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**SENATE COMMITTEE ON ENERGY, UTILITIES AND  
COMMUNICATIONS**  
**Senator Ben Hueso, Chair**  
**2019 - 2020 Regular**

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**Bill No:** SB 49 **Hearing Date:** 4/10/2019  
**Author:** Skinner  
**Version:** 4/2/2019 As Amended  
**Urgency:** No **Fiscal:** Yes  
**Consultant:** Sarah Smith

**SUBJECT:** Energy efficiency

**DIGEST:** This bill expands and clarifies the California Energy Commission's (CEC's) building and appliance energy efficiency regulatory authority to allow the CEC to establish building and appliance efficiency standards that facilitate load management, and it allows the CEC to establish an enforcement process for these standards.

**ANALYSIS:**

Existing law:

- 1) Requires the CEC to establish building design and construction standards that increase the efficiency in the use of energy and water for new residential and new nonresidential buildings. The CEC must periodically update the standards. Six months after the CEC certifies an energy conservation manual, cities, counties, and state agencies are prohibited from issuing a building permit for a building that does not comply with the current standards created by the CEC. The CEC must demonstrate that any water efficiency standards are necessary to save energy. (Public Resources Code §25402(a)(1))
- 2) Requires the CEC and the Department of Housing and Community Development to issue a joint finding that a building water efficiency standard is equivalent or superior in performance, safety, and for the protection of life, health, and general welfare to existing standards. The finding must also ensure that the standard does not unreasonably or unnecessarily impact Californians' ability to purchase or rent affordable house by taking into account the overall benefit derived from the standard. (Public Resources Code §25402(a)(2))
- 3) Requires the CEC's building efficiency standards to be cost-effective when taken in their entirety and amortized over the economic life of the structure compared with historic practice. When determining cost-effectiveness, the CEC must 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 CEC must consider other relevant factors, including, but not limited to the standards' cost on house costs, the total statewide costs and benefits of the standard over its lifetime, economic impacts on California businesses, and alternative approaches and their associated costs. (Public Resources Code §25402(b)(3))

- 4) Requires the CEC to establish appliance efficiency standards based on a reasonable use pattern. The CEC 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 requires a significant amount of energy or water use on a statewide basis. An appliance manufactured on or after the effective date of these standards may not be offered for sale in California unless it complies with the standards. (Public Resources Code §25402(c)(1))
- 5) Authorizes the CEC to adopt regulations establishing an administrative enforcement process for appliance efficiency violations and allows the CEC to assess a civil money penalty for violations up to \$2,500 for each violation. Penalties assessed for appliance efficiency violations are deposited into the CEC's Appliance Efficiency Enforcement Subaccount and fund the CEC's appliance efficiency enforcement activities upon appropriation by the Legislature. (Public Resources Code §25402.11)

This bill:

- 1) Expands the purpose the CEC's building and appliance efficiency standards to the reduction of emissions of greenhouse gases (GHG) associated with energy consumption.
- 2) Expands the CEC's building and appliance efficiency regulatory authority by requiring the CEC to establish standards for appliances and buildings to facilitate load management to promote the use of demand-flexible appliances, the use of which, has an effect on a building's load profile, as determined by the CEC. These regulations can include other cost-effective measures, including, but not limited to the following:
  - a) Incentive programs
  - b) Fleet averaging
  - c) Labeling
  - d) Consumer education programs

- 3) Establishes new cost-effectiveness requirements for building and appliance load management standards that allow the CEC to consider the cost of demand responsive appliances relative to non-responsive appliances, the value of GHG emissions, the life cycle cost to the consumer of a compliant product, benefits of avoided electricity system costs, and social cost of GHG emissions.
- 4) Load management requirements established by the CEC shall be based on feasible and attainable efficiencies or feasible improvements enabling appliance and building operations to be scheduled, shifted, or curtailed to reduce GHG emissions associated with electricity generation.
- 5) Specifies that the building and appliance efficiency requirements for load management shall not become effective until a year after the date of the adoption or revision of the standards.
- 6) Requires the CEC to periodically update the load management standards to include any revisions it determines is necessary to achieve California energy savings goals and mandates for reducing GHG emissions.
- 7) Expands the CEC's authority to adopt enforcement regulations by allowing the CEC to create an enforcement process that enables the CEC to assess civil money penalties for building and appliance load management standard violations.

## **Background**

*Demand response and its potential to reduce greenhouse gas emissions.* Demand response is a resource enabling electricity customers to reduce or shift their electricity usage in response to a price signal, a financial incentive, an environmental condition, or a reliability signal. Demand response has the capacity to reduce greenhouse gas emissions and increase ratepayer savings by lowering, shifting, and shaping demand for electricity at critical times in ways that can defer the need for additional fossil fuel generation, electricity infrastructure upgrades, and excess resource procurement. The load management capabilities of demand response resources can also help customers shift portions of their electricity use to times of the day when retail prices for electricity are lower, which can help lower a customer's electricity bill.

Demand response is a critical component of facilitating building electrification in a manner that does not result in emissions shifts from the building sector to the electricity sector. In the 2018 update to the Integrated Energy Policy Report (IEPR), the CEC noted that building electrification by itself is not sufficient to

lower GHG emissions from buildings in a way that is meaningful for California's climate goals. Without additional planning to incorporate mechanisms to ensure that electricity use does not increase during peak demand periods, electrification could also increase demand for electricity at times which natural gas generation supplies a larger portion of the total electricity mix. The IEPR states: "Electrification needs to be coupled with strategies such as time-of-use rates and demand response to shift the timing of energy consumption to maximize the use of renewable energy and achieve zero-emission buildings."

Demand response systems can be especially helpful in buildings with large energy consumption, including large residential multifamily and nonresidential commercial and industrial facilities. Demand responsive systems can automate energy efficiency systems such as lighting and heating, ventilation and air conditioning controls to modify energy use of these systems in response to grid needs and price signals. Even in smaller residential buildings, demand responsive smart thermostats can help reduce energy consumption in response to price signals.

*Demand response may be a distributed energy resource (DER), but not all DERs are demand responsive.* This bill expands the goals of the CEC's building and appliance efficiency standards to include GHG reductions associated with energy consumption. This bill would authorize the CEC to establish standards for appliances and buildings to facilitate load management to further the goals of the standards. This bill does not define load-management or specify the types of demand response technologies that may be required in buildings or appliances through regulations created under this bill; however, it is possible that load-management technologies could be interpreted to encompass distributed generation and energy storage.

Existing law contains multiple definitions regarding distributed energy resources. Some definitions may encompass demand response technologies; however, other definitions that specifically apply to distributed energy generation and storage may not include demand responsive systems. While distributed generation, energy storage, and demand response technologies are all considered distributed resources that can serve demand-side energy needs, existing law generally considers these resources separately and investments in these technologies have occurred separately at the administrative level.

Distributed generation and energy storage also may not necessarily serve the same purpose as demand response, which is intended to manage load in a price and grid-responsive manner that defers the need for additional generation, transmission, and distribution resources. Distributed generation and energy storage are not necessarily demand responsive and may not manage load in a manner that defers

transmission and distribution upgrades. Distributed generation and energy storage that are not sufficiently efficient and demand responsive can exacerbate transmission and distribution stressors and studies have indicated that it can result in a net increase in greenhouse gas emissions.

*The CEC's appliance and building standards authority.* While the CEC has the authority to establish building and appliance efficiency standards, these standards are created separately and enforced separately. Existing law authorizes the CEC to establish energy efficiency standards for buildings that increase the efficiency in the use of energy and water for new residential and new nonresidential buildings. The CEC may also separately establish regulations that set a minimum operating efficiency standards for appliances to promote the use of energy and water efficient appliances that consume a significant amount of energy or water on a statewide basis. Under existing law, building and appliance efficiency standards must be cost effective. However, the requirements for determining the cost effectiveness of building standards differ from the requirements for determining the cost effectiveness of appliance standards. Generally, both must consider costs to consumers and account for the energy and water savings achieved over the life of the appliance or building.

This bill combines the building and appliance efficiency standards for the purpose of load-management requirements, and expands the criteria the CEC may consider when determining whether these standards are cost effective. The expanded criteria would enable the CEC to consider the life-cycle benefits of avoided electricity system costs and the social cost of GHG emissions when determining whether a standard is cost effective. Currently, the CEC uses social costs of emissions as part of its methodology for valuing energy end uses in buildings. The CEC applies this cost to hourly use of natural gas appliances as well as the electric generation costs for electric appliances in buildings. However, the CEC only uses the social cost factor for building standards and does not include it as part of appliance cost-effectiveness evaluations. While the CEC may be borrowing a social cost adder developed by the California Public Utilities Commission (CPUC), the CPUC is piloting the use of a methodology accounting for the social cost of GHG emissions and does not currently use these social cost calculations for decision-making purposes.

Incorporating the social cost of GHG emissions into cost-effectiveness calculations would not necessarily reduce GHG emissions from appliance end uses. Limiting or prohibiting the sale of natural gas appliances in California may lead to more fuel switching from natural gas to electricity; however, these appliances may increase demand for natural-gas powered electricity if they are largely used during peak hours. Even with widespread electrification in newly constructed buildings, the

natural gas system will require maintenance to ensure safety and reliability for existing natural gas end uses. To the extent that demand-responsive electric appliances are cost-effective, they have the potential to address to the social cost of GHG emissions from natural gas end uses and generation.

While the CEC's energy efficiency requirements for buildings are incorporated into the building codes and are enforced by local building officials, the CEC has the authority to enforce appliance efficiency standards at the state level by assessing a civil penalty on entities that sell appliances that do not meet the standards. By combining the CEC's building and appliance authorities for load-management standards, this bill would allow the CEC to develop an enforcement program for load-management building standards. Currently, the CEC does not use its appliance enforcement authority for any building standards.

*Need for amendments.* As currently drafted, the term "load management" as used in this bill could encompass distributed generation and storage technologies that may not necessarily shift load, defer electric system costs, or reduce GHG emissions associated with electricity consumed by buildings. Additionally, this bill combines both building and appliance standards in a way that would authorize the CEC to use its appliance efficiency enforcement authority to assess civil money penalties on demand response building code violations. However, building code enforcement is largely managed by local building officials, and the CEC is not resourced to perform enforcement over building code violations. This bill also modifies requirements for the CEC's cost-effectiveness assessments that could enable the CEC to use a different methodology to calculate the cost effectiveness of demand response standards than is currently used for other appliance and building standards. *The author and the committee may wish to amend this bill to do the following:*

- *Ensure that the CEC's authority to promulgate standards for appliances and buildings continues to remain separate.*
- *Clarify that load management standards promulgated under this bill do not encompass distributed generation and storage technologies.*
- *Ensure that cost-effectiveness assessments are applied consistently within building and appliance standards and permit the CEC to use additional cost-effectiveness methodologies for appliance and building standards only after piloting the methodology and demonstrating, in a report submitted to the Legislature, that the methodology does not unreasonably or unnecessarily impact the ability of Californians to purchase or rent affordable housing.*

*Double referral.* Should this bill be approved by this committee, it will be re-referred to the Senate Committees on Environmental Quality for their consideration.

**Prior/Related Legislation**

SB 1414 (Wolk, Chapter 627, Statutes of 2014) required utilities to include demand response in resource adequacy plans and required the CPUC to establish a mechanism to value load-modifying demand response resources that can reduce a load serving entity's resource adequacy obligation.

**FISCAL EFFECT:** Appropriation: No Fiscal Com.: Yes Local: No

**SUPPORT:**

California Efficiency + Demand Management  
East Bay Community Energy  
Natural Resources Defense Council  
OhmConnect

**OPPOSITION:**

None received

**ARGUMENTS IN SUPPORT:** According to the author:

To implement SB 100 (De León, 2018), California will need to integrate more renewable resources into the grid that produce power only at certain times of the day – like solar and wind. California still uses fossil fuel – mostly natural gas – to provide energy when demand is highest and renewable resources are not able to produce. This means energy providers often have to build twice – building renewable energy facilities that provide power during the day and using natural gas facilities to provide energy at night when energy demand is high. The cost of double-building is passed on to the ratepayer.

To avoid the ratepayer cost of double-building and still keep the lights on, California needs to do two things. First, California needs to reduce unnecessary energy use. And second, California needs to better match the supply of energy (from solar and wind) with the demand for energy (coming from your plug, your fridge, or your electric car).

Clarifying the CEC's authority to consider GHGs when setting appliance and building standards, and directing the CEC to use this authority to set standards, will ensure that the state is making progress toward better and more cost-effectively integrating renewable energy into the grid.

**-- END --**