

Date of Hearing: June 30, 2021

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Chris Holden, Chair

SB 423 (Stern) – As Amended May 20, 2021

SENATE VOTE: 31-9

SUBJECT: Energy: renewable and zero-carbon resources

SUMMARY: Identifies “emerging renewable energy and firm zero-carbon resources,” as specified, as preferred resources in the state’s energy procurement and planning efforts. Specifically, **this bill:**

- 1) Specifies “emerging renewable energy and firm zero-carbon resources” (emerging resources) as including, but not limited to, geothermal, offshore wind, green electrolytic hydrogen, long-duration energy storage, multiday energy storage, and other resources identified in the Joint Agency SB 100 (De León, Chapter 312, Statutes of 2018) Report.
- 2) Requires the California Air Resources Board (CARB) to timely incorporate emerging resources into its energy and resource planning processes, excluding the Scoping Plan.
- 3) Requires the California Energy Commission (CEC), in consultation with the California Public Utilities Commission (CPUC), California Independent System Operator (CAISO), and CARB, to submit an assessment to the Legislature by December 31, 2022 that does all of the following:
 - a. Identify all available, commercially and near-commercially feasible emerging resources to support a clean, reliable, and resilient electrical grid.
 - b. Distinguish which emerging resources can address system and local reliability needs.
 - c. Evaluate the magnitude of potential needs for emerging resources using a reasonable range of resource costs and performance assumptions.
 - d. Repeals the reporting requirement on January 1, 2026.
- 4) Requires the CEC to adopt recommendations to increase the near-, mid-, and long-term reliability and resiliency of the electrical grid consistent with state goals to reduce localized air pollutants and emissions of greenhouse gases (GHGs), including early priority on disadvantaged communities and support for emerging resources through research and development, demonstration, and incentives.
- 5) Requires the CEC to timely incorporate emerging resources into resource planning processes, including the integrated energy policy report (IEPR) and baseline planning scenarios.
- 6) Requires the CPUC to ensure resource adequacy (RA) requirements result in sufficient resources to maintain reliable service during multiday extreme or atypical weather events that may occur in all seasons, at least as frequently as once in 10 years.

- 7) Defines “hybrid resources” as those that combine energy storage with eligible renewable or zero-carbon resources.
- 8) Requires the CPUC to update their integrated resource plan (IRP) process to ensure the plans filed by load-serving entities (LSEs)¹ meet local and system reliability during multiday extreme or atypical weather events that lower renewable energy output and occur at least once in 10 years.
- 9) Requires the CPUC, as part of their IRP process, to evaluate and analyze the potential needs for emerging resources; to evaluate and analyze the integration of resources on a daily, multiday, and seasonal basis; to consider technologies’ abilities to address multiple reliability needs; and to establish a mechanism to encourage development of emerging resources.
- 10) Requires the CPUC by December 31, 2022 to adopt measures to bolster near-, mid-, and long-term reliability and resiliency of the electrical grid consistent with state goals to reduce localized air pollutants and emissions of GHGs, including early priority on disadvantaged communities and support for emerging resources through research and development, demonstration, and incentives.
- 11) Requires the CPUC to incorporate emerging resources into energy and resource planning processes, including the IRP, IEPR, and baseline planning scenarios.
- 12) Makes findings and declarations regarding the need to accelerate deployment of emerging renewable and zero-carbon resources that can provide firm baseload or firm flexible electricity, including green electrolytic hydrogen, new long-duration and multi-day storage resources, geothermal, and offshore wind.

EXISTING LAW:

- 1) Establishes the policy that all of the state's retail electricity be supplied with a mix of RPS-eligible and zero-carbon resources by December 31, 2045, for a total of 100% clean energy. Requires the CPUC, in consultation with the CEC, CARB, and all California balancing authorities, to issue a joint report to the Legislature by January 1, 2021, reviewing and evaluating the 100% clean energy policy. (Public Utilities Code § 454.53)
- 2) Requires the CPUC and CEC, in consultation with CARB, to take steps to ensure that a transition to a zero-carbon electric system for the state does not cause or contribute to 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)
- 3) Defines “eligible renewable energy resource” as an electrical generating facility that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts (MW) or less, digester gas, municipal

¹ LSEs = electric investor-owned utilities, electric service providers, and community choice aggregators, per Public Utilities Code § 380.

solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, subject to multiple conditions. (Public Utilities Code § 399.12)

- 4) Defines “load-serving entities” as investor-owned utilities (IOUs), electric service providers, and community choice aggregators. (Public Utilities Code § 380 (k))
- 5) Requires the CPUC to adopt a process for each LSE serving end-use customers in the state, to file an 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)
- 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)
- 7) 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. This is known as the Renewables Portfolio Standard (RPS). (Public Utilities Code § 399.11 et seq.)
- 8) Requires CARB to create a Climate Change Scoping Plan to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions by 2020. CARB must update this Scoping Plan at least once every five years. (California Health and Safety Code § 38561)
- 9) Requires the CEC to adopt the 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)
- 10) Requires the CPUC to work with CAISO to establish 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)

FISCAL EFFECT: According to the Senate Committee on Appropriations, this bill would result in annual costs of \$1.7 million to the CPUC and one-time costs of approximately \$800,000 to the CEC and CARB.

BACKGROUND:

Firm Power – Although undefined in this bill, “firm power” generally refers to electricity resources that can deliver electricity at any time, for as long as needed.² An alternative, but antiquated, term for this is “baseload” resources, and may include anything from fossil fuel plants (coal, biomass, natural gas, etc.) to nuclear energy to geothermal or hydropower. These firm power resources can supply power even when variable resources – such as solar and wind – are offline (such as at night or on cloudy days). Much of the firm power currently in use in California is from natural gas.³ With California moving towards a 100% clean energy future, and on the eve of closing its last remaining nuclear plant at Diablo Canyon, other sources of firm power are likely necessary to maintain system reliability.

Recent studies have highlighted the need for clean firm power to contribute to this future.⁴ The studies suggest clean firm power can provide reliability benefits at long-term cost savings over an all-variable renewable portfolio. However, the studies raise concerns that California is not adequately preparing these resources for future procurement, as these resources have long-lead times to development and are often more expensive than variable renewables (solar and wind).⁵

Planning for the Future: the IRP, SB 100, IEPR, and RA – California has a complicated but robust electric planning and procurement regime spread across the CPUC, CEC, and CAISO. This regime guides the current procurement the 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. The main pieces of the regime are the IRP, the related SB 100 Report, the IEPR, and RA.

The IRP – 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 need 10 years into the future. The most recent IRP analysis identified almost 20 gigawatts (GW) of new resources needed by 2031, arising from a mix of geothermal, land-based wind, solar, battery storage, and long-duration storage resources.⁶ The CPUC also conducts sensitivity analyses for the IRP for emerging resources whose pricing data and availability are not robust enough for inclusion as a main resource, but whose sensitivity analysis can provide more insight into how the technology

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 Roughly 42 MW; Long, JCS, et al. “Clean Firm...,” *Issues*.

⁴ Long, JCS, et al. “Clean Firm...,” *Issues* (citation 1), and E3, “Long-Run Resource Adequacy under Deep Decarbonization Pathways for California,” June 2019;

⁵ Long, JCS, et al. “Clean Firm...,” *Issues*.

⁶ 38 MMT scenario resource stack; CPUC, “Proposed Resource Planning Portfolios from CPUC’s Integrated Resource Planning Process for use in CAISO’s 2021-2022 Transmission Planning Process,” January 20, 2021, pg. 9.

may contribute to the overall portfolio. Recent IRP sensitivities have examined offshore wind⁷ and hydrogen.⁸

SB 100 Report – While the IRP focuses on what energy mix is best suited to meet our GHG and reliability goals 10 years into the future, the Joint Agency SB 100 Report looks at a planning horizon 24 years out, to determine how best to implement the 100%-clean-electricity-by-2045 policy enacted under SB 100 (De León, Chapter 312, Statutes of 2018).⁹ The first SB 100 report was finalized in March 2021, 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.”¹⁰ The SB 100 Report will be updated every four years, with future work focused on system reliability,¹¹ among other considerations.

The IEPR – 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 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 and RA processes at the CPUC.

RA – Running concurrently with these planning streams is the RA process at the CPUC and CAISO. While the IRP, SB 100 Report, and IEPR focus on potential future needs, RA is designed to identify resources needed to ensure reliability *today*. Following the California energy crisis of 2000-01, the California Legislature enacted AB 380 (Nunez, Chapter 367, Statutes of 2005) to prevent future incidents of widespread blackouts and rolling brownouts due to lack of electricity. This statute established the RA program at the CPUC, which must work in consultation with the CAISO to establish RA requirements for all LSEs. The current RA program consists of system, local, and flexible requirements for each month of a compliance year. System requirements are determined for each LSE based on the CEC’s IEPR electricity forecast plus a 15% planning reserve margin.¹² Local requirements are determined based on an annual CAISO study using a 1-10 (once in ten years) weather year and an N-1-1 contingency.¹³ Flexible requirements are based on an annual CAISO study that currently looks at the largest three-hour ramp for each month needed to run the system reliably. In October, LSEs must demonstrate that they have procured 90% of their system RA obligations for the five summer

⁷ Pg. 26, D. 21-02-008, *Decision Transferring Electric Resource Portfolios to California Independent System Operator for 2021-2022 Transmission Planning Process*; R. 20-05-003; issued February 17, 2021.

⁸ Pg. 13, D. 20-03-028, *2019-2020 electric Resource Portfolios to Inform Integrated Resource Plans and Transmission Planning*, R. 16-02-007, issued on April 6, 2020.

⁹ CEC, CPUC, & CARB; *2021 SB 100 Joint Agency Report: Achieving 100 Percent Clean Electricity in California: An Initial Assessment*,” March 2021.

¹⁰ Pg. 12, *2021 SB 100 Report*.

¹¹ Pg. 1, *2021 SB 100 Report*.

¹² The CPUC has recently adopted changes to RA, including increasing the planning reserve margin from 15% to 17.5% and in some cases to 19%.

¹³ N-1-1 Contingency: A sequence of events consisting of the initial loss of a single generator or transmission component (Primary Contingency), followed by system adjustments, followed by another loss of a single generator, or transmission component (Secondary Contingency).

months (May-September) of the following year, as well as 100% of their local requirements, and 90% of their flexible requirements for each month of the coming compliance year. There is an additional monthly reporting requirement for RA, where LSEs must demonstrate they have procured 100% of their monthly system and flexible RA obligation.

COMMENTS:

- 1) *Author's Statement.* "The growing effects of climate change are revealing more and more the serious limitation of our energy grid. This was made evident last August, when an extreme heat wave across the west resulted in energy demand reaching high enough levels that it required the California Independent Systems Operator (CASIO) to issue a Flex Alert, for the first time in nearly 20 years. The energy agencies' Final Root Cause Analysis identified this as a 1-in-30 year weather event, based on historic data. Yet even more abnormal weather events followed in September and October of last year. And during the week of June 14, record-setting temperatures were experienced throughout California and the West, with a Flex Alert in place for multiple days urging energy conservation. A 1-in-30 event, now seems to be a frequent occurrence.

At the same time, California is rapidly moving toward clean energy, trying to move away from reliance on natural gas power plants, and facing the shutdown of its last, baseload nuclear power plant. All this points to a need to rapidly plan for clean alternatives to these firm and dispatchable resources, so that we can quickly and reliably meet our clean energy goals. Fortunately, there are several promising technologies to fill this role, including geothermal power, green hydrogen, offshore wind, long duration storage and multi-day storage. The CEC and CPUC are actively promoting development of each of these technologies, and even considering requiring procurement of them, yet haven't fully integrated them into their planning processes. It's past time they do so."

- 2) *A Matter of Definitions.* As currently written, this bill identifies "emerging renewable energy and firm zero-carbon resources," as preferred resources throughout the state's energy procurement and planning efforts. However, the definition for "emerging resources" provided in the bill does not include any description of the attributes of these resources, merely listing types of resources that qualify. The listed resources vary greatly in their availability (emerging technologies versus long-standing), variability (intermittent versus firm), and efficiency (high capacity versus low capacity factor). It is difficult to understand how calling for procurement or planning around these myriad resource types will address any identifiable gap, as our current planning regime – the IRP – already looks broadly at system needs, a multitude of resource types, and maximizes for preferred attributes (reliability, least cost).

The author has expressed the goal of this bill is to address reliability shortfalls during extreme weather events, such as the rolling outages that occurred in California during last summer's heat wave. As we discovered last August, regional heat waves can greatly impact electricity supply and demand. But the current resource mix during Californian summers exacerbates these supply and demand challenges further, as a result of large fluctuations in the late afternoon from solar generation going offline. This is because air conditioning and other load being served by solar during the day must quickly be met by other resources when the sun goes down in the evening. This rapid daily shift in supply

and demand can last a few hours in the early evening (typically from 4pm-9pm), and is known as *net peak* (the peak of customer demand *net* the solar and wind generation). These changes in the resource mix and timing of the net peak have increased the challenge of maintaining system reliability in the state, and this challenge is amplified during an extreme heat wave.

As a result of these challenges, California’s energy entities have looked at electricity resources that may address the steep net peak experienced during the summer. Currently, much of our net peak is met by natural gas plants, which quickly ramp up to meet demand as the sun rapidly sets.¹⁴ However, as the state rapidly moves toward its 100%-clean-electricity-by-2045 policy enacted under SB 100 (De León, Chapter 312, Statutes of 2018) there is growing focus on technologies that can replace natural gas in meeting the net peak.

This specific focus on net peak underscores a broader shift in our electricity resource mix. Intermittent renewables – such as solar and wind – make up the majority of our electricity supply during many days of the year. While at night, the state still relies on natural gas and imports.¹⁵ As we transition to a cleaner grid, identifying clean resources that can produce during net peak and at night will be a central focus of state efforts.

Given these growing challenges, and the intent expressed by the author to address these challenges both broadly and during extreme weather conditions, it seems the focus of this bill is to address these gaps with firm zero-carbon resources. As mentioned above, “firm power” generally refers to electricity resources that can deliver electricity at any time, for as long as needed.¹⁶ These firm power resources can supply power even when variable resources – such as solar and wind – are offline (such as at night or on cloudy days). Examples of firm resources can be well-established like geothermal, hydro, or pumped storage; or emerging technologies like green electrolytic hydrogen or multiday energy storage.

To address this gap and better align the efforts of this bill with the intent of the author, the committee may wish to narrow the definition of eligible resources to be only “firm zero-carbon resources.” Additionally, the committee should consider, as part of the definition, specifying the desired attributes – clean resources available during multiple days and periods of low renewable generation – of these firm zero-carbon resources, rather than focusing on eligible resource types as the sole descriptor of this new term.

- 3) *What’s Wrong with our Current Plans?* The supporters of this bill note that while state energy planning efforts focus on decarbonization and cost-effectiveness, there is a lack of planning (or explicit representation) around clean resources that can reliably meet net peak, nighttime, and extreme weather conditions. While concern over gaps in our current resource mix may be justified, especially as the state accelerates its clean energy targets, it is unfair to characterize current energy planning efforts as being silent to the issue. Rather, state agencies are moving to incorporate multiday and extreme scenarios, as well

¹⁴ CEC, “A Peek at Net Peak,” May 2021, <https://www.energy.ca.gov/data-reports/energy-insights/peek-net-peak>.

¹⁵ See CAISO’s supply trends at <http://www.caiso.com/TodaysOutlook/Pages/supply.html>

¹⁶ 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.

as emphasizing firm resources, into their planning efforts. Since last August's blackouts, the state energy entities have incorporated more extreme weather events in their planning in an effort to address the increased likelihood of such events as a result of climate change.¹⁷

The IRP analysis already includes checks on daily, multiday, and seasonal reliability within its production cost modeling. The CPUC is also exploring updates to their IRP model for the next cycle that will better capture multiday and seasonal events. Even the last iteration of the IRP explicitly selected a number of firm zero-carbon resources.¹⁸

The Joint Agency SB 100 Report, which has a longer planning horizon than the IRP, also selected firm resources, principally long-duration storage.¹⁹ The Joint Agency SB 100 Report also ran a specific exploratory study around a generic firm zero-carbon resource (with assumed estimated price and availability data for a non-specific, generic resource) to illustrate the possible impact of these emerging resources.²⁰ When the generic firm zero-carbon resource was included in the modeling, roughly 15 GW were selected and the overall need for utility-scale solar and battery storage was reduced by \$2 billion.²¹

Beyond planning, the CPUC has also moved quickly to address reliability in the mid-term (2023-2026) by issuing a recent procurement decision calling for 11,500 MW to come online by 2026.²² This procurement order arose in response to firm capacity retirements in 2024-2026,²³ and thus recognized that at least some of the replacement capacity be similarly firm in nature. As a result, the decision calls for 1,000 MW of long-duration storage and 1,000 MW of generation that has no on-site emissions (or is RPS eligible), has at least an 80% capacity factor, and is available continuously during the evening peak and all weathers.²⁴ In other words, the decision calls for firm zero-carbon resources.

This all suggests that the state is moving quickly to recognize the challenges faced to meet reliability during net peak, nighttime, multiday and extreme weather events. While the planning efforts in the SB 100 Joint Agency Report to identify and characterize firm zero-carbon resources was a first step, more specificity around these resource types and attributes are needed before emerging firm zero-carbon resources might be fully incorporated into specific procurement orders, RA requirements, or baseline planning scenarios. The author notes that the SB 100 Joint Agency Report is not required again until 2025, and further study is needed sooner.

¹⁷ CEC "Session 1 – IEPR Joint Agency Workshop on Summer 2021 Reliability – Reliability Outlook," May 4, 2021. <https://www.energy.ca.gov/event/meeting/2021-05/session-1-iepr-joint-agency-workshop-summer-2021-reliability-reliability>

¹⁸ Geothermal and long-duration storage, specifically, in the 38 MMT scenario resource stack; CPUC, "Proposed Resource Planning Portfolios from CPUC's Integrated Resource Planning Process for use in CAISO's 2021-2022 Transmission Planning Process," January 20, 2021, pg. 9.

¹⁹ Pg. 10, *2021 SB 100 Report*.

²⁰ Pg. 55, *2021 SB 100 Report*.

²¹ Pg. 13, *2021 SB 100 Report*.

²² CPUC, *Revised Proposed Decision of ALJ Fitch, "Decision Requiring Procurement to Address Mid-term Reliability (2023-2026)," R. 20-05-003*, filed June, 24, 2021.

²³ Diablo Canyon and once-through cooling plants

²⁴ Storage projects were explicitly excluded from this second 1,000 MW call. Pg. 95, CPUC, *Revised PD of ALJ Fitch*.

Given this landscape, the committee may wish to consider striking all portions of this bill related to the IRP, RA, or specified procurement, and instead focus the bill on the assessment called in Section 3 requiring the CEC, CPUC, CAISO, and CARB to examine the role of firm zero-carbon resources in our clean energy future. Such a focus recognizes the need for this examination sooner than 2025, and addresses the lack of reliability analysis in the current SB 100 Joint Agency Report.

4) *Related Legislation.*

AB 525 (Chiu, 2021) requires the CEC to develop a strategic plan for achieving offshore wind development off the California Coast by 2045, with an interim target in 2030. Status: *pending hearing* in the Senate Committee on Energy, Utilities, and Communications.

SB 18 (Skinner, 2021) requires CARB to include a strategic plan for hydrogen as part of the Climate Change Scoping Plan, with a specific plan to accelerate the production and use of green hydrogen. Status: *pending hearing* in the Assembly Committee on Natural Resources.

SB 67 (Becker, 2021) revises the state's energy procurement policy to establish a goal that 100% of electrical load be supplied by eligible clean energy resources, as defined. The bill would establish the California 24/7 Clean Energy Standard Program, which would require that 85% of retail sales annually and at least 60% of retail sales within certain subperiods by December 31, 2030, and 90% of retail sales annually and at least 75% of retail sales within certain subperiods by December 31, 2035, be supplied by eligible clean energy resources, as defined. Status: In Committee – Senate Energy, Utilities, and Communications.

5) *Prior Legislation.*

SB 100 (De León) establishes the 100 Percent Clean Energy Act of 2018 which increases the Renewables Portfolio Standard (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. Requires the CPUC, in consultation with the CEC, CARB, and all California balancing authorities, issue a joint report to the Legislature by January 1, 2021, reviewing and evaluating the 100% clean energy policy. 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 POU's to file an IRP by January 1, 2019. Status: Chapter 547, Statutes of 2015.

6) *Double Referral.* This bill is double-referred; upon passage in this Committee, this bill will be referred to the Assembly Committee on Natural Resources.

REGISTERED SUPPORT / OPPOSITION:

Support

350 Bay Area Action
350 Silicon Valley
California Energy Storage Alliance
Clean Power Campaign
Coalition of California Utility Employees
Form Energy
Plug in America

Oppose

California Municipal Utilities Association
Edison International and Affiliates, Including Southern California Edison
Northern California Power Agency
Pacific Gas and Electric Company
Sempra Energy and Its Affiliates: San Diego Gas & Electric Company and Southern California
Gas Company
Southern California Public Power Authority (SCPPA)

Other

The Utility Reform Network (TURN)

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