

Date of Hearing: July 1, 2024

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Cottie Petrie-Norris, Chair

SB 1018 (Becker) – As Amended June 20, 2024

SENATE VOTE: 30-8

SUBJECT: Electricity

SUMMARY: Provides two exemptions – one from state and one from federal rules regulating utilities – for entities that engage in selling electricity from solar and wind generation if those entities provide electric generation exclusively for electrolytic hydrogen production and electrifying industrial heat processes. Specifically, **this bill:**

- 1) Exempts from the definition of “electrical corporation” under California law an entity selling solar or wind electric generation of at least five megawatts (MW), if the generated electricity is transmitted solely using private electric lines to a separate facility owned by a different entity that uses the electricity exclusively for either:
 - a) Producing hydrogen from electrolysis.
 - b) Providing industrial process heat, including the use of a thermal energy storage system.
- 2) Specifies that exempt solar and wind generation facilities may have associated battery storage on-site, and may not serve departing load.
- 3) Requires the California Public Utilities Commission (CPUC) to establish a tariff by July 1, 2026, that allows for solar and wind generation facilities, and associated storage, greater than 80 MWs providing retail service to qualified self-generation projects (QSGP), as defined, to be exempt from federal Public Utility Holding Company Act (PUHCA) rules due to designation as an exempt wholesale generator.
- 4) Specifies the tariff shall be structured such that electrical corporations serve as contractual intermediaries between the generation facilities and the customer, where the rates for both purchasing and reselling the electricity will be at cost, but including an adder for incremental administrative or operational costs to be paid to the electrical corporation serving as the intermediary.
- 5) Specifies customers may take supplemental service under standard tariffs, and that generation facilities may also participate in wholesale electricity markets.
- 6) Defines “qualified self-generation project” (QSGP) as a customer that meets all of the following:
 - a) Uses electricity from either solar or wind technology, or storage facilities exclusively charging from solar or wind technology, that is transmitted directly to the customer’s QSGP;
 - b) Bears responsibility for the cost of any infrastructure constructed for the purpose of connecting the QSGP with the generation facilities;

- c) Consumes the electricity for electrolytic hydrogen production or industrial process heat.

EXISTING LAW:

- 1) Authorizes the California Public Utilities Commission (CPUC) to regulate public utilities, including electric and natural gas corporations and establish rates for these utilities. (Public Utilities Code § 201 et. seq.)
- 2) Defines an “electrical corporation” as every corporation or person owning, controlling, operating, or managing any electric plant for compensation in the 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; establishes limited exemptions to the definition of an electrical corporation; and generally designates any entity that sells electricity to more than two contiguous parcels or across the street as an “electrical corporation.” (Public Utilities Code § 218)
- 3) Subjects entities who directly, or indirectly through affiliates or holding companies, own or operate facilities used for the generation, transmission, or distribution of electric energy or natural gas for sale to various regulations under the Federal Energy Regulatory Commission (FERC), including requiring access to books and records, requiring specified record keeping and accounting practices, and federal rate regulation. (Public Utility Holding Company Act of 2005 [18 Code of Federal Regulations 365-366, Vol. 71 FR 28457])
- 4) Exempts specified Qualifying Facilities (those under 80 megawatts [MWs]), Exempt Wholesale Generators, and foreign utility companies from the Public Utility Holding Company Act of 2005. (18 Code of Federal Regulations § 366.3)
- 5) Defines an “exempt wholesale generator” (EWG) as any person determined by FERC to be engaged directly, or indirectly through one or more affiliates, and exclusively in the business of owning or operating (or both) eligible facilities and selling electric energy at wholesale. Specifies an “affiliate” for these purposes as any company in which the person claiming EWG status owns 5% or greater voting interest. (18 Code of Federal Regulations § 366.1)

FISCAL EFFECT: Unknown. This measure has not received a fiscal committee hearing, due to a determination by the Senate Committee on Appropriations, pursuant to Senate Rule 28.8, that the cost of implementing this bill is not significant. However, amendments taken in this house added new requirements on the CPUC to develop a tariff that may result in new costs to the state.

BACKGROUND:

Over-the-Fence – The definition of “electrical corporations” provided in Public Utilities Code § 218 is the subject of a long-standing point of division colloquially known as the “over-the-fence” rule. Current statute limits the ability of an entity to serve multiple customers (greater than two on adjacent properties) if that entity is not an electric utility. Statute ensures regulatory oversight of a private entity providing electric service for compensation, that is not otherwise a corporation or person employing cogeneration, landfill gas technology, or digester gas technology. The implications for defining an electrical corporation are to ensure adequate regulatory oversight, including the bedrock principles of safe, reliable, and affordable service. The CPUC has

regulatory oversight of all electrical corporations, maintaining broad authority, including the ability to review books, set rates, fine and penalize, and to revoke licenses to operate. However, many private entities seeking unique electrical generation arrangements – such as microgrid developers – see these legal limitations as a hurdle to deploying greater use of emergent technologies.

Costs of Hydrogen Production – Most of the continued operations costs to developers for producing hydrogen in California will arise from the purchase of electricity, and vary by the utility serving the hydrogen production facility. A recent study by the National Renewable Energy Lab projected the cheapest way to produce hydrogen in California is to have the hydrogen production plant connected directly to the California Independent System Operator (CAISO) transmission system.¹ Such a scenario, under 2019 tariffs and rates, would be approximately \$3 per kg,² or \$24 per million British thermal units (MMBtu).³ (For comparison, fossil natural gas prices in the state average around \$9.40/MMBtu, while biomethane prices average around \$17.70/MMBtu.⁴ So even these “cheapest” hydrogen prices are costly.) The statewide cap on direct access currently prevents this pathway from new development in California, but it served as a base case for the study.⁵

The next cheapest pathway found in the study involved hydrogen production directly connected to onsite renewable generation, via an electrolyzer combined with a wind plant operating under a Pacific Gas and Electric time-of-use tariff, at \$4.29/kg or \$34.3/MMBtu.⁶ If collocation of a renewable resource was not considered, the cheapest pathway was a hydrogen production facility taking grid power under Southern California Edison’s real-time pricing tariff, at \$4.7/kg or \$37.6/MMBtu. (Note these models optimized for the large IOU rates; they did not run the models against the publicly owned utility rates, which are typically lower.) These pathways differ largely in how the electric upgrade costs will be borne by the hydrogen facility. In the collocation scenario, the obligation to install onsite renewable generation would fall on the hydrogen developer, presumably as part of the financing for the hydrogen facility. In the grid-connected scenario, any additional electricity needed to serve the load of the hydrogen production facility would presumably be paid for by utility ratepayers.

Industrial Process Heat – According to the Department of Energy, industrial process heat is the use of thermal energy to produce, treat, or alter manufactured goods. This process often employs steam, hot water, or other hot gases. Process heating systems raise or maintain the temperature of materials involved in the manufacturing process, such as the melting of scrap in electric arc furnaces to make steel, separating components of crude oil in petroleum refining, drying paint in

¹ The actual cheapest pathway was a scenario of the hydrogen production facility using federal hydropower; however the author’s noted it is institutionally complicated and may be legally infeasible. Nevertheless it produced costs approaching the U.S. DOE’s \$1/kg target. Pg. 25, Guerra Fernández, O.J., et al., NREL, *Integrating Hydrogen Production and Electricity Markets: Analytical Insights from California*, June 2022; <https://www.nrel.gov/docs/fy22osti/80902.pdf>

² Guerra Fernández, O.J., et al., NREL, 2022, *Ibid*.

³ Using the conversion of \$1/kg = ~\$8/MMBtu; Seeking Alpha, “Hydrogen vs. Natural Gas for Electric Power Generation,” December, 2, 2020; <https://seekingalpha.com/article/4392471-hydrogen-vs-natural-gas-for-electric-power-generation> <https://seekingalpha.com/article/4392471-hydrogen-vs-natural-gas-for-electric-power-generation>

⁴ D. 22-02-025, *Decision Implementing Senate Bill 1440 Biomethane Procurement Program*, R. 13-02-008, February 24, 2022; <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M454/K335/454335009.PDF>

⁵ PUC § 365.1

⁶ Pg. v, Guerra Fernández, O.J., et al., NREL, 2022. *Ibid*.

automobile manufacturing, or processing food for safe consumption. Application temperatures range from 80°C, used to pasteurize milk and cream, to well over 1000°C to make cement. Process heat is the most significant source of energy use and greenhouse gas emissions in the industrial sector, accounting for about 50% of all onsite energy use and 30% of greenhouse gas emissions.⁷ The high energy demand of industrial process heat applications makes any effort to decarbonize the process extremely sensitive to electricity price signals.

COMMENTS:

- 1) *Author's Statement.* According to the author, “As California transitions to net-zero emissions, some of the toughest challenges are in reducing greenhouse gas emissions from “hard-to-abate” industrial or transportation uses. Green hydrogen and thermal batteries are two of the most promising options for tackling those hard-to-abate emissions, but to be successful as climate solutions, both need access to very large amounts of low-cost, clean electricity – while avoiding adding cost or putting additional stress on the grid. Powering hydrogen production or thermal batteries by connecting them directly to renewable energy (“off-grid”) would give them access to some of the cheapest sources of energy. It would also guarantee that the hydrogen or heat is powered by clean energy without adding stress to the grid. Unfortunately, this off-grid option is blocked today. SB 1018 solves this problem by creating a narrow, new exception that allows a large solar or wind generator (spread across many parcels) to sell their output directly to a single customer who will use that power for producing hydrogen or providing industrial heat. It also directs the PUC to create a work-around for large projects that could be regulated as public utility holding companies under federal law if they both provide electricity directly to an affiliated hydrogen facility (under the new PUC 218 exception) and also sell excess electricity into the wholesale market. These changes will support the growth of green hydrogen and industrial electrification in a way that will ensure it makes use of clean energy and does not impact electricity rates or grid reliability.”
- 2) *Need for the bill.* This bill provides two avenues for regulatory relaxation – one of state rules, through an outright exemption and one of federal rules, through a contractual work-around – for specified hydrogen production and industrial heat processing powered by solar or wind facilities. The author motivates the need for these avenues for these specified project types because of the projects’ sensitivity to electricity prices, as both electrolytic hydrogen production and industrial process electrification require a substantial amount of electricity. The author likewise raises the ability to connect these facilities “off-grid” with renewables as the cheapest way to ensure projects are zero-emission, as they would bypass the extra costs for transmission, distribution, taxes, fees, and utility profits, while ensuring the clean power is delivered directly to the production facility.

However, the economics of how such an arrangement – where the production facilities, generating facilities, and electrical lines are all privately owned and presumably part of the capitalized cost of the project – compares against the cost to take directly from the grid is unclear. As noted above for hydrogen production facilities, unique arrangements that colocate resources near production facilities actually are modeled to provide cheaper electricity than arrangements utilizing California grid power. As California’s investor-owned

⁷ 2018 Manufacturing Energy and Carbon Footprints; <https://www.energy.gov/eere/iedo/manufacturing-energy-and-carbon-footprints-2018-mecs>

utility electric rates continue to rise, the economics may further advantage non-traditional onsite generator arrangements for these high load applications.

- 3) *Peering Over the Fence.* Existing law generally classifies any entity selling electricity to more than two adjacent parcels as an electrical corporation, subject to full regulation by the CPUC. While existing law establishes very limited exemptions to this definition, those exemptions generally only apply to electricity generated for on-site energy consumption or electricity provided to no more than two parcels that are contiguous to the property on which the electricity is generated. These restrictions are generally known as the “over-the-fence” rules due to the requirement that parcels be adjacent to each other. This bill establishes a new exemption to the “over-the-fence” rules for certain wind and solar projects that provide electricity solely over private lines to another entity exclusively for producing electrolytic hydrogen and electrifying industrial heat process. This bill specifies that this exemption can only be provided for generation serving new electrical loads; as a result, this exemption may not be used to enable an existing electrical customer to leave their existing utility service. In this way, the exemption provided under this bill is unique from past “over-the-fence” efforts, where often departing loads were the intended recipient of the new arrangement and the cost savings were provided to these loads through bypassing traditional departing load charges. To the extent that a hydrogen production or industrial facility seeks to co-locate new renewable generation to support their activities, it may not be feasible to site a sufficient amount of generation on just two adjacent parcels even when such parcels are available.
- 4) *Eroding CPUC Oversight.* The CPUC’s “over-the-fence” rules have been the subject of intense debate in recent legislation and CPUC decisions.⁸ The over-the-fence exclusion established under this bill constitutes a substantial departure from existing policy by allowing certain generators to sell electricity to off-takers that are not on adjacent properties without those generators being classified as an electrical corporation. As a result, this bill prevents those generators and their facilities from facing CPUC regulation; regulation that seeks to protect consumers from unfair prices, unsafe or unreliable infrastructure, or unscrupulous marketers. This bill specifies the off-taking customers will be commercial operations, presumably savvy enough in their understanding of electricity pricing and contracting that foregoing CPUC rate protections or remedies is an absorbable corporate risk.

This bill’s exemption also applies solely to those facilities that deliver the generation entirely over private electrical facilities. This limitation may reduce the likelihood that developers will establish generation facilities in distant locations from their off-takers; however, this bill does not require generation facilities to be located within a certain distance from associated off-takers. While both public and private electrical facilities have ignited catastrophic wildfires in the past, the CPUC’s authority over electrical corporations enables them to direct electrical corporations to take certain steps to mitigate the potential for ignitions and catastrophic fires. As we have found in the wildfire context, the safety of utility infrastructure goes beyond the safety of the owner or purchaser of that electricity, but serves the safety of the general public as well. *As such, the committee recommends requiring these private electrical lines, if located beyond the property where the generator or project are located, be subject to*

⁸ D. 21-01-018

all applicable CPUC general orders, and that the developer be subject to wildfire mitigation plan filings as required for other private transmission operators if the lines are located in high fire threat districts.

- 5) *What's Up Your Sleeve?* The second avenue to bypass regulatory oversight provided under this bill is through a contractual arrangement where an electrical corporation serves as an intermediary on paper to take financial ownership but not the physical delivery of the electricity; although this arrangement is not explicit in the bill and is left for the CPUC to articulate in establishing a tariff. Such an arrangement is known as a “sleeve” transaction. This avenue is available under this bill to any solar or wind generating facility greater than 80 MWs, as facilities under 80 MW are considered Qualifying Facilities already exempt from most FERC regulations. This arrangement would seemingly allow for generating facilities to oversize their production so that some would be sent to the electricity grid wholesale, with the facility acting as a traditional exempt wholesale generator, while a portion would be sent to the electrolyzer or industrial heat facility to serve that load at retail. Otherwise, if they exported all their power onto the grid, the generator would already be considered a EWG and exempt from FERC regulation; and if they only sent their power to the retail load via private lines they would only need the over-the-fence exemption provided in this measure.

It is this secondary retail arrangement alongside the wholesale exporting of power that would subject the facility to FERC regulation under the Public Utility Holding Company Act of 2005. As a result, the scheme envisioned by this bill would ask the electrical corporation to be the financial intermediary of the retail transaction, so that on paper, the generating facility is not technically serving retail customers (i.e. the hydrogen or industrial heat facility), and thus bypassing FERC rules. Supporters of this arrangement evoke a similarity between what is being proposed and traditional self-generation arrangements like rooftop solar, with the distinction being the magnitude of the MWs.⁹ However, the legal robustness of the proposed arrangement is unknown. The committee is unaware how and where this arrangement might be deployed to date, or whether FERC has issued any guidance or rulings that such sleeve transactions are permitted. (FERC has issued guidance and does allow for sleeve transactions in other circumstances.)¹⁰

An additional concern with such an arrangement is whether it is operating as a “sham transaction,” which is forbidden under the Federal Power Act (FPA). Sham transactions occur when an entity financially trades electricity and obtains wheeling services without actually owning any facilities that distribute the electricity. FPA § 212(h)(1) precludes FERC from issuing any order that requires the transmission of energy directly to an ultimate consumer (direct retail wheeling). FPA § 212(h)(2) prohibits sham transactions that are intended to evade the ban on direct retail wheeling.¹¹ The “sham” prohibition precludes FERC from issuing any order under the FPA that is conditioned upon or requires the transmission of electric energy to, or for the benefit of, an entity if such electric energy would be sold by that entity directly to an ultimate consumer, unless certain conditions are met. One of those conditions is if the entity “*utilizes transmission or distribution facilities that it owns*

⁹ Orders of magnitude difference in this case. Residential rooftop solar averages below 10kW; these generators are over 80MW.

¹⁰ ConocoPhillips Co., 175 FERC ¶ 61,226 (2021) (Guidance Order)

¹¹ 16 U.S.C. § 824k(h)(2) (1994)

*or controls to deliver all such electric energy.*¹² In the circumstance envisioned by this bill, electrical corporations would potentially be running the “sham transaction,” unless some element of the electricity from the generating facility to the electrolyzer or industrial heat facility utilizes the IOU’s facilities.

To the committee’s knowledge, the arrangement contemplated under this measure would be unique in California law, uncertain in federal preemption, and provide special treatment to these generators, resulting in large uncertainty and risk as to the consequence of granting such statutory favor. These provisions, however, are subject to the CPUC development of a tariff that expressly mandates the arrangement must be “just and reasonable.” Just how the CPUC may contemplate such a directive in this arrangement is also uncertain.

- 6) *Further Amendments.* Many customer protections – such as requiring that the generator only serves new load or that only private utility lines are utilized – are present in the over-the-fence exemption but absent in the tariff provisions of this bill. The author has expressed this was unintentional. Moreover, given the unique financial arrangement envisioned by the tariff, it may be prudent to expressly require that no cost shift occurs between participants and nonparticipants. Finally, additional drafting issues are needed to clarify elements of the tariff, such as the striking of “contractual” and restating the “customer” as the QSGP. **The committee recommends adopting all of these amendments.**

- 7) *Related Legislation.*

AB 2083 (Berman, 2024) requires the California Energy Commission (CEC) to assess the state’s potential to reduce emissions from high-heat industrial processes. Status: *set for hearing on July 3rd*, in the Senate Committee on Environmental Quality.

AB 3107 (Connolly) requires the CEC to conduct a study on the benefits of microgrids for local governments and communities, and submit a report on the study to the Legislature by January 1, 2027. Prior version of the measure exempted microgrid operators from the statutory definition of “electrical corporation.” Status: *Held* in the Assembly Committee on Appropriations.

AB 3111 (Calderon) requires various reporting from distributed energy resources (DER) and aggregations of those resources. A prior version of the measure required DER applicants to attest, under penalty of perjury, to a prescribed definition of “electrical corporation.” Status: *set for hearing on July 2nd*, in the Senate Committee on Energy, Utilities and Communications.

SB 1420 (Caballero) provides for expedited California Environmental Quality Act (CEQA) and California Energy Commission (CEC) review for hydrogen production facilities that have received state or federal funding. Status: *set for hearing on July 1st*, in the Assembly Committee on Natural Resources.

SB 993 (Becker) requires the CPUC to consider establishing a new tariff to encourage new grid-responsive electricity consumption for electrolytic hydrogen production and electrifying industrial heat processes. Status: *Held* in the Senate Committee on Appropriations.

¹² 16 U.S.C. § 824k(h)(2)(B); <https://www.law.cornell.edu/uscode/text/16/824k>

8) *Previous Legislation.*

AB 841 (Berman, 2023) would have required the CEC to develop an Industrial Heat Electrification Roadmap to identify opportunities to decarbonize certain high-heat industrial processes through electrification. Status: *Held* in the Senate Committee on Appropriations.

SB 1339 (Stern) required the CPUC and local publicly owned electric utilities to take a number of steps to encourage the commercialization of microgrids, including adopting tariffs to support microgrids. Status: Chapter 556, Statutes of 2018.

REGISTERED SUPPORT / OPPOSITION:**Support**

350 Humboldt
350 Humboldt: Grass Roots Climate Action
350 Sacramento
Advanced Energy Economy
Advanced Energy United
California Hydrogen Coalition
California State Association of Electrical Workers
California State Pipe Trades Council
Climate Action California
Coalition of California Utility Employees
Green Hydrogen Coalition
Industrious Labs
Intersect Power
Menlo Spark
Nrdc Action Fund
Project 2030
Rondo Energy
Sierra Club
Solar Energy Industry Association
The Climate Center
The Climate Reality Project: Silicon Valley
Western States Council Sheet Metal, Air, Rail and Transportation

Opposition

Pacific Gas and Electric Company
Public Advocates Office
San Diego Gas and Electric Company
Southern California Edison

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