BEFORE THE PUBLIC UTILITIES COMMISSION

OF THE STATE OF CALIFORNIA

Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program And Other Distributed Generation Issues.	Rulemaking 12-11-005 (Filed November 8, 2012)

REPLY COMMENTS OF DEBENHAM ENERGY, LLC ON PROPOSED DECISION REGARDING NET ENERGY METERING INTERCONNECTION ELIGIBILITY FOR STORAGE DEVICES PAIRED WITH NET ENERGY METERING FACILITIES

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Debenham Energy, LLC ("Debenham")[1] hereby submits these reply comments on the *Proposed Decision Regarding Net Energy Metering Interconnection Eligibility for Storage Devices Paired With Net Energy Metering Generation Facilities,* issued April 5, 2014 ("Proposed Decision").

I. INTRODUCTION.

Debenham supports the Proposed Decision, but cautions the Commission to be cognizant of potential unintended consequences that can negatively impact NEM-eligible wind generation paired with energy storage devices. Debenham strongly supports the California Center for Sustainable Energy's recommendation that the Commission should support rules and rates that recognize *all* net value, including time and location. The Commission should certainly disregard SDG&E's misplaced assertion of concern regarding hidden subsidies and focus instead on the synergistic benefits of distributed small wind generation paired with energy storage technology

[1] Debenham is a privately owned California limited liability company that provides renewable energy consulting services, developments for its own account and assistance for other private and public entities with development, ownership, and financing of distributed generation projects in California primarily utilizing utility scale wind energy technologies.

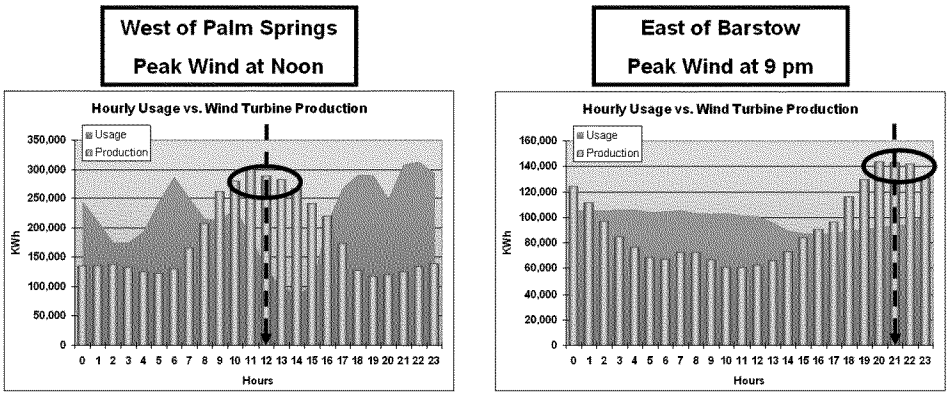
to ratepayers, the grid, and the attainment of California's ambitious goals for deployment of distributed generation (DG").

Debenham points out in response to comments filed by the utilities that rate design is *the* most substantial barrier to deployment of DG powered by wind turbines in California. The NEM eligibility size limit of 1 MW was designed with PV solar technology primarily in mind, but also was intended to accommodate small scale wind generation technology. It is common knowledge, recognized by the Commission, that commercial production of wind turbines sized at 1 MW has almost entirely been discontinued. A turbine sized at 1.5 MW paired with a 500 kW energy storage device can readily be designed to meet the Commission's Rule 21 interconnection requirements, and should also be eligible for NEM since the impact to the local distribution system would be the same as a 1 MW system powered by any other NEM-eligible technology. The NEM enabling statute appears unlikely to be amended soon, but the Commission's NEM policy decisions should not encourage artificial DG project size limits that are not needed and can stifle deployment of NEM-eligible wind facilities paired with energy storage devices.

Commercially available wind turbine can have *double* the annual production of PV solar technology on a MW installed basis. Even the most well-intentioned system size, generation export, and grid interconnection configuration restrictions that are created with solar inverters solely in mind can result in outcomes detrimental to deployment of combined wind and energy storage DG systems in both the NEM program and the Commission's Self Generation Incentive Program ("SGIP").

II. THE COMMISSION SHOULD REJECT ANY PROPOSALS TO LINK SIZE LIMITATIONS ON NEM-ELIGIBLE FACILITIES PAIRED WITH ENERGY STORAGE DEVICES UNLESS THEY ARE REQUIRED BY LAW.

It is generally recognized that in many areas of California wind reliably peaks in the afternoon or early evening, as illustrated in the charts below. The peak is also generally earlier in the afternoon the closer the wind resource is to the coast. Geographic diversification (*i.e.* time of generation) has system level benefits from use of stand-alone wind energy generation. Energy storage technology is additive and synergistic with wind in any deployment scenario (*e.g.* interrelated ancillary services or geographic clustering).



Energy storage sizing (MW and discharge cycle) is contingent on the interaction between wind and load profiles and rational pricing signals from available tariff options. Sub-optimization is currently required due to limited tariff options initially designed for other technologies.

In the same way that combined heat and power ("CHP") is optimized to meet host customer thermal needs, a combined wind storage ("CWS") project is optimized based on host customer energy, capacity, and reliability requirements. Consequently, the electricity production of the CWS system may exceed the host customer's electricity demand under prevailing operating conditions. CWS systems will provide energy-banking benefits comparable to those provided by NEM, but with a significantly different cost to ratepayers. CWS systems sized to

meet host customer annual energy needs and substantially reduce facility peak load requirements can be implemented by avoiding arbitrary sizing limitations.

SCE recommends that the final decision clarify that NEM-paired storage systems must be sized to "not to exceed the NEM generator's maximum capacity." In response, Debenham provides the following illustrative scenario to point out the societal cost of ill-conceived sizing limits that can be particularly damaging to the ability to develop wind powered DG projects.

A typical mining industry customer with operations located in California's Mojave Desert region with an average load of 400 kW and a peak of 800 kW is eligible for 1,600 kW of SGIP incentives for wind. Energy storage is similarly eligible for 1,600 kW of SGIP funding. A wind turbine sized at 1.7 MW provides 125% of the current site load on an annual basis. This allows for anticipated load growth. With the 1.7 MW wind turbine producing 100% of the 400 kW average load, a storage device of about 1.5 MW is the appropriate size. Accordingly, the DG configuration would appropriately be sized as follows:

- 1.7 MW Wind Turbine Generator ("WTG")
- 3.0 MWH (1.5 MW x 2 Hours) Storage Device. Due to inverter modularity the customer would select 1.5 MW, whereas 1.3 MW would be technically and financially preferable for the 1.7 MW WTG and a 400 kW load.

This on-site DG deployment scenario presents the mine operator with three choices:

1. Use Schedule NEM, and derate the 1.7 MW WTG to 1.0 MW for NEM sizing compliance. Install a storage sized at ~400 kW to match the average on-site load. Approximately 25-35% of the energy generation capability of the WTG is thus unusable as WTG blades must be feathered to limit system output to 1 MW.

2. Do not use Schedule NEM, and install the 1.7 MW WTG and a storage device appropriate for the load/wind profile, in this case 1.0 – 1.5 MW. This would forego the Schedule NEM interconnect application fee and other exemptions afforded to NEM-eligible systems. It would require no turbine blade feathering.

3. Use Schedule NEM, and argue the case that the CWS system should be eligible for Schedule NEM and the related Rule 21 interconnection review process as a single unit ("generator") with a controls algorithm limiting system generation

export to 1 MW for NEM compliance regardless of internal equipment nameplate sizing of generation or storage. No de-rating would be required if the CWS is not constrained by arbitrary generation export or sizing limitations that are not legally required. This would also require no blade feathering.

Debenham submits that the ramifications of the foregoing scenario for Commission policy supportive of successful deployment of DG in California should be seriously considered by the Commission as it considers taking action on the Proposed Decision.

III. CONCLUSION.

Debenham thanks the Commission for the opportunity to submit these reply comments on the Proposed Decision.

Respectfully submitted,

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