

Date of Hearing: June 27, 2018

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Chris Holden, Chair

SB 1477 (Stern) – As Amended June 18, 2018

**SENATE VOTE:** 25-12

**SUBJECT:** Low-emissions buildings and sources of heat energy

**SUMMARY:** Requires the California Energy Commission (CEC) to develop a statewide market transformation initiative to transform the state's market for low-emission space and water heating equipment for new and existing residential and nonresidential buildings and to develop an incentive program to fund near-zero emission technology for new residential and commercial buildings. Specifically, **this bill:**

- 1) Establishes the Building Initiative for Low-Emission Development Program (BUILD), which:
  - a) Requires CEC, in consultation with the California Public Utilities Commission (CPUC), to develop and administer a program to require electrical corporations and gas corporations (IOUs) to provide incentives for near-zero and zero greenhouse gas (GHG) emissions building technologies to significantly reduce the emissions of GHG from those buildings beyond standards set forth in other laws or regulations.
  - b) Requires the amount of the incentive provided to take into account the availability of existing incentives and be based on the projected amount of reduction in GHG emissions resulting from the installation of the near-zero emission building technology beyond the standards set forth in other laws or regulations.
  - c) To encourage the adoption of near-zero-emission building technologies in new low-income residential housing and properties located in disadvantaged communities or low-income communities, requires BUILD to reserve a minimum of 30% of the amount allocated for new low-income residential housing and new buildings located in disadvantaged communities or low-income communities that are owned by a small business, local or state governmental agency, educational institution, or nonprofit organization.
  - d) Requires CEC to do the following in administering BUILD:
    - i) Ensure that projects funded with the 30% of moneys reserved are offered technical assistance to encourage the use of the program and do not result in higher utility bills for building occupants;
    - ii) Provide higher incentives for new low-income residential housing and properties located in disadvantaged communities or low-income communities than for installations in other new residential and commercial buildings;

- iii) Develop program guidelines that include a list of eligible technologies, a process for evaluating new technologies, criteria for scoring and selecting projects, and a process and set of metrics to evaluate and track program results; and,
  - iv) Implement an outreach plan to encourage applications for projects funded with the 30% of moneys reserved.
  - e) Beginning with the 2021 Integrated Energy Policy Report (IEPR), and in all subsequent IEPRs, requires CEC to report on BUILD. Requires IOUs to provide the CEC with any information required by CEC to complete the report.
- 2) Establishes the Technology and Equipment Clean Heating Initiative (TECH), which:
- a) Requires CEC to develop and administer the TECH to require IOUs to advance the state's market for low-emission space and water heating equipment for new and existing residential and nonresidential buildings through upstream market development, consumer education, contractor and vendor training, and the provision of upstream and midstream incentives to install low-emission space and water heating equipment in existing and new buildings, as specified.
  - b) Requires the CEC to identify and target key low-emission space and water heating equipment technologies that are in an early stage of market development and would assist the state in achieving the state's GHG emissions reduction goals.
  - c) Requires CEC, in coordination with the CPUC, to develop guidelines and evaluation metrics, implement outreach strategies for hard-to-reach customers, and provide for job training and employment opportunities.
  - d) Beginning with the 2021 IEPR, and in subsequent IEPRs, requires CEC to include a report on the TECH and requires each IOU to provide CEC with any information required by the CEC to complete the report on the TECH.
- 3) From July 1, 2019 through June 30, 2030, requires the CPUC to allocate 5% from IOU GHG emissions allowance revenues for TECH and BUILD, with 85% of the allocation to BUILD and 15% for TECH.
- 4) Establishes legislative findings relating to the GHG emissions and indoor and outdoor air pollution associated with the building sector. Declares the intent of the Legislature that projects receive incentives under the bill only if they result in utility bill savings for building occupants.

**EXISTING LAW:**

- 1) Requires the Air Resources Board (CARB) to ensure that statewide GHG emissions are reduced to 40% below the 1990 level by 2030. (Health & Safety Code § 38530 et seq.)
- 2) Requires direct allocations of GHG allowances to electric and gas utilities to be used exclusively for the benefit of retail ratepayers of each utility consistent with the goals of AB 32, and may not be used for the benefit of entities or persons other than such

ratepayers. (17 CCR § 95892, 95893).

- 3) Creates a charge on electricity and natural gas consumption to fund cost-effective energy efficiency and conservation activities. (Public Utilities Code § 381 and § 890)
- 4) Requires the CPUC to identify all potentially achievable, cost-effective electricity and natural gas efficiency savings and establish energy efficiency targets and ratepayer-funded programs for IOUs. Requires a gas corporation to first meet its unmet resource needs through all available natural gas efficiency and demand reduction resources that are cost effective, reliable, and feasible. (Public Utilities Code §§ 454.55 and 454.56)
- 5) Requires the CPUC to authorize an IOU to provide incentives for the cost of energy efficiency programs based on all estimated energy savings, including energy savings from bringing existing buildings into compliance with mandatory energy efficiency codes for existing buildings issued by the CEC, and authorizes an IOU to recover the costs in rates. Directs the CPUC to allow an IOU to take into consideration the overall reduction in normalized metered energy consumption as a measure of energy savings of the IOU's energy efficiency program. States that the CPUC may adjust the energy efficiency procurement targets to reflect energy efficiency savings achieved in meeting or exceeding mandatory energy efficiency codes for existing buildings. (Public Utilities Code § 381.2)
- 6) Requires the CPUC to implement a program to promote the installation of solar thermal systems in homes, businesses, and buildings or facilities of eligible customers receiving natural gas service. Eligible customers include single-family and multifamily residential, commercial, industrial, agricultural, governmental, nonprofit, and primary, secondary, and postsecondary educational customers. (Public Utilities Code § 2860 et seq.)
- 7) Requires the CPUC to allocate up to 15 percent of revenues received by an electrical IOU as a result of the direct allocation of greenhouse gas allowances to electrical distribution utilities to be used for clean energy and energy efficiency projects and otherwise requires revenues to be credited directly to residential, small business, and emission-intensive trade-exposed customers. (No such statute exists with regard to proceeds received by a natural gas IOU.) (Public Utilities Code § 748.5)
- 8) Defines "low-income residential housing", for purposes of the solar thermal water heating program, as either housing financed with low-income housing tax credits, tax-exempt mortgage revenue bonds, general obligation bonds, or local, state, or federal loans or grants, and for which the rents of the occupants who are lower income households do not exceed those prescribed by deed restrictions or regulatory agreements; or as a residential complex in which at least 20 percent of the total units are rented to lower income households and the housing units targeted for lower income households are subject to a deed restriction or affordability covenant with a public entity that ensures that the units will be available at an affordable housing price for a period not less than 30 years. (Public Utilities Code § 2861)
- 9) Requires the CEC to develop and implement a comprehensive program to achieve greater energy savings in California's existing residential and nonresidential building stock that fall significantly below the current standards in Title 24. (Public Resources Code § 25943)

et seq.)

- 10) Requires the CEC to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers, by January 1, 2030 using a specified baseline, and to be achieved through a variety of mechanisms and programs. (Public Resources Code § 25310)
- 11) Requires the CEC to create a building energy-use benchmarking and disclosure program. Establishes energy data collection authority to improve the development and evaluation of policy and programs and the state's energy infrastructure planning efforts. (Public Resources Code § 25402.10)
- 12) Requires the CEC to adopt an integrated energy policy report (IEPR) every two years with an overview of major energy trends and issues facing the state, including, but not limited to, supply, demand, pricing, reliability, efficiency, and impacts on public health and safety, the economy, resources, and the environment. (Public Resources Code § 25302)

**FISCAL EFFECT:** According to the Senate Appropriations Committee:

- 1) Approximately \$750,000 annually for CEC to support five new positions to administer the program.
- 2) Approximately \$168,000 for PUC to support one new position to consult and coordinate with CEC in the administration of the program.

**BACKGROUND:**

*New v. Existing Buildings* – California energy efficiency policy related to buildings is based on savings of electricity measured in kilowatt hours and gas savings measured in therms. The policies have also distinguished between new construction and older building stock (although building renovations do sometimes fall under new construction regulations). Related programs are highlighted below.

Building Action Plan. This CEC-developed plan provides a ten-year roadmap to activate market forces and transform California's existing residential, commercial, and public building stock into high-performing and energy-efficient buildings.

Title 24. The Energy Commission is required by law to adopt energy efficiency building standards every three years that are cost effective for occupants over the 30-year lifespan of a building. The standards ensure that builders use the most energy efficient technologies and construction, save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants and help preserve the environment. These measures (Title 24, Part 6) are listed in the California Code of Regulations. Since 1978 the standards have made buildings more comfortable with lower energy costs. Cost-effectiveness is calculated by determining the energy savings associated with a more efficient building standard. Savings are calculated by multiplying

cumulative savings in each year by the average residential or commercial electricity rates to determine savings over the life of the measure.

The success of standards and other energy efficiency efforts is a significant factor in California's per capita electricity use remaining flat over the last 40 years while the rest of the country's use continues to rise.

Energy Efficiency – California's commitment to energy efficiency has resulted in many different efficiency programs across the state. The programs span a variety of sectors encompassing residential homes and commercial buildings, large and small appliances, lighting and HVAC, industrial manufacturers, and agriculture. Within those sectors, efficiency programs may use any number of different tools: financial incentives and rebates, research and development for energy efficiency technologies, financing mechanisms, codes and standards development, education and public outreach, marketing, and others.

Each of these programs helps California be more energy efficient, and collectively, these programs result in significant reductions in California's greenhouse gas emissions. In total, energy efficiency is expected to make up 15 percent of the state's greenhouse gas emission reduction targets.

The IOU programs are funded by a portion of electricity and gas rates included in customer bills, which provides over \$1 billion per year. These publicly-funded energy efficiency programs are usually administered by the state's four IOUs: Pacific Gas and Electric Company, Southern California Edison, San Diego Gas & Electric, and Southern California Gas Company. Some programs are administered by Marin Clean Energy or through two "Regional Energy Networks" in the Bay Area and Southern California. All of the programs administered by these different entities are regulated by the CPUC to ensure they are meeting the goals and cost-effectiveness metrics the CPUC is statutorily required to set for the IOU efficiency portfolios.

Publicly-owned utilities are also required to report to the CEC a description of each energy efficiency and demand reduction program, program expenditures, the cost-effectiveness of each program, and expected and actual energy efficiency savings and demand reduction results from providing service to existing residential and nonresidential buildings, while taking into consideration the effect of the program on rates, reliability, and financial resources.

*Integrated Energy Policy Report (IEPR)* – Every two years the CEC reports on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewables, and public interest energy research in the Integrated Energy Policy Report or IEPR. The report is updated in the intervening years. A report of findings is formally adopted and transmitted to the Governor and Legislature. A lead commissioner provides oversight and policy direction related to collecting and analyzing data needed to complete the IEPR on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewables, and public interest energy research.

The CEC recently published its planned research for its 2018 IEPR. They report that a track will be dedicated to “advancing greenhouse gas reductions in California’s buildings” or decarbonizing buildings. The IEPR will:

...discuss the long-term role of natural gas in California buildings, and other greenhouse gas reduction policies and strategies relevant to California’s built environment. This update will also identify market barriers, data collection needs building performance metrics, and grid integration opportunities to develop recommendations that advance California’s energy-related policies and programs on greenhouse gas reductions from buildings.

*Building Emissions* – CARB reports that the building sector is the second largest source of GHG emissions in the state. Direct emissions from residential and commercial buildings comprise 9% of California’s GHG emissions. According to the California Greenhouse Gas Inventory, in 2015 residential building fuel use generated 23.17 million tons of CO<sub>2</sub> equivalent and commercial building fuel use generated 12.77 million tons of CO<sub>2</sub> equivalents. The majority of these emissions were generated by burning natural gas.

The 2014 updated scoping plan states that CARB and the CEC should “analyze zero and near-zero GHG alternatives for heating, cooking, and commercial energy use and assess the potential economic and technological barriers to switching to these alternatives.”

*California Climate Credit* – Electric and natural gas utilities are required to consign to auction a certain portion of the GHG allowances they receive, with the proceeds to be used exclusively for the benefit of retail ratepayers. These proceeds are referred to as GHG allowance proceeds.

For electric IOUs, these funds are returned to ratepayers via a credit on their utility bills, known as the California Climate Credit. State law requires 85% to be used for the Climate Credit and permits the CPUC to allocate the remaining 15% for clean energy and energy efficiency projects. Only recently has the CPUC utilized this authority.

The use of gas allocations are not controlled by statute. The CPUC has recently ordered that gas allocations be included in the annual Climate Credit and be returned to residential retail customers.

## COMMENTS:

- 1) Author’s Statement. California has set ambitious climate goals to reduce greenhouse gas emissions, clean up our air, and power our economy with clean energy resources. Achieving these goals will not be possible unless we reduce emissions from residential and commercial buildings. Today, emissions from California’s building sector are on par with climate pollution from all in-state power plants, and nearly half of those emissions are due to burning natural gas for water and space heating. Driving down emissions from the building sector will require not only boosting energy efficiency of our buildings and appliances, but also spurring adoption of building technologies that will cut emissions from fossil fuels burned in buildings.

SB 1477 will cut emissions from the building sector through two initiatives. First, the BUILD program will provide incentives for technologies that reduce emissions from new

buildings, such as electric heat pumps, solar thermal systems, or advanced energy efficiency systems. Second, SB 1477 also creates the TECH initiative to transform the state's market for low-emission space and water heating equipment through market development, consumer education, contractor and vendor training, and upstream and midstream incentives to install low-emission technologies in buildings.

- 2) Space & Water Heating Appliances. This bill introduces the concept of measuring and designing programs around the reduction or elimination of GHG emissions directly from building fuel use. Current subsidy programs such as energy efficiency are driven by kilowatt hour and therm savings, with a later report on resulting GHG emissions reductions. This bill starts to turn the focus of energy saving programs on reductions in GHG associated with the use of appliances in buildings. Two separate programs are included in the bill. Both would be administered by the CEC, for IOU customers, utilizing revenues from GHG allowances received by the IOUs for the benefit of retail customers.
  - a. New Construction. BUILD would incent builders to include technologies in new construction that reduce or eliminate GHG emissions directly from building fuel use which generally translates to using non-fossil-fueled space and water heating appliances.
  - b. Fuel Switching. TECH, would require the CEC to develop a program directed at existing building stock to encourage fuel-switching – basically eliminating or reducing the use of space and water heating appliances which utilize gas and switching to non-fossil-fueled appliances generally electricity. The program would focus on manufacturers of appliances (termed “upstream”), consumer education, contractor and vendor training and then incentives to install those technologies.
- 3) Agency Lead. This bill requires the CEC to develop two programs – BUILD & TECH – to benefit IOU ratepayers using GHG allowances received by IOU electric and gas customers. The CPUC administers IOU ratepayer incentive programs such as the Self Generation Incentive Program and energy efficiency programs. *The committee should consider amending this bill to also require the CPUC to develop and administer the BUILD & TECH programs.* Although the CEC has experience in working with builders through the New Solar Homes program, the funding and benefits of BUILD & TECH should stay within the respective IOU territories consistent with other IOU programs. Therefore program administration is appropriately limited to the CPUC.
- 4) Funding. This bill allocates 5% of IOU proceeds from the sale of gas or electric GHG emission allowances. Gas allowance proceeds have recently been ordered to be credited to residential gas customer bills on an annual basis. Allowances on the electric side are statutorily allocated – 85% to the credit of electric customers and the remaining 15% can be allocated by the CPUC to clean energy and energy efficiency projects.

The CPUC has ordered 2/3 of the 15% set-aside to fund the Solar on Multifamily Affordable Housing (SOMAH) program, established by SB 693 in 2015, with a special provision to increase solar installation in disadvantaged communities. The remaining 1/3 was just allocated by the CPUC in a June 21<sup>st</sup> decision last week to two new

disadvantaged community programs – a community solar program and a single-family home solar program. If the GHG electric allowances are exhausted, the programs would automatically be funded through new public purpose program charges.

Consequently, although not intended by the author, the funding of BUILD & TECH from the electric GHG allowances will result in a new public purpose program charge on electric customers. *To ensure that this spillover to public purpose charges does not occur, the committee may wish to consider limiting the funding of BUILD & TECH to no more than \$50 million a year from GHG gas allowances.*

- 5) Sunset. This bill permits BUILD & TECH to continue through 2030. *The committee should consider limiting funding for this program January 1, 2023, to allow the Legislature to revisit the program costs and impacts.*
- 6) Related Legislation.

AB 797 (Irwin) Extended the CSI-Solar Thermal Program, which offers rebates to customers of IOUs who install solar water heating systems that displace natural gas, propane, or wood combustion. (Chapter 473, Statutes of 2017)

AB 3001 (Bonta) Establishes the California Zero-Emissions Buildings Act and creates requirements for the CEC and the CPUC to encourage the development of zero-emissions buildings. Status: Assembly Utilities & Energy Committee, no hearing date.

AB 3232 (Freidman) require the CEC to develop a plan to achieve the goal of reducing the emissions of greenhouse gases (GHG) by the state's residential and commercial building stock by at least 40 percent below the 1990 levels by January 1, 2030. Status: Senate Appropriations Committee.

## REGISTERED SUPPORT / OPPOSITION:

### Support

Natural Resources Defense Council (Sponsor)  
 Acterra  
 Adobe  
 American Institute Of Architects, Ca Council  
 Arkin Tilt Architects  
 Association For Energy Affordability  
 Atelier Ten  
 Ben & Jerry's  
 Bernheim & Dean  
 BVC Architects  
 California Building Industry Association  
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Ceres, Inc.  
Clif Bar & Company  
Design Avenues LLC  
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Fossil Free California  
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Integral Group  
Interface Engineering Inc.  
JLL Partners  
Marin County Board Of Supervisors  
Menlo Spark  
Passive House California  
Physicians For Social Responsibility - San Francisco Bay Area Chapter  
Point Energy Innovations  
Rutherford + Chekene  
Sacramento Municipal Utility District  
Sera  
Siegel & Strain Architects  
Sierra Nevada Brewing Company  
Silverman & Light  
Symantec  
Taylor Engineering  
Teecom  
TLCD Architecture  
Unilever  
Union Of Concerned Scientists  
WRNS Studio

**Opposition**

Pacific Gas and Electric Company

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