



# California ISO

## **Reactive Power Requirements and Financial Compensation**

### **Addendum to Draft Final Proposal**

**July 21, 2016**

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## 1. Introduction

The California ISO issued its Draft Final Proposal in this initiative on November 12, 2015. That same month, the Federal Energy Regulatory Commission (FERC) issued a Notice of Proposed Rulemaking on Reactive Power Requirements for Non-Synchronous Generation in Docket No. RM16-1-000. As a result, the ISO suspended this initiative pending the outcome of that proceeding. On June 16, 2016, FERC issued its final rule on Reactive Power Requirements for Non-Synchronous Generation, Order 827.<sup>1</sup> Pursuant to Order 827, all newly interconnecting non-synchronous generators will be required to provide reactive power at the high-side of the generator substation as a condition of interconnection as set forth in their large generator interconnection agreement or small generator interconnection agreement. FERC, however, did not apply this requirement to existing resources making upgrades that require new interconnection requests after the effective date of the final rule. FERC determined instead that these resources would only be required to provide reactive power if the transmission provider's system impact study shows that provision of reactive power by the resource is necessary to ensure safety or reliability.<sup>2</sup> FERC granted transmission providers the flexibility to apply the reactive power requirement to the entirety of the existing non-synchronous resource's capacity when it makes an upgrade that requires a new interconnection request, and the system impact study shows the need for reactive power.<sup>3</sup> Although the provisions of FERC's Order 827 are not exactly the same as the ISO's prior proposed technical requirements the ISO agrees with the FERC requirements and plans to submit a filing to comply with Order 827 by September 21, 2016.

Order 827 does not require all of the technical requirements for reactive power capability and voltage regulation that the ISO proposed in its draft final proposal. For example, as part of the FERC's rulemaking proceeding, the ISO requested that FERC allow transmission providers to propose additional technical requirements for interconnecting non-synchronous generators related to voltage support, such as requiring automatic voltage control. In response to this comment, FERC determined that transmission providers may propose additional technical requirements in a separate filing pursuant to section 205 of the Federal Power Act.

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<sup>1</sup> *Reactive Power Requirements for Non-Synchronous Generation*; 155 FERC ¶ 61,277, Order No. 827 (2016).

<sup>2</sup> Order No. 827 at P 65.

<sup>3</sup> *Id.* at P 66.

## 2. Changes to Proposal

FERC's Order 827 provisions do not include all of the same technical requirements as the ISO's Draft Final Proposal, however the ISO accepts the requirements pursuant to Order 827 and plans to submit a filing to comply by September 21, 2016.

This addendum also addresses automatic voltage control requirements for asynchronous resources required to provide reactive power capability.<sup>4</sup> The ISO believes that it is important to clarify automatic voltage control requirements for non-synchronous resources required to provide reactive power capability and plans to propose these requirements under a separate section 205 filing.

## 3. Plan for Stakeholder Engagement

The current schedule for this initiative is shown below.

Milestone	Date
Addendum to Draft Final Proposal posted	July 21, 2016
Stakeholder call on Draft Final Proposal	July 28, 2016
Addendum to Draft Final Proposal comments due	August 4, 2016
Board of Governors meeting	Aug 31-Sep 1, 2016

## 4. Addendum to Draft Final Proposal

The ISO has already proposed automatic voltage control capabilities as part of the operational requirements for asynchronous generating facilities under this initiative. FERC Order 827 does not require this capability as a standard condition of interconnection; however, FERC also ruled that transmission providers may propose additional technical requirements in a separate filing pursuant to section 205 of the Federal Power Act to the extent they believe those additional requirements are necessary. The ISO is providing this Addendum to its Draft Final Proposal in order to finalize its proposal for automatic voltage control capabilities that will apply to asynchronous resources required to provide reactive power capability. Similar requirements apply to all generating units providing voltage support.<sup>5</sup>

Automatic voltage control requirements are necessary for resources providing reactive power to maintain voltage schedules. These resources must be able to actively move within their required power factor range in order to maintain those voltage schedules, which requires automatic

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<sup>4</sup> The ISO has referred to asynchronous resources in this initiative while FERC uses the term non-synchronous resources in Order 827. Both terms refer to resources connected to the bulk power system through power electronics, but do not produce power at system frequency (60 Hz). These resources do not operate in the same way as traditional generators and respond differently to network disturbances. See, Order 827 at P 10 and fn 24.

<sup>55</sup> ISO tariff section 8.4.1.3.

voltage control regulator systems. The ISO proposes the following automatic voltage control requirements for asynchronous resources.

Voltage regulation and reactive power control requirements for Asynchronous Generating Facilities:

- a) The Asynchronous Generation Facility's reactive power capability shall be controlled by an automatic voltage regulator system having both voltage regulation and net power factor regulation operating modes. The default mode of operation will be voltage regulation.
- b) The voltage regulation function mode shall automatically control the net reactive power of the Asynchronous Generating Facility to regulate to the scheduled voltage, compensated to the POI, as assigned by the Participating TO or ISO, within the constraints of the reactive power capacity of the Asynchronous Generation Facility.

## 6. Next Steps

The ISO will discuss the additional automatic voltage control requirements it is proposing in this Addendum during a stakeholder call on July 28, 2016. Stakeholders are requested to submit comments on this Addendum by August 4, 2016 and a comment template is available on the ISO website here:

<http://www.caiso.com/informed/Pages/StakeholderProcesses/ReactivePowerRequirements-FinancialCompensation.aspx>