Date of Hearing: April 8, 2026

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY
Cottie Petrie-Norris, Chair
AB 2464 (Wicks) – As Amended March 26, 2026

SUBJECT: Energy: firm zero-carbon resources.

SUMMARY: Requires the California Energy Commission (CEC), working with the California Public Utilities Commission (CPUC), to complete a statewide assessment on the role and necessity of firm zero-carbon resources and report findings to the Legislature on or before January 1, 2028.

EXISTING LAW:

1) Defines "firm zero-carbon resources" as electrical resources that can individually, or in combination, deliver zero-carbon electricity with high availability for the expected duration of multi-day extreme or atypical weather events, including periods of low renewable energy generation, and facilitate integration of eligible renewable energy resources into the electrical grid and the transition to a zero-carbon electrical grid. (Public Resources Code § 25305.5)

2) Establishes the policy that all of the state's retail electricity be supplied with a mix of renewable portfolio standard (RPS)-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy. (Public Utilities Code § 454.53)

3) Requires the CPUC and CEC, in consultation with California Air Resources Board (CARB), to take steps to ensure that a transition to a zero-carbon electric system for the state does not cause or contribute to greenhouse gas (GHG) emissions increases elsewhere in the western grid. Requires the CPUC, CEC, and CARB, and all other state agencies, to incorporate that policy into all relevant planning. Requires the CPUC, CEC, and CARB to use programs authorized under existing statutes to achieve that policy. (Public Utilities Code § 454.53)

4) Requires retail sellers and publicly owned utilities to increase purchases of renewable energy such that at least 60%of retail sales are procured from eligible renewable energy resources by December 31, 2030. (Public Utilities Code § 399.11 et seq.)

5) Requires the CEC to adopt the integrated energy policy report (IEPR) every two years, which must contain 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 §§ 25300-25327)

6) Requires the CPUC to adopt a process for each load-serving entity (LSE) 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 directed by the CPUC and subject to CPUC review. (Public Utilities Code § 454.52)

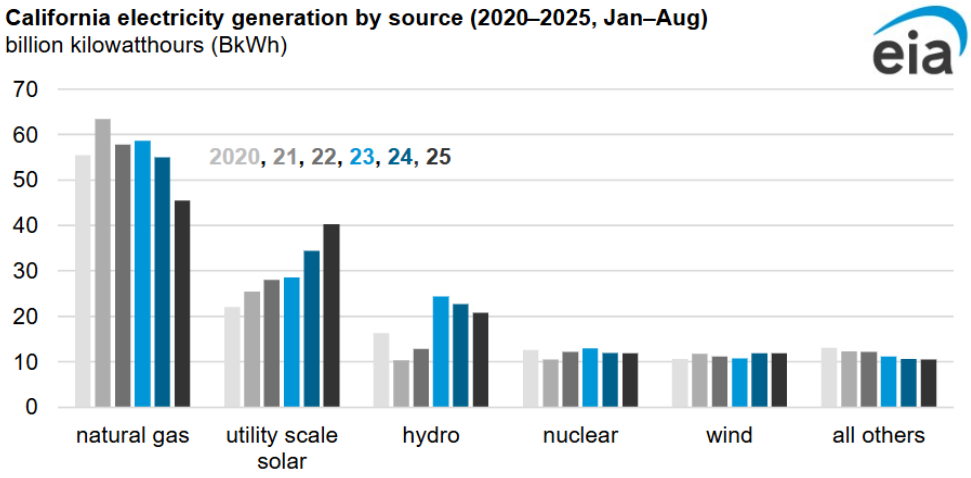
7) Requires that the IRP of each LSE contribute to a diverse and balanced portfolio of resources needed to ensure a reliable electricity supply that provides optimal integration of renewable energy resources in a cost-effective manner, meets the emissions reduction targets for GHG emissions established 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. A previous bill – SB 423 (Stern, 2021) – required the CEC to develop a similar report on firm, zero-carbon resources, which the CEC estimated would require $150,000 for one, limited-term staff position.

BACKGROUND:

What are firm, zero-carbon resources? – The definition provided in statute[1] captures the essence of firm power resources: particularly that they are available when other sources of clean energy, such as wind and solar, are unavailable or offline (like at night or on cloudy days). The weather- and season-dependent nature of renewable resources, like wind and solar, creates reliability challenges that need to be addressed for California to meet its clean energy goals. Therefore, firm resources, such as nuclear, geothermal, hydrogen, and hydroelectric power (among others), provide a critical path forward. However, these resources have long-lead times for development and are often more expensive than variable renewables (solar and wind), highlighting an urgency in preparing these resources for future procurement.[2] Furthermore, firm power is not always "zero-carbon," which complicates progress towards California reaching a 100% clean energy future. Indeed, some of the firm power currently in use in California is from natural gas, although that has been decreasing in recent years, as shown in Figure 1.[3] As the State moves away from fossil fuels as a source of power, proper planning and coordination will be critical.

Figure 1: California electricity generation by source, provided by the U.S. Energy Information Administration. Since 2020, the use of natural gas for electricity generation has decreased, and use of utility scale solar has increased, showing promising trends for a clean energy transition.[3]



[1] Public Resources Code § 25305.5
[2] Long, JCS, et al., "Clean Firm Power is the Key to California's Carbon-Free Energy Future," *Issues in Science and Technology*, March 24, 2021.
[3] Natural gas use for electricity in California falls as solar generation rises, U.S. Energy Information Administration, November 24, 2025. https://www.eia.gov/todayinenergy/detail.php?id=66704

Planning for the Future – California has a complicated but robust electric planning and procurement regime spread across the CPUC, CEC, and CAISO. This regime guides the current procurement that LSEs conduct and informs mid- and long-term procurement strategies. The regime is complementary, where one resource may count toward meeting many facets of an LSE's procurement requirements and planning goals. Critical aspects of this planning process include the IRP, the SB 100 Report, and the IEPR.

The IRP: anticipated supply in 10-15 years – Since 2015, with the passage of SB 350 (De León, Chapter 547, Statutes of 2015), California regulators have worked to identify a diverse mix of resources to achieve our clean energy goals. SB 350 requires the CPUC to adopt a process for each LSE to file an IRP starting in 2017 and for each publicly-owned utility (POU) to file an IRP by January 1, 2019. The goal of the IRP is to reduce the cost of achieving GHG emission reductions by looking broadly at system needs, rather than at individual LSEs or resource types, in order to identify generation that reduces GHGs, improves reliability, and reduces overall cost. The IRP operates on a 2-year planning cycle, and forecasts system needs 10-15 years into the future. The most recent IRP analysis identified almost 60 gigawatts (GW) of new resources needed by 2035, arising from solar, wind, biomass, geothermal battery storage, and long-duration storage resources.[4]

SB 100 Report: anticipated supply in 20 years – While the IRP focuses on what energy mix is best suited to meet our GHG and reliability goals 10-15 years into the future, the Joint Agency SB 100 Report looks further out at a planning horizon to determine how best to implement the 100%-clean-electricity-by-2045 policy enacted under SB 100 (De León, Chapter 312, Statutes of 2018).[5] The first SB 100 report was finalized in March 2021, with a 24-year horizon, and included analyses of many pathways to achieve the state's 2045 clean energy goal, including a core scenario which selected offshore wind resources and long-duration storage, as well as study scenarios examining "zero-carbon firm resources."[6] The next SB 100 Report was due in 2025, as the report should be updated every four years. A joint agency workshop on the draft staff results for the 2025 report was held on February 19, 2026.[7] An update is warranted, given the many changes since 2021, including the changes in forecasts for offshore wind generation[8] and the rapidly approaching clean energy targets.

The IEPR: anticipated demand in 10-15 years – Alongside the IRP and SB 100 Report, which focus on potential mid- and long-term procurement needs for the electricity system, the CEC conducts an IEPR to forecast all aspects of energy industry supply, production, transportation, delivery, distribution, demand, and pricing. The CEC is then required to use these assessments and forecasts to develop energy policies that conserve resources, protect the environment, ensure

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[4] Factsheet on the Decision Transmitting Electric Resource Portfolios to the California Independent System Operator for the 2025-2026 Transmission Planning Process: 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/assumptions-for-the-2025-2026-tpp/2025-02-20-25_26tpp_d_factsheet.pdf

[5] CEC, CPUC, & CARB; *2021 SB 100 Joint Agency Report: Achieving 100 Percent Clean Electricity in California: An Initial Assessment*;" March 2021.

[6] p. 12, 2021 SB 100 Report.
https://efiling.energy.ca.gov/EFiling/GetFile.aspx?tn=237167&DocumentContentId=70349

[7] https://efiling.energy.ca.gov/GetDocument.aspx?tn=268470&DocumentContentId=105616

[8] p. 5, Representative Statewide Electricity Portfolio Modeling as Guidance for Individual Plans, CPUC, https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M595/K085/595085015.PDF

energy reliability, enhance the state's economy, and protect public health and safety**.** The CEC adopts an IEPR every two years, with updates every other year. The information generated from the IEPR's demand forecast informs the IRP process at the CPUC.

COMMENTS:

1) *Author's Statement.* According to the author, "California faces a critical juncture in its energy transition. With statutory requirements to achieve 100% carbon-free electricity by 2045 under Senate Bill 100, combined with rapidly growing electricity demand from transportation electrification, building electrification, and emerging data center loads, the state must fundamentally transform its power infrastructure. While variable renewable energy sources like solar and wind are increasingly cost-effective and scalable, research consistently demonstrates that California cannot achieve its clean energy goals through these technologies alone while maintaining grid reliability and affordability. AB 2464 strengthens California's ability to meet its 100% clean electricity targets by requiring the state to explicitly plan for and procure clean, firm, zero-carbon energy resources."

2) *Purpose of Bill.* AB 2464 seeks to provide more information to the Legislature on the role and necessity of firm zero-carbon resources. The CEC and CPUC would work jointly to provide this information to address a range of topics, including recommendations for procurement and integration of these resources into the State's energy mix.

   The goal of this bill is to help inform how the State will meet clean energy and reliability goals, principally the SB 100 (De León, 2018) requirement to be 100% carbon free by 2045. This assessment may help address what role firm zero-carbon resources play in reaching that goal. In particular, the role these resources might play in addressing the 40% of RPS requirements not currently defined post-2030.

3) *Report Fatigue.* In 2021, SB 423 (Stern) was signed into law and required the CEC, in consultation with the CPUC, CAISO, and CARB, to submit to the Legislature an assessment of emerging firm zero-carbon resources that support a clean, reliable, and resilient electrical grid. The report was published in December 2024 and identified the following resources as those "that reliably produce zero-carbon or renewable energy on demand": long duration energy storage, hydropower, geothermal, renewable natural gas, hydrogen, small modular reactors, fusion, and carbon capture.[9] These resources were identified, in part, for their commercial feasibility (or near-commercial feasibility) in addition to being able to potentially address system reliability needs, local reliability needs, and de-energization events. However, the report also identified the following challenges to adopting these resources,[10] listed below:

   - Elevated costs
   - Supply chain limitations
   - Public perception concerns
   - Infrastructure dependencies
   - Specific siting requirements
   - Performance challenges

[9] p. 1-2, SB 423 Emerging Renewable and Firm Zero-Carbon Resources Report
[10] p. 51, SB 423 Emerging Renewable and Firm Zero-Carbon Resources Report

These resources are also considered in the IEPR and IRP from the CEC and CPUC, respectively. These two reports are not specific to only examining firm zero-carbon resources but do consider their role in the State's energy mix. While there is overlap across these reports, a close examination of firm zero-carbon resources, as was done with SB 423, may provide critical insight into if, and how, these resources can be better incorporated. In particular, an update regarding the previously identified barriers may be informative for decision-making needed to meet California's quickly approaching clean energy goals.

4) *Prior Legislation.*

SB 423 (Stern) requires the California Energy Commission (CEC) to submit to the Legislature an assessment, by December 31, 2023, of "firm zero-carbon resources" that support a clean, reliable, and resilient electrical grid and that will achieve the existing statutory goal of ensuring eligible renewable energy resources and zero-carbon resources supply 100 % of all retail sales of electricity to California end-use customers and 100 % of electricity procured to serve all state agencies by December 31, 2045. Status: Chapter 243, Statutes of 2021.

SB 100 (De León) establishes the 100 Percent Clean Energy Act of 2018, which increases the RPS requirement from 50 % by 2030 to 60 % and creates the policy of planning to meet all of the state's retail electricity supply with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100 % clean energy. Status: Chapter 312, Statutes of 2018.

SB 350 (De León), among its many provisions, requires the CPUC to adopt a process for each LSE to file an IRP starting in 2017 and updating periodically. Additionally, requires POUs to file an IRP by January 1, 2019. Status: Chapter 547, Statutes of 2015.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file.

Opposition

None on file.

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