

# California Independent System Operator

## Comments of the California Wind Energy Association and American Wind Energy Association on the CAISO Straw Proposal on Reactive Power Requirements and Financial Compensation September 3, 2015

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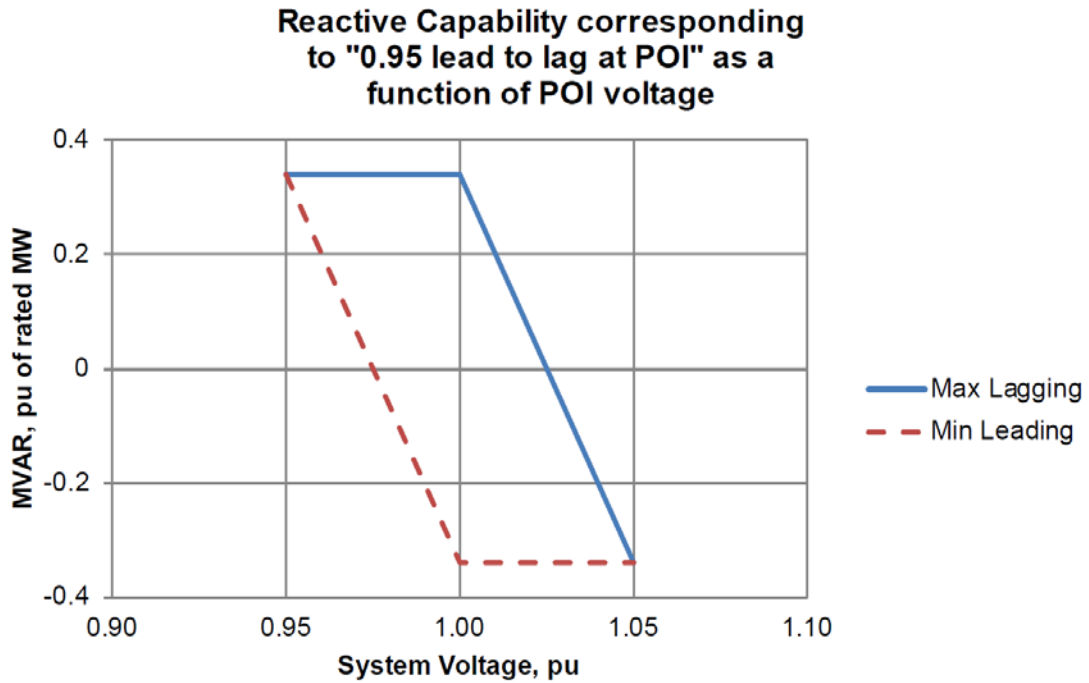
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The California Wind Energy Association (“CalWEA”) and the American Wind Energy Association (“AWEA”) appreciate the opportunity to comment on the California Independent System Operator Corporation’s (“CAISO”) Reactive Power Requirements and Financial Compensation Straw Proposal dated August 13, 2015 (“Straw Proposal”), a continuation of the CAISO’s Reactive Power Requirements for Asynchronous Resources initiative. The Straw Proposal incorporates the ideas presented in the CAISO’s May 22, 2015, Issue Paper that presented the notion of the “universal” provision of reactive power and voltage control capabilities by asynchronous generators that interconnect to the CAISO grid in the future.

Before presenting our specific comments on the Straw Proposal, CalWEA and AWEA would like to acknowledge the improvements in the technical area of the CAISO’s universal reactive power provision proposal in response to the wind industry’s request. More specifically:

- Mitigating the dynamic reactive performance requirement for asynchronous resources by making it comparable to that of synchronous resources (1-second response time);
- Confirming the phenomenon of “hunting” when multiple synchronous and/or asynchronous resources control the voltage at the same bus; and

- Agreeing with CalWEA/AWEA at the stakeholder meeting of August 3, 2015 that the reactive power capability curve requirement for an asynchronous generator (Figure 2 of the Straw Proposal, shown below) should be based on “actual MW” output and not “rated MW” output.<sup>1</sup>



In addition, the wind industry wants to continue to show its support for initiatives, such as this one, that reasonably and cost-effectively improve the reliability and efficiency of the electric power system, as we have consistently demonstrated by fully participating in the development of all of the requirements of FERC Order 661A and the interconnection requirements of the CAISO and other regional transmission operators.

CalWEA and AWEA offer the following specific comments on the CAISO Straw Proposal. We should note that these comments are complementary to those we offered in our March 20 and June 11, 2015, comments on this CAISO initiative and only repeats those concerns

<sup>1</sup> CAISO agreed to make this correction in the next version of its proposal.

that we do not believe have been adequately or properly addressed by the CAISO as it has evolved its proposal.

### **1. Prospective Application of the Reactive Power Requirements**

While acknowledging and supporting CAISO's proposal that universal application of a reactive power requirement would apply only prospectively, CalWEA and AWEA seek clarification on the following critical points, as follows (we raised these point in our previous comments):

- The requirements will not apply to any existing asynchronous generator that seeks to convert its existing interconnection agreement to a CAISO-compliant interconnection agreement ("paper/contract conversion") or any existing asynchronous generator that is requesting an incremental increase in capacity or energy output using existing or refurbished hardware.
- While the requirement will apply to projects that plan to repower with new turbines, it will not apply to existing turbines that remain (or are simply refurbished) in an otherwise repowered project (turbines remaining at the same capacity with essentially the same technology).

### **2. Technical Requirements of Providing AVR Capability**

CalWEA and AWEA continue to appreciate CAISO's willingness to address the voltage and reactive power "hunting" issue by allowing an asynchronous generator to control the voltage at a point before its POI (i.e., the project side of the POI, such as the high or low terminal of the project's main step-up transformer), subject to the discretion and permission of the CAISO and the PTO. However, CalWEA and AWEA would like to raise the following specific comments

on the technical requirements for AVR functionality (again, we repeat our previous comments that have not been addressed by the CAISO):

- The asynchronous generator, rather than the CAISO and PTO, should be allowed to select its voltage regulation point (before the POI) if it can show that it can make AVR functionality work in reference to the POI. This point is critical particularly given the following statement in the Straw Proposal:

“Hunting may occur if multiple resources are attempting to control scheduled voltages at a common substation. This issue may or may not be identified by interconnection studies, however effects of this situation may also be noticed by ISO operators. In other balancing authorities the generating units assume the costs for resolving generating hunting issues and some regions have requirements to address hunting through voltage droop requirements. The affected interconnecting generators will be responsible for any costs associated and resources will need to work out the details of the cost burden between themselves. The ISO believes that by addressing hunting issues in a coordinated manner, the overall cost will be lower.

If CAISO intends to hold the generator responsible for the costs that may be associated with selecting the voltage regulation point that leads to hunting, then the generator should be allowed to select the voltage regulation point. Furthermore, CalWEA and AWEA find the above provision whereby the generator, whose revenue stream is not “cost plus” under its Power Purchase Agreement (PPA), will be held responsible for the improper selection of the POI by the CAISO and PTOs to be fundamentally flawed.

- The technically superior option for one or more interconnecting asynchronous generators to collectively offer reactive support, particularly for beyond-the-POI voltage regulation, can offer numerous benefits for both the generators and the grid. However, it is not still clear how this collective scheme could be implemented within CAISO’s existing GIDAP and TPP frameworks from process and technical standpoints.

### **3. Compensation for Providing Reactive Power Capability**

CalWEA and AWEA are truly dismayed with CAISO's backtracking on cost compensation for reactive power capability and its proposed requirement that the generator first demonstrate that it is not receiving double payment for providing reactive power capability – one time as part of the interconnection process and a second time as part of its PPA payment.

CalWEA and AWEA wish to vociferously object to this provision of the Straw Proposal on the following grounds:

1. Unlike the “cost plus” rate recovery afforded to PTOs, PPA payments for a generator are decided as part of a very competitive resource need auction process. It is highly desirable for a generator to offer its generation capacity/energy at as low a price as possible in such a competitive auction, and including the cost of reactive power capability in that price would inefficiently allocate costs to the resource and ultimately the ratepayers who pay the PPA price. Reactive power is needed to maintain proper voltage and power flows on the transmission system, so those costs are most efficiently allocated as part of the cost of operating the transmission system. This ensures the lowest cost for ratepayers in cases in which non-generator sources of reactive power are lower cost or more effective providers of reactive power than generator sources of reactive power.
2. CalWEA and AWEA believe that reactive power capability compensation should be covered as part of the interconnection process. Explicit knowledge of the reactive power capability compensation handled through the interconnection process by the resource compensation auction process will lead to better optimization of the resource procurement process.

3. Given the highly competitive resource auction process in California and the ensuing PPA payments, it is nearly impossible for a generator to demonstrate that it did not receive double payment for its reactive power capability.

CalWEA and AWEA continue to recommend that asynchronous generators be compensated on a cost-based basis, which will ensure that the payments are fair as well as straightforward, and are consistent with general practice. We suggest the following simple approaches for calculating these payments, which are based on the compensation method proposed by PJM that was supported by AWEA and has been conditionally accepted by FERC.

### **3.1 Reactive Power Capability Payment**

This payment should cover the cost of retrofitting the generating facility to meet the reactive power and voltage control capability specified by the GIA. These costs should include:

- The cost of adding inverters and/or other reactive support devices to make it possible for the asynchronous generator to provide the required power factor range at full rated power;
- The cost of “upgrading” inverters and/or other reactive support devices to allow for specific dynamic performance requirements (e.g., the one-cycle response time, as noted in the CAISO presentation slides, or dynamic voltage response for the 0.985 lag/lead Power Factor range); and
- The cost of monitoring and controlling voltage to a pre-specified schedule.

### **3.2 Reactive Power Provision Payment**

This payment should principally cover the opportunity cost to the asynchronous generator for withholding real power generation in order to provide the requested reactive power, which corresponds to lost revenue based on the Power Purchase Agreement (PPA) price and lost PTC,

if any, rather than the generator's LMP. Only in this fashion would the true economic opportunity cost be captured for the asynchronous generator and properly incentivize the provision of reactive power.

#### **4. Additional Miscellaneous Comments**

CalWEA and AWEA would like to make the following two additional points regarding the Straw Proposal.

1. On application of these rules to the wholesale distribution interconnection process (WDAT interconnection) administered by the PTOs, the Straw Proposal quotes PG&E as follows:

“PG&E’s interpretation is that the proposed technical requirements are limited to transmission interconnected resources. Please clarify if ISO intends for the requirements to also apply to wholesale distributed generation resources and to aggregations of distributed energy resources (DERs).”

CalWEA and AWEA fully support PG&E’s position particularly when it comes to DERs. It is well understood that the best location to provide reactive capability is closest to where the reactive power is required. DERs are normally installed close to load centers where reactive power needs are the highest. In addition, DERs generally draw their reactive power needs from the grid. Hence, the offer of reactive power support at the location of DERs would be highly desirable.

Furthermore, WDAT projects are normally studied as part of the same cluster studies that are used for the transmission interconnected projects. Hence, it only makes sense that the universal reactive power requirement be simultaneously applied to both transmission and distribution interconnection processes.

2. Figure 4 of the Straw Proposal on reactive power provision rules for market resources states the following when it comes to Low Voltage Ride Through requirement for synchronous generators:

“Not needed - synchronous resources automatically have this capability.”

This argument is as absurd as one that would apply under the following situation:

- Since people who are 50 years or older do not jaywalk, there should be no requirement against jaywalking for people who are 50 years or older.

Moreover, many synchronous generators do in fact have limited ability to ride through system voltage and frequency disturbances. Hence, CalWEA and AWEA request that the CAISO and PTOs apply the same LVRT requirements on synchronous generation. For the same reasons that LVRT is required for transmission and distribution connected asynchronous generators, the application of LVRT requirement to DER facilities should also be seriously examined.