Model Legislation to create Virtual Power Plant Programs

The bill establishes a deadline for [electric utilities] to establish virtual power plant programs to enable the coordinated operation of aggregations of behind-the-meter distributed energy resources for peak load reduction and other grid services. The bill also requires the [commission] to establish peak load reduction and resource adequacy targets that [electric utilities] must meet through their virtual power plant programs. Finally, the bill requires each [electric utility] to submit an annual report to the [commission] showing its compliance with these requirements.

Note: Some words are highlighted with the understanding that they will need to be tailored to state specific terminology or filled in depending on state specific situations. The model legislation is just that – a model – and in most cases it will require significant drafting to adopt the bill to a specific state. If you are a legislator interested in learning more about how the model bill can be adopted to your state, please contact us at advocacy@solarunitedneighbors.org. We are happy to help!

SECTION 1. DEFINITIONS

Battery – A behind-the-meter ("BTM") energy storage device and associated inverter and related equipment.

[Commission – Public Utilities Commission or applicable state agency for public utilities regulation].

Customer – An active electric service account holder of the Company.

Direct Participant – A Customer that enrolls in the Program directly with an electric utility.

Distributed Energy Resource (DER) – A Customer or third party-owned resource that is capable of generating, storing, or discharging electricity and/or modifying the timing or amount of electricity the host-Customer consumes from the grid.

DER Manager – An OEM, TPO, or other non-utility entity that coordinates the participation of DERs in the Program. A DER Manager shall not be considered an electric utility by virtue of participating in the virtual power plant program.

Environmental Justice Community – [As defined by applicable state law or insert federal definition]

Electric Vehicle (EV) – a car, truck, bus, or other mobile unit that utilizes electric power stored in an onboard battery for propulsion, including the charger and related electric supply equipment (EVSE). As used herein, EVs include battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV) unless otherwise specified.

Electric Utility – [add in or reference applicable state definition]

Emergency Event – an Event called in response to an unanticipated grid condition for which the Company provides notification within a defined time period as described in the Program.

Event – collectively refers to an Emergency Event or a Planned Event.

Event Window – the time period over which an Event can occur.

Grid Service – Any capacity, energy, or ancillary service that helps to balance, stabilize, or otherwise support the operation of the electric grid.

Income Qualified Customer – [as defined by applicable state law]

Managed Charging – a program that controls the time and rate at which the EV or EVSE draws power from the grid or another onsite DER to charge the EV battery.

Original Equipment Manufacturer (OEM) – the manufacturer of a particular DER.

Performance-based compensation - a system of payments made to Program participants based on the value of electricity dispatched or saved through activating enrolled DERs during a grid event.

Planned Event – an Event called in response to a forecasted grid condition for which the Company provides notice and dispatch instructions within a defined time period as described in the Program.

Smart Thermostat – a Wi-Fi enabled device capable of automatically adjusting heating and cooling temperature settings in a building.

Third-Party Owner (TPO) – an entity other than the Customer or the Company that owns a distributed energy resource.

Vehicle to Grid – the discharge of energy stored in an EV battery to serve host-customer load and/or export additional power to the grid.

Virtual power plant - an aggregated network of DERs operating under a unified utility Program to provide grid services.

SECTION 2. DECLARATIONS AND FINDINGS

[Note: this section can be removed if legislative findings are not standard for a given state; also note that some of these findings may be more important to legislators than others are, depending on policy preferences and goals]

(a) Virtual power plants are dynamic load management and energy supply resources that can support grid operations, reduce ratepayer costs, and achieve other important public policy goals.

(b) Virtual power plants can reduce demand for grid supplied electricity during peak periods, shift electricity consumption out of peak periods, make renewable energy generated during off-peak periods available for use during on-peak periods, supply energy to the grid at desired times, provide frequency regulation, voltage support, and other ancillary services, improve system resiliency and reliability, and provide other grid services.

(c) Virtual power plants can facilitate and optimize the utilization of electrical generation from wind and solar energy to help utilities increase hosting capacity and integrate more renewable energy resources.

(d) Virtual power plants can reduce costs to ratepayers by utilizing customer-sited resources to provide grid services, avoiding or reducing reliance on fossil-fuel fired peaker plants, avoiding or deferring the need to construct new and more costly grid scale resources, optimizing the use of existing assets, and avoiding or deferring distribution and transmission system upgrades and other grid investments.

(e) Virtual power plants can promote equity by reducing costs for all ratepayers, expanding access to DERs among low- and moderate-income customers through improved DER financing options, and providing other important co-benefits, including reduction in emissions of greenhouse gasses and other pollutants, especially in environmental justice and other disadvantaged communities that host fossil fuel generation plants.

(f) There are significant barriers to deployment and operation of virtual power plants, including the need for statutory and regulatory guidance and support, greater consistency in virtual power plant programs across regulatory jurisdictions, and for utility commitments to incorporate the use of virtual power plants into system operations and long-term resource planning.

(g) It is in the public interest to advance customer choice and leverage the expertise of private sector, non-utility entities to advance innovation and implement cost-effective, competitive, clean energy solutions.

(h) The policy of [State] shall be to maximize the use of virtual power plants composed of customer-owned and third party-owned DERs to deliver system services and other benefits through utility administered virtual power plant programs in accordance with the provisions of this Act.

SECTION 3. REQUIRED VIRTUAL POWER PLANT PROGRAM FILING; OBJECTIVES.

(a) No later than [six months after effective date], each electric utility subject to this section must file with the commission a virtual power plant program that

is consistent with the requirements of this section and designed to achieve the following goals:

1. reduce demand for grid-supplied electricity during system peaks;
2. make customer renewable energy generated during off-peak periods available for use during system peaks;
3. Increased customer, local, or community resilience, especially in areas with higher than average electric outages**;**
4. lower ratepayer bills by reducing utility market purchases at elevated prices, including, but not limited to, during system peaks;
5. optimize the use of existing customer generation and energy storage assets;
6. improve the resiliency and reliability of the grid system; and
7. avoid or defer the construction of electric generation, distribution, or transmission infrastructure.

SECTION 4. VIRTUAL POWER PLANT PROGRAM FILING; STRUCTURE.

(a) The virtual power plant program filing required under this section shall be a standard-offer retail virtual power plant program that shall operate on an open-access basis, permitting any DER Manager or direct participant to enroll eligible technologies in the program and receive performance-based compensation.

(b) No enrollment or capacity limits shall be placed on the program components. The electric utility shall deploy the program framework for stationary battery storage devices as part of its initial program filing and shall phase in and incorporate operational enrollment riders for smart thermostats and electric vehicles not later than one year following the initial program launch.

(c) Utility-owned DERs are ineligible to participate in the virtual power plant program established under this section.

(d) The virtual power plant program framework shall be layered on top of the customer's existing electric service and interconnection tariffs.

(e) The electric utility is prohibited from imposing on the customer or a DER Manager any charge, fee, or insurance requirement that is not otherwise imposed equally on non-participants.

SECTION 5. VIRTUAL POWER PLANT PROGRAM FILING; CONTENT.

(a) A virtual power plant program filed under this section must contain, at a minimum:

1. a description of the goals of the virtual power plant program and the role the program plays in meeting the electric utility's grid system needs and reducing system peak demand;
2. a reasonable enrollment target designed to meet the goals of the virtual power plant program;
3. provisions to enroll and manage participants by DER Managers;
4. provisions that address the minimum and maximum number of virtual power plant events in a given period of time for which the utility may dispatch electricity generated by enrolled eligible technologies, as well as the times of the year and the times of the day events may be called, and the duration of events;
5. provisions setting compensation for customers enrolled in the virtual power plant program, including providing for an upfront payment upon initial enrollment, performance-based compensation provided for participation in events, or both, to compensate for the full value of grid services at the locations where eligible technologies are utilized;
6. provisions specifying that any energy exported to the distribution grid from an eligible technology during a load relief event shall be credited to the customer at the electric utility's full retail rate for that customer's

service class, in addition to any pay-for-performance payments earned under this subsection;

7. provisions to provide enhanced upfront payments for income-qualified customers and customers located in environmental justice communities;
8. communication protocols and integration standards between DER Managers and the electric utility;
9. a process by which participants may opt out of virtual power plant events;
10. a process by which participants may leave the program;
11. provisions to measure and verify energy storage system performance directly at the site of the energy storage system through device-level measurement utilizing the telemetry capabilities inherent to the eligible technology without requiring the installation of an additional meter;
12. provisions to allow a customer to enroll with a DER Manager to participate in a virtual power plant program at any time after the customer's eligible technology begins operations; and
13. provisions governing energy data held by participants and electric utilities that must be shared with DER Managers in order to ensure a virtual power plant program's efficient operation. A DER Manager must not sell or use, for any other purpose, data from participants or public utilities gathered for virtual power plant program use.

(b) An electric utility may utilize, incorporate, or propose to modify or expand any existing or proposed distributed energy programs as part of the virtual power plant program required to be filed under this section.

SECTION 6. VIRTUAL POWER PLANT PROGRAM; COMMISSION APPROVAL AND COST RECOVERY.

(a) The commission may approve, disapprove or modify a program and may modify an approved program after notice and a public hearing.

(b) The commission may approve cost recovery for all reasonable and prudent expenses incurred by the electric utility to administer and implement the virtual power plant program, including payments to customers to compensate them for their participation in the program. The electric utility shall identify and propose its preferred mechanism for rate recovery within its initial program filing to the commission.

Note: the following provisions are optional provisions designed to enhance consumer protection standards for the virtual power plant program.

(x) The commission shall issue orders establishing an annual registration procedure for all DER Managers in a program. To ensure adequate service to customers in this state, the commission shall ensure that a DER Manager has the necessary financial, managerial, and technical capabilities, shall require that a DER Manager maintain records that the commission considers necessary, and shall ensure a DER Manager's accessibility to the commission, to consumers, and to electric utilities in this state. A DER Manager is not required to obtain any certificate, license, or authorization from the commission other than as required by this section. A DER Manager shall not be considered an electric supplier, electric utility, or a person conducting an electric utility business.

(x) The commission shall provide appropriate and reasonable consumer protections and standards for entry into the program, which may include requirements for standard contract terms and disclosure forms, payment terms, warranties, and data privacy provisions.

SECTION 7. VIRTUAL POWER PLANT PROGRAM; ONGOING REPORTING REQUIREMENTS AND COMMISSION REVIEW.

(a) The commission shall evaluate the quantifiable economic benefits realized by the electric utility's system as a result of the virtual power plant program. Quantifiable economic benefits include avoided peak power purchasing costs,

deferred `generation, transmission, or distribution capacity investments, and reduced system line losses. The commission shall ensure that total cost recovery authorized aligns with the long-term system savings and grid reliability benefits verified.

(b) Each electric utility subject to this section shall file an annual compliance report with the commission no later than January 31 of each year. The report shall include the total capacity enrolled in the virtual power plant program broken out by technology type, customer class, and DER Manager name and status for each distinct grid service offered in the prior calendar year, along with concrete electric utility recommendations to increase customer participation. The report shall also include data on the total number of events dispatched, the average peak demand savings per event, and the average customer response rate (measured as a percentage of enrolled customers in each technology type).

SECTION 8. EFFECTIVE DATE

This Act shall take effect immediately upon enactment. [Note: adjust to whatever is standard for a state]