DOCKETED	
Docket Number:	17-BSTD-03
Project Title:	2019 Title 24, Part 11, CALGreen Rulemaking
TN #:	224871
Document Title:	NRDC Comments on CALGreen 2019 15-day language
Description:	N/A
Filer:	System
Organization:	NRDC/Pierre Delforge
Submitter Role:	Public
Submission Date:	10/2/2018 4:27:06 PM
Docketed Date:	10/2/2018

Comment Received From: Pierre Delforge
Submitted On: 10/2/2018
Docket Number: 17-BSTD-03

NRDC Comments on CALGreen 2019 15-day language

Additional submitted attachment is included below.

Comments of the Natural Resources Defense Council (NRDC) on
2019 Title 24, Part 11, CALGreen Rulemaking
Docket Number 17-BSTD-03
October 2, 2018
Submitted by: Pierre Delforge, NRDC, pdelforge@nrdc.org

The Natural Resources Defense Council (NRDC) appreciates the opportunity to comment on the California Energy Commission (CEC)'s CALGreen Title 24, Part 11 Appendices A4 and A5 Final Express Terms ("CALGreen 15-Day Language") on behalf of our 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.

CALGreen is an important policy tool to help California implement its climate and energy goals. CALGreen sets green building requirements for all buildings in California and sets voluntary energy targets that localities wishing to go beyond the Title 24, Part 6 Statewide Standards can adopt as mandatory.

NRDC is generally supportive of the CALGreen 15-Day Language as proposed, but is concerned that the tier 1 voluntary targets for residential buildings proposed are more stringent for all-electric homes than for mixed-fuel homes, which could hinder efforts to reduce emissions from new homes.

For background, CALGreen includes voluntary efficiency tiers (e.g. tier 1 and tier 2) that can be adopted as mandatory by localities wishing to exceed the base standards. In the past, these tiers have typically been as a percentage better than the base standard. For 2019, the CEC has proposed to set the tiers for residential buildings using energy design rating (EDR) targets. In the January 18, 2018 45-day Language, the CEC proposed a single EDR value as the target for each tier. In the September 17, 2018 15-day Language the CEC proposed separate values for each tier by fuel-type and climate zone, as shown in Figure 1.

Table A4.203.1.1.1

Recommended EDR Targets by Climate Zones

CZ	Tier 1		Tier 2	
	Mixed Fuel	All-Electric	Mixed Fuel	All-Electric
1	23	36	13	0
2	12	16	5	0
3	10	14	0	0
4	8	12	0	0
5	10	16	0	0
6	10	12	0	0
7	5	7	0	0
8	10	10	0	0
9	13	13	0	0
10	10	11	0	0
11	11	12	0	0
12	12	13	0	0
13	11	13	0	0
14	15	16	5	0
15	11	8	0	7
16	22	39	14	10

Note: Community shared options complying with Title 24, Part 1, Section 10-115 may be used to achieve Total EDR targets.

Figure 1: CALGreen 15-Day Language Proposed EDR Targets by Climate Zone

We are concerned that the tier 1 targets as set are more stringent for all electric homes than for mixed-fuel homes. This is due to a discrepancy in how the targets were developed. Our understanding is that the tier 1 targets were developed by taking the 2019 standard prototype homes and adding a time-of-use (TOU) controlled battery and, for electric homes only, a larger PV system.[1] For mixed fuel homes, the PV-system size was the same as the standard design.

This discrepancy in how the targets were developed leads to targets that are more stringent for all-electric homes. For example, in climate zone 9, the tier 1 target is an EDR of 13 for both mixed-fuel and electric homes. Comparatively, the standard design score for the 2019-compliant 2100 sq.ft. prototype in this climate zone is an EDR of 30.4 (all-electric) or 22.2 (mixed-fuel). Adding additional attic and wall insulation, triple-pane windows, and Energy Star Most Efficient equipment to this prototype home achieves scores of 24.8 (all-electric) and 17.3 (mixed-fuel). While neither of these prototype designs achieves the CALGreen tier 1 target of 13 through these efficiency measure alone, the mixed-fuel home comes significantly closer. As a second example, if you instead modify the climate zone 9 2100 sq. ft. standard prototype by adding a time-of-use controlled battery and enough PV to meet the tier 1 target of 13,[2] the electric prototype would require an additional 0.6 kW of PV compared to the mixed-fuel prototype, which increases the upfront cost and can act as a disincentive for the builder or customer to build all-electric.

[1] Sized for 1.1 times the electric load of a mixed-fuel home.
[2] The software allows you to set an EDR target and will find the amount of PV needed to meet this target.

This discrepancy is consistent across all climate zones. Looking at all climate zones and both the 2100 sq. ft. and 2700 sq. ft prototypes, on average, the CALGreen Tier 1 targets will require .6 kW more PV for an electric home than a mixed-fuel home for a home complying via time-of-use controlled battery and PV system. The results by climate zone are summarized in Figure 2.

Climate Zone	Increased PV Required for All-Electric Prototype (kW)
1	0.7
2	0.5
3	0.6
4	0.5
5	0.5
6	0.5
7	0.4
8	0.5
9	0.5
10	0.5
11	0.8
12	0.6
13	0.6
14	0.7
15	1.4
16	0.3

Figure 2: Average difference in PV system size for electric homes to meet Tier 1 CALGreen requirements compared to mixed-fuel homes by climate zone.

While we recognize that the CALGreen language is far along in the development process, we urge the CEC to consider updating these values so that they create an even playing field for electric and mixed-fuel homes. As a potential solution, the CEC could develop the Tier 1 values by applying the same measures (e.g. TOU-controlled battery only) to both the mixed-fuel and electric prototypes, rather than applying a larger PV-system to the electric prototype, but not the mixed-fuel prototype.

We appreciate the opportunity to submit these comments.

Sincerely,

Pierre Delforge
Natural Resources Defense Council
111 Sutter St, 21st Floor
San Francisco, CA 94104
(415) 875-6100
pdelforge@nrdc.org