SENATE COMMITTEE ON ENERGY, UTILITIES AND COMMUNICATIONS
Senator Josh Becker, Chair
2025 - 2026 Regular

Bill No:	SB 541	**Hearing Date:**	4/21/2025
Author:	Becker		
Version:	3/24/2025 Amended		
Urgency:	No	**Fiscal:**	Yes
Consultant:	Nidia Bautista		

SUBJECT: Electricity: load shifting: dynamic pricing

DIGEST: This bill requires a number of actions towards achieving a goal for electric load shifting, the concept of shifting or shedding electric load or demand away from times when electricity is expensive, polluting, and scarce.

ANALYSIS:

Existing law:

1) Existing law vests the California Public Utilities Commission (CPUC) with regulatory jurisdiction over public utilities, including electrical corporations. (Article XII of the California Constitution)

2) Requires the State Energy Resources Conservation and Development Commission (California Energy Commission (CEC)) to adopt a biennial integrated energy policy report (IEPR) containing certain information in a specified format. (Public Resources Code §25302)

3) Requires the CEC, in consultation with the CPUC, and the California Independent System Operator (CAISO), to adopt a goal for load shifting to reduce net peak electrical demand and adjust this target in each biennial IEPR thereafter. (Public Resources Code §25302.7)

4) Requires the CPUC to adopt a process for each load-serving entity (LSE) to file an integrated resource plan and a schedule for periodic updates to the plan and to ensure that LSEs, among other things, enhance distribution systems and demand-side energy management. (Public Utilities Code §454.52)

5) Requires that all rates for any service or product charged by an electrical corporation must be just and reasonable. (Public Utilities Code §451)

6) Authorizes the CPUC to authorize electrical corporations to offer residential customers the option of receiving service on time-variant pricing (time-of-use rates, critical peak-pricing, and real-time pricing). Prohibits the CPUC from establishing a mandatory default time-variant pricing tariff for residential customers, except for default time-of-use rates. Requires the CPUC to ensure that any time-of-use rate schedule does not cause unreasonable hardship for senior citizens or economically vulnerable customers in hot climate zones. (Public Utilities Code §745)

This bill:

1) Requires the CEC, as part of each IEPR, to allocate the incremental load shifting needed to reach the load-shifting goal required by Public Resources Code §25302.7, including biennial adjustments to the goal, to each retail supplier based on the relative share of statewide load of each retail supplier.

2) Requires the CEC to establish rules for evaluating the effectiveness of the various load-shifting strategies for the purpose of determining how much credit a retail supplier should get for each type of load flexibility effort it undertakes.

3) Requires that LSEs meet the incremental load-shifting goal, to the extent that the goal is cost effective.

4) Requires all retail suppliers to provide rate information to the CEC's Market-Informed Demand Automation Server (MIDAS) in order to provide third-party devices with access to real-time rate information for the purpose of efficiently automating load flexibility.

5) Requires the CPUC, on or before January 1, 2028, to require all LSEs to offer optional dynamic pricing tariffs and the governing boards of each local publicly owned electric utility to consider offering dynamic pricing tariffs.

6) Requires the CPUC, as part of a new or existing proceeding, to consider (1) whether larger differentials between peak and off-peak time-of-use periods, including larger differentials for the transmission and distribution portion of rates, would be a cost-effective way to address peak load, and (2) whether distinguishing between nighttime off-peak and daytime off-peak periods would be a cost-effective way to align flexible load with periods of abundant renewable and zero-carbon energy.

Background

A changing electric grid. The electric grid is undergoing tremendous shifts, including transitioning to cleaner (often intermittent) resources (e.g. solar and wind) at a tremendous pace and scale, changing weather conditions/patterns (including more extreme temperature and storms), and switching or substituting energy uses (e.g. transportation and heating from fossil fuels to electricity). After the unexpected rotating outages called by the CAISO in late summer 2020 during west-wide extreme heat event, the governor and legislature took several actions to address supply shortages during and in the aftermath of these events. These actions include near term procurement orders and increasing planning reserve margins, billions of dollars from the state general fund to establish the Electricity Strategic Supply Reliability Reserve, and authorizing the extended operations of the state's sole remaining nuclear power plant. Within the authorizing legislation for the extension of Diablo Canyon nuclear power plant, SB 846 (Dodd, Chapter 239, Statutes of 2022) also required the CEC, in consultation with the CPUC, and CAISO, to adopt a goal for load-shifting to reduce net peak electrical demand and to adjust this target in each biennial IEPR.

About load shifting. Load shifting reflects the understanding that *when* electricity is used can be just as important as *how* much is used. Load shifting entails beneficially shifting electric load (or demand) away from times when electricity is scarce, expensive, and highly polluting to times when electricity is inexpensive, clean, and plentiful. Load shifting can play an important role in helping to address the challenges on the electric grid by aligning customer demand with the supply of clean energy. Load shifting has the potential to help integrate renewable generation, reduce the strain on the electric grid, and help maintain reliability during extreme events. As electrified load increases, especially from electric vehicles, heat pumps, as well as, further adoption of distributed energy resources (especially from solar and energy storage), the need for investments in grid infrastructure may also rise and the opportunities for load shifting also increase.

CEC SB 846 Load-Shift Goal Report. In May 2023, the CEC issued the report required in SB 846 on establishing a load-shifting goal and informed by the 2020 Lawrence Berkeley National Laboratory report on the Shift Resource through 2030, and other relevant research, as required by the statute. The CEC developed a statewide load-shift goal for 2030 of 7,000 megawatts (MW), including 3,400-3,900 MW of incremental resources. The goal encompasses three categories of load flexibility resources:

- Load-modifying demand flexibility resources (3,000 MW) directly impact the load forecast and resource procurement requirements of LSEs. The most

common category is time-varying rates, such as time-of-use or hourly dynamic rates that reflect actual grid conditions.

- Resource planning and procurement load flexibility resources (1,620-1,775 MW) either contributes to meeting Resource Adequacy (RA) requirements or reduces RA requirements as a credit. This category includes supply-side demand response that participates in the CAISO as economic or reliability demand response.
- Incremental and emergency load-flexibility resource programs (1,175 MW) intended to increase resource availability during extreme events and do not contribute to meeting RA requirements. These include the Emergency Load Reduction Program and the Demand Side Grid Support program which can be activated during emergency grid events.

The CEC report cautions the statewide goal is based on economic potential.

> Further analysis is needed to determine the cost-effectiveness of specific load flexibility resources and programs. …The proposed goal is not intended to suggest that the state should pursue these targets without the evaluation of the cost-effectiveness of specific resources or programs that would contribute to the goal.

The report also includes 18 policy recommendations to support deployment of the three category of resources.

CEC and CPUC efforts to employ time-varying rates. In addition to the SB 846 report, both the CEC and CPUC are pursuing load flexibility from time-varying rates. The CEC's Load Management Standard proceeding has directed LSEs to create at least one hourly rate offering, or an equivalent program, by 2027. The MIDAS provides a centralized rate database that customers, developers, and devices can use to access rate information. The Flexible Demand Appliance Standards (FDAS) will provide direction to device manufacturers to enable beneficial load flexibility in response to these rates. In June 2022, the CPUC staff issued a report with a proposed roadmap for hourly dynamic pricing to enable widespread load flexibility, including load shifting, called the California Flexible Unified Signal for Energy (CalFUSE). Subsequently, the CPUC opened a rulemaking, *Order Instituting Rulemaking to Advance Demand Flexibility Through Electric Rates* (R. 22-07-005), to enable widespread demand flexibility, instead of the historical piecemeal approach. As part of the proceeding the CPUC has directed electric investor-owned utilities (IOUs) to deploy pilot programs to gain learnings and understandings about the effects of dynamic rates.

Comments

Need for this bill. The author states:

> Electrical bills have grown unsustainably, and the state is looking for ways to constrain future cost increases. Electricity system costs (at least for transmission and distribution) are mostly driven by the need to provide reliable power during the periods of highest demand. If utilities can lower their system peak energy demand – by getting customers to adjust thermostats or shift some of their demand to other times of day, for example – then the utilities can serve more demand during off-peak hours (which helps to lower rates) while avoiding new investments to add to peak capacity. The CEC's "Load-Shift Goal Report" set a goal of achieving 7000 MW of cost-effective load shifting by 2030 (with 3400-3900 MW of that not yet being captured). While the CEC's goal has shed light on this large cost-saving opportunity, more is needed to push our electricity suppliers to capture those savings and make load-flexibility a routine part of their system planning and energy procurement efforts.

Impacts to ratepayers. As the supporters of this bill note, the increasing costs of utility bills, along with anticipated expansion of new resources and the electric grid, necessitate ensuring that electric grid investments are judicious and prudent. Load shifting provides an important potential to better optimize electric grid resources while shifting load during times when cleaner, and less expensive, electricity is available. Successful deployment of load shifting can be a win-win for participating customers and all customers. However, as the opposition to this bill contends there are potential risks that must also be mitigated, especially in relation to dynamic rates and ensuring the resources are cost-effective. Moreover, to the extent load-shifting resources are required as part of LSEs' procurement, ensuring these resources compete with others can help support the least-cost, best-fit principles. The CEC, in its report, acknowledged the load-shift goal is "aspirational, but achievable with robust policy support" and merits further evaluation for cost-effectiveness. The CEC also expressed reluctance to recommend subgoals for specific program types, sectors, or jurisdictions.

Need for amendments. The author has acknowledged the desire to amend this bill to address many of the oppositions' concerns. *In this regard, the author and committee may wish to:*

- *Delete language that is viewed as de-facto procurement by including load-shifting incremental allocations and requirements within the statutes regarding integrated resource planning (Section 2 of this bill).*

- *Delete language requiring the CPUC to require electrical corporations and governing boards of local publicly owned utilities (POUs) to offer optional dynamic pricing tariffs by January 1, 2028 (Section 3 of the bill would be deleted except for (d)).*
- *Recast the requirements on the CEC to estimate the load-shifting potential:*
    - *Delete references to "incremental."*
    - *Require the CEC to provide estimates for each retail supplier's potential allocation.*
    - *Require the CEC to evaluate and report the amount of load shift that each retail supplier is expected to achieve based on their filed IRP and their comparison to the goal.*
    - *Establish rules on the effectiveness of load-shifting strategies.*
    - *Allocate nonemergency load-shifting procured from any centralized procurement mechanism.*
    - *Require the CEC to establish a location-based avoided cost metric that estimates the value of demand reduction at different times and locations.*
    - *Clarify that "load shifting" means reduction in demand (not solely net peak demand) that benefits the electric grid (remove reference to prescriptive "top 100 net system load hours").*

Prior/Related Legislation

AB 1117 (Schultz) of the current legislative session, requires the CPUC, by July 1, 2028, to develop optional, dynamic electricity rates for large electrical investor-owned utility customers. The bill is pending in the Assembly Appropriations Committee.

SB 846 (Dodd, Chapter 239, Statutes of 2022) among its many provisions, required the CEC, in consultation with the CPUC, and CAISO, to adopt a goal for load-shifting to reduce net peak electrical demand and to adjust this target in each biennial IEPR.

AB 327 (Perea, Chapter 611, Statutes of 2013), among its many provisions, restructured the rate design for residential electric customers.

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

SUPPORT:

California Efficiency + Demand Management Council
California Solar & Storage Association
Natural Resources Defense Council

OPPOSITION:

California Community Choice Association
Marin Clean Energy
Pacific Gas and Electric Company
Public Advocates Office
San Diego Gas & Electric Company
Southern California Edison

ARGUMENTS IN SUPPORT: The Natural Resources Defense Council states:

> …[SB 541] would reinforce and smooth the implementation of the state's load flexibility goal, while requiring cost-effectiveness and strategic integration. Increasing cost-effective load flexibility on the grid can be beneficial because it allows for more effective use of electrified buildings and vehicles, reduces the electricity infrastructure costs needed to support economic development, and increases the reliability and resiliency of the grid. …SB 541 applies a reasonable next step toward cost-effectively and strategically increasing and investing in load-shifting resources to support a more resilient, zero-emission electricity grid.

ARGUMENTS IN OPPOSITION: The Public Advocates Office expresses concerns that "creating new legislative requirements for dynamic rates, when significant regulatory efforts are already underway, will be problematic and could significantly increase customer rates." They recommend "dynamic rates be carefully considered through the existing regulatory framework to allow for stakeholder involvement and the necessary procedural oversights."

The other entities, including utilities and community choice aggregators (CCAs), opposed to the bill generally express concerns that the bill will create a de-facto procurement requirement, conflicts with existing efforts at the CEC and CPUC to pilot and deploy real-time pricing and hourly pricing changes, and could increase costs to customers. CalCCA and MCE also argue the CPUC does not have the authority to require CCAs to offer dynamic rates.

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