

## DOCKETED

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**Sierra Club Comments on SB350 Doubling EE**

*Additional submitted attachment is included below.*



**Sierra Club Comments on 2017 Integrated Energy Policy Report (IEPR)  
Framework for Doubling Energy Efficiency Savings  
Docket 17-IEPR-06**

September 21, 2017

**Introduction**

The Sierra Club submits these comments in response to the Joint Agency workshop on September 7th, 2017 and the Draft Commission Report *Senate Bill 350: Doubling Energy Efficiency Savings by 2030* (Draft Report). We appreciate the considerable amount of time that went into the report and the workshop.

Our comments are focused on the need to strengthen policies to facilitate and accelerate fuel substitution in order to achieve the state's energy efficiency savings mandate. The California Energy Commission (CEC) and partner agencies like the California Public Utilities Commission (CPUC) have a central role and responsibility to provide guidance and develop a comprehensive statewide policy on fuel substitution that will facilitate market transformation, energy savings, and greenhouse gas (GHG) reductions. The Draft Report shows a large gap to meeting the doubling energy savings target after accounting for all existing energy efficiency programs. Pursuing fuel substitution with high-efficiency electric appliances in the existing residential and commercial building stock —over 13 million buildings — is one of the most promising strategies to deliver considerable greenhouse gas reductions while enabling California to implement SB 350's energy savings mandate.

As we describe below, the Draft Report underestimates the energy savings potential of fuel substitution and electrification. Sierra Club urges the CEC to develop, as part of this implementation process, a comprehensive fuel substitution framework that includes market development policies, education and outreach, workforce training, and incentives, rate design, and financing mechanisms. Electrification of residential and commercial buildings will not occur at the scale or timeline needed without the collaboration and support by regulatory agencies.

**I. Fuel substitution is a critical strategy to achieve a Doubling in Energy Efficiency Savings and should be prioritized and supported by the California Energy Commission and California Public Utilities Commission.**

Fuel substitution is a key strategy to achieve California's doubling of energy efficiency, renewable energy, and climate targets. Sierra Club is pleased to see that the Draft Report recognizes the energy efficiency and climate benefits of replacing gas appliances with energy efficient electric appliances like heat pump space heaters and heat pump water heaters. There is a growing body of literature that supports the CEC's findings, for example:

- International Renewable Energy Agency (IRENA), [\*Stranded Assets And Renewables: How the energy transition affects the value of energy reserves, buildings and capital stock\*](#) (July 2017) finds that gas heating systems are incompatible with the levels of decarbonization needed for a safe climate. The report projects substantial stranded assets in the buildings sector from continued use of gas appliances. Gas appliances will need to be replaced with efficient electric appliances in a timely manner to reduce costs and stranded assets.
- The Lawrence Berkeley National Laboratory (LBNL) and UC Berkeley report, [\*Scenarios to decarbonize residential water heating in California\*](#) (July 2017) finds that "fuel substituting to electricity without the forced retirement of existing equipment **cannot wait beyond 2020** for California to achieve the 2050 emissions goals." In addition, none of the decarbonization scenarios analyzed in the report meet California's 2030 target of 40% emissions reduction in the residential water heating sector. This demonstrates the need to establish a robust and comprehensive fuel substitution and market transformation program in California.
- In a report to the California Energy Commission, the LBNL study, [\*Deep carbon reductions in California require electrification and integration across economic sectors\*](#) (March 2013) finds that it is necessary to achieve full electrification of all space and water heating, in residential and commercial buildings, to meet the 2050 carbon goals.

The CEC and the CPUC have a vital role to support market transformation and accelerate this needed transition to highly efficient electric appliances that can be powered by a clean grid or on-site renewables.

**II. California will not be able to unlock the energy savings potential of fuel substitution unless state agencies expediently resolve regulatory barriers to electrification.**

Regulatory obstacles to fuel substitution should be swiftly addressed, as California will not achieve the doubling EE goal with the current regulatory barriers to fuel substitution in place. In order to achieve ambitious and needed efficiency and climate goals, California's *existing* residential and commercial building stock will need to transition to high efficiency electric appliances, particularly for water heating and space heating. Given the early stage of the heat pump market in California, much work needs to occur to incentivize building owners to plan ahead for replacing gas heaters with electric heaters, and for the workforce to be prepared to carry out and support this transition. Just as California provides rebates to develop the electric vehicle, solar thermal, and other clean technology markets, so is it necessary to offer rebates to incent building owners to purchase energy efficient heat pump appliances.

Rebates offered by investor-owned utilities for electric heat pumps are currently subject to the CPUC's Three Prong Fuel Substitution Test. This means that building owners can only receive a rebate to help lower the upfront costs of purchasing and installing a heat pump, if they *already* have electric heating. Energy efficiency rebates through the Home Energy Upgrade Program are not available for fuel substitution, let alone fuel switching from an unregulated fuel. The California Public Utilities Commission needs to update and revise the outdated Fuel Substitution Test and align it with California's larger energy efficiency and climate mandates.

**III. The CEC's assumption that fuel substitution results only from municipalities adopting local reach building codes both underestimates the potential for fuel substitution to contribute to the Doubling EE Goal, and overlooks the critical role of utility programs in spurring market transformation.**

While Sierra Club strongly supports the adoption of reach building codes that accelerate fuel substitution, reach codes are not the only pathway to develop the heat pump market and drive fuel substitution in California, and will not be sufficient to incentivize full market transformation. For decades, roughly 90% of California's homes and buildings have relied on natural gas for water heating and space heating. Transitioning the existing building stock and new construction to electric heating appliances is a complex market transformation process that requires widespread education and outreach to building owners, developers, contractors, plumbers, electricians, and other change agents across the state to secure buy-in and a commitment to "go electric." The transition to efficient electric heating with heat pumps will not occur at the scale or timing needed by simply relying on local heat pump mandates, as the

Draft Report assumes. Furthermore, establishing reach codes that require electric heat pumps is a difficult process because of federal pre-emption, legal constraints, and the cost-effectiveness requirements of Title 24 that are based on a controversial energy cost metric called “Time Dependent Valuation.” Moreover, the decentralized and voluntary nature of reach building codes leaves little guarantee of the scale or timeline for city or county adoption.

Utility programs and pilot projects geared to accelerate a transition to electric heating in residential and commercial buildings are key to developing the heat pump market, educating building owners, providing incentive funding and rebates, and training the workforce. Utility programs at IOUs, POU, Munis, and CCAs have demonstrated success in supporting the development and deployment of new emerging clean energy technologies in California. The City of Palo Alto, Sacramento Municipal Utility District, Marin Clean Energy, Sonoma Clean Power, and others have focused considerable staff time and resources to develop electrification pilot projects and programs in their respective service territories. Given the complex nature of fuel substitution in existing buildings, the CEC should look to these utilities’ experience to understand how to drive market change, and also include energy savings from utility fuel substitution programs in the Doubling EE Savings analysis. In order to unlock the true potential of utility fuel substitution programs, these programs should not be subject to the current CPUC Three Prong Fuel Substitution Test. Developing a new market requires investment and is not always “cost effective” the way state agencies traditionally measure it. Just as the state invested in developing today’s thriving rooftop solar and electric vehicle market, so too should it invest in developing the electric heat pump market.

**IV. The CEC should include fugitive methane leakage in all analysis to properly account for the GHG impact of energy efficiency measures.**

Sierra Club supports NRDC’s August 3, 2017 comments, which argued that in order to properly account for the GHG emissions of gas appliances, the CEC should include fugitive methane emissions from production, processing, distribution, storage, and on-site end use. There is a large body of literature on methane leakage rates that demonstrates that due to the high global warming potential of methane, properly accounting for fugitive emissions reveals that the greenhouse gas footprint of gas appliances is twice as high as previously assumed.

**V. The Sierra Club supports the CEC’s plan to form a Joint Agency Fuel Substitution working group.**

The Sierra Club supports the formation of a joint agency working group on fuel substitution and recommends that this working group include not only agency staff, but also fuel substitution experts and public stakeholders. The group should provide recommendations to resolve contentious issues, including:

1. How to report energy savings from fuel substitution (i.e. Therms, kWh, or GHG);
2. How to account and give credit for energy savings from fuel substitution (e.g., when the gas savings occur in POU territory and increased electric load occurs in IOU territory);  
and,
3. Identifying regulatory and market barriers to fuel substitution, and the role of state agencies to update and establish new policies to overcome these barriers.

## **Conclusion**

Sierra Club appreciates the opportunity to submit these comments and engage in the process of ensuring California achieves its necessary energy savings and climate goals.

Respectfully submitted,

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/s/

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