, the EPA had estimated the methane leak rate at 1.4%. EDF's findings, however, show that the leak rate is closer to 2.3%. According to our estimates, even at a 2.3% leakage rate, enough natural gas is lost every year to fuel 10 million homes. The value of this lost gas is estimated at $2 billion.[5]

The EDF-led study hypothesizes that previous EPA studies "underestimate[d] total emissions because they miss high emissions caused by abnormal operations (i.e. malfunction)."[6] Furthermore, emissions from tanks in natural gas production fields were found to be significantly high.

The unpredictability and ubiquity of these emissions throughout the supply chain of natural gas makes reducing reliance on natural gas in the buildings sector of the utmost importance – in particular to California because so much of our heating and cooling needs are reliant on natural gas. Considering that California imports over 90% of the natural gas used within the state,[7] and therefore has a considerable lack of control over the natural gas supply chain within which it receives its gas, it is even more critical that California electrify its buildings to reduce its reliance on natural gas and the attendant upstream emissions that result when that gas is produced and shipped to the state.

As it relates to in-state emissions, by reducing California's use of gas in buildings, such as through switching to electric appliances like water and space heaters, California would eliminate an end-use for gas that would contribute greatly to achieving California's GHG emission targets. According to the California Energy Commission ("CEC"), buildings account for 26% of California's total greenhouse gas emissions.[8] Moreover, direct emissions from fossil fuels used for space and water heating in California's buildings account for approximately 10% of California's total greenhouse gas emissions. In 2016, this use alone produced 33 million

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[4] *Greenhouse Gas Equivalencies Calculator* (Environmental Protection Agency), https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.
[5] *New Study Finds* (Environmental Defense Fund).
[6] Alvarez, Ramón A., et. al, *Assessment of methane emissions from U.S. oil and gas supply chain* (Science: 21 June 2018), DOI: 10.1126/science.aar7204, http://science.sciencemag.org/content/sci/early/2018/06/20/science.aar7204.full.pdf, 2.
[7] Andrew Mrowka and California Air Resources Board, "Methane Leaks in the Natural Gas System" (presentation, IEPR Workshop on Achieving Zero Emissions Buildings, June 14, 2018).
[8] Martha Brook and the California Energy Commission, "Building Decarbonization" (presentation, IEPR Workship on Achieving Zero Emissions Buildings, June 14, 2018).

metric tons of CO_2 equivalent. Reducing these emissions by just one million metric tons of CO_2 equivalent would be the same as not driving 216,000 passenger cars for a whole year.[9]

Building electrification will not solve all of California's climate challenges nor will it alone get California to its GHG emission targets. However, electrification can serve as a much-needed step in the direction towards a zero-carbon future and reaching California's GHG emission reduction targets. Reducing California's reliance on natural gas decreases both in-state emissions and methane emissions from the gas supply chain production, most of which is outside of California. California has before it an opportunity to make deep carbon reductions in the building space by pursuing Zero Emission Buildings, building electrification and decarbonization, and EDF strongly supports taking that opportunity.

Respectfully,

Tim O'Connor, Senior Attorney and Director, Legislative and Regulatory Affairs
Environmental Defense Fund

CC:

Andrew McAllister, Commissioner
David Hochschild, Commissioner
Karen Douglas, Commissioner

[9] "Conversion of 1MMT CO_2 to Familiar Equivalents" (California Air Resources Board) https://www.arb.ca.gov/cc/factsheets/1mmtconversion.pdf.

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