

CalPeak Power LLC, CalPeak Power – Border LLC, CalPeak Power – Enterprise LLC, CalPeak Power – Panoche LLC, and CalPeak Power – Vaca Dixon LLC (collectively “CalPeak”) appreciate this opportunity to provide comments on the CAISO’s *Reactive Power for Asynchronous Resources Issue Paper and Straw Proposal*.

The California ISO’s (“CAISO”) Revised Draft 2015 Stakeholder Initiatives Catalog, dated January 23, 2015, includes the following items:

5.7 Voltage Support Procurement (F – FERC-mandated)

This stakeholder initiative would examine potentially developing a competitive procurement methodology for voltage support services. The ISO presented papers on both voltage support and black start during a stakeholder conference call on June 29, 2006. These papers concluded that there is a wide variety of procurement and cost allocation methods for these services and that further studies could consider a range of future options.

10.3 Active Power Control Interconnection Requirements (D – Discretionary)

This initiative for variable energy resources would consider various interconnection requirements for both small and large asynchronous generators (principally solar and wind). In 2010, FERC rejected without prejudice interconnection requirements the ISO proposed for large asynchronous generating facilities. The ISO proposed to require these facilities to have reactive power, automatic voltage control and active power management capabilities. This initiative would specifically focus on active power control interconnection requirements for asynchronous generating facilities.

10.4 Reactive Power Requirements (D – Discretionary)

The initiative for variable energy resources would consider proposing a tariff amendment requiring all asynchronous generating facility to have net reactive power sourcing and absorption capability sufficient to achieve or exceed a net reactive power range of approximately 0.95 leading and 0.95 lagging while maintaining a scheduled voltage at the point of interconnection of the facility to the grid.

In the 2014 Stakeholder Initiatives Catalog, the FERC-mandated Voltage Support Procurement stakeholder process was scheduled for 4th quarter 2014 pending time and available resources. Time and resources were never allocated to this during the 4th quarter 2014. When will CAISO start the FERC-mandated Voltage Support Procurement stakeholder process since it addresses the very issues and concerns being considered in this discretionary stakeholder initiative? Alternatively, do you plan to include Voltage Support Procurement as part of this stakeholder initiative since Voltage Support includes both Reactive Power and Active Power Control from all resource types (asynchronous generators, synchronous generators, synchronous condensers as well as hybrid synchronous generators/condensers).

CalPeak fully supports development of market-based procurement of voltage support (including reactive power and active power control) ancillary services products to meet grid reliability needs. Each year since 2013, CalPeak has submitted proposals to enhance the capability and flexibility of its existing interconnected generation resources to deliver both real and reactive power services to CAISO in the transmission planning process special request window.

CalPeak owns and operates four dual-mode capable generator /synchronous condenser resources. Each resource is nominally rated at 50 megawatts (“MW”) real power generating, 60 megavar reactive power producing (“MVAR”) and 19.5 MVAR reactive power absorbing. The resources consist of Pratt & Whitney, Model FT8 (DLN), Twin-Pac industrial aeroderivative combustion turbine generator packages which enable them to be used not only as generators, but also as synchronous condensers to provide voltage support (including reactive power and active power control). Currently, the increasingly important capability of these units to provide voltage support is not being utilized, modeled or in any way optimized by the CAISO markets. It needs to be pointed out that no fuel is consumed by these resources while they are operating in synchronous condenser mode.

Name of Generating Unit Owner	Name of Facility (Including Unit Number)	CAISO Resource ID	Generator Mode Designed Gross (Nameplate) Capacity KVA	Synchronous Condenser Mode Overexcited (Lagging) "+" MVAR Capability @ 15 deg C	Synchronous Condenser Mode Underexcited (Leading) "-" MVAR Capability @ 15 deg C
CalPeak Power - Border LLC	CalPeak Power Border Unit 1	BORDER_6_UNITA1	71,176	+60.50	-19.50
CalPeak Power - Enterprise LLC	CalPeak Power Enterprise Unit 1	ESCENDO_6_UNITB1	69,294	+63.50	-19.50
CalPeak Power - Panoche LLC	CalPeak Power Panoche Unit 1	PNOCHE_1_UNITA1	71,176	+60.50	-19.50
CalPeak Power - Vaca Dixon LLC	CalPeak Power Vaca Dixon Unit 1	VACADX_1_UNITA1	71,176	+60.50	-19.50

CalPeak proposes to provide voltage support by enabling the capability to its existing generators to operate in synchronous condensing mode while retaining its current capability to operate in generation mode. The capability of the existing generators to deliver real power (i.e. megawatt-hours, or MWh) will not be compromised in any way by the modifications. Minor modifications to the existing units include field wiring changes for instrumentation, controls for remote operation and automation, logic and graphical operator interface enhancements, protective relaying adjustments, and mechanical piping and systems for additional lubrication. Micronet Control System (the gas turbine generator controller) and Automatic Voltage Regulator updates will also be performed to enable synchronous condensing. Field commissioning will include verification of all installed hardware, testing of all control system inputs/outputs related to synchronous condensing as well as operations testing. CalPeak believes that the cost impact to market participants will be negligible because synchronous condenser operation can be inexpensively incorporated into its existing interconnected resources.

Once the upgrades to the existing generator are completed, the existing resources will effectively become a highly flexible hybrid generation and transmission resource. For any given grid condition, the CAISO will be able to dispatch the Facility in whichever mode of operation it deems most appropriate for the situation; power generation or synchronous condensing. Adding the synchronous condenser capability to the existing generator resource will give the CAISO significant added flexibility to adjust the conditions on the electric power transmission grid. The CAISO will be able to call on CalPeak’s flexible hybrid resource to either generate or absorb reactive power (megavars, or MVARs) as needed to adjust the grid’s voltage, improve power factor, or generate real power (MW). If the situation calls for flexible ramping to meet the morning and evening peak load conditions, the Facility can be dispatched to deliver in excess of 50 MW of real power. Under different conditions, for example a sudden loss of a major transmission line, such as the Imperial Valley-ECO 500-kV line, the Facility can be dispatched to deliver upwards of 60 MVAR of reactive power. Additionally, synchronous condenser capability is a far superior solution to other voltage support options available to the CAISO. For example, synchronous condensers can continuously adjust the amount of reactive power they produce while also being capable of increasing reactive current as voltage decreases. By comparison, capacitor banks cannot continuously

adjust the amount of reactive power they produce and when grid voltage decreases so does their reactive power delivery.

In short, CalPeak's FT8 TwinPac units can operate its resources as both electric generators and synchronous condensers, to provide reactive power (VAR support) to stabilize the grid and help integrate renewable resources.

Thank you for allowing us the opportunity to voice our comments and participate in this collaborative stakeholder process.