Date of Hearing: April 30, 2025

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY
Cottie Petrie-Norris, Chair
AB 1408 (Irwin) – As Amended April 21, 2025

SUBJECT: Electricity: interconnections

SUMMARY: Incorporates consideration of "surplus interconnection" within the integrated resource plans (IRPs) and resource adequacy (RA) requirements of the electric utilities, as well as the transmission planning process (TPP) conducted by the California Independent System Operator (CAISO).

EXISTING LAW:

1) Revises interconnection rules and protocols for any generator greater than 20 megawatts (MWs). Additionally, established "Surplus Interconnection Service" as a form of interconnection offering that allows a new interconnection customer to use excess or unused interconnection service capacity associated with an existing resource. (U.S. 18 Code of Federal Regulations Part 37, Federal Energy Regulatory Commission (FERC) Order 845)

2) Defines "load-serving entities" as investor-owned utilities (IOUs), electric service providers (ESPs), and community choice aggregators (CCAs). (Public Utilities Code § 380 (k))

3) Requires the California Public Utilities Commission (CPUC) to work with the CAISO to establish resource adequacy (RA) requirements for LSEs. Existing law specifies the criteria the CPUC must consider when establishing RA requirements and specifies that an electrical corporation's reasonable costs for meeting RA are recoverable from customers through non-bypassable charges. (Public Utilities Code § 380)

4) Requires the CPUC to adopt a process for each load-serving entity (LSE) and local publicly owned electric utility (POU) serving end-use customers in the state, to file an integrated resource plan (IRP) and schedule periodic updates to the plan to ensure that LSEs accomplish specified objectives. Requires each LSE to prepare and file an IRP consistent with those objectives on a time schedule as directed. (Public Utilities Code § 454.52 and § 9621)

5) Establishes a state policy that eligible renewable energy resources and zero-carbon resources supply 90% of all retail sales of electricity to California end-use customers by December 31, 2035, 95% of all retail sales of electricity to California end-use customers by December 31, 2040, 100% of all retail sales of electricity to California end-use customers by December 31, 2045, and 100% of electricity procured to serve all state agencies by December 31, 2035, as provided. (Public Utilities Code § 454.53)

6) Requires that the IRP of each LSE contribute to a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy resources in a cost-effective manner, meets the emissions reduction

targets for GHG emissions established by CARB for the electricity sector, and prevents cost-shifting among LSEs. (Public Utilities Code § 454.54)

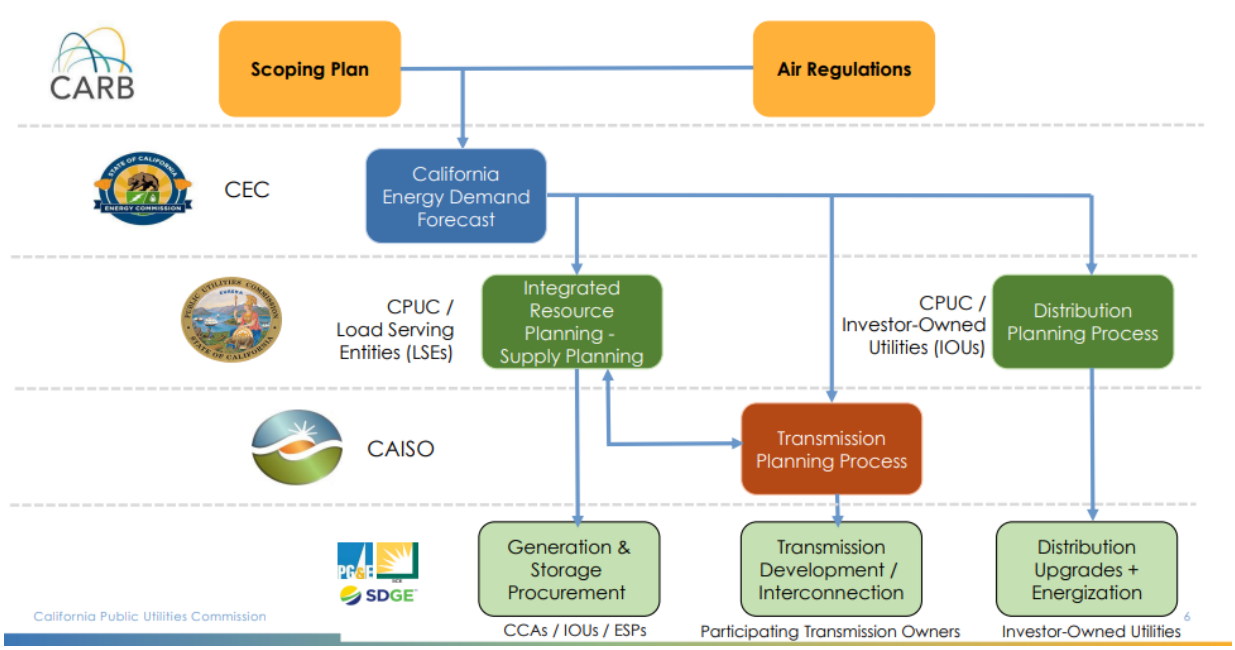
FISCAL EFFECT: Unknown. This bill is keyed fiscal, and will be referred to the Assembly Committee on Appropriations for its review.

CONSUMER COST IMPACTS: Unknown. This bill seeks greater efficiency and permit processing time reduction for clean energy projects. Should any of these values materialize, this bill may reduce overall customer costs. A recent analysis put forward "implementing these policies [in this measure] could save California $7 billion in interconnection, transmission, and generation costs."[1]

BACKGROUND:

Current Statewide Resource Planning – California has a complicated but robust electric planning and procurement regime spread across the CPUC, California Energy Commission (CEC), and CAISO. Much of this regime focuses on resource procurement needed to meet our clean energy goals, however, the direct downstream effect of the procurement planning is planning for the transmission needed to accommodate the new generation. As shown in Figure 1, the main elements of the regime are the Scoping Plan at CARB, the Integrated Energy Policy Report (IEPR) at the CEC, the Integrated Resource Plans (IRP) and Resource Adequacy (RA) process at the CPUC, and finally the Transmission Planning Process (TPP) at the CAISO.

Figure 1: Statewide energy planning across the energy agencies. Source: CPUC.[2]



[1] Umed Paliwal and Amol Phadke; "Existing power plants sharing grid access with new resources can lower costs and double California's generation capacity;" *Working Paper*, Center for Environmental Public Policy, Goldman School, U.C. Berkeley.
[2] Slide 6, CPUC, "Overview of the CPUC's IRP Cycle" February 2025; https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/integrated-resource-plan-and-long-term-procurement-plan-irp-ltpp/2024-2026-irp-cycle-events-and-materials/overview-of-the-cpucs-current-irp-cycle-20242026.pdf

Briefly:

- The Scoping Plan establishes a target range for the electricity sector's greenhouse gas (GHG) emission reductions;
- The IEPR, among other considerations and actions, provides a demand forecast to anticipate statewide load in the next decade or longer;
- The IRP forecasts system generation resource needs to meet the customer demand forecast by the IEPR 10 years in the future;
- The RA identifies resources needed to meet customer demand and ensure reliability today; and
- The TPP identifies the transmission needs to interconnect and balance the system supply provided by the IRP with the customer demand provided by the IEPR.

CAISO's TPP is updated annually and culminates in a CAISO Board of Governors approved transmission plan that identifies the needed transmission solutions and authorizes cost recovery through CAISO transmission rates, subject to federal regulatory approval. Following the CAISO Board's approval of a TPP, new projects that are identified as necessary go through a competitive solicitation process. Transmission developers apply for the project solicitation and those applications are evaluated on a number of qualifying criteria, including cost. The most recent IRP analysis identified almost 56 GW of new resources needed by 2035,[3] arising from a mix of geothermal, biomass, land-based wind, offshore wind, solar, battery storage, pumped storage, and long duration storage.[4] This portfolio represents a more than 66% increase in 10 years of the current nameplate capacity on the system; an enormous goal. The most recent TPP incorporating these IRP numbers,[5] identified 26 projects – at an estimated $6.1 billion – needed for reliability and to meet state policy goals; two of these projects are expected to be eligible for competitive solicitation.

Federal Policies to Modernize the Transmission Grid – FERC Order No. 845 (issued in 2018) reformed the federal rules governing how large energy projects (20 MWs and above) connect to the transmission grid. It modernized the generator interconnection process to improve transparency, reduce costs, and accommodate the rapid growth of renewable energy resources like wind and solar. Key reforms included requiring transmission providers to publicly post available interconnection capacity, allowing flexible interconnection options (such as energy-only service without firm transmission rights), enabling multiple projects to share a single interconnection point (surplus interconnection), and improving the process for project withdrawal without financial penalties. These reforms were driven by mounting concerns over long study backlogs, high costs, and the barriers facing clean energy development. FERC issued Order No. 845 following a multi-year stakeholder engagement process.[6]

FERC Order No. 845 laid the foundation for the broader reforms in FERC Order No. 2023, issued in 2023. Order 2023 builds directly on the principles established in Order 845, further addressing persistent interconnection backlogs by mandating cluster studies (instead of project-by-project reviews), stricter study deadlines, standardized technical requirements, and more

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[3] 25 MMT scenario resource stack; CPUC, *Decision Adopting 2023 Preferred System Plan and Related Matters, and Addressing Two Petitions for Modification,* D. 24-02-047; https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M525/K918/525918033.PDF

[4] Table 4, pg. 68; CPUC, D. 24-02-047; *Ibid.*

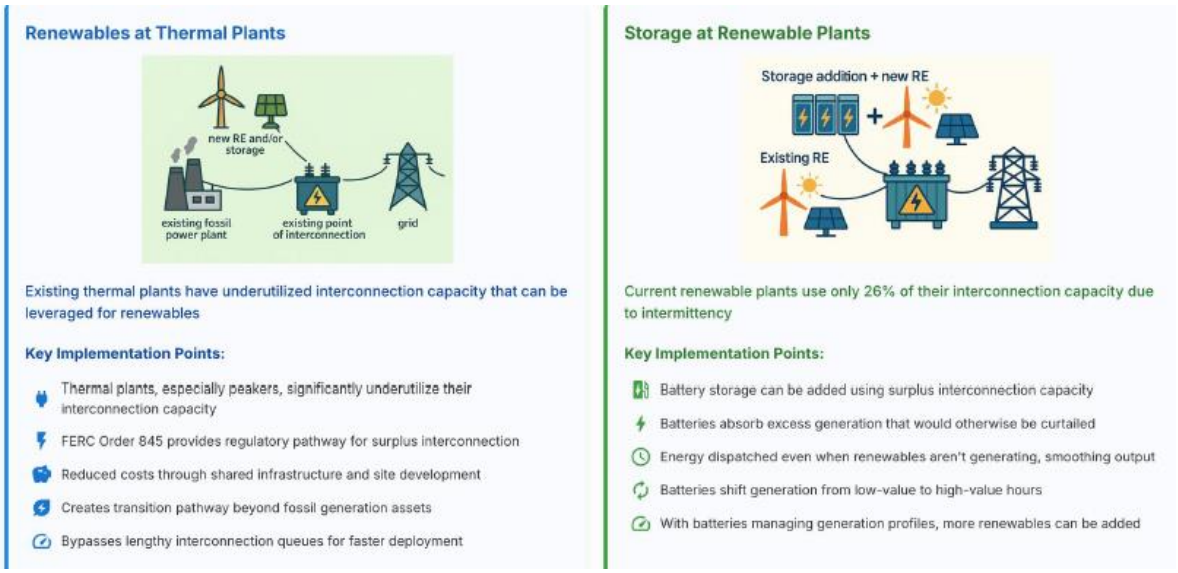
[5] CAISO; *2023-2024 Transmission Plan Draft*; April 2024.

[6] FERC Order No. 845, 163 FERC ¶ 61,043 (2018); https://www.ferc.gov/legal/maj-ord-reg/land-docs/order845.pdf

efficient cost allocation frameworks. Where Order 845 focused on improving fairness and transparency, Order 2023 streamlined the entire process to prevent delays and support federal goals for clean energy deployment. Together, these orders reflect a federal regulatory shift toward modernizing the nation's grid infrastructure to accommodate a massive expansion of renewable and storage technologies.[7]

Surplus Interconnection – Surplus Interconnection Service (SIS), as established by FERC in Order No. 845 (2018), refers to the unused portion of interconnection capacity at an existing generator's point of interconnection. This service allows new generating facilities – such as solar arrays, wind turbines, or battery storage systems – to connect to the grid using the existing infrastructure, provided that the combined output does not exceed the originally approved interconnection capacity. The primary advantage of SIS is that it enables these additional resources to bypass the often lengthy and complex standard interconnection queue, facilitating faster deployment of clean energy projects. However, SIS is typically limited to scenarios where no new network upgrades are required, and its availability is contingent upon the continued operation of the original generating facility. This is a unique arrangement from existing co-located renewable + former powerplant sites, like the Moss Landing Battery Storage Project[8] and the proposed Morro Bay Energy Storage Facility.[9] The SIS approach not only optimizes the use of existing grid infrastructure but also supports the integration of renewable energy sources by reducing interconnection delays and associated costs.

Figure 2: SIS potential in California.[10]



[7] FERC Order No. 2023, *"Improvements to Generator Interconnection Procedures and Agreements,"* 184 FERC ¶ 61,054 (2023). https://www.wrightlaw.com/wp-content/uploads/2024/01/Order-No-2023-Improvements-to-Generator-Interconnection-Procedures-and-Agreements.pdf

[8] "Moss Landing Battery Storage Project;" *NS Energy;* September 28, 2021; https://www.nsenergybusiness.com/projects/moss-landing/?cf-view

[9] Vistra; "Morro Bay Energy Storage Facility Update;" May 2022. https://www.morrobayca.gov/DocumentCenter/View/16632/Vistra-Morro-Bay-Energy-Storage-Facility-Update-Morro-Bay-City-Council-51022

[10] Pg. 11; Umed Paliwal and Amol Phadke; "Existing power plants sharing grid access with new resources can lower costs and double California's generation capacity;" *Working Paper*, Center for Environmental Public Policy, Goldman School, U.C. Berkeley.

CAISO offers SIS in alignment with FERC Order No. 845. Under CAISO's Generator Interconnection and Deliverability Allocation Procedures, the original interconnection customer can transfer surplus capacity to another entity.[11] The assignee must submit an interconnection request through the Independent Study Process, during which CAISO and the Participating Transmission Owner (TO) assess the proposal to ensure system reliability and identify any necessary upgrades. Importantly, the aggregate interconnection service capacity of both the original and new facilities cannot exceed the capacity specified in the original agreement.[12] Additionally, unless the assignee secures its own Transmission Plan Deliverability allocation, the transferred capacity is designated as Energy-Only, meaning it does not contribute to RA requirements.

COMMENTS:

1) *Author's Statement.* According to the author, "California's ambitious electrification goals will require the addition of a myriad of clean energy resources to serve load by 2035. The CPUC estimates that California will need to add 56 GW of clean power to serve load by 2035. Those clean energy projects must be connected to the grid after undergoing rigorous studies and impact reports. But after an average 4-year study timeline for interconnection, these projects are added to a lengthening interconnection queue. The Federal Energy Regulatory Commission and the U.S. Department of Energy have identified Surplus Interconnection Service as a savvy, medium-term solution to delays in the interconnection process. Surplus Interconnection Service allows for clean energy projects to be sited near or at existing fossil power plants and share power grid access. Many fossil power plants do not utilize their allotted operating capacity, allowing for other energy users to connect to the grid using the existing interconnection at the fossil power plant. This method expedites clean energy projects, and saves ratepayers money from the reduction in necessary transmission and distribution infrastructure. In order to meet clean electrification goals, California must use every tool in the toolbox."

2) *Potential Savings and Streamlining from SIS.* As mentioned above, the CPUC's IRP calls for over 56 GW of new clean energy resources to serve load by 2035. There are opportunities at existing generation facilities, specifically fossil plants, to co-locate renewable energy projects in order to reduce infrastructure buildout while connecting renewable energy projects to the grid. This bill requires SIS to be incorporated into the CAISO's TPP, the LSEs' and POUs' IRPs, and would require LSEs and POUs to prioritize existing points of interconnection for renewable development.

   FERC Orders 2003, 845, and 2023 created a method to expedite interconnection requests by allowing customers to use existing transmission capacity to connect renewable energy projects to the grid. Order 845 specifically requires transmission providers to create a process for interconnection customers to use SIS at existing points of interconnection. CAISO has established the framework for SIS in compliance with FERC Order No. 845, allowing existing interconnection customers to transfer unused interconnection capacity

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[11] CAISO Appendix DD; "Generator Interconnection and Deliverability Allocation Procedures;" February 11, 2023; https://www.caiso.com/Documents/AppendixDD-GeneratorInterconnectionDeliverabilityAllocationProcedures-asof-Feb11-2023.pdf

[12] CAISO Appendix A and Appendix DD; https://www.caiso.com/Documents/RevisedDraftTariffLanguage-FERCOrderNo845Compliance.pdf

to new generating facilities. This process is designed to optimize the use of existing infrastructure and facilitate the integration of additional renewable energy resources without necessitating new interconnection requests or extensive network upgrades. However, specific information regarding the number of projects that have utilized SIS within CAISO's jurisdiction are currently unknown to the committee. While CAISO's tariff provisions and interconnection procedures outline the mechanisms for implementing SIS, detailed data on actual project applications or approvals under this service do not seem to have been disclosed publicly.

According to a report by GridLab assessing SIS and interconnection on a national scale, "nearly 1,500 GW of solar and wind and over 1,000 GW of battery storage remain stalled in interconnection queues, with median wait times increasing from less than two years in 2000–2007 to five years for projects built in 2023.[13] This bottleneck, combined with extended lead times for critical grid equipment such as transformers and breakers, is preventing the U.S. from capitalizing on renewable energy as a low-cost electricity supply option."[14]

A report by Synapse Energy Economics shows that SIS study timelines are expected to take roughly 8 months, while standard interconnection studies have a 4-year average duration.[15] Several states in the MISO territory have begun utilizing the surplus interconnection framework to connect renewable energy projects requiring little to no transmission network upgrades. A comparison between two interconnection projects in Kansas, one using the standard interconnection method, and the other using surplus interconnection, showed cost savings of $34,479,191 and a wait time reduction of 6 years.[16]

3) *California Dreaming.* A recent Working Paper by researchers at the University of California at Berkeley have examined the potential for SIS in California.[17] The study found 15.7 GWs of California's 34 GWs of thermal capacity operates below 15% capacity factor, indicating severe underutilization of their interconnections. Similarly solar (25.6%) and wind (25.8%) utilize only a fraction of their available grid connections. The report goes on to note "California can add 76 GW of clean energy capacity through surplus interconnection, including 36 GW solar, 17GW wind, and 23 GW storage at exiting plants."[18] The paper recommends many of the policies found in this bill, namely requiring SIS consideration within the CPUC's IRP and the CAISO's TPP. The paper goes further to also recommend streamlining projects that share grid access via SIS. The

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[13] Paliwall, et al.; *Existing power plants sharing grid access with renewables can owner costs and double U.S. generation capacity;* GridLAB*;* February 21, 2025. https://gridlab.org/wp-content/uploads/2025/01/GridLab_Surplus-Interconnection.pdf
[14] Pg. 2; GridLab. 2025; *Ibid.*
[15] Mattioda, C., et al.; *No-Regrets Solutions for Accelerating Grid Interconnection;* Synapse Energy Economics; August 19, 2024. https://www.synapse-energy.com/sites/default/files/No-Regrets%20Solutions%20for%20Accelerating%20Grid%20Interconnection_Final%20Synapse%20Report%208.19.24%2023-132.pdf
[16] Pg. 6, Synapse Report, 2024; *Ibid.*
[17] Umed Paliwal and Amol Phadke; "Existing power plants sharing grid access with new resources can lower costs and double California's generation capacity;" *Working Paper*, Center for Environmental Public Policy, Goldman School, U.C. Berkeley.
[18] Pg. 2; Paliwal *Working Paper, Ibid.*

paper notes such policy changes could save "Californians $7 billion in interconnection costs while dramatically accelerating renewable deployment timelines from 5 years to 1-2 years."[19]

While the majority of this bill is aligned with these recommendations, one provision which requires LSEs, as part of RA compliance, to "prioritize available capacity for renewable development" seems out of place. While ensuring the full value of the resources that utilize SIS is critical – including receiving their deliverability value from CAISO – there is already an existing process in place. As noted above, those resources undertaking SIS arrangements must secure Transmission Plan Deliverability allocations, otherwise the transferred capacity is designated as Energy-Only. The directive in this bill requiring LSEs, not the SIS resource, to "prioritize available capacity" seems misaligned with this process. *As such, the committee recommends striking this provision (Section 2) of the bill.*

4) *Prior Legislation.*

AB 2779 (Petrie-Norris) requires the CAISO to report to the CPUC and to relevant policy committees in the Legislature any new use of any grid-enhancing technology (GET) and its associated cost and efficiency savings. Status: Chapter 741, Statutes of 2024.

SB 1006 (Padilla) requires electrical transmission utilities, by January 1, 2026, to develop studies on the feasibility of using grid-enhancing technologies and advanced reconductors, and specifies the content and cadence of those studies. Status: Chapter 597, Statutes of 2024.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file.

Opposition

None on file.

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[19] Pg. 2; Paliwal *Working Paper*, *Ibid.*