STATE OF CALIFORNIA — Public Utilities Commission
San Francisco

M e m o r a n d u m

Date: May 9, 2008

To: The Commission
(Meeting of May 15, 2008)

From: Pamela Loomis, Deputy Director
Office of Governmental Affairs (OGA) — Sacramento

Subject: **AB 2030 (Lieu/Saldana) – Energy Building Standards: Commercial Zero Net Energy Buildings. As amended March 25, 2008**

LEGISLATIVE SUBCOMMITTEE RECOMMENDATION: SUPPORT WITH AMENDMENTS

SUMMARY OF BILL:

This bill would make legislative findings relating to energy use by, and carbon dioxide emissions from, buildings in the United States, including that (1) Building green is one of the best strategies for meeting the challenge of climate change because the technology to make substantial reduction in energy and carbon dioxide emissions already exists; and (2) Modest investment in energy-saving and other climate friendly technologies can yield buildings and communities that are environmentally responsible, profitable, and healthier places to live and work, and that contribute to reducing carbon dioxide emissions.

The bill would amend Public Resources Code 25402 to direct the California Energy Commission (CEC) to adopt building design and construction standards that would require new nonresidential construction commenced on or after January 1, 2030, to be a “zero net energy building.” For purposes of this requirement, the bill would define the term "zero net energy building" as “a building that implements a combination of building energy efficiency design features and onsite clean distributed generation that result in no net purchases from the electricity or gas grid.”

In developing these standards, the CEC would be required to collaborate with local planning and building officials, consumer groups, representatives of building industry associations, developers, and other interested parties.

SUMMARY OF SUPPORTING ARGUMENTS FOR RECOMMENDATION:

- The California Public Utilities Commission ("CPUC" or "Commission") supports the CEC's adoption of building design and construction standards that would require new nonresidential construction commenced on or after January 1, 2030, to be "zero net energy" buildings. In 2007, the CPUC began a strategic planning process to develop the "next generation" of energy efficiency programs for 2009 and beyond. This was a collaborative process that saw the participation of business and stakeholder groups, utilities, government agencies and other interested parties. Following a series of workshops and meetings, in October 2007, the Commission issued a decision in which it adopted three programmatic initiatives with the following goals: (1) All new residential construction in California will be zero net energy by 2020; (2) all new commercial construction in California will be zero net energy by 2030; and (3) Heating, Ventilation, and Air Conditioning (HVAC) will be transformed to ensure optimal equipment performance in California.[1] Enforceable building and design standards promulgated by the CEC are critical to the accomplishment of the zero net energy goals adopted in the strategic planning process.

SUMMARY OF SUGGESTED AMENDMENTS:

We suggest that the definition of "zero net energy" be amended to provide: "For the purposes of this subdivision, the term 'zero net energy building' means a building that implements a combination of building energy efficiency design features and clean onsite or near-site distributed generation of sufficient quantity on an annual basis to offset any residual purchases of electricity or natural gas from utility suppliers." We believe that this accurately and concisely reflects the CPUC's current definition of "zero net energy" as "the implementation of a combination of building energy efficiency design features and on-site clean distributed generation that result in no net purchases from the electricity or gas grid, at the level of a single "project" seeking development entitlements and building code permits."[2] A definition of zero net energy at this scale enables a wider range of technologies to be considered and deployed, including district heating and cooling systems and/or small-scale renewable energy projects that serve more than one home or business.[3]

DIVISION ANALYSIS (Energy Division):

- In Decision 07-10-032, the CPUC reiterated that our highest energy priority is the pursuit of cost-effective energy efficiency measures over both the short- and long-term. The CEC's adoption of design and construction standards is a critical component of achieving the Commission's long-term zero net energy goals. In Decision 07-10-032, the CPUC expressed its appreciation that the Energy

[1] Available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/74107.pdf.
[2] This definition was adopted by the CPUC in Decision 07-10-032 in connection with the strategic planning process and the zero net energy programmatic initiatives. D 07-10-032 is available at http://docs.cpuc.ca.gov/word_pdf/FINAL_DECISION/74107.pdf. In addition, the CPUC is proposing to include this definition in its Energy Efficiency Policy Manual, Version 4 [available at http://docs.cpuc.ca.gov/efile/RULINGS/80685.pdf].
[3] Decision 07-10-032, footnote 42.

Commission's 2007 Integrated Energy Policy Report[4] includes a recommendation that the state adopt "zero net energy" as a long-term goal for new commercial and residential buildings, to be accomplished in conjunction with the CEC's building standards. The CPUC agrees that incorporating these goals into the building standards is critical to the success of the Commission's zero net energy programmatic initiatives.

PROGRAM BACKGROUND:

- The CPUC is seeking to move beyond a narrow focus on achieving short-term savings through a broader strategic focus on long-term goals. To this end, in Decision 07-10-032, the Commission directed the investor owned utilities[5] to develop a single, statewide strategic plan for energy efficiency through 2020 and beyond.[6] This strategic approach includes our long-term goal to achieve market transformation through continual incorporation of efficiency gains into codes and standards.

- The draft plan recognizes that as the largest consumer of electricity in California, commercial buildings are the key to successfully transforming the state's energy consumption patterns. With respect to the commercial building sector, the draft strategic plan sets forth the following vision and strategies:

- CPUC's Vision: Commercial buildings will be put on a path to zero net energy by 2030 for all new buildings and for many existing ones. Innovative technologies and practices will dramatically grow in use in the coming years through a combination of technology development, financing and incentives, Codes & Standards and market pull.

- Strategies: The draft strategic plan identifies regulatory action as the highest priority strategy. It concludes that to achieve the high levels of energy savings, the CEC's energy Codes and Standards must be more aggressive and cover a larger portion of the existing buildings sector. According to the plan chapter on energy efficiency in commercial buildings:[7]

- The preferred approach is a progressive set of energy Codes & Standards that steadily tightens over the coming years, linked to two tiers of voluntary higher ("beyond code") standards. Together, the mandatory and voluntary standards comprise a "bronze-silver-gold" hierarchy of building performance tiers. The voluntary tiers should be used as reference points for utility incentives, public

[4] Available at http://www.energy.ca.gov/2007publications/CEC-100-2007-008/CEC-100-2007-008-CMF.PDF.
[5] "Investor owned utilities" or "IOUs" refer to Pacific Gas and Electric Company (PG&E), Southern California Edison Company (SCE), San Diego Gas and Electric Company (SDG&E), and Southern California Gas Company (SoCalGas).

[6] The draft Strategic Plan is available at http://www.californiaenergyefficiency.com/index.shtml.
[7] Draft Strategic Plan, Chapter 3, available at http://www.californiaenergyefficiency.com/index.shtml.

recognition of highly efficient buildings, local government ordinances, and other policy and market-based drivers for getting buildings designed and built beyond the minimum efficiency levels in the building code.

- The draft plan states that success of this initiative depends upon:
    - Alignment of legislative direction and/or regulatory policy among the CEC, CPUC, and Building Standards Commission to support the goal of zero net energy (ZNE) buildings.
    - Technical and analytical work to establish the framework of minimum and voluntary levels of higher performing building standards.
    - Enforcement of Codes & Standards, requiring resources to train code compliance inspectors and staff, and to periodically evaluate their performance.
- The draft plan proposes specific actions to implement the initiative:
    - Establish a graduated, steep path of minimum Codes & Standards toward the long-term vision of progressively more efficient new, renovated and existing buildings.
    - Establish two tiers of voluntary standards that are more efficient than the minimum mandatory.
    - Adjust the code on a triennial schedule on a pre-determined “trajectory” aimed for the overall 2030 target. At each adjustment, achieve a “stepped” pattern of tightening standards to what had been the higher voluntary level, dropping the previous minimum mandatory (i.e., 2011’s “gold” becomes 2014’s “silver” and 2017’s minimum mandatory).
    - Apply an analogous scheme to renovations of existing buildings. Begin by lowering the renovation threshold at which minimum Codes & Standards are applied to an entire existing structure, such as if the area of renovation is 25 percent or more of the entire facility square footage, or 2,000-square-feet, whichever is lower.
    - Enhance Title 24 to address all energy end uses and especially plug loads (e.g., copying machines, printers), the fastest-growing end use for commercial sector electricity.
    - Develop coordinated companion strategies to create demand in the marketplace for high-scoring buildings through a variety of tools, including information, marketing tactics, and financial incentives.

- The draft plan also proposes to promote integrated design for new zero net energy commercial buildings and renovations of existing buildings. Integrated design brings together all relevant players at the start of a building project to comprehensively analyze and optimize energy strategies to deliver energy-efficient, high performance buildings and renovations, at little or no additional cost to the building owner. By integrating across professions and responsibilities at the start of the project, energy strategies can be analyzed and optimized for performance, efficiency and cost. Integrated design can and should also collaboratively bring together the "upstream" architectural and engineering professionals with the financing and construction teams who typically have great influence over a project's eventual energy performance. (In fact, integrated design can be taken beyond individual buildings to consider community-level energy and carbon impacts.)

- In addition, the draft plan suggests that the commercial building industry and its partners, such as the utilities, could sponsor "Path to Zero" commercial buildings. A Path to Zero initiative would provide -- in a coordinated, goal-oriented and assertive manner -- real-world experience and data on emerging technologies and practices and designs that are potential components of future zero net and ultra-low energy buildings.

LEGISLATIVE HISTORY:

AB 2112 (Saldana), pending on Assembly Appropriations Suspense File, would amend Public Resources Code Sec. 25402 to provide that the CEC must amend its building design and construction standards to require new residential construction commenced on or after January 1, 2020, to be a zero net energy building. AB 2112 has a slightly different definition: "...a building that implements a combination of building energy efficiency design features and clean onsite distributed generation that result in no net purchases from the electricity or gas grid on a annual basis." Unlike AB 2130 that specifically directs the CEC to consult with the CPUC in developing these standards.

FISCAL IMPACT:

None.

STATUS:

AB 2030 is currently on the Assembly Appropriations Committee Suspense File.

SUPPORT/OPPOSITION:

Support: American Lung Association
California League of Conservation Voters
Coalition for Clean Air
Department of the Environment, City and County of San Francisco
East Bay Municipal Utility District
Environmental Defense

Global Green USA
Planning and Conservation League
Sierra Club California

Opposition: Associated General Contractors
Building Owners & Managers Association of California
California Apartment Association
California Association of Realtors
California Broadcasters Association
California Building Industry Association
California Business Properties Association
California Chamber of Commerce
California Manufacturers and Technology Association
California Retailers Association
Consulting Engineers and Land Surveyors of California
Institute of Real Estate Management
International Council of Shopping Centers
National Association of Industrial & Office Properties
Shapell Industries
Western Electrical Contractors Association

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Date: May 9, 2008

BILL LANGUAGE:

BILL NUMBER: AB 2030 AMENDED
BILL TEXT

AMENDED IN ASSEMBLY MARCH 25, 2008

INTRODUCED BY Assembly Members Lieu and Saldana

FEBRUARY 15, 2008

An act to amend Section 25402 of the Public Resources Code, relating to energy.

LEGISLATIVE COUNSEL'S DIGEST

AB 2030, as amended, Lieu. Energy: building standards.

The Warren-Alquist State Energy Resources Conservation and Development Act requires the State Energy Resources Conservation and Development Commission to adopt building design and construction standards, and energy and water conservation standards to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including energy associated with the use of water.

This bill would require the commission to adopt, in collaboration with specified parties, building design and construction standards, and energy and water conservation standards to require ~~new residential constructions commenced on or after January 1, 2020, and~~ new nonresidential constructions commenced on or after January 1, 2030, to be zero net energy buildings.

This bill would define the term "zero net energy building."

This bill would also make a technical change by deleting an absolute statutory cross-reference.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. The Legislature finds and declares all of the following:

(a) Buildings account for 38 percent of the carbon dioxide emissions in the United States, more than either the transportation or industrial sectors.

(b) Over the next 25 years, carbon dioxide emissions from buildings are projected to grow faster than any other sector, with emissions from commercial buildings projected to grow the fastest at 1.8 percent per year through 2030.

(c) Buildings consume 70 percent of the electricity load in the United States.

(d) Buildings have a lifespan of 50 to 100 years during which they continually consume energy and produce carbon dioxide emissions. If one-half of the new commercial buildings were built to use 50 percent less energy, it would save over six million metric tons of carbon dioxide annually for the life of the buildings, the equivalent of

taking more than one million cars off the road every year.

(e) The United States population and economy are projected to grow significantly over the coming decades, increasing the need for new buildings to meet this demand, approximately 15 million new buildings are projected to be constructed by 2015.

(f) Building green is one of the best strategies for meeting the challenge of climate change because the technology to make substantial reduction in energy and carbon dioxide emissions already exists.

(g) Modest investment in energy-saving and other climate friendly technologies can yield buildings and communities that are environmentally responsible, profitable, and healthier places to live and work, and that contribute to reducing carbon dioxide emissions.

SEC. 2. Section 25402 of the Public Resources Code is amended to read:

25402. The commission shall, after one or more public hearings, do all of the following, in order to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including the energy associated with the use of water:

(a) (1) Prescribe, by regulation, lighting, insulation climate control system, and other building design and construction standards that increase the efficiency in the use of energy and water for new residential and new nonresidential buildings. The commission shall periodically update the standards and adopt any revision that, in its judgment, it deems necessary. Six months after the commission certifies an energy conservation manual pursuant to subdivision (c) of Section 25402.1, a city, county, or state agency shall not issue a permit for a building unless the building satisfies the standards prescribed by the commission pursuant to this subdivision or subdivision (b) that are in effect on the date an application for a building permit is filed. Water efficiency standards adopted pursuant to this subdivision shall be demonstrated by the commission to be necessary to save energy.

(2) Prior to adopting a water efficiency standard for residential buildings, the Department of Housing and Community Development and the commission shall issue a joint finding whether the standard (A) is equivalent or superior in performance, safety, and for the protection of life, health, and general welfare to standards in Title 24 of the California Code of Regulations and (B) does not unreasonably or unnecessarily impact the ability of Californians to purchase or rent affordable housing, as determined by taking account of the overall benefit derived from water efficiency standards. Nothing in this subdivision in any way reduces the authority of the Department of Housing and Community Development to adopt standards and regulations pursuant to Part 1.5 (commencing with Section 17910) of Division 13 of the Health and Safety Code.

(3) Water efficiency standards and water conservation design standards adopted pursuant to this subdivision and subdivision (b) shall be consistent with the legislative findings of this division to ensure and maintain a reliable supply of electrical energy and be equivalent to or superior to the performance, safety, and protection of life, health, and general welfare standards contained in Title 24 of the California Code of Regulations. The commission shall consult with the members of the coordinating council as established in Section 18926 of the Health and Safety Code in the development of these standards.

(b) (1) Prescribe, by regulation, energy and water conservation

design standards for new residential and new nonresidential buildings. The standards shall be performance standards and shall be promulgated in terms of energy consumption per gross square foot of floorspace, but may also include devices, systems, and techniques required to conserve energy and water. The commission shall periodically review the standards and adopt any revision that, in its judgment, it deems necessary. A building that satisfies the standards prescribed pursuant to this subdivision need not comply with the standards prescribed pursuant to subdivision (a). Water conservation design standards adopted pursuant to this subdivision shall be demonstrated by the commission to be necessary to save energy. Prior to adopting a water conservation design standard for residential buildings, the Department of Housing and Community Development and the commission shall issue a joint finding whether the standard (A) is equivalent or superior in performance, safety, and for the protection of life, health, and general welfare to standards in the California Building Standards Code and (B) does not unreasonably or unnecessarily impact the ability of Californians to purchase or rent affordable housing, as determined by taking account of the overall benefit derived from the water conservation design standards. Nothing in this subdivision in any way reduces the authority of the Department of Housing and Community Development to adopt standards and regulations pursuant to Part 1.5 (commencing with Section 17910) of Division 13 of the Health and Safety Code.

(2) In order to increase public participation and improve the efficacy of the standards adopted pursuant to subdivisions (a) and (b), the commission shall, prior to publication of the notice of proposed action required by Section 18935 of the Health and Safety Code, involve parties who would be subject to the proposed regulations in public meetings regarding the proposed regulations. All potential affected parties shall be provided advance notice of these meetings and given an opportunity to provide written or oral comments. During these public meetings, the commission shall receive and take into consideration input from all parties concerning the parties' design recommendations, cost considerations, and other factors that would affect consumers and California businesses of the proposed standard. The commission shall take into consideration prior to the start of the notice of proposed action any input provided during these public meetings.

(3) The standards adopted or revised pursuant to subdivisions (a) and (b) shall be cost-effective when taken in their entirety and when amortized over the economic life of the structure compared with historic practice. When determining cost-effectiveness, the commission shall consider the value of the water or energy saved, impact on product efficacy for the consumer, and the life cycle cost of complying with the standard. The commission shall consider other relevant factors, as required by Sections 18930 and 18935 of the Health and Safety Code, including, but not limited to, the impact on housing costs, the total statewide costs and benefits of the standard over its lifetime, economic impact on California businesses, and alternative approaches and their associated costs.

(c) (1) Prescribe, by regulation, standards for minimum levels of operating efficiency, based on a reasonable use pattern, and may prescribe other cost-effective measures, including incentive programs, fleet averaging, energy and water consumption labeling not preempted by federal labeling law, and consumer education programs, to promote the use of energy and water efficient appliances whose

use, as determined by the commission, requires a significant amount of energy or water on a statewide basis. The minimum levels of operating efficiency shall be based on feasible and attainable efficiencies or feasible improved efficiencies that will reduce the energy or water consumption growth rates. The standards shall become effective no sooner than one year after the date of adoption or revision. A new appliance manufactured on or after the effective date of the standards shall not be sold or offered for sale in the state, unless it is certified by the manufacturer thereof to be in compliance with the standards. The standards shall be drawn so that they do not result in any added total costs for consumers over the designed life of the appliances concerned.

In order to increase public participation and improve the efficacy of the standards adopted pursuant to this subdivision, the commission shall, prior to publication of the notice of proposed action required by Section 18935 of the Health and Safety Code, involve parties who would be subject to the proposed regulations in public meetings regarding the proposed regulations. All potential affected parties shall be provided advance notice of these meetings and given an opportunity to provide written or oral comments. During these public meetings, the commission shall receive and take into consideration input from all parties concerning the parties' design recommendations, cost considerations, and other factors that would affect consumers and California businesses of the proposed standard. The commission shall take into consideration prior to the start of the notice of proposed action input provided during these public meetings.

The standards adopted or revised pursuant to this subdivision shall not result in added total costs for consumers over the designed life of the appliances concerned. When determining cost-effectiveness, the commission shall consider the value of the water or energy saved, impact on product efficacy for the consumer, and the life cycle cost to the consumer of complying with the standard. The commission shall consider other relevant factors, as required by Sections 11346.5 and 11357 of the Government Code, including, but not limited to, the impact on housing costs, the total statewide costs and benefits of the standard over its lifetime, economic impact on California businesses, and alternative approaches and their associated costs.

(2) A new appliance, except for any plumbing fitting, regulated under paragraph (1), that is manufactured on or after July 1, 1984, shall not be sold, or offered for sale, in the state, unless the date of the manufacture is permanently displayed in an accessible place on that appliance.

(3) During the period of five years after the commission has adopted a standard for a particular appliance under paragraph (1), an increase or decrease in the minimum level of operating efficiency required by the standard for that appliance shall not become effective, unless the commission adopts other cost-effective measures for that appliance.

(4) Neither the commission nor any other state agency shall take action to decrease a standard adopted under this subdivision on or before June 30, 1985, prescribing minimum levels of operating efficiency or other energy conservation measures for an appliance, unless the commission finds by a four-fifths vote that a decrease is of benefit to ratepayers, and that there is significant evidence of changed circumstances. Before January 1, 1986, the commission shall

not take action to increase a standard prescribing minimum levels of operating efficiency for an appliance or adopt a new standard under paragraph (1). Before January 1, 1986, an appliance manufacturer doing business in this state shall provide directly, or through an appropriate trade or industry association, information, as specified by the commission after consultation with manufacturers doing business in the state and appropriate trade or industry associations on sales of appliances so that the commission may study the effects of regulations on those sales. These informational requirements shall remain in effect until the information is received. The trade or industry association may submit sales information in an aggregated form in a manner that allows the commission to carry out the purposes of the study. The commission shall treat sales information of an individual manufacturer as confidential and that information shall not be a public record. The commission shall not request information that cannot be reasonably produced in the exercise of due diligence by the manufacturer. At least one year prior to the adoption or amendment of a standard for an appliance, the commission shall notify the Legislature of its intent, and the justification to adopt or amend a standard for the appliance. Notwithstanding paragraph (3) and this paragraph, the commission may do any of the following:

(A) Increase the minimum level of operating efficiency in an existing standard up to the level of the National Voluntary Consensus Standards 90, adopted by the American Society of Heating, Refrigeration, and Air Conditioning Engineers or, for appliances not covered by that standard, up to the level established in a similar nationwide consensus standard.

(B) Change the measure or rating of efficiency of any standard, if the minimum level of operating efficiency remains substantially the same.

(C) Adjust the minimum level of operating efficiency in an existing standard in order to reflect changes in test procedures that the standards require manufacturers to use in certifying compliance, if the minimum level of operating efficiency remains substantially the same.

(D) Readopt a standard preempted, enjoined, or otherwise found legally defective by an administrative agency or a lower court, if final legal action determines that the standard is valid and if the standard that is readopted is not more stringent than the standard that was found to be defective or preempted.

(E) Adopt or amend any existing or new standard at any level of operating efficiency, if the Governor has declared an energy emergency as described in Section 8558 of the Government Code.

(5) Notwithstanding paragraph (4), the commission may adopt standards pursuant to Commission Order No. 84-0111-1, on or before June 30, 1985.

(d) Recommend minimum standards of efficiency for the operation of a new facility at a particular site that are technically and economically feasible. A site and related facility shall not be certified pursuant to Chapter 6 (commencing with Section 25500), unless the applicant certifies that standards recommended by the commission have been considered, which certification shall include a statement specifying the extent to which conformance with the recommended standards will be achieved.

(e) The commission shall do all of the following:

(1) Not later than January 1, 2004, amend any regulations in effect on January 1, 2003, pertaining to the energy efficiency

standards for residential clothes washers to require that residential clothes washers manufactured on or after January 1, 2007, be at least as water efficient as commercial clothes washers.

(2) Not later than April 1, 2004, petition the federal Department of Energy for an exemption from any relevant federal regulations governing energy efficiency standards that are applicable to residential clothes washers.

(3) Not later than January 1, 2005, report to the Legislature on its progress with respect to the requirements of paragraphs (1) and (2).

(f) (1) The standards adopted by the commission pursuant to subdivision (a) or (b) shall require ~~a new residential construction commenced on or after January 1, 2020, and~~ a new nonresidential construction commenced on or after January 1, 2030, to be a zero net energy building.

(2) For the purposes of this subdivision, the term "zero net energy building" means a building that implements a combination of building energy efficiency design features and onsite clean distributed generation that result in no net purchases from the electricity or gas grid.

(3) In developing the standards pursuant this subdivision, the commission shall collaborate with local planning and building officials, consumer groups, representatives of building industry associations, developers, and other interested parties.