

DOCKETED

Docket Number:	17-IEPR-06
Project Title:	Doubling Energy Efficiency Savings
TN #:	221291
Document Title:	NRDC Comments on Staff Workshop on Methodologies for 2030 Energy Efficiency Target Setting
Description:	N/A
Filer:	System
Organization:	Natural Resources Defense Council (NRDC)
Submitter Role:	Public
Submission Date:	9/21/2017 4:43:34 PM
Docketed Date:	9/21/2017

Comment Received From: Mohit Chhabra

Submitted On: 9/21/2017

Docket Number: 17-IEPR-06

Comments of the Natural Resources Defense Council (NRDC) on the 2017 Integrated Energy Policy Report (IEPR) Staff Workshop on Methodologies for 2030 Energy Efficiency Target Setting (September 7th, 2017)

Additional submitted attachment is included below.

**Comments of the Natural Resources Defense Council (NRDC) on the
2017 Integrated Energy Policy Report (IEPR)
Staff Workshop on Methodologies for 2030 Energy Efficiency Target Setting (September
7th, 2017)**

Docket Number 17-IEPR-06

September 21, 2017

Submitted by: Mohit Chhabra

mchhabra@nrdc.org

I. Introduction and Summary

The Natural Resources Defense Council (NRDC) appreciates the opportunity to offer these comments on the 2017 IEPR Staff Workshop on Methodologies for 2030 Energy Efficiency Target Setting on September 7th, 2017. NRDC is a non-profit membership organization with more than 95,000 California members who have an interest in receiving affordable energy services while reducing the environmental impact of California's energy consumption.

II. Discussion

NRDC appreciates the California Energy Commission (CEC) staff's efforts to establish a thorough and transparent process to develop SB 350 compliant energy efficiency savings targets. NRDC's comments are in response to the material presented at the staff workshop on September 7th. NRDC's comments focus on:

- *Fuel substitution*: NRDC recommends that the CEC: (1) setup a collaborative process to develop an accurate fuel substitution analysis framework; (2) incorporate our technical suggestions on how to best account for greenhouse gas (GHG) emissions related to fuel substitution analysis by considering long run marginal emissions and fugitive methane emissions; and (3) set ambitious fuel substitution targets for new construction and determine how fuel substitution potential in existing construction can be unlocked.
- *Closing the gap between SB 350 targets and current statewide energy efficiency efforts*: CEC leadership, guidance, and partnership with other agencies are necessary to understand how to effectively close the gap between SB 350's doubling energy efficiency target and the current statewide energy efficiency efforts' trajectory.

A. Fuel Substitution

Setup a Collaborative Process to Develop Fuel Substitution Analysis Framework

In an earlier version of the CEC SB 350 white-paper,¹ the CEC discussed the differences between the CPUC's existing three prong test for fuel substitution and CEC's interpretation of PRC 25310(d)(10).² The CEC then posed the following policy related questions to stakeholders:¹

- *“Is a staff workshop a useful mechanism to identify issues for resolution by policy decision-makers?”*
- *“How should the energy commission coordinate with the CPUC whether there are different requirements for PRC 25310(d)(10) versus those of the existing three prong test? To the extent that there are differences, how should the CEC and the PUC resolve these differences?”*

NRDC recommends that the CEC provide direction on how PRC 25310(d)(10)'s requirements should be implemented and that the CPUC three prong test should be aligned with the CEC interpretation of PRC 25310(d)(10). Having multiple tests to determine viability of fuel substitution projects in California would cause confusion. Especially as the intent for both tests is the same: to ensure that fuel substitution is cost-effective as well as beneficial for customers and the environment.

This CEC guidance should be developed through a collaborative process. NRDC recommends the process be structured as follows:

1. The CEC develops a framework proposal to conduct fuel substitution analysis. This framework should include:
 - a. Specific issues that the CEC would like stakeholder opinion on, and
 - b. Recommended changes to the current CPUC's three prong test to align it with CEC's interpretation of PRC 25310(d)(10).
2. The CEC should then conduct a public workshop and solicit feedback to resolve the specific issues identified by the CEC proposal. This public process should be led by

¹ Page 50, “*Senate Bill 350 Energy Efficiency Target Setting for Utility Programs: California Energy Commission (7/21/2017)*”

² California Public Resources Code: <http://codes.findlaw.com/ca/public-resources-code/prc-sect-25310.html>

the CEC and should be coordinated with the CPUC and other pertinent agencies. If after the workshop more work is needed, the CEC should establish a small working group to resolve the outstanding questions from the workshop.

Develop Estimates of Long-Run Marginal Electric Fuel Mix to Estimate Electric Source Emissions

NRDC agrees with the three steps laid out by the CEC³ to estimate net GHG emission reduction requirements per PRC 25310(d)(10), but recommends that CEC clarifies that it will apply a long-run marginal GHG accounting methodology as part of this analysis. Long-run marginal emissions accounting, as defined by Hawkes 2014⁴ represents the change in emissions resulting from a unit change in electricity demand, where the change in the generation mix (caused by the evolving demand, and long term planning goals) is considered. This differs from short-run marginal emissions accounting which assumes that the increased demand causes little or no change in grid resources.

When a policy has the potential to induce large enough changes in demand that utilities must procure new resources, short-run marginal emissions do not represent the impact of such policy.⁵ Instead, the marginal emissions factor should reflect the resources that need to be added to the mix to serve the new load. Considering California's aggressive renewable portfolio standard (RPS) goals, it is reasonable to assume that the long run marginal emissions factor will be close to that of the average RPS mix, with time of day and year dependent variations.

³ Page 46, "*Senate Bill 350 Energy Efficiency Target Setting for Utility Programs: California Energy Commission (7/21/2017)*"

⁴ Hawkes A.D., "*Long-run Marginal CO₂ Emissions Factors in National Electricity Systems*", Applied Energy, April 2014, www.elsevier.com/locate/apenergy

⁵ For example, the marginal emissions impact from electrification of one home will come from the slightly increase operation of the existing marginal plant, which may be a gas plant, and therefore the short-run emissions factor will reflect that gas plant. But the marginal emissions impact from large-scale policy changes and market trends leading to tens of thousands of homes being electrified should be represented by new generation that needs to be built to serve this new load. This new generation is required to comply with the state's RPS.

Account for Source Gas Emissions

Per the CEC proposal, “*The difference between site and source GHG emissions from end-user consumption is distribution losses. This has historically been estimated at about 2 percent of annual usage*”.⁶ CEC should address the accuracy of this estimate via the public workshop process that NRDC recommended above to resolve any fuel substitution analysis issues. Moreover, the CEC should confirm whether the proposed 2 percent loss is volumetric or in terms of equivalent CO₂ emissions. This is essential as methane has 84 to 87⁷ times the global warming potential of CO₂ over a 20-year horizon.⁸ Thus, even a 2 percent volumetric leakage (distribution loss) implies more than 160 percent increase in equivalent GHG emissions on a source GHG basis as compared to site GHG emissions. This issue should be addressed under the broader topic of accounting for fugitive methane emissions in estimating GHG impacts of fuel substitution; this was recommended in the past by NRDC⁹ through written comments and as oral comments by stakeholders at the September 7, 2016 SB 350 workshop.

Set ambitious fuel substitution targets for new construction and determine how fuel substitution potential in existing construction can be unlocked

The CEC’s current fuel substitution estimate relies on the assumption that 10 percent of all residential and commercial new construction customers in the state of California (starting with 1 percent in 2020) will adopt standard or high efficiency electric space or water heat

⁶ Page 35, footnote 57 of the CEC published “*DRAFT COMMISSION REPORT: Senate Bill 350: Doubling Energy Efficiency Savings by 2030 (8/28/2017)*”

⁷ <https://www.epa.gov/ghgemissions/understanding-global-warming-potentials>

⁸ A 20-year horizon is more appropriate than a 100-year horizon for SB 350 given the SB 350 planning timeframe and the need to reduce GHG emissions within the next decade in order to achieve the Paris Accord targets.

⁹ Comments of the Natural Resources Defense Council (NRDC) on the 2017 Integrated Energy Policy Report (IEPR) Draft Staff Papers on SB 350 Energy Efficiency Savings Doubling Targets Docket Number 17-IEPR-06 August 3rd, 2017.

equipment over corresponding gas space or water heat equipment.¹⁰ The analysis also considered the possibility of modeling an aggressive scenario with a 30 percent adoption rate of the list of standard and high efficiency technologies for new construction but did not present the results from that scenario.

NRDC recommends that due to the uniquely high GHG reduction potential of water heating fuel substitution technologies (for reasons illustrated previously by NRDC⁹ and in this document), these technologies be given special consideration in by the CEC for SB 350 analysis.

Specifically, NRDC recommends that the CEC:

- Set ambitious fuel substitution targets for new construction: Analyze the potential of fuel substitution under two aggressive scenarios of 30 percent and 50 percent electrification of water and space heat technologies for new construction residential and commercial buildings. This analysis should include details on the cost-effectiveness of fuel substitution to understand and demonstrate the importance of new construction fuel substitution relative to other efforts to meet the state’s GHG reduction targets.
- Help determine how fuel substitution potential in existing construction can be unlocked: The CEC should estimate the cost-effectiveness of fuel substitution¹¹ in existing buildings. This will help the efficiency community understand the barriers to fuel substitution adoption in current buildings (equipment cost, efficiency); this will also help determine in what subset of existing buildings (climate zone, building efficiency, etc.) is fuel substitution currently a cost-effective solution. Future SB 350 analysis should then incorporate this level of cost-effective fuel substitution in existing buildings.

B. Closing the Gap Between SB 350 Targets and Current Statewide Energy Efficiency Efforts

¹⁰ Page 111, of the NORESO document developed for and published by the CEC “*Attachment A SB 350 Energy Savings Potential Development Plan (9/14/2017)*”

¹¹ Any such analysis should include the GHG impact of fugitive emissions and consider marginal long run emissions.

The CEC has successfully completed the challenging task of accurately defining what SB 350's target doubling energy efficiency means; the CEC then normalized and added estimates of current statewide energy savings potential from each effort in the state (codes & standards, IOU potential, POU potential, etc.) to understand the current trajectory of forecasted savings from these existing efforts in California. The CEC's analysis shows that the state is currently not on track to meet the SB 350 target, the state's current energy efficiency efforts (electric and gas combined) will fall 10 percent short of the SB 350 goal in 2030.¹²

NRDC urges the CEC to make more concrete recommendations on how this 10 percent gap between the state's current energy efficiency efforts' savings trajectory and the SB 350 target can be overcome (e.g., policy changes, increase in investment, etc.). A good starting place for this investigation is to analyze the difference between economic and market potential estimates in the IOU and POU potential studies. The economic potential estimates for energy efficiency programs in both studies are much greater than estimates of achievable potential in these territories.

Leadership guidance from the CEC on this issue will be valuable. Finally, NRDC strongly agrees with the CEC's recommendation that the agricultural and industrial potential may be under-analyzed and estimates of energy savings potential in these sectors are uncertain. NRDC looks forward to being a resource in any investigation into energy efficiency savings potential in these sectors in an effort to determine the best course of action to meet statewide SB 350 targets.

III. Conclusion

Thank you for your commitment to energy efficiency and for the opportunity to comment on the 2017 IEPR Workshop on 2030 Energy Efficiency Targets. We look forward to working with the CEC staff and stakeholders on the 2017 IEPR and the energy efficiency targets. It is critical to the success of SB 350's doubling of energy efficiency savings goal to set up the right framework to drive the right outcomes regarding energy, GHGs, and costs.

¹² Page 3; "*DRAFT COMMISSION REPORT: Senate Bill 350: Doubling Energy Efficiency Savings by 2030 (8/28/2017)*"