Sempra Generation

Leslie H. Padilla
Director – Planning & Analysis

101 Ash Street, HQ14A
San Diego, CA 92101-3017

Tel: 619.696.4425
Fax: 619.696.2119
LPadilla@SempraGeneration.com

April 8, 2010

Sandeep Arora
Grant Rosenblum
California Independent System Operator
151 Blue Ravine Road
Folsom, CA 95630

Re: Comments on the Interconnection Standards Review Initiative

Sempra Generation appreciates this opportunity to provide comments on the CAISO's Interconnection Standards Review Initiative ("Straw Proposal"), including the draft straw proposal issued on March 25, 2010 and the stakeholder meeting held by the CAISO on April 1, 2010.

In the comments below, Sempra Generation touches on the related variable generation proceeding at the Federal Energy Regulatory Commission ("FERC" or "Commission"), and addresses two broad categories of issues that are implicated in the CAISO Straw Proposal: (1) the CAISO's proposal that facilities meet stated power factor and voltage regulation requirements regardless of whether there has been a demonstration of need for the generator to provide this capability; and (2) the CAISO's proposal that all generators, including VER facilities, must meet certain dispatchability requirements, including active power management, ramp rate limits and controls, and over-frequency response.

Consistency with the Ongoing FERC VER Proceeding and NERC/WECC Requirements

The CAISO is likely well aware that FERC earlier this year issued a Notice of Inquiry ("NOI") relating to the integration of variable generation.[1] The Commission seeks comment on the "extent to which barriers may exist that impede the reliable and efficient integration of variable energy resources (VERs) into the electric grid, and whether reforms are needed to eliminate those barriers." NOI, FERC Summary at p. 1. FERC explains that it "seeks to explore whether reforms are necessary to ensure that wholesale electricity tariffs are just, reasonable and not unduly discriminatory," as related to meeting the challenges posed by the integration of increasing numbers of VERs, while "ensur[ing] that jurisdictional rates are just and reasonable, eliminat[ing] impediments to open access transmission service for all resources, facilitate[ing] the efficient development of infrastructure, and ensur[ing] that the reliability of the grid is maintained." *Id.* Given the Commission's interest in encouraging the development of renewable generation

[1] *Notice of Inquiry, Integration of Variable Energy Resources*, 130 FERC ¶ 61,053 (2010).

facilities, as evidenced most recently by the issuance of the NOI, the CAISO should make every effort to ensure throughout the Straw Proposal process that the requirements it may consider or adopt do not run counter to the Commission's policies that may ultimately be put into place as a result of the FERC NOI proceeding.

In addition, as noted in the Straw Proposal, the CAISO requirements "may be subject to change in the event that NERC or WECC adopt requirements covering the same subject matter and the ISO and/or generation facility are required to comply with such NERC or WECC standards."[2] It would be especially inefficient for the CAISO to undertake tariff modifications now, and then later embark on another effort to amend its tariff to make it consistent with the outcome of the NERC/WECC process. In short, the CAISO should not start the process of changing its tariff when the same issues are being addressed by stakeholders before NERC/WECC.

Power Factor and Voltage Regulation Requirements: Demonstration of Need

The Straw Proposal appears to require all generators to meet stated power factor and voltage regulation requirements, regardless of whether there has been a demonstration that the capability of the generator in question to meet the requirements is needed for grid reliability or safety. The Straw Proposal notes that "power converter system equipment capable of meeting this standard is commercially available" for wind facilities and "can be used or readily converted to use by solar photovoltaic generators." Straw Proposal at p. 6.

As the CAISO acknowledges, this proposal is directly contrary to FERC Order No. 661,[3] which sought to minimize opportunities for undue discrimination by Transmission Providers and to remove unnecessary obstacles to the development of wind generation, while protecting system reliability. *Id.* at P 11. Order No. 661 recognized "the unique design and operating characteristics of wind plants, their increasing size and increasing level of penetration on some transmission systems (in terms of the wind generating capacity's percentage contribution to total system generating capacity), and the effects they have on the transmission system." *Id.* (footnote omitted). By implementing a case-by-case approach in requiring the Transmission Provider first to demonstrate the need for reactive power capability in the appropriate studies for the project, the Commission explained that this would ensure that the "Transmission Provider does not require a wind plant to install costly equipment that is not needed for grid safety or reliability," and that such a case-by-case approach would "limit the opportunities for undue discrimination; a wind plant Interconnection Customer will not have its interconnection frustrated by unnecessary requirements that are not necessary to maintain safety or reliability." *Order No. 661* at P 28 and P 51.

---

2 Straw Proposal at p. 3.

3 *Interconnection for Wind Energy*, 111 F.E.R.C. ¶61,353, FERC Stats. & Regs., Regulations Preambles 2001-2005 ¶ 31,186 (2005) ("Order No. 661"); *order on reh'g*, Order No. 661-A, 113 F.E.R.C. ¶ 61,254, FERC Stats. & Regs. ¶ 31,198 (2005).

Sempra Generation recognizes that, as a general matter, the Order No. 661 requirements are limited in applicability to wind plant interconnections. However, even though the Commission did not take steps to apply Order No. 661 to non-wind technologies, the Commission made clear at the time that it "may do this in the future, or take other generic or case-specific actions, if another technology emerges for which a different set of interconnection requirements is necessary." *Id.* at P 106.

The Commission has recently taken such case-specific action in the case of a solar photovoltaic ("PV") facility being developed by Sempra Generation.[4] In that case, involving interconnection of the Copper Mountain Solar I PV project, the same conditions that led the Commission to its conclusions in Order No. 661 with respect to wind technologies were present. Like wind technology, the nature of PV technology is such that the facilities are not inherently capable of meeting the power factor and voltage regulation requirements. Instead, installation of additional equipment would be required at the facility.[5] In the case of the Copper Mountain Solar I facility, the Commission appropriately agreed that these requirements should not be mandated absent a showing by the Transmission Provider that they were needed for grid safety or reliability.

Implementing the need-based demonstration called for in Order No 661 (requiring a case-specific study), would not put the reliability of CAISO system in jeopardy, because, to the extent the study ultimately demonstrates that the requirements are in fact necessary with respect to the generator in order to ensure grid reliability, then the requirements would have to be met by that generator. Moreover, requiring a study (funded by the generator) to establish that these requirements, as applicable to the specific generator in question, are needed for safety or reliability will provide assurance that the "Interconnection Customer will not have its interconnection frustrated by unnecessary requirements that are not necessary to maintain safety or reliability." Order 661 at P 51.

Dispatchability Requirements: Limited Applicability in Many Instances

The Straw Proposal would require, among other things, that all generators comply with requirements relating to dispatchability (i.e., active power management, ramp rate limits and control, and overfrequency response – WECC 5% droop criteria). As Sempra Generation has explained in the Dynamic Transfer stakeholder process, and as discussed below, while limited application of these requirements might make sense for certain VER technologies, a broad-brush mandate will be unworkable from the outset, and will serve only to stifle investment in these technologies. Indeed, Sempra Generation believes that, to a great extent if not entirely, all of the above dispatching issues are already addressed by existing bidding and scheduling protocols, including self-scheduling.

---

4 *Nevada Power Company*, 130 FERC ¶ 61,137 (2010).

5 Even though the CAISO notes that such equipment may be "commercially available" Sempra Generation submits that – regardless whether the CAISO believes the cost is reasonable – if the equipment is not necessary to support grid reliability with respect to the generation facility, then it should not be required.

By their nature, VER projects, including Sempra Generation's PV projects, normally produce the maximum output achievable under any given operating conditions. As a result, VER projects are generally not able to respond to dispatch instructions for increased output. While a response to a CAISO dispatch instruction for reduced output is possible, such an instruction should be given only for the purpose of preserving grid reliability, in that restricting downward dispatch instructions is important for both economic and societal reasons. VER projects generally have zero or near-zero variable costs, so such projects should be the last generators considered when the CAISO selects units for downward dispatch in order to preserve grid reliability. Because such projects create Renewable Energy Credits (RECs) only when energy is generated, power purchasers would not receive RECs for energy that would have been generated if not for downward dispatch instructions. Furthermore, the selection of fossil fuel units for downward dispatch reduces air emissions and conserves non-renewable resources, whereas the selection of renewable energy units for downward dispatch would waste the capacity that has been constructed expressly for the purpose of meeting environmental objectives.

Many, if not most VER projects, including Sempra Generation's PV projects, do not have the ability to ramp down in a continuous, governor-controlled manner. However Sempra Generation's projects will have the ability to provide instantaneous output reductions in multiple controlled steps. These projects are designed with multiple, medium voltage (e.g., 34.5 kV) collection circuits of up to 30 MW each, and each circuit is provided with a remotely-controllable breaker. Accordingly, output reductions needed to preserve grid reliability can be provided quickly by opening these breakers in succession.

Conclusion

Sempra Generation looks forward to continued participation in the stakeholder process, and an ultimate outcome that will support the development of VER projects consistent with the Commission's stated goals, including the removal of barriers that impede the reliable and efficient integration of VERs into the electric grid.

Sincerely,

Leslie H. Padilla