

**CALIFORNIA ENERGY COMMISSION**

1516 Ninth Street Sacramento, California 95814

Main website: [www.energy.ca.gov](http://www.energy.ca.gov)**NOTICE OF PROPOSED ACTION****PROPOSED REVISIONS TO THE CALIFORNIA BUILDING  
ENERGY EFFICIENCY STANDARDS  
CALIFORNIA CODE OF REGULATIONS, TITLE 24,  
PART 1, CHAPTER 10, and PART 6  
(CALIFORNIA ENERGY CODE)****2016 BUILDING ENERGY EFFICIENCY STANDARDS  
California Energy Commission  
DOCKET NO. 15-BSTD-01  
FEBRUARY 13, 2015**

California Energy Commission

**DOCKETED****15-BSTD-01****TN # 74428****JAN 30 2015****INTRODUCTION**

Notice is hereby given that the California Energy Commission proposes to adopt changes to the Building Energy Efficiency Standards contained in the California Code of Regulations (CCR), Title 24, Part 6 (also known as the California Energy Code), and associated administrative regulations in Chapter 10 of Part 1. The proposed amended standards are called the "2016 Building Energy Efficiency Standards" (Standards) and will go into effect on January 1, 2017.

The Energy Commission has prepared this Notice of Proposed Action (NOPA) and an Initial Statement of Reasons (ISOR) regarding the need for the proposed revisions. The Energy Commission has also published the Express Terms (45-Day Language) of the proposed amendment language. These documents can be obtained from the contact persons designated below or from the Energy Commission website at: [www.energy.ca.gov/title24/2016standards/rulemaking/](http://www.energy.ca.gov/title24/2016standards/rulemaking/).

**PUBLIC COMMENT PERIOD AND HEARINGS**

The Energy Commission's Energy Efficiency Lead Commissioner will hold public hearings to receive public comments on the proposed action. At these hearings, any person may present statements or arguments relevant to the proposed regulatory action summarized below. The proposed language (45-Day Language Express Terms) is posted on the Energy Commission's website at: [www.energy.ca.gov/title24/2016standards/rulemaking/](http://www.energy.ca.gov/title24/2016standards/rulemaking/).

The 45-Day Language Express Terms are also available from the Energy Commission's Building Standards Office (contact persons are listed later in this NOPA). The Energy Efficiency Lead Commissioner Hearings to discuss the 45-Day Language are scheduled as follows:

**March 2 and March 3, 2015**

9:00 a.m.

CALIFORNIA ENERGY COMMISSION

Art Rosenfeld Hearing Room (formerly Hearing Room A)

1516 Ninth Street

Sacramento, California

(Wheelchair Accessible)

The Energy Efficiency Lead Commissioner Hearing will be held on the first date listed. The Energy Efficiency Lead Commissioner Hearing may continue on the second date listed, as necessary.

Audio for the Energy Efficiency Lead Commissioner Hearings will be broadcast over the internet. For details, please go to: [www.energy.ca.gov/webcast](http://www.energy.ca.gov/webcast).

If you have a disability and require assistance to participate in these hearings, please contact Lou Quiroz at (916) 654-5146 at least 5 days in advance.

A hearing before the full Energy Commission, for possible final adoption of the 45-Day Language Express Terms will be held on the date below; however, if the Energy Commission decides to make substantive changes to the Express Terms through 15-Day Language, the public hearing may be continued to a later noticed date.

## **PROPOSED ADOPTION DATE – FULL ENERGY COMMISSION HEARING**

**APRIL 8, 2015**

10 a.m.

CALIFORNIA ENERGY COMMISSION

Art Rosenfeld Hearing Room (formerly Hearing Room A)

1516 Ninth Street

Sacramento, California

(Wheelchair Accessible)

Audio for the April 8, 2015, ENERGY COMMISSION HEARING will be broadcast over the internet. For details, please go to: [www.energy.ca.gov/webcast](http://www.energy.ca.gov/webcast).

If you have a disability and require assistance to participate in these hearings, please contact Lou Quiroz at (916) 654-5146 at least 5 days in advance.

If the Energy Commission decides to propose 15-Day Language modifications to the Express Terms, a separate notice of the adoption hearing for the 15-Day Language will be provided.

**The public comment period for the 2016 Building Energy Efficiency Standards will begin February 13, 2015, and end at 5:00 p.m. on March 30, 2015.** Any interested person may submit written comments on the proposed amendments. Regarding the Energy Efficiency Lead Commissioner and Adoption Hearings, the Energy Commission requests written comments at the earliest possible date: for the March 2 and 3, 2015 hearings, please provide written comments by March 17, 2015. However, written comments will still be accepted if they are received by 5:00 p.m. on March 30, 2015. Written comments must be emailed to [Docket@energy.ca.gov](mailto:Docket@energy.ca.gov) or mailed or delivered to the following address (emailing is preferred):

CALIFORNIA ENERGY COMMISSION

Attention: Docket No. 15-BSTD-01

Dockets Office

1516 Ninth Street, MS-4

Sacramento, CA 95814

**All written comments must contain the official number of the proceeding “Docket No. 15-BSTD-01,”** prominently displayed on the first page. When comments are emailed on behalf of an organization, the comments should be a scanned copy of the original on the organization’s letterhead and include a signature of an authorized representative.

Written comments may also be filed electronically by emailing [adrian.ownby@energy.ca.gov](mailto:adrian.ownby@energy.ca.gov) or faxing them to (916) 654-4304, as long as they are received no later than March 30, 2015, at 5:00 p.m.

**Oral comments may be made at the Energy Efficiency Lead Commissioner hearing(s).** In addition, oral comments may be made at the April 8, 2015, Full Commission Adoption Hearing.

## POTENTIAL POST-HEARING MODIFICATIONS TO THE TEXT OF THE REGULATIONS

Interested persons should be aware that any of the provisions of the amendments under consideration by the Energy Commission could be substantively changed as a result of public comment, staff recommendations, or discussions at the Energy Efficiency Lead Commissioner or Full Commission Hearings. The proposed regulations could be changed, withdrawn, or replaced with different proposals. If the Energy Commission makes substantive changes to the 45-Day Language Express Terms that a reasonable person could have anticipated could be made as within the scope of this NOPA, the Energy Commission will make the full text of the modified amendments available to the public at least 15 days before adoption, as required by Government Code 11346.8. (Changes outside the scope of the NOPA must be made in new 45-day language.)

**To be notified of any modifications, please sign-up on the Building Standards list-serve to be informed of ongoing activities regarding the 2016 Update.** You can sign up for this list-serve here: <http://www.energy.ca.gov/efficiency/listservers.html>.

## AUTHORITY AND REFERENCE

The Energy Commission proposes to adopt the Express Terms under the authority granted by Public Resources Code Sections 25213, 25402, subdivisions (a)-(b), 25402.1, 25402.4, 25402.5, 25402.8, 25910, 25942, and 25943.

The Energy Commission proposes to adopt the Express Terms in order to implement, interpret, or make specific Public Resources Code Sections 25402, subdivisions (a)-(b), 25402.1, 25402.4, 25402.5, 25910, 25942, and 25943.

## INFORMATIVE DIGEST

### A. Summary of Existing Laws and Regulations and Policy Overview

Public Resources Code Sections 25402 and 25402.1 were enacted in the 1970s as part of the enabling legislation establishing the Energy Commission and its basic mandates. These sections require the Energy Commission to adopt, implement, and periodically update energy efficiency standards for both residential and nonresidential buildings. In addition, Public Resources Code Section 25910 directs the Energy Commission to adopt standards for the minimum amount of additional insulation installed in existing buildings. Senate Bill (SB) 639 (Statutes of 1993) added Section 25402.5, which expressly directs the Energy Commission to consider both new and replacement, and both interior and exterior, lighting devices when adopting building standards. SB 5X (Statutes of 2001) added subsection (c) to Section 25402.5 to clarify and expand the Energy Commission's authority to adopt standards for outdoor lighting.

The Global Warming Solutions Act (Assembly Bill (AB) 32, Núñez, Chapter 488, Statutes of 2006) has been the foundation of California's efforts over the past five years to reduce greenhouse gas emissions (GHG); AB 32 requires that by 2020 the state reduce its GHG emissions to the level that existed in 1990. *Improving the energy efficiency of existing residential and commercial buildings is the single most important activity to reduce greenhouse gas emissions that result from electricity and natural gas use.* The Energy Commission's 2007 Integrated Energy Policy Report (IEPR), which is California's official statement of the state's energy policy, concludes that climate change is the single most important environmental and economic challenge of the century, that greenhouse gas emissions are the largest contributors to climate change, and that California's ability to slow the rate of greenhouse gas emissions will depend first on energy efficiency.

Similarly, the California Long-Term Energy Efficiency Strategic Plan (2008) adopted by the California Public Utilities Commission (CPUC) identifies the importance of the Energy Commission's Building

Energy Efficiency Standards in reaching the State's goal of having new homes be "zero net energy" buildings by 2020 and of having commercial buildings be "zero net energy" buildings by 2030<sup>1</sup>. Governor Brown's Clean Energy Jobs Plan (2010) combines existing state energy policy with economic recovery and growth goals by focusing on developing renewable energy and energy efficiency technologies and creating more than half a million green jobs. In the area of building efficiency, the Governor's Plan calls for:

- Adopting stronger appliance standards for lighting, consumer electronics, and other products;
- Creating new efficiency standards for new buildings;
- Increasing public education and enforcement efforts so that the gains promised by California's efficiency standards are realized;
- Adopting a plan for achieving "zero-net-energy" homes and businesses;
- Making existing buildings more efficient, especially the half of California homes that were built before the advent of modern building standards; and
- Providing information to commercial investors and homebuyers by disclosing building energy consumption prior to building sale.

The Energy Commission's Integrated Energy Policy Report (2013) includes an energy efficiency chapter that emphasizes the zero net energy policy goals for the state's residential and nonresidential buildings. It articulates how the Building Energy Efficiency Standards, including Reach Standards, will be updated periodically to attain the aggressive levels of energy efficiency required to make zero net energy buildings cost-effective for consumers.

The 45-Day Language Express Terms described in this NOPA are designed to comply with and meet all of these state laws and policies. To summarize:

As required by law, the proposed Standards are cost-effective to consumers (that is, the energy bill savings over the life of the building will be much greater than any increased construction costs that will result from the Standards).

The proposed Standards take a crucial step in meeting the 2020 and 2030 zero net energy goals; if adopted, they will advance new residential buildings closer to achieving California's goal of having all new residential buildings be zero net energy by 2020. They will also advance California's requirements for nonresidential buildings in a manner that harmonizes California with national nonresidential building standards, ensuring California neither lags behind nor departs from the national work of the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) and the U.S. Department of Energy.

By saving large amounts of energy, the Standards will make a major contribution in meeting the state's goals for reductions in greenhouse gas emissions.

By making buildings more affordable to own and operate, the Standards will encourage investment in new construction, make more capital available for other investments, stimulating economic growth, and create new jobs.

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<sup>1</sup> "A Zero-Net-Energy Code Building is one where the net amount of energy produced by on-site renewable energy resources is equal to the value of the energy consumed annually by the building, at the level of a single "project" seeking development entitlements and building code permits, measured using the California Energy Commission's Time Dependent Valuation (TDV) metric. A Zero Net Energy Code Building meets an Energy Use Intensity value designated in the Building Energy Efficiency Standards by building type and climate zone that reflects best practices for highly efficient buildings." 2013 *Integrated Energy Policy Report*, p.5.

## **B. Summary of Existing Regulations**

The Standards were first adopted in 1976 and have been updated periodically since then as directed by statute. In 1975 the Department of Housing and Community Development adopted rudimentary energy conservation standards under their State Housing Law authority, that were a precursor to the first generation of the Standards. However, the Warren-Alquist Act was passed one year earlier with explicit direction to the Energy Commission (formally titled the State Energy Resources Conservation and Development Commission) to adopt and implement the Standards. The Energy Commission's statute created separate authority and specific direction regarding what the Standards are to address, what criteria are to be met in developing the Standards, and what implementation tools, aids, and technical assistance are to be provided.

The Standards contain energy and water efficiency requirements (and indoor air quality requirements) for newly constructed buildings, additions to existing buildings, and alterations to existing buildings. Public Resources Code Sections 25402 subdivisions (a)-(b) and 25402.1 emphasize the importance of building design and construction flexibility by requiring the Energy Commission to establish performance standards, in the form of an "energy budget" in terms of the energy consumption per square foot of floor space. For this reason, the Standards include both a prescriptive option, allowing builders to comply by using methods known to be efficient, and a performance option, allowing builders complete freedom in their designs provided the building achieves the same overall efficiency as an equivalent building using the prescriptive option. The Standards have done so since 1976 and the 45-Day Language Express Terms described in this NOPA will do the same if adopted.

Public Resources Code Section 25402.1 also requires the Energy Commission to support the performance standards with compliance tools for builders and building designers. Thus in its Alternative Calculation Method (ACM) Approval Manuals, which are adopted by regulation in support of the Standards, and which are described in more detail below, the Energy Commission establishes requirements for input, output and calculational uniformity in computer programs that are used to demonstrate compliance with the Standards. The ACM Manuals thereby allow private firms to develop compliance software for approval by the Energy Commission, which further encourages flexibility and innovation.

The Energy Commission also adopts Reference Appendices that contain data and other information that helps builders comply with the Standards.

The Standards are divided into three basic sets. First, there is a basic set of mandatory requirements that apply to all buildings. Second, there is a set of performance standards – the energy budgets – that vary by climate zone (of which there are 16 in California) and building type; thus the Standards are tailored to local conditions. Finally, the third set constitutes an alternative to the performance standards, which is a set of prescriptive packages that are basically a recipe or a checklist compliance approach. A summary outline of the Standards is as follows:

- Mandatory requirements that apply to all building types are in Part 6, Sections 110.0 – 110.9.
- The requirements for nonresidential buildings, high-rise residential buildings, and hotels/motels are in Part 6, Sections 120.0 to 120.9 and 130.0 to 141.0. Specialized mandatory requirements for such buildings are in Sections 120.0 to 130.5; the performance compliance approach is explained in Section 140.1; nonresidential prescriptive packages are in Sections 140.2 to 140.9; and requirements for additions, alterations, and repairs to existing nonresidential buildings are in Section 141.
- The requirements for low-rise residential buildings are in Part 6, Sections 150.0 to 150.2. Specialized mandatory requirements for these buildings are in Section 150.0; the performance compliance approach is explained in Section 150.1; prescriptive packages are in Section 150.1; and requirements for additions and alterations to existing buildings are in Section 150.2.

- Additional direction relating to the Standards in Part 6 are in the Reference Appendices: the Residential Appendices, the Nonresidential Appendices, the Joint Appendices, and the Alternative Calculation Method Approval Manual.
- The administrative regulations for the Standards are in Part I, Chapter 10.
- The voluntary Reach Standards are in Part 11, the Green Building Standards (CALGreen).

## **C. Summary of the Proposed Regulations**

### Overview

The 2016 Standards focus on three key areas: updating requirements for low-rise residential buildings to move closer to California's zero net energy goal, updating nonresidential and high-rise residential requirements to better align with the national ASHRAE 90.1 standards, and updating the entirety of the existing Standards to improve clarity and consistency, correct errors, streamline requirements, or make adjustments to provisions in the regulations that were found to have unanticipated impacts.

In addition to updating the Standards in Title 24 Parts 1 and 6, the Energy Commission is also proposing updates to the CALGreen energy efficiency provisions in Title 24, Part 11, in a separate, parallel rulemaking.

The following is a list of the specific proposals currently included in the Draft Express Terms. Note that these proposals result from broad consideration of the three focus areas stated above, and the Energy Commission will consider any changes within these three areas as a part of this rulemaking.

### Residential

The proposed changes to the residential sections of the Standards include prescriptive options reflecting updates to building technologies and best practices. By incorporating these improvements, these Standards narrow the gap between current residential construction and what will be required in 2020 to ensure that all newly constructed residential buildings achieve zero net energy.

The proposed changes examine four aspects of newly constructed residential buildings, as follows:

- For attics, the current practice in residential building design is to place a majority of heating, ventilation, and air conditioning (HVAC) ducting in an uninsulated attic space. These spaces can reach temperature extremes at different times of the year, leading to significant energy losses (through unwanted warming or cooling of conditioned air) even when using insulated ducting.

For this reason, the 2016 Standards propose several prescriptive options for either moving HVAC ducts into conditioned spaces, placing attic insulation at the roof deck rather than above the ceiling, or sealing the attic similar to other rooms in the house. Any of these approaches may be applied, or builders may take an optional path of installing solar photovoltaics atop a more traditional vented, above-ceiling insulated attic.

In addition to these new prescriptive options, staff have determined that tighter air leakage requirements are both feasible and cost-effective in newly constructed residential buildings. As a result, the requirement for duct tightness has been adjusted from six percent to five percent air leakage.

- For walls, the proposed Standards update the U-factor<sup>2</sup> requirements to acknowledge several new cost-effective practices and insulation products. The Energy Commission has found that several approaches are available for meeting this proposed requirement.
- For lighting, the current Standards designate certain types of residential lighting as “high efficacy lighting”, and require a certain amount of high efficacy lighting within the home. The proposed Standards take the next step of requiring all of the lighting in newly constructed residential buildings to be high efficacy, while also expanding the types of lighting that qualifies as high efficacy lighting. This also allows the Standards to be streamlined to a significant extent while ensuring that a variety of lighting technologies and techniques are available to builders and contractors. As a part of this, Joint Appendix 8 has been rewritten to be technology neutral, and to apply to any technology intended to qualify as high efficacy lighting.
- For water heating, the proposed Standards add a prescriptive option for installation of a gas instantaneous (or “tankless”) water heater, and make this option the primary option considered. The prescriptive option for installing a gas storage water heater has been updated to include either installing a compact hot water distribution system or installing Home Energy Rating System (HERS) verified pipe insulation on all hot water piping.

Note that the proposed Standards also specify that when an instantaneous water heater is installed, isolation valves are required to be installed with such a heater.

#### Nonresidential

The proposed changes to the nonresidential sections of the Standards focus on updates that align with ASHRAE 90.1 (2013). These updates include:

- Revising the prescriptive opaque envelope requirements for nonresidential and high-rise residential buildings and relocatable classrooms. These requirements also provide the baseline requirements for the standard design building when using the performance approach.
- Updating and aligning values relating to required space conditioning efficiencies and lighting power allowances. (Note that staff have not included changes to match values specified in ASHRAE 90.1 that were not found to be feasible and cost-effective in California.)
- Revising nonresidential lighting control requirements.
- Adding requirements for elevators that ensure the lights and fans do not stay on while the cab is empty.
- Adding requirements for escalators and moving walkways in transit areas (e.g., airports, bus stations, etc.) to run at a lower, less energy-consuming speed when not in use.
- Adding requirements for mechanical systems shut off controls specifying that any directly-conditioned space with operable doors must be equipped with interlock switches that turn off the space conditioning equipment while the doors are open.
- Updating requirements for electrical power distribution systems relating to service metering, voltage drop, and disaggregation to align with ASHRAE 90.1, the latter of which aligns to the specifications for energy monitoring equipment found in ASHRAE 90.1.

In addition, staff have identified areas where it is feasible and cost-effective to establish a standard above the ASHRAE 90.1 standard. These include:

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<sup>2</sup> U-factor is the overall coefficient of thermal transmittance of a fenestration, wall, floor, or roof/ceiling component, in Btu/(hr x ft<sup>2</sup> x °F), including air film resistance at both surfaces.

- Lighting Power Allowances: The Energy Commission proposes a greater efficiency requirement for the installed lighting than that specified in ASHRAE 90.1.
- Elevator Cab Lighting: The Energy Commission proposes a greater efficiency requirement for the installed lighting than that specified in ASHRAE 90.1.
- Adding requirements for mechanical systems shutoff controls specifying that any directly-conditioned space with operable wall or roof openings (i.e., windows or skylights) must be equipped with interlock switches that turn off the space conditioning equipment while the openings are open.
- Direct digital controls were previously required to have specific features if/when installed, but were not required to be installed. The proposed Standards now require installation of direct digital controls and add specificity to the expected features and operation of those controls.

### Standards Cleanup

The proposed changes to the Standards also include changes throughout the regulations to clarify, simplify, and streamline the existing language and requirements. The most significant of these changes are the following:

- Acceptance Test Training and Certification – The changes to Title 24 Part 1, Section 10-103A and 10-103B clarify and streamline the approval process for Acceptance Test Training and Certification Providers. Of note, new provisions have been added to allow for amendment of a submitted application, meaning that changes to a submitted or approved application may be made without requiring a complete resubmittal.
- Commissioning – The changes to Title 24, Part 6, Section 120.8 clarify the applicability of building commissioning and correct the use of terms to be consistent with Title 24, Part 1, Section 10-103(a). Importantly, these changes also remove language that incorrectly implied that commissioning was required for alterations, or applied to covered processes. Matching corrections have been made where this Section is referenced in Section 100.0 Table 100-A, and Section 141.0.
- Nonresidential Lighting Alterations – The changes to Part 6, Section 141.0(b)2l simplify and streamline the requirements for lighting alterations. The terms “lighting alteration”, “lighting wiring alteration”, and “luminaire modification” are now clearly separated in what actions each term applies to. For luminaire modifications, the control requirements are being relaxed to require that existing multi-level or automatic shutoff controls remain operable in controlling the luminaires after they are modified, rather than requiring the installation of new multi-level or automatic controls.
- Alternative Calculation Method manuals – The changes to the Alternative Calculation Method manuals adopted as appendices to the Standards combine what was previously two largely identical manuals (for residential and nonresidential building modeling software) into a single manual. This manual provides more explicit and better organized requirements for the approval of compliance software. The requirements that apply to the Compliance Manager software developed by the Energy Commission are now clearly separated from the requirements for approval of vendor software and the requirements for vendor software user manuals. Two appendices have been added to the manual containing the evaluation criteria specific to residential and nonresidential software.
- Charge Indicator Displays – For residential HVAC equipment, the language relating to installation of Charge Indicator Displays has been updated to use the broader term Fault Indicator Displays, recognizing that a display may treat an incorrect charge as a fault while also being able to display other fault conditions or other information.



- Pipe Insulation – For hot water piping, the value for the required level of residential insulation was erroneously removed when the tables were merged in the 2013 update to the Standards. This separate value has been returned to Table 120.3-A.
- Economizers – The requirements for testing and certification of economizer damper leakage to the Energy Commission in order to be installed as part of the prescriptive performance approach of Section 140.4(e)4 have been clarified, and the language expanded to explicitly state who is expected to certify and what information must be provided. In addition, the specification that an economizer is required for each air handler was clarified to be more explicit in where it's applied.
- Electrical Power Distribution System – Circuit controls for 120v receptacle were clarified and moved to a separate section in 130.5 relating to electrical power distribution systems.
- Fault Detection and Diagnostics – References to pressure sensors were removed, and the word “unitary” removed as an unneeded term.

***IMPORTANT NOTE: These proposed changes are discussed in more detail in the Initial Statement of Reasons that is being published simultaneously with this NOPA.***

#### Specific Benefits Anticipated from the 2016 Standards

The proposed Standards are expected to save California residents and businesses hundreds of millions of dollars in energy costs over the next decade. These energy cost savings benefit the environment, due to the reductions in natural resource utilization and greenhouse gas emissions from energy production. The non-monetary benefits of the proposed Standards include more reliable ventilation and better thermal comfort for the health and welfare of building occupants. The proposed Standards also increase transparency in government by improving the clarity and increasing the simplicity of the Standards. In addition, the proposed Standards will help residential and nonresidential buildings reach California's zero net energy goals.

## **COMPARABLE FEDERAL STATUTES OR REGULATIONS**

There are no federal energy standards applicable to nonfederal buildings. (The current and proposed California Standards do, however, reference federal energy standards for particular *appliances*.)

## **CONSISTENCY AND COMPATIBILITY WITH EXISTING STATE REGULATIONS**

There is no inconsistency or incompatibility with existing state regulations.

## **OTHER MATTERS PRESCRIBED BY STATUTE APPLICABLE TO THE ENERGY COMMISSION, OR TO ANY SPECIFIC REGULATION OR CLASS OF REGULATIONS PROPOSED FOR ADOPTION**

All of the laws applicable to the proposed Standards, primarily Public Resources Code Sections 25402 and 25402.1, are discussed above.

## **POTENTIAL MANDATES ON LOCAL AGENCIES OR SCHOOL DISTRICTS**

The Energy Commission has determined that the proposed regulatory action would not impose a new mandate on local agencies. Existing law already obligates local building departments to serve as enforcement agencies for the Standards (see Public Resources Code Sections 25402(a)-(b), 25402.1). Existing law already requires compliance with the Standards as they apply to school buildings, and all other buildings, owned by local agencies (see California Code of Regulations, Title 24, Part I, Administrative Regulations of Department of School Administration). While the proposed Standards add requirements for schools and other building types owned by local agencies, those requirements are the

same as those applicable to all nonresidential buildings regardless of owner. Moreover, the proposed Standards recognize the unique characteristics of relocatable school buildings, and they establish procedures to facilitate compliance by relocatables. Finally, the Standards for schools, and for all other buildings, are cost effective, and they will thereby reduce the costs of building and operating school buildings over their useful life.

## ESTIMATE OF COSTS OR SAVINGS

See the Economic and Fiscal Analysis (Form 399), published simultaneously with this NOPA, for complete details. To summarize:

- A. ***Total statewide costs and benefits:*** The Standards are estimated to deliver \$4,016 million in benefits at a cost of \$1,034 million, for a cost-effectiveness ratio of 3.9 to 1.
- B. ***Cost or savings to any state agency:*** Buildings owned and occupied by state agencies are required to comply with the Standards, as are all other nonresidential buildings. State agencies will benefit from reduced energy bills that more than pay for the costs of the Standards.
- C. ***Cost to any local agency required to be reimbursed under Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code:*** The Standards do not result in new mandates to local agencies. Buildings owned and occupied by local agencies are required to comply with the Standards as any other nonresidential building. Local agencies will benefit from reduced energy bills that more than pay for the costs of the Standards.
- D. ***Cost to any school district required to be reimbursed under Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code:*** School buildings are covered by the Standards, and the Administrative regulations of the Division of the State Architect require public school buildings to comply with the Standards. Costs of complying with the Standards are not required to be reimbursed. Schools benefit from reduced energy bills, and these reductions fully offset the costs of the Standards over time.
- E. ***Other nondiscretionary cost or savings imposed on local agencies:*** The Standards do not result in new mandates to local agencies, and thus do not result in any costs or savings imposed on local agencies.
- F. ***Cost or savings in federal funding to the state:*** While the Energy Commission does receive federal funding for the Building Standards program, the updates proposed to the Standards do not alter or affect the State's ongoing participation in federal funding programs. For this reason, the proposed updates will not result in either costs or savings in federal funding to the state, except that updating the Standards and continuing the Building Standards program allows the State to continue to receive and spend federal funding relating to this program.

## INITIAL DETERMINATION OF NO SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT ON BUSINESSES, DECLARATION OF EVIDENCE

The Energy Commission has completed an Economic and Fiscal Analysis and made an initial determination that the adoption of the proposed Standards will not have a significant statewide adverse economic impact on businesses, including the ability of California businesses to compete with business in other states, as is described in more detail below. Comments on this determination (as on everything in this NOPA) are welcome.

### A. ***Identification of the types of businesses that would be affected.***

The Standards will require energy efficiency measures for all newly constructed buildings, but those measures are cost-effective, so businesses will experience a positive economic impact. Indirectly, the Standards will require changes in practice, and the retraining of employees, in businesses that are involved in the design and construction of buildings, in compliance analysis and documentation, and in

field verification. Any costs attributable to such changes and retraining would be short-term, since the incremental cost increases for new technologies will not persist once these technologies become mainstream, and building practice changes requiring retraining will not result in ongoing cost increases. In any case, these incremental construction cost increases would ultimately be borne by the beneficiary of the Standards, the entity paying reduced energy bills.

***B. A description of the projected reporting, record keeping, and other compliance requirements that would result from the proposed action.***

Most reporting, record keeping, and compliance duties associated with the Standards do not change. New acceptance requirements for nonresidential buildings will formalize and standardize documentation, but these requirements exist in a less structured way in the current Standards. Documentation authors who specify measures requiring field verification will need to notify a professional who will perform the acceptance tests, but this notification can be done by phone or electronically in very little time. Any such costs would, therefore, be insignificant, and to the extent they exist, would ultimately be borne by the beneficiary of the Standards, the entity paying reduced energy bills. It is necessary for the health, safety, or welfare of the people of the state that the business-report regulations in the proposed Standards apply to businesses.

***C. Evidence relevant to the Energy Commission's initial determination that the adoption of the proposed Standards will not have a significant statewide adverse economic impact.***

The basis for the Energy Commission's findings on economic impacts is that the Standards are cost-effective, and therefore will have a beneficial economic impact on the owners and occupants of buildings built to comply with the Standards. Evidence for the cost-effectiveness of the Standards requirements are contained in the "Documents Relied Upon" listed in the Initial Statement of Reasons and on the Energy Commission's website.

## **COST IMPACT ON REPRESENTATIVE PRIVATE PERSONS OR BUSINESSES**

The Energy Commission has determined that energy bill savings substantially in excess of compliance costs will be received by all private persons and businesses directly affected by the proposed Standards. The Energy Commission estimates that an average of \$2,452 additional single family residential construction costs may result from the proposed Standards. This estimate is likely more than what will be realized, since it does not account for volume pricing or reductions in technology costs once these technologies are provided to a mass market. The Energy Commission estimates that the nonresidential Standards may result in an incremental construction cost of \$33,650 for a 15,000 square foot building, slightly less than 1.5 percent of typical construction costs for this building size. This estimate is also substantially higher than what will likely be realized, due to the fact that this cost estimate includes all proposed changes to the nonresidential Standards, but an individual building built under these Standards will not need to include every new efficiency measure in the proposed Standards. Table 1 below summarizes the expected costs and net present value energy bill savings for all new homes and buildings expected to be permitted in 2017.

Table 1. Summary of Statewide Costs and Energy Bill Savings

Sector	Statewide Measure Costs	Statewide Energy Bill Savings	Statewide Net Savings
Residential	\$381.72 Million	\$1,337.22 Million	\$955.50 Million
Nonresidential	\$652.37 Million	\$2,679.19 Million	\$2,026.82 Million
Total	\$1.13 Billion	\$4.11 Billion	\$2.98 Billion

## ASSESSMENT OF THE EFFECTS OF THE PROPOSED STANDARDS ON JOBS AND BUSINESS EXPANSION, ELIMINATION, OR CREATION

The Energy Commission has made a preliminary assessment on whether, and if so to what extent, the proposed Standards will affect the following:

**A. *The creation or elimination of jobs within the State of California.***

Jobs will not be eliminated. It is possible that new jobs may be created as a result of the new compliance procedures. In addition, because the Standards will save hundreds of millions of dollars in energy costs, there will be more money in the economy that can be used for job creation.

**B. *The creation of new businesses or the elimination of existing businesses within the State of California.***

Businesses will not be eliminated. It is possible that new businesses will be created to provide field verification and other compliance services, and to supply energy efficiency products.

**C. *The expansion of businesses currently doing business with the State of California.***

It is likely that businesses currently doing business in California to provide compliance-related services and energy-efficiency products will be expanded.

**D. *Benefits of the proposed standards to the health and welfare of California residents, to worker safety, and to the state's environment.***

The proposed Standards modify existing field verification tests, add new verification tests, and add new equipment specifications that will improve ventilation system installations and operations. This will benefit the health and welfare of building occupants, who are typically California residents, as well as workers in these buildings. The proposed Standards should have no effect on worker safety. The increases in energy and water efficiency stringency in the proposed Standards will benefit California's environment by reducing the consumption of natural resources and the greenhouse gas emissions that the use of these resources generate.

## INITIAL DETERMINATION OF SIGNIFICANT EFFECT ON HOUSING COSTS

The Energy Commission has made an initial determination that the proposed Standards would have a significant effect on housing costs, as described above. The initial costs of housing construction will rise, but homeowners and occupants will be the beneficiaries of energy bill savings substantially in excess of the initial costs, so the net result will be more affordable housing.

A detailed analysis of the estimated costs and benefits of the proposed regulations is available in the Economic and Fiscal Impact Statement accompanying the Initial Statement of Reasons for this rulemaking.

## CONSIDERATION OF ALTERNATIVES

The Energy Commission has made a preliminary determination that no reasonable alternative considered

by it, or that has otherwise been identified and brought to its attention, would be more effective in carrying out the purpose of the proposed Standards or would be as effective (and cost-effective) as, and less burdensome to affected private persons than, the proposed Standards.

A rulemaking agency must determine in the Final Statement of Reasons that no reasonable alternative considered by the agency or that has otherwise been identified and brought to the attention of the agency would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.

## **AVAILABILITY OF RULEMAKING DOCUMENTS**

All of the information on which the proposed Standards are based is contained in the rulemaking file, which is available for public review at the Energy Commission's Dockets Office, by contacting the persons named below, or on this website: <http://www.energy.ca.gov/title24/2016standards/>.

If the proposed Standards are adopted, then interested parties may obtain a copy of the Final Statement of Reasons once it has been prepared by going to this website, or by making a written request to the contact person named below.

## **ENERGY COMMISSION CONTACT PERSON FOR PROCEDURAL AND ADMINISTRATIVE QUESTIONS**

Questions on procedural and administrative issues should be addressed to:

Adrian Ownby  
CALIFORNIA ENERGY COMMISSION  
1516 Ninth Street, MS-25  
Sacramento, CA 95814  
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Email: [adrian.ownby@energy.ca.gov](mailto:adrian.ownby@energy.ca.gov)

## **CONTACT PERSON FOR SUBSTANTIVE AND TECHNICAL QUESTIONS**

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or

Peter Strait  
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(916) 654-2817  
Email: [peter.strait@energy.ca.gov](mailto:peter.strait@energy.ca.gov)

## **PUBLIC PARTICIPATION**

For assistance in participating in the rulemaking proceeding, please contact the Energy Commission's Public Adviser's Office, at (916) 654-4489, toll free at (800) 822-6228, or by email at [publicadviser@energy.ca.gov](mailto:publicadviser@energy.ca.gov).

If you have a disability and require special accommodations to attend or participate in a hearing, please contact Lou Quiroz at (916) 654-5146 five days before the hearing.

Media inquiries should be sent to the Media and Public Communications Office [Mediaoffice@energy.ca.gov](mailto:Mediaoffice@energy.ca.gov) or (916) 654-4989.

## **FINAL STATEMENT OF REASONS**

If the proposed amendments are adopted, the Energy Commission will prepare a Final Statement of Reasons. This document will update the Initial Statement of Reasons and respond to public comments. It will be posted on the Energy Commission's website for this proceeding described below, and will be distributed to interested persons subscribed to the Building Standards list-server described above. This document may also be obtained after the conclusion of the rulemaking by contacting Adrian Ownby at (916) 651-2915 or by email at [adrian.ownby@energy.ca.gov](mailto:adrian.ownby@energy.ca.gov).

## **WEBSITE INFORMATION**

This NOPA, the Initial Statement of Reasons, the Express Terms, any 15-Day Language issued subsequently, and all other relevant rulemaking documents can be accessed at the Energy Commission's website at: <http://www.energy.ca.gov/title24/2016standards/>

Mailing Date: February 13, 2015