

Date of Hearing: June 27, 2018

ASSEMBLY COMMITTEE ON UTILITIES AND ENERGY

Chris Holden, Chair

SB 1339 (Stern) – As Amended June 11, 2018

SENATE VOTE: 29-8

SUBJECT: Electricity: microgrids: tariffs

SUMMARY: This bill requires the California Public Utilities Commission (CPUC), before July 1, 2019, to complete a proceeding to consider the role of microgrids in providing grid resiliency and for the CPUC and local publicly owned utilities (POUs) to establish a tariff for the use of microgrids. Specifically, **this bill:**

- 1) Requires the CPUC, before July 1, 2019, to consider the role of microgrids in providing grid resiliency, and to establish a tariff for each IOU for the use of microgrids to provide electrical grid resiliency. Requires the CPUC to not permit microgrids that use diesel backup or gas-combustion generation.
- 2) Permits a microgrid to be owned by an IOU, POU, community choice aggregator (CCA), third party, or customer.
- 3) Requires specified issues to be addressed in the proceeding, including: the size limitations of microgrids, criteria to inform the establishment of a tariff or rate schedule, and others.
- 4) Requires each electrical corporation to file an advice letter to implement the tariff which the CPUC must approve by January 1, 2020 if it minimizes costs and maximized benefits to all ratepayers.
- 5) Requires POUs to establish a tariff, to meet specified criteria, with a specified rate structure, for the use of microgrids to provide electrical grid resiliency before January 1, 2020 and prohibit the use of diesel backup or gas-combustion generation.
- 6) Requires each state agency to consider integrating microgrids into its infrastructure.

EXISTING LAW:

- 1) Generally, requires every electric utility to offer a net-energy metering (NEM) tariff to a customer-generator using an onsite renewable energy generation facility of no greater than one megawatt (MW) until the total generating capacity used by eligible customer-generators exceeds five percent of the electric utility's aggregate customer peak demand or until July 1, 2017, whichever is earlier. This is known as the NEM-Renewables program. (Public Utilities Code § 2827)
- 2) Requires the CPUC, by December 31, 2015, to develop a successor program to the NEM-Renewables program, which the IOUs must offer to customer-generators using an onsite renewable energy generation facility. (Public Utilities Code § 2827.1)

- 3) Authorizes the CPUC to require the IOUs to collect funds from ratepayers, through December 31, 2019, to be used to provide incentives through January 1, 2021, under SGIP, for distributed energy resources and energy storage systems, the CPUC, in consultation with ARB, determines will achieve reductions in emissions of GHGs. (Public Utilities Code § 379.6)
- 4) Defines “distributed resources” as distributed renewable generation resources, energy efficiency, energy storage, electric vehicles, and demand response technologies and requires IOUs to develop distribution resources plans to identify optimal locations for the deployment of distributed resources. (Public Utilities Code § 769)
- 5) Authorizes the creation of an expedited dispute resolution process for distributed generation energy resources attempting to establish a connection to an investor-owned utility’s (IOU’s) electricity transmission and distribution network. (Public Utilities Code § 769.5)
- 6) Prohibits microgrid projects that use diesel power generators from receiving EPIC funding. (Public Resources Code § 25711.8)
- 7) Requires the California Air Resources Board (CARB) to adopt a certification program and uniform emission standards for electrical generation technologies that are exempt from district permitting requirements, as specified. (Health and Safety Code § 41514.9)
- 8) Current law and decisions of the California Public Utilities Commission (CPUC) establish the conditions under which any IOU customer may interconnect generation renewable or fossil-fueled to an IOU’s distribution system, to offset their electrical load. (Electric Rule 21)

FISCAL EFFECT: According to the Senate Appropriations Committee:

- The CPUC indicates this bill would result in about \$2.4 million in ratepayer funds. Of these costs, \$1.7 million would be used on an ongoing basis to fund 10 new positions to coordinate at least seven new proceedings, explore the topic of microgrids, review and evaluate the new required grid resiliency plans, and evaluate applications submitted by the major utilities on tariffs for the use of microgrids. The remaining cost of \$750,000 would be for a two-year contract each year for technical assistance and analysis of microgrids and their deployment.
- Any costs to the ARB are expected to be minor and absorbable within existing resources.

BACKGROUND:

Microgrids – Generally, a microgrid is understood to be a self-contained, small, electricity system with the ability to manage critical customer resources, disconnect from the electric grid when the need arises, and provide the customer with different levels of critical support. A microgrid can be as simple as a diesel-fuel generator located near a building, such as a hospital, that is able to provide needed power during an electric power outage. A microgrid can be an entire neighborhood that is outfitted with solar and other technologies. Customers tend to seek

reliability and resiliency services from microgrids. In particular, customers may value the desire for sufficient resources both at the utility scale, but also at the local level in order to better manage challenges, such as power outages due to wildfire, flooding, etc. Although each microgrid can vary in component configuration, size, and applications, generally, microgrids are made of a combination of distributed energy resources (DER), storage, and demand response capabilities. While there are several definitions for microgrids, including a working definition that is still under development by the CPUC and CEC, this bill largely aligns with the definition by the U.S. Department of Energy which defines a microgrid as:

A group of interconnected loads and DER with clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and can connect and disconnect from the grid to enable it to operate in both grid connected or island mode.

State Efforts to Commercialize Microgrids – The CEC, CPUC, and CAISO are working with stakeholders to develop a road map for actions needed to commercialize microgrids in California. The roadmap is expected to be released sometime this year. Additionally, the CEC is funding research through the Electric Power Investment Charge (EPIC) program for projects that use microgrids to support high penetrations of renewables and the operations of critical facilities, including hospitals, fire stations, and regional command centers. These projects are used to collect data to demonstrate how they are working to reduce GHG emissions, improve reliability, and increase resiliency and flexibility to critical services in emergencies. The demonstrations are helping to increase the knowledge regarding the operations of microgrids. In 2017, the CEC issued an EPIC funding solicitation to promote research of commercialization of microgrids. The solicitation is intended to inform opportunities where microgrids can be developed into standardized configurations that are easily repeatable to provide benefits to the grid and customers. Additionally, the CPUC has active proceedings that are relevant to the deployment of microgrids, including a specific proceeding on DER (R. 14-08-013) and another on smart grids (R. 08-12-009). Nonetheless, microgrid development is largely considered to be at a somewhat nascent stage.

Resiliency benefits of microgrids. The recent emergency and natural disasters incidents, particularly the increased risks of more disasters due to climate change, have spurred the interest to develop “resilient” electric and gas utilities and service. From wildfires, to flooding, to extreme weather events, microgrids may help provide additional reliability and resiliency to allow a customer to withstand the event while maintaining their electric power for critical services. In addition to the increased reliability, microgrids with properly configured controllers have the potential to provide lower electricity bills for the customer and cleaner air by displacing the need for energy generating resources with higher emissions. Specifically, microgrids can control the rate and schedule of distributed energy generation resources, coordinate the use of energy storage, and implement demand response.

Rule 21 – Rule 21 is a tariff that describes the interconnection, operating and metering requirements for certain generating and storage facilities seeking to connect to the electric distribution system. The tariff provides 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 at the local and system levels.

Rule 21 governs CPUC-jurisdictional interconnections, which include the interconnection of all net energy metering (NEM) facilities, "Non-Export" facilities, and qualifying facilities intending to sell power at avoided cost to the host utility.

Ratepayer Impacts. Cost has been a concern, as microgrids may have the potential for ratepayer benefits broadly, however, the complications of attaining the best value configuration for ratepayers and the end users benefiting from the microgrid is a challenge. Interconnections for microgrids, particularly when the microgrids are not standardized themselves, often requires additional studies, potential upgrades to the distribution system to connect and communicate with the microgrid, and costs associated with standby power and others. Per the principle of cost-causation, these costs should not be shouldered by ratepayers who do not benefit from the microgrid project.

COMMENTS:

- 1) Author's Statement. In the wake of the devastating wildfires in 2017, California needs to chart a path to a more resilient, reliable energy grid. When natural disasters strike, critical services such as the delivery of water, goods, and electricity, can be disrupted, threatening the health and safety of residents in affected areas. Microgrids, with their ability to operate independently, can provide necessary power during grid disruptions. For example, if a fire hits a community, causing the electrical grid to shut down, microgrids can operate independently, supporting community centers to keep residents sheltered and cool, a grocery store to provide food, and a wastewater treatment facility to keep the water safe to drink. Furthermore, microgrids have benefits beyond providing resiliency in the face of natural disasters. They also can improve integration of renewable resources, reduce greenhouse gas emissions, and increase the use of energy storage, electric vehicles, and distributed energy resources. With all these benefits, the state needs policies to make it easier to establish microgrids. SB 1339 creates a process that will streamline the integration of microgrids into our electrical grid.
- 2) Safety v Customer Need/Desire. This bill conflates two distinct principles for the development of microgrids which, for purposes of ratemaking and IOU responsibility, can result in two different standards and funding bases.
 - *Safety.* The bill intends that each utility:
 - should work to incorporate an electrical grid resiliency plan into its overall distribution grid planning process. The plan should identify the investments necessary to increase the resiliency of the electrical grid and reduce the risk of electrical outages affecting emergency services, critical circuits, and critical infrastructure, and should explain how the plan's execution would increase grid resiliency in a manner that both maximizes the benefits and minimizes the costs to ratepayers.

The need to use microgrids for resiliency and safety purposes is being considered in other legislation as well as a roadmap for microgrids under consideration by the CPUC, CEC and ISO. The obligation of a utility is to ensure reliability applies across the grid. It is not clear at this juncture the degree to which the utility is responsible for individual customer reliability. Even current and proposed

deenergizing policies only require the IOUs to notify customers of possible outages but place no requirement on the IOU to provide back-up generation or microgrids. The reliability and resilience demands are determined by the individual customer sites such as hospitals, police/fire, water/wastewater systems, and emergency facilities. *The committee may wish consider eliminating the charge for microgrid development for safety and resiliency as a responsibility of the utility.*

- *Customer Need/Desire.* Large customers, especially those where electricity is a critical need in day-to-day operations, are increasingly interested in the development of microgrids to support their endeavors. They identify the desire for increased reliability, efforts to reduce energy costs and to expand renewable energy. operation of the microgrid is normally determined by the needs of the primary customer or end-user. There is clearly an added cost to design, install and operate a microgrid. The end-user who makes this decision normally has a history of energy issues or specific energy needs that justifies the cost and effort to install and operate a microgrid.
- 3) Lined Up at the Door. Customers and manufacturers of distributed energy resources report great interest in the development of microgrids but also great frustration. The DERs are ready but the protocols and standards for interconnection are not. Some customers have been successful in navigating the challenges but many are just lined up and the door waiting for the energy regulators to clear the path.

In September 2017 a draft “Roadmap for Commercializing Microgrids in California” was released by the CEC which has been working with the CPUC and ISO on its development. A quick review reveals a level of complexity unlike other programs which support customer resources.

There are no specific California regulatory directives requiring microgrids to be used by the California utilities or the California ISO. Additionally, there are no California laws or Governor’s Executive Orders directing specific actions for microgrid use. This bill could be the spur needed to elevate the work of the CEC and others.

- 4) Not Quite Ready for Prime Time. This bill calls for an interconnection process and tariff for microgrids. These were the two primary elements which made rooftop solar such a success in the state. However, each microgrid will be unique and off-the-shelf solutions such as those created for rooftop solar will not work. The agencies must continue and complete the work required to provide customers with access to these beasts. To ensure that the agencies elevate the work on their roadmap and subsequent regulatory development, *the committee may wish to limit the terms of this bill and instead focus this bill on requiring the CPUC, in consultation with the CEC and ISO to take the following actions by January 1, 2020 in support of providing access to IOU customers to microgrids. It is also recommended that the mandates on the POUs be limited to apply to POUs with greater than 700,000 customer connections and to develop processes for interconnection of customer-supported microgrids:*
- Develop microgrid service standards necessary to meet state and local permitting requirements;

- Develop methods to reduce cost barriers for, without shifting costs to ratepayers, for microgrid interconnection requirements;
 - Develop guidelines that determine what impact studies are required for microgrids to connect to the utility grid;
 - Determine if separate utility rates and tariffs are necessary to support microgrids;
 - Form a working group to codify standards and protocols needed to meet California utility and California ISO microgrid requirements; and
 - Develop a standard for DC metering under in Rule 21 to streamline the interconnection process and lower interconnection costs for DC microgrid applications.
- 5) Ratepayer Impact. This bill requires the CPUC to establish a tariff for microgrids. While this bill authorizes the CPUC to determine the tariff, it appropriately provides the CPUC with the discretion to consider a number of factors in developing the tariff, such as: the use of charges including demand charges, standby charges, interconnection charges and others, costs shift impacts to other ratepayers not benefiting from the microgrid, potential impacts to the distribution system, and the interaction with the net energy metering incentive policies, and others.
- 6) Impact of CCA Growth. Curious dynamic in that the IOU must facilitate the interconnection of a customer's chosen distributed resources. However, the tariff or rate structure to accommodate those resources is the responsibility of the provider of electricity. Increasingly customers are being defaulted into CCAs as a result of city and county decisions. Consequently, particularly in the Bay Area, these customers are not served by the IOU but the CCA. The mandate for a tariff in this bill only applies to the IOU. The equity of this arrangement is unclear. But the result of the mandate, and others that are pending such as specialized EV charging rates for transit and other commercial fleets, is that the IOU will be the provider of specialized services and the CCAs can pick and choose what needs are served.

As the IOU customer base shrinks therefore, it will be more critical to ensure that these specialized services do not result in a cost shift to the fewer and fewer remaining customers which are supplied electric service by an IOU.

7) Related Legislation.

SB 1088 (Dodd, 2018), among the provisions of the bill, also calls for the development of resiliency plans and microgrid deployment. Status: Set for hearing in the Assembly Governmental Organization Committee, June 28th.

REGISTERED SUPPORT / OPPOSITION:

Support

Advanced Energy Economy
 Advanced Microgrid Solutions
 Advanced Power And Energy Program
 American Lung Association In California

California Energy Storage Alliance
California Solar And Storage Association
Center For Sustainable Energy
Coalition For Clean Air
Consumer Watchdog
Engie Services U.S. Inc.
Rhombus Energy Solutions
Securing America's Future Energy
Solar Energy Industry Association
Sunrun
Technet-technology Network

Support If Amended

Enernoc, Inc.
Silicon Valley Leadership Group

Opposition

California Municipal Utilities Association
Independent Energy Producers Association
Pacific Gas And Electric Company
San Diego Gas And Electric Company
Southern California Gas Company
Southern California Public Power Authority (SCPPA)
The Utility Reform Network

Oppose As Amended

California State Association of Electrical Workers
Coalition of California Utility Employees

Oppose Unless Amended

SMUD

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