CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512
www.energy.ca.gov

California Energy Commission
DOCKETED
15-CALG-01
TN 76421
DEC 03 2015

NINE-POINT-CRITERIA ANALYSIS

ADOPTED BUILDING STANDARDS OF THE CALIFORNIA ENERGY COMMISSION:

CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 11 (CALIFORNIA GREEN BUILDING STANDARDSCODE)

CALIFORNIA ENERGY COMMISSION DOCKET NUMBER 15-CALG-01: 2016 CALIFORNIA GREEN BUILDING STANDARDS

OCTOBER 14, 2015

Building standards submitted to the California Building Standards Commission (CBSC) for approval are required, by Health and Safety Code section 18930, subdivision (a), to be accompanied by an analysis which will, to the satisfaction of the CBSC, justify their approval. This document is the required analysis for the California Energy Commission's proposed updates to its voluntary building standards or energy efficiency recommendations, in Part 11 of Title 24, which were adopted by the Energy Commission on October 14, 2015.

Summary of the Adopted Standards

The Green Building Standards in Part 11 of Title 24 (also known as the CALGreen Code or CALGreen Standards) are composed of several chapters, some of which apply to all buildings and all types of construction, while others apply to specified subsets. Part 11 is further divided into mandatory measures that must be met by a qualifying building (primarily specifying the other Parts and Sections of Title 24 that apply) and voluntary or reach measures that are not mandatory unless adopted by a local jurisdiction. The Energy Commission is responsible for adopting both mandatory and voluntary energy provisions in Part 11 of Title 24 with other state agencies being responsible for approving and adopting the other portions of Part 11. The Energy Commission is responsible for adopting the energy provisions found in the following sections of Part 11:

- Chapter 4, Division 4.2, Section 4.201 states that the Energy Commission will adopt mandatory standards for residential green buildings through its adoption of Part 6 of Title 24.

- Chapter 5, Division 5.2, Section 5.201 states that the Energy Commission will

adopt mandatory standards for nonresidential green buildings through its adoption of Part 6 of Title 24

- Appendix A4, Division A4.2 describes the voluntary energy provisions for residential buildings that may only become mandatory when adopted by a local jurisdiction.

- Appendix A5, Division A5.2 describes the voluntary energy provisions for nonresidential buildings that may only become mandatory when adopted by a local jurisdiction.

The California Energy Commission adopted deletions, additions, and amendments solely to the voluntary provisions in Appendices 4 and 5. These voluntary provisions apply to residential, nonresidential, high-rise residential, and hotel and motel buildings. The Energy Commission has a separate process which allows local adoption of energy standards that are more stringent than the statewide Standards.[1]

The Energy Commission adopted these standards under the authority established by the Warren-Alquist State Energy Resources Conservation and Development Act, in the following sections of the Public Resources Code sections 25218, subdivision (e), 25402, 25402.1, 25402.4, 25402.5, 25402.5.4, 25402.8, 25910, and 25943, and Health and Safety Code sections 18930.5 and 18941.5.

The standards implement, interpret and make specific the Warren-Alquist Act, in the following sections of the Public Resources Code Sections 25402, subdivision (a)-(c), 25402.1, 25402.4, 25402.5, 25402.5.4, 25402.8, 25910, and 25943, and Health and Safety Code sections 18930.5 and 18941.5.

Prior to the start of the formal rulemaking, the Energy Commission filed with the CBSC on January 27, 2015, the following:

- A Notice of Proposed Action (NOPA), which described the proceeding, summarized the proposed Standards, and explained how interested persons could participate;

- An Economic and Fiscal Analysis (Form 399);

- An Initial Statement of Reasons (ISOR), which presented the rationales for the Standards; and

- Proposed Express Terms (45-Day Language) of the 2016 CALGreen Standards.

---

[1] Public Resources Code, § 25402.1, subd. (h); Cal. Code Regs., tit. 24, pt. 1, ch. 10, §§ 10-106, 10-110. For a description of the process of adopting local ordinances that exceed the requirements of Title 24, Parts 1 and 6 see: http://www.energy.ca.gov/title24/2013standards/ordinances/#process.

The CBSC subsequently submitted the necessary materials to the Office of Administrative Law on February 4, 2015. On that same date, the Energy Commission published the above referenced documents on the Energy Commission website. The OAL published the NOPA in the California Regulatory Notice Register on February 13, 2015, beginning the formal rulemaking phase, and at that time the Commission began to receive comments on the proposed CALGreen Standards.

In response to the comments, on May 26, 2015 the Energy Commission published revisions to the 45-Day Language. Those revisions, called 15-Day Language, were also made available for public comments.

The Energy Commission presented the proposed 2016 CALGreen Standards to the Green Code Advisory Committee on August 25, 2015. The Committee reviewed the technical merit of building standards proposed by the Energy Commission, and provided its recommendations to the CBSC.

The Energy Commission adopted the proposed 2016 California Green Building Standards at a October 14, 2015 public hearing. The 2016 CALGreen Standards will go into effect on January 1, 2017, if they are approved by the California Building Standards Commission.

1) The proposed building standards do not conflict with, overlap, or duplicate other building standards.

There is no overlap or duplication with other regulations because the Energy Commission is the only state agency authorized to set efficiency standards for buildings, and for the same reason there should be no conflict with other building standards (i.e., no situation in which it is impossible to comply with both an Energy Commission standard and another building standard). For example, considering the lighting energy efficiency standards and the electrical code:

- There are no conflicts between the Energy Code and the Electrical Code on lighting requirements. The Electrical Code requires illumination to be provided for all working spaces, whereas the Energy Code has requirements on the allowable maximum amount of lighting power to be used for the building space and also how the lighting system shall be controlled and switched.

- There are no conflicts between the Energy Code and Electrical Code on receptacle requirements. The Electrical Code contains requirement of the whereabouts of receptacles whereas the Energy Code contains the requirements for controlled receptacles for spaces including private offices, open office areas, reception lobbies, conference rooms, kitchenette in office spaces, copy rooms, hotel and motel guest rooms.

- There are no conflicts between the Energy Code and Building Code on egress lighting requirements. The Building Code contains means of egress requirement

and the Energy Code contains exception for means of egress for lighting area controls and shut-OFF controls.

Additionally, Part 1, Chapter 10, Article 1, Section 10-101(b) of the Standards explicitly states that nothing in them lessens any necessary qualifications or responsibilities of licensed or registered building professionals or other designers or builders, or the duties of enforcement agencies that exist under state or local law. Nothing in the record shows otherwise.

Finally, the California Energy Commission adopted deletions, additions, and amendments solely to the voluntary provisions in Appendices 4 and 5 of Part 11. These voluntary provisions in and of themselves do not have the force and effect of law. Local jurisdictions adopting these voluntary provisions as mandatory local energy efficiency standards shall submit the required application and receive the required approval of the California Energy Commission in compliance with Title 24, Part 1, Section 10-106, prior to enforcement. Once approval is granted by the Energy Commission, local jurisdictions shall file an ordinance expressly marking the local modification along with findings submit their application and receive the required acceptance from the California Building Standards Commissions in compliance with Title 24, Part 11, Section 101.7, prior to enforcement.

2) The proposed building standards are within the parameters established by enabling legislation and are not expressly within the exclusive jurisdiction of another agency.

The California Energy Commission has statutory authority under Public Resources Code sections 25213, 25402, 25402.1, 25402.4, 25402.5, 25402.8, and 25910 to promulgate and update energy efficiency standards for residential and nonresidential buildings, including both newly constructed buildings and additions and alterations to existing buildings. The Energy Commission is the only state agency with the authority to set efficiency standards for buildings. The Building Standards Law allows agencies in addition to the Building Standards Commission to adopt CalGreen provisions.[2] Nothing in the record shows otherwise. No commenter suggested otherwise.

3) The public interest requires the adoption of the building standards.

The Building Standards Law states that the "public interest includes, but is not limited to, health and safety, resource efficiency, fire safety, seismic safety, building and building system performance, and consistency with environmental, public health, and accessibility statutes and regulations." (Health & Safety Code, section 18930, subd. (a)(3).). The 2016 CALGreen voluntary efficiency provisions are in the public interest, increase resource efficiency, building and building system performance, and are consistent with environmental, public health and accessibility statutes and regulations.

[2] Health and Safety Code, §§ 18930.5, 18941.5.

When the Legislature created the Energy Commission over forty years ago, it stated that the California economy, and indeed the well-being of all California citizens, depends on an adequate, reasonably-priced, and environmentally-sound supply of energy.[3] The Legislature also stated that growth in electricity demand has strained the reliability of California's electricity system, created potential environmental stresses, and contributed to a substantial rise in electricity prices.[4] Finally, the Legislature recognized that improvements in energy efficiency are among the most cost-effective and environmentally-friendly methods to help bring demand and supply into balance.[5] These facts remain as true today as they were then, and they make clear that adoption of the 2016 CALGreen voluntary provisions is in the public interest.

The 2016 CALGreen voluntary provisions will continue to improve upon the existing Building Energy Efficiency Standards and continue to address policy directives that influenced the past updates. These policy directives include:

- The 2003 Energy Action Plan (EAP) which established a "loading order" of energy resources and strategies to address the State's growing energy demands (through conservation and energy efficiency to minimize energy demand first, followed by electricity generation from renewable energy resources and distributed generation).[6]

- The Climate Action Initiative (Executive Order S-3-05, June 2005) which sets greenhouse gas (GHG) emission reduction targets for California, as follows: by 2020, reduce GHG emissions to 1990 levels, and by 2050, reduce GHG emissions to 80 percent below 1990 levels.

- Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006 (Assembly Bill 32, Núñez, Stats. 2006, Ch. 488) codified the 2020 GHG emission reduction target into law. AB 32 requires the Air Resources Board (ARB) to report and verify statewide greenhouse gas emissions. The Act further requires that the ARB, in coordination with other State agencies, achieve the maximum technologically feasible and cost-effective GHG emission reductions, setting the stage for the State's transition to a sustainable, clean energy future. Improving the energy efficiency of buildings is the single most important activity to reduce greenhouse gas emissions in the electricity and natural gas sectors. Thus expanding and strengthening building standards is a key recommendation of the Climate Change Proposed Scoping Plan.[7] Proposed strategies include zero net energy buildings, more stringent building codes and appliance efficiency standards, broader standards for new types of appliances and for water efficiency, improved compliance and enforcement of existing standards, and

[3] Pub. Resources Code, § 25001; see also § 25300, subd. (a).
[4] See Pub. Resources Code, § 25002.
[5] See Pub. Resources Code, §§ 25001, subds. (a) & (b), 25007.
[6] http://www.energy.ca.gov/energy_action_plan/2003-05-08_ACTION_PLAN.PDF.
[7] http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf

voluntary efficiency and green building targets beyond mandatory codes.

- The Energy Commission's 2011 Integrated Energy Policy Report (IEPR) includes many greenhouse gas emission reduction and energy efficiency strategy recommendations.[8] Energy efficiency is identified as the first strategy for accomplishing significant greenhouse gas reduction targets because it is a fast and inexpensive solution. The 2011 IEPR reiterated the statewide goal that new building standards achieve zero net energy levels by 2020 for residences and by 2030 for commercial buildings.

- The California Public Utility Commission's (CPUC) California Long Term Energy Efficiency Strategic Plan, endorses the Energy Commission's zero net energy goals for all newly constructed homes by 2020, and 2030 for all newly constructed commercial buildings.[9] The Investor Owned Utilities (IOUs) authored the plan under the direction of the CPUC, and these utilities are now developing public goods incentive programs for the 2013-2015 program period that support the implementation of this strategic plan.

- Governor Brown's Clean Energy Jobs Plan establishes the priorities of his Administration to aggressively pursue clean energy jobs in California through renewable energy and energy efficiency, extending the success of programs established in his first Administration and the ensuing 30 years, which have triggered innovation and creativity in the market. The Clean Energy Jobs Plan calls for the development of 12,000 megawatts of localized, renewable electric generation by 2020, new energy efficiency standards for buildings to achieve dramatic energy savings, creating a path for making newly constructed residential and commercial buildings "zero net energy" through high levels of energy efficiency combined with onsite renewable electric generation, stronger appliance standards for lighting, consumer electronics and other products, in conjunction with increased public education and enforcement efforts so the gains promised by the efficiency standards are in fact realized.[10]

- The Air Resource Board, Energy Commission, CPUC, the California Environmental Protection Agency (CalEPA) and the Independent System Operator collaborated in 2008 to develop California's Clean Energy Future Vision, accompanied by an implementation plan[11] and roadmap[12]. California's Clean Energy Future underscored the need to continue investing in energy efficiency and clean technologies to maintain California's leadership as the most energy efficient and forward-thinking state in the nation. The document integrates

---

[8] http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf
[9] http://www.cpuc.ca.gov/NR/rdonlyres/A54B59C2-D571-440D-9477-3363726F573A/0/CAEnergyEfficiencyStrategicPlan_Jan2011.pdf
[10] http://gov.ca.gov/docs/Clean_Energy_Plan.pdf
[11] http://www.cacleanenergyfuture.org/documents/CCEFImplementationPlan.pdf
[12] http://www.cacleanenergyfuture.org/documents/CCEFRoadmap.pdf

energy efficiency with the monumental effort required to attain California's renewable energy and other environmental objectives. California's Clean Energy Future re-confirmed energy efficiency as California's top priority electric generation resource, and identified renewable energy as the electric generation supply-side resource of choice. The document identified the major two goals for energy efficiency as 1) achieving zero net energy in newly constructed residential and commercial buildings, and 2) decreasing energy consumption by 30 to 70 percent in existing residential and commercial buildings. The Building Energy Efficiency Standards play a major role in achieving these goals.

- Executive Order B-18-12, April 25, 2012[13] and its accompanying Green Building Action Plan[14] which set more stringent energy efficiency, renewable on-site generation, and greenhouse gas emission and water consumption reduction requirements for State agencies and State buildings as follows:

    - State agencies, departments, and other entities under direct executive authority take actions to reduce entity-wide greenhouse gas emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline.

    - New State buildings and major renovations beginning design after 2025 must be constructed as Zero Net Energy facilities with an interim target for 50% of new facilities beginning design after 2020 to be Zero Net Energy.

    - State agencies shall take measures toward achieving Zero Net Energy for 50% of the square footage of existing state-owned building area by 2025.

    - State agencies continue taking measures to reduce grid-based energy purchases for State-owned buildings by at least 20% by 2018, as compared to a 2003 baseline, and reduce other non-building, grid-based retail energy purchases by 20% by 2018, as compared to a 2003 baseline.

    - Proposed new or major renovation of State buildings larger than 10,000 square feet use clean, on-site power generation, such as solar photovoltaic, solar thermal and wind power generation, and clean back-up power supplies, if economically feasible.

    - New and existing State buildings incorporate building commissioning to facilitate improved and efficient building operation.

    - State agencies identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new and existing buildings.

[13] http://gov.ca.gov/news.php?id=17508
[14] http://gov.ca.gov/docs/Green_Building_Action_Plan_B.18.12.pdf

- State agencies reduce overall water use at the facilities they operate by 10% by 2015 and by 20% by 2020, as measured against a 2010 baseline.

All of these enactments and policy statements demonstrate that the energy efficiency advances that will be produced by the 2016 CALGreen voluntary provisions are important to the state's energy reliability and economic and environmental health.

No comment in the Energy Commission's rulemaking proceeding asserted that the public interest will not be served by the adoption of the proposed 2016 CALGreen voluntary provisions. Some comments opposed, or recommend changes in, specific voluntary provisions for various reasons. Those comments, and the Commission's responses to them, are thoroughly discussed in the Comments & Responses section of the Final Statement of Reasons for the rulemaking, which is being submitted to the Building Standards Commission as part of the entire package that includes this 9-Point-Criteria Analysis.

4) The proposed building standards are not unreasonable, arbitrary, unfair, or capricious, in whole or in part.

The record of the Energy Commission's rulemaking proceeding demonstrates that the 2016 CALGreen voluntary provisions are not unreasonable, arbitrary, unfair, or capricious, in whole or in part. As was just discussed in section 3 of this Analysis, the CALGreen voluntary provisions respond to the mandates of the Warren-Alquist Act, the Global Warming Solutions Act of 2006, California's Energy Action Plan 2008 Update, the California Energy Efficiency Long-Term Strategic Plan, the 2011 Integrated Energy Policy Report, the California's Clean Energy Futures Initiative, and Governor Brown's Clean Energy Jobs Plan.

The express terms of the 2016 CALGreen voluntary provisions and the process through which the language was adopted (including the voluminous comments, both supporting the voluntary provisions and suggesting edits which were incorporated into the final proposal), show that this criterion was met. Some comments suggested additional measures or revisions to existing language, or challenged, or proposed modifications to various provisions. The Energy Commission analyzed such comments fully and either accepted the changes proposed by the comments or determined that the comments were invalid. For a complete discussion of the comments, see the Comments & Responses section of the Final Statement of Reasons for the rulemaking, which is submitted to the Building Standards Commission as part of the entire rulemaking package.

5) The cost to the public is reasonable, based on the overall benefit to be derived from the building standards.

The Energy Commission adopted deletions, additions, and amendments solely to the voluntary provisions in Appendices 4 and 5 of Part 11. These voluntary provisions in and of themselves do not have the force and effect of law. Local jurisdictions adopting these voluntary provisions as mandatory local energy efficiency standards are

required to submit an application and receive approval of the California Energy Commission prior to enforcement. CALGreen Chapter 1, Section 101.7.1 notes that the city, county, or city and county shall obtain California Energy Commission approval for any energy related ordinances consistent with Public Resources Code (PRC) Section 25402.1(h)(2) and Title 24, Part 1, Section 10-106.

The noted PRC Section 25402.1(h)(2) states:

> The enforcement of city or county energy conservation or energy insulation standards, whenever adopted, with regard to residential and nonresidential buildings on which actual site preparation and construction have not commenced prior to the effective date of rules and regulations adopted pursuant to subdivisions (a) and (b) of Section 25402 and this section, if the city or county files the basis of its determination that the standards are cost effective with the commission and the commission finds that the standards will require the diminution of energy consumption levels permitted by the rules and regulations adopted pursuant to those sections. If, after two or more years after the filing with the commission of the determination that those standards are cost effective, there has been a substantial change in the factual circumstances affecting the determination, upon application by any interested party, the city or county shall update and file a new basis of its determination that the standards are cost effective. The determination that the standards are cost effective shall be adopted by the governing body of the city or county at a public meeting. If, at the meeting on the matter, the governing body determines that the standards are no longer cost effective, the standards shall, as of that date, be unenforceable and no building permit or other entitlement shall be denied based on the noncompliance with the standards.

Title 24, Part 1, Section 10-106 requires:

> 10-106. Locally adopted energy standards.
> (a) Requirements. Local governmental agencies may adopt and enforce energy standards for newly constructed buildings, additions, alterations, and repairs provided the Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by Part 6. Such local standards include, but are not limited to, adopting the requirements of Part 6 before their effective date, requiring additional energy conservation measures, or setting more stringent energy budgets. Local adoption of the requirements of Part 6 before their effective date is a sufficient showing that the local standards meet the requirements of this section and Section 25402.1(f)(2) of the Public Resources Code; in such a case only the documentation listed in Section 10-106(b), and a statement that the standards are those in Part 6, need be submitted.
> (b) Documentation application. Local governmental agencies wishing to enforce locally adopted energy conservation standards shall submit four copies of an application with the following materials to the Executive Director:

1. The proposed local energy standards.
2. A study with supporting analysis showing how the local agency determined energy savings.
3. A statement that the local standards will require buildings to be designed to consume no more energy than permitted by Part 6.
4. The basis of the agency's determination that the standards are cost effective.

In summary, local governmental agencies may adopt and enforce energy standards for newly constructed buildings, additions, alterations and repairs, provided the California Energy Commission finds that the standards will require buildings to be designed to consume no more energy than permitted by Part 6. Such local standards include, but are not limited to, adopting the requirements of Part 6 before their effective date, adopting CALGreen voluntary provisions in whole or in part, requiring additional energy conservation measures, or setting more stringent energy budgets. Once approval is granted by the Energy Commission, local jurisdictions shall file an ordinance expressly marking the local modification along with findings submit their application and receive the required acceptance from the California Building Standards Commissions in compliance with Title 24, Part 11, Section 101.7, prior to enforcement.

The number of local jurisdictions that may choose to adopt CALGreen voluntary provisions is unknown and unknowable, as is the extent to which any local jurisdictions choose to adopt them as they may be adopted in whole or in part by the local jurisdiction. Therefore, to the extent that the voluntary provisions do not mandate but nonetheless encourage adoption of efficiency ordinances by local jurisdictions, the effective costs and benefits associated with the CALGreen provisions are unknown and unknowable. However, the local agency approval processes and requirements insure that whatever is adopted will be cost effective for the community.

There was some discussion about the cost effectiveness of the CALGreen voluntary provisions during the Energy Commission's rulemaking proceeding. The Energy Commission's assessments of the applicable comments are discussed in the Comments & Responses section of the accompanying Final Statement of Reasons.

6) The proposed building standards are not unnecessarily ambiguous or vague, in whole or in part.

Throughout the one-and-a-half-year rulemaking process, the Energy Commission made many changes to proposed draft language to ensure clarity, as well as proposed changes to existing language to improve clarity. Any proposals suggesting clarity improvements that were rejected by the Commission are discussed in the Comments & Responses section of the FSOR. There were no comments on the 15-Day Language regarding unnecessary ambiguity or vagueness.

7) The applicable national specifications, published standards, and model codes have been incorporated into the proposed Building Standards as

required by the State Building Standards Law, where appropriate.

There are no federal laws applicable to nonfederal buildings in their entirety. The Energy Commission adopted deletions, additions, and amendments solely to the voluntary provisions in Appendices 4 and 5. Nothing in the realm of mandatory national specifications, standards or model codes would be appropriate for inclusion in voluntary provisions that exceed one of the strictest building energy efficiency codes in the Nation.[15]

No comments received during the rulemaking proceeding addressed the incorporation of various specifications, standards, and codes into the CALGreen voluntary provisions.

8) The format of the proposed building standards is consistent with that adopted by the Building Standards Commission.

The 2016 CALGreen voluntary provisions continue to use the format of the other building standards in the State Building Code. Nothing in the record suggests otherwise.

9) The proposed building standards, if they promote fire and panic safety, as determined by the State Fire Marshal, have the written approval of the State Fire Marshal.

The Energy Commission obtained the approval of the State Fire Marshal for the 2016 Standards. The State Fire Marshall has determined that the proposed 2016 Building Energy Efficiency Standards do not promote fire or panic safety. This document is included in the record (see document #75653).

[15] http://database.aceee.org/state/buildings-summary