Date of Hearing: June 10, 2026

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY
Cottie Petrie-Norris, Chair
SB 868 (Wiener) – As Amended April 7, 2026

SENATE VOTE: 35-1

SUBJECT: Electricity: portable solar generation devices

SUMMARY: Exempts specified portable solar generation devices from state law and electric utility rules regarding requirements to connect to the electrical distribution system, known as interconnection. Specifically, **this bill**:

1) Defines a "portable solar generation device" as a movable photovoltaic energy generation device that meets the following conditions:
    a. Has a maximum aggregated AC output of 1,200 watts per dwelling.
    b. Is designed to be connected to a building's electrical system through a single standard electrical outlet.
    c. Is intended to offset the customer's onsite electricity consumption.
    d. Meets the standards of the most recent version of the National Electrical Code and the California Electrical Code (Part 3 of Title 24 of the California Code of Regulations).
    e. Is certified as a plug-in photovoltaic system by Underwriters Laboratories or an equivalent nationally recognized testing laboratory.
    f. Includes a feature, certified by Underwriters Laboratories or an equivalent nationally recognized testing laboratory, that isolates the portable solar generation device from the building's electrical system to prevent the portable solar generation device from backfeeding electricity to the electrical grid during a power outage.

2) Exempts portable solar generation devices, as defined, from all interconnection requirements imposed by state law, the California Public Utilities Commission (CPUC), electrical corporation rules, or local publicly owned electric utility (POU) rules, including any requirement to enter into an interconnection agreement.

3) Prevents an electrical corporation or POU from requiring the customer of a portable solar generation device from doing the following:
    a. Obtaining the electrical corporation's or POU's approval before installing or using the portable solar generation device.
    b. Paying any fee or charge related to the portable solar generation device or the electricity the portable solar generation device feeds into a building's electrical system.
    c. Installing any additional controls or equipment beyond what is integrated into the portable solar generation device.

4) Allows an electrical corporation or POU to require a customer using a portable solar generation device to register the device, providing the address and size via a simple online registration form.

EXISTING LAW:

1) Defines "electrical corporation" to be every corporation or person owning, controlling, operating, or managing any electric plant for compensation within this state, except where electricity is generated on or distributed by the producer through private property solely for its own use or the use of its tenants and not for sale or transmission to others. (Public Utilities Code § 218)

2) Defines "local publicly owned electric utility" as a municipality or municipal corporation operating as a "public utility" furnishing electric service as provided in Section 10001, a municipal utility district furnishing electric service formed pursuant to Division 6 (commencing with Section 11501), a public utility district furnishing electric services formed pursuant to the Public Utility District Act outlined in Division 7 (commencing with Section 15501), an irrigation district furnishing electric services formed pursuant to the Irrigation District Law outlined in Division 11 (commencing with Section 20500) of the Water Code, or a joint powers authority that includes one or more of these agencies and that owns generation or transmission facilities, or furnishes electric services over its own or its member's electric distribution system. (Public Utilities Code § 224.3)

3) Requires every public utility to keep accurate records of transactions with a private energy producer, and of the use of the public utility's facilities by the private energy producer, pursuant to an interconnection ordered or approved by the CPUC. (Public Utilities Code § 2816)

4) Authorizes the CPUC to establish an expedited distribution grid dispute resolution interconnection process to resolve disputes over interconnection applications that are within the jurisdiction of the CPUC in no more than 60 days from the time the dispute is formally brought to the CPUC. (Public Utilities Code § 769.5)

5) Requires the State Energy Resources Conservation and Development Commission (CEC) to set rating standards for solar energy equipment, components, and systems to ensure reasonable performance and requires the CEC to develop standards that provide compliance for minimum ratings. (Public Resource Code § 25782)

FISCAL EFFECT: According to the Senate Committee on Appropriations, the CPUC estimates approximately $200,000 – $500,000 in annual ongoing costs for implementation of the bill.

What is plug-in solar? Plug-in solar, also called balcony solar or portable solar, refers to a solar power system that is not permanently mounted to a customer's roof or the ground, and can be plugged into a conventional power outlet rather than being permanently wired to the electrical system of the building.[1] Plug-in solar energy systems are currently available for retail sale in some markets, including via Amazon and from Bright Savers, a nonprofit focused on making plug-in solar more accessible.[2] These units are referred to as "balcony solar" due to their use by

[1] https://permitpower.org/wp-content/uploads/sites/35/2026/01/Safety-of-Plug-in-Solar-fact-sheet.pdf
[2] https://www.brightsaver.org/about

residents living in high-rise multi-housing units throughout Europe, especially in Germany, where the residents often drape the systems over their balconies.[3]

Proponents for plug-in solar systems contend that these systems can be purchased by a resident and plugged into a standard electrical receptacle without involvement from the utility, an electrician, or local building code officials. In other words, with the same level of ease and carefree behavior as one would plug in a lamp or toaster. This is counter to the treatment of rooftop and ground-mounted solar energy systems, which are installed with code compliance, hard-wired to the building's electrical system, and checked for safety. Instead, plug-in solar systems consist of a photovoltaic (PV; i.e., solar) panel (or more), equipped with a microinverter, a cord to connect to an electrical outlet (110/120V), and a tripod or mounting hardware (to place on a balcony, for example). Some systems may also come with a battery. The microinverter converts the direct current (DC) electricity generated by the solar panels into alternating current (AC) electricity and feeds that generated AC back into the home's existing branch circuit. That electricity is then used by appliances on the same circuit or elsewhere in the home, reducing the amount of power drawn from the electric distribution grid. A single solar panel at peak output may generate enough electricity to power a standard refrigerator, computer, and/or some lights.

Plug-in solar safety risks – In a late 2025 white paper, "Interactions of Plug-in Photovoltaic with Protection of Existing Power Systems,"[4] Underwriters Laboratories (UL) Solutions outlined safety concerns regarding plug-in solar. UL notes the risks of overload current produced from these balcony systems that can pose a risk of fire or shock through damaged conductors, insulation, and/or equipment connected to the circuit. The white paper contemplated various solutions to address the overcurrent risk, including a dedicated circuit with unique plug-in solar receptacle (therefore, not a standard electrical wall outlet). In January 2026, UL Solutions debuted a "Testing and Certification Framework for Safer Plug-In Solar Across the United States."[5] The framework provides a pathway for manufacturers to certify and test their plug-in solar systems using the UL 3700, which defines construction, performance, and labeling criteria tailored to plug-in solar systems. These include considerations such as requiring a qualified professional, generally an electrician, to do some additional work to protect buildings' wiring systems from potential shock. While the considerations from UL are rooted in safety, they run counter to a central selling-point of plug-in solar – namely, it being a turnkey, out-of-the-box system, not needing special equipment nor qualified professionals to install.

Adoption of plug-in solar systems – Plug-in solar has been successful in some European markets, particularly in Germany, despite these safety concerns. Indeed, Germany is often cited as a model for the use of plug-in solar, but there are different electrical systems and policies that make this comparison incomplete. For starters, Germany approached the adoption of these devices differently than is currently being pursued in the U.S. Before adopting regulatory exemptions and rules, Germany first set product standards, releasing testing standards in 2017[6]

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[3] https://grist.org/buildings/how-germany-outfitted-half-a-million-balconies-with-solar-panels/
[4] UL Solutions, White Paper: "Interactions of Plug-in PV with Protection of Existing Power Systems," 2025. https://www.ul.com/insights/safety-considerations-plug-photovoltaic-pipv-systems
[5] https://www.ul.com/news/ul-solutions-debuts-testing-and-certification-framework-safer-plug-solar-across-united-states
[6] VDE V 0100-551-1; Low-Voltage Electrical Installations—Part 5-51: Selection and Erection of Electrical Equipment—Common Rules. VDE Verlag: Berlin, Germany, 2023.

and technical requirements in 2018[7] through the German certification body – Verband der Elektrotechnick (VDE). In 2019, Germany adopted a universal online registration form for plug-in solar devices, requiring the date the device was first commissioned, the number of modules (panels), the total power of the modules, inverter power, and customer identification information.[8] This registration form was a meaningful step towards utility acceptance of the technology. Additional awareness of these devices and advocacy from media and politicians started spreading adoption of these devices. However, widespread adoption did not take off in Germany until 2022, following rising prices as a consequence of the Russian-Ukrainian War.[9] Importantly, this approach reflects a process by which technology was adopted following the establishment of appropriate device standards and regulations. Other European countries have also started adopting plug-in solar devices; however, some countries like France allow the devices but prohibit any export of electricity back to the grid, and others such as Denmark, Sweden, and Hungary have regulatory rules in place, like prohibiting the devices from being used in standard electrical receptacles[10] that have effectively prohibited the products.

In addition to the different regulatory approaches, the German electrical system has fundamental differences from the one in the U.S. For example, German outlets are recessed into the wall. This helps protect users from accidental contact with plug prongs that may still be energized while being inserted or removed, mitigating a potential shock hazard. Germany also initially authorized a 600 watt (W) limit for plug-in solar devices, based on the safe limit for overloading a circuit (2.6 A for a 230 V receptacle). This limit was subsequently raised to 800 W to align with the lower limit of regulation under the European Network Code.[11]

In the U.S., there has yet to be widespread adoption of plug-in solar systems. Utah was the first state to adopt legislation authorizing the use of plug-in solar without utility approval.[12] Roughly half of the states in the country had or have pending legislation modeled after Utah's law. In some states, the efforts for similar legislation have faltered due to safety concerns, including in Washington[13] and Arizona.[14] However, other states such as New York[15] and Virginia[16] have recently passed legislation that is largely similar to Utah's. Virginia's bill recently received Governor Spanberger's signature and the New York bill is headed to Governor Hochul's desk. And while Utah's effort is seeking to enable the adoption of plug-in solar equipment, the law does require devices to meet full system-level certification from a nationally recognized testing organization (like UL). To the committee's knowledge, no commercially available balcony solar system has achieved that certification to date;[17] meaning, the law effectively freezes adoption of

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[7] VDE-AR-N 4105:2018-11; Technical Requirements for the Connection and Operation of Customer Installations to the Low Voltage Network. VDE–Verband der Elektrotechnik Elektronik Informationstechnik e.V.: Berlin, Germany, 2018.
[8] https://www.marktstammdatenregister.de/MaStR/Einheit/Erfassen/VereinfachteEinheitenRegistrierung
[9] Gerber et al., Barriers to Balcony Solar and Plug-In Distributed Energy Resources in the United States. Energies. 2025; 18(8):2132. https://doi.org/10.3390/en18082132
[10] https://ing.dk/artikel/balcony-power-plants-are-booming-germany-illegal-denmark
[11] *Ibid*, Gerber et al., 2025.
[12] House Bill 340: https://le.utah.gov/~2025/bills/static/HB0340.html
[13] SB 6050: https://app.leg.wa.gov/billsummary/?BillNumber=6050&Chamber=Senate&Year=2025
[14] SB 2843: https://legiscan.com/AZ/bill/HB2843/2026
[15] S8512A, https://www.nysenate.gov/legislation/bills/2025/S8512/amendment/A
[16] HB 395 and SB 250, https://www.utilitydive.com/news/virginia-legislature-passes-balcony-solar-bill/814582/
[17] Individual components have, but not the full kit as the law requires; https://www.ul.com/news/ul-solutions-debuts-testing-and-certification-framework-safer-plug-solar-across-united-states

these kits until manufacturers respond to the newly created market and achieve UL safety certification.[18]

COMMENTS:

1) *Author's statement*. According to the author, "SB 868, the Plug and Play Solar Act, will give renters and homeowners a simple, low-cost tool to reduce their energy bills and reduce pollution. Because plug-in systems are small and portable, they expand the solar market, especially to renters, condo owners, and people with balconies, small backyards, or patios. California has roughly 14 million rental units – around 40 percent of households in the state – making this an especially powerful tool for expanding access to clean energy. As Californians struggle to pay their energy bills due to rising electricity rates and greenhouse gas emissions, SB 868 is the solution the state needs. By setting clear safety standards and clearing away unnecessary utility hurdles, SB 868 opens a new, low-cost path for families to take control of their energy use. In a state where high bills and climate risks fall hardest on those with the fewest options, plug and play solar offers something rare: a realistic, hands-on tool that lets Californians save money while reducing greenhouse gas emissions."

2) *Purpose of the bill*. This bill allows plug-in solar devices that meet the specified safety qualifications to be exempt from any interconnection rules imposed by state law, the CPUC, electrical corporations, or POUs. Interconnection agreements are a requirement of other PV systems such as rooftop solar and governed, at least for investor-owned utilities (IOUs), by the CPUC under Electric Rule 21.[19] According to the CPUC, the goal of Rule 21 is to provide "a generating facility (i.e., customers wishing to install generating or storage facilities on their premises) with access to the electric grid while protecting the safety and reliability of the distribution and transmission systems." This legislation seeks to circumvent this process, in part because these devices are intended to offset on-site consumption. Furthermore, supporters of this bill would see the process of needing utility approval as contrary to the vision of these devices as "plug and play," a.k.a. turnkey devices that need to be simply purchased from the store and connected to an outlet.

   However, as noted above, this bill and others similar to it in the U.S. are taking a different approach to the regulation of these devices compared to places where plug-in solar devices have taken off, such as Germany. The product safety standards and regulations are still underway in the U.S. The UL currently certifies many of the components to a plug-in solar device, but no commercially available product is available with UL certification. Therefore, this bill seeks to address two issues at once – set the safety standards for devices that currently do not exist and exempt those non-existent devices from any utility oversight.

3) *Device exemptions.* As mentioned, this bill takes a 2-for-1 approach. First, setting the safety requirements of these devices and then, exempting devices meeting those requirements from any oversight rules from a customer's utility or oversight body (CPUC). Both IOUs and POUs raise a number of concerns with this approach, largely based on safety and visibility concerns. The IOUs have indicated a preference for these

[18] UL 3700 – Outline of Investigation for Interactive Plug-In PV Equipment and Systems
[19] https://www.cpuc.ca.gov/rule21/

devices to be considered under the CPUC's Rule 21 process and have pointed to a recent scoping memo where the CPUC raised the question of whether these devices should be considered under Rule 21.[20] Their argument, in part, is that while not the primary function, there is nothing that physically prevents these devices from exporting to the electric grid. Therefore, both IOUs and POUs have expressed concern regarding the integrity and safety of the grid if a situation occurs where these devices do export back to the grid (discussed more below).

Although a device that meets all of the safety standards in the bill does not currently exist, the goal is that once a device does meet these standards, it will pose little risk to the customer or the broader electrical system. Ensuring that devices not meeting these safety standards have proper rules, requirements, or even prohibitions remains an open question. For example, it is possible that the CPUC could decide, as posed in the recent scoping memo, to develop regulations for devices not meeting the bill's requirement and apply Rule 21. As the exemption set forth in the bill is specific to devices meeting defined safety requirements, *the committee recommends explicitly stating that devices that do not meet the standards outlined in the bill are not exempt from rules or interconnection requirements as decided by state law, the commission, electrical corporation rules, or POU rules.*

4) *Device size*. One of the safety requirements of the bill caps the maximum AC output of plug-in solar devices at 1200 W. As these devices are intended to offset onsite consumption, it is possible that a customer may not need the maximum capacity. Depending on the energy demand of the customer, 1200 W capacity might be in excess of their needs. Although not a perfect calculation for a variety of reasons, such as the wide variety of climates in California, the average daily electricity use is estimated to be about 17 kWh.[21] This means demand of about 700 W, well under the 1200 W maximum set in the bill. However, in reality, coastal customers or those in smaller units may need less, and those inland or in larger homes may use more. Therefore, *the committee recommends clarifying that the qualified plug-in solar devices should have no more than 1200 W per dwelling of maximum aggregated AC output.*

5) *"Portable" device.* One of the key features of plug-in solar devices is that they are not permanently affixed to a unit, unlike rooftop solar. They are meant to be a tool for offsetting electrical needs for customers who, for whatever reason – unideal rooftop conditions, cost, renting, etc. – cannot install these more permanent systems. As noted in the bill language, these devices should be "portable." As such, *the committee recommends clarifying language that these devices are meant to be easily connected and disconnected to a building's electrical system.*

6) *Electrical receptacle.* Related to the portability of plug-in solar devices, the goal with these devices is that they can connect to a dwelling via a "single standard electrical outlet," according to the bill. Two notes on this language. One, outlet is the location on the wiring system where electricity is available; a receptacle is the device installed at that outlet to allow you to plug in appliances or devices.[22] Second is related to safety, the

[20] R.25-08-004, https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M601/K158/601158095.PDF
[21] https://nrgcleanpower.com/learning-center/how-many-kwh-per-day-is-normal/
[22] https://www.electricaltechnology.org/2023/02/difference-between-socket-outlet-receptacle.html#google_vignette

standard receptacle[23] found in households in the U.S. are not fully touch-safe, meaning that there is a potential to accidentally contact an energized part (the plug blades) and receive an electrical shock. In Germany, for example, the standard receptacle is recessed into the wall, making it considerably safer. It is possible that a standard receptacle could be modified in the U.S. for increased safety with a screw-on adapter faceplate, for example. This was a safety consideration discussed in the UL white paper on these devices[24] - the need to develop appropriate safety standards as it related to the ability to "plug-in" these devices. *To update the language to a more appropriate term and better align the intention of setting a UL certification standard, the committee recommends the bill be amended to use "receptacle" and delete "single standard electrical outlet."*

7) *Registration enforcement.* The bill allows for IOUs and POUs to require customers to register plug-in solar devices using a simple, online form. This registration does not give the utilities any approval or oversight capabilities into the devices but makes a significant stride towards addressing visibility concerns. Device registration will yield insight into which customers have these devices and where they are located; but such registration processes are dependent on both the utility creating a simple and accessible registration system and the customer actually utilizing it. This bill provides no assurance that customers comply with this registration, if required by the utility, leaving utilities with little to no knowledge[25] to whether a customer has or has not registered. There are processes in place for enforcement if an IOU, for example, discovers a customer not following established rules. But the outcome of enforcement is often extreme, with the customer being disconnected from service until the issue is resolved, such as with Electric Rule 11.C at Edison. Under this rule, Edison may refuse or discontinue service to a customer without further notice if a customer is found to be using unsafe equipment. Under this bill, it is unclear what the consequence would be for customers not registering their device, but seems likely that it could result in service disconnection. Without an issue occurring, it remains even more unclear how an IOU or POU would know a customer was using an unregistered device.

   There is also nothing in the language that allows utilities to collect information on the device that would allow them to check the safety requirements, beyond size. While still not granting any approval process, it seems prudent that the utilities would be able to check that the devices being used by customers are safe and in compliance with the requirements of the bill. Therefore, *the committee recommends specifying that IOUs and POUs can also request information about the make and model of the plug-in solar device in the registration process, if desired.*

8) *Zero export?* As noted, it is the intention of the bill that these devices are used to offset the electricity consumption of a customer. Additionally, explicit language was added to the bill to ensure that qualified devices have a feature that isolates the device from the building's electrical system during a power outage. This will ensure the device is not backfeeding any electricity when there is not expected to be grid electricity present (i.e., "anti-islanding"), an important safety consideration.

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[23] NEMA 5-15
[24] *Ibid*, UL Solutions
[25] the most likely outcome allowing for this discovery will be some kind of irregularity or issues such as a dramatic decrease in electricity consumption, or worse case scenario, a safety issue resulting from device usage.

However, the bill does permit these devices to export power to the grid during normal grid conditions. Proponents of the bill argue that the size limit of these systems is so small that the likelihood of export happening is insignificant and unlikely. Opponents, in particular the IOUs and POUs, raise concerns about aggregate effects that could be exacerbated by unexpected grid conditions, phase imbalances, and circuit overloads. In particular, the IOUs point to Rule 21, which requires all behind-the-meter systems to be screened for their ability to export. However, this bill exempts qualifying devices from Rule 21's interconnection screening process, but does not require those devices to be incapable of exporting power as a condition of qualification.

It is possible that plug-in solar device systems could incorporate a zero-export model. However, such technology would require additional panel upgrades and cost, defeating the purpose of these theoretical, turnkey, low-cost devices. As previously noted, even in Europe, the stance on zero-export has been mixed. The most common approach to date has been to use a low power capacity, like 800 W in Germany. This largely ensures the device will be focused on meeting onsite demands, and if there is export back to the grid, it is likely minimal. However, France, as mentioned, banned any export from these devices. The legislation currently being considered across the U.S., and applied in this legislation, follows the former approach, and accepting with it, the uncertain but perhaps minimal impact to the electric grid.

9) *Related Legislation*.

AB 2612 (Schultz) permits the California Building Standards Commission to adopt, approve, codify, and publish building energy standards for building electrical circuit features to enable a qualified plug-in solar system to function as an energy source within the electrical circuit of newly developed single-family residential dwelling, multiunit residential dwelling, or nonresidential development. Status: pending referral in the Senate.

10) *Prior Legislation*.

AB 2861 (Ting) authorized the CPUC to establish an expedited distribution grid interconnection dispute resolution process to resolve disputes within 60 days, unless it determines more time is needed. Status: Chapter 672, Statutes of 2016.

REGISTERED SUPPORT / OPPOSITION:

Support

Abundance Network
Berkeley; City of
Beverly Hills Synagogue
California Apartment Association
Ceres, INC.
Climate Action California (UNREG)
Dayenu Circle of Jewish Silicon Valley
Democrats for Israel Los Angeles
Hadassah, the Women's Zionist of America, INC.
Hillel of San Diego

Jcc/federation of San Luis Obispo
Jcrc Bay Area
Jcrc Santa Barbara County
Jcrc, Jewish Long Beach
Jewish California (formerly Jpac)
Jewish Center for Justice
Jewish Council for Public Affairs
Jewish Democratic Club of Marin
Jewish Family Service of San Diego
Jewish Family Service of the Desert
Jewish Family Services of Silicon Valley
Jewish Federation Bay Area
Jewish Federation of Greater Santa Barbara
Jewish Federation of Orange County
Jewish Federation of the Desert
Jewish Federation of the Greater San Gabriel and Pomona Valleys
Jewish Partisan Educational Foundation
Jewish Silicon Valley
Jfcs Long Beach and Orange County
Lafayette; City of
Mayor Todd Gloria, City of San Diego
National Council of Jewish Women -sf
San Diego Community Power
Santa Monica Democratic Club
Solano County Democratic Central Committee
The Climate Reality Project Orange County Chapter
The Climate Reality Project, California State Coalition
The Climate Reality Project, Los Angeles Chapter
The Climate Reality Project, Sacramento Chapter
The Climate Reality Project, San Diego Chapter
The Climate Reality Project, San Fernando Valley CA Chapter

Support If Amended

Ava Community Energy
Pacific Gas and Electric Company and its Affiliated Entities

Oppose

Imperial Irrigation District
Southern California Public Power Authority (SCPPA)

Oppose Unless Amended

Edison International and Affiliates, Including Southern California Edison
San Diego Gas and Electric Company
Southern California Rental Housing Association

Other

California Professional Firefighters
California State Association of Electrical Workers
Coalition of California Utility Employees
IBEW Local 11
IBEW Local 428
IBEW Local 6
IBEW Local 617
IBEW Local 684
IBEW Local Union 100
IBEW Local Union 332
IBEW Local Union 340
International Brotherhood of Electrical Workers Local 180
International Brotherhood of Electrical Workers Local Union 302
International Brotherhood of Electrical Workers, Local 1245
International Brotherhood of Electrical Workers, Local 595
International Brotherhood of Electrical Workers, Local Union 441

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