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Thursday, March 13, 2014

California ISO
Attn: regionaltransmission@caiso.com
250 Outcropping Way
Folsom, CA 95630

Re: Stakeholder Input for the 2014-2015 Transmission Planning Process Draft Study Plan

Dear Sirs,

CalPeak Power, LLC ("CalPeak") is pleased to provide comments on the 2014-2015 Transmission Planning Process Draft Study Plan ("Draft TP"). CalPeak provided study requests for several cost-effective non-transmission alternatives for consideration in the previous 2013-2014 Transmission Planning Process.

CalPeak owns four flexible natural gas generation units (nominally 50 megawatts each) which are also capable of providing additional service to the CAISO grid as synchronous condensers. These units are the CalPeak Power Border Unit 1 located in San Diego at the SDG&E Border 69 KV Substation ("CalPeak Border"), the CalPeak Power Enterprise Unit 1 located in Escondido at the SDG&E Escondido 69 KV Substation ("CalPeak Escondido"), the CalPeak Power Panoche Unit 1 located in Fresno County at the PG&E Panoche 115 KV Substation ("CalPeak Panoche"), and the CalPeak Power Vaca Dixon Unit 1 located in Vacaville at the PG&E Vaca Dixon 115 KV Substation ("CalPeak Vaca Dixon").

Figure 1: CalPeak Unit Reactive Power Capability in Synchronous Condenser Mode:

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 Unit 1	BORDER_6_UNITA1	71,176	60.5	-19.5
CalPeak Power Enterprise Unit 1	ESCNDO_6_UNITB1	69,294	63.5	-19.5
CalPeak Power Panoche Unit 1	PNOCHE_1_UNITA1	71,176	60.5	-19.5
CalPeak Power Vaca Dixon Unit 1	VACADX_1_UNITA1	71,176	60.5	-19.5

Figure 2: CalPeak Unit Reactive Power Capability in Synchronous Generator Mode:

Name of Facility (Including Unit Number)	CAISO Resource ID	Generator Mode Designed Gross (Nameplate) Capacity KVA	Synchronous Generator Mode Overexcited (Lagging) "+" MVAR Capability @ 15 deg C	Synchronous Generator Mode Underexcited (Leading) "-" MVAR Capability @ 15 deg C
CalPeak Power Border Unit 1	BORDER_6_UNITA1	71,176	16	-16
CalPeak Power Enterprise Unit 1	ESCNDO_6_UNITB1	69,294	16	-16
CalPeak Power Panoche Unit 1	PNOCHE_1_UNITA1	71,176	16	-16
CalPeak Power Vaca Dixon Unit 1	VACADX_1_UNITA1	71,176	16	-16

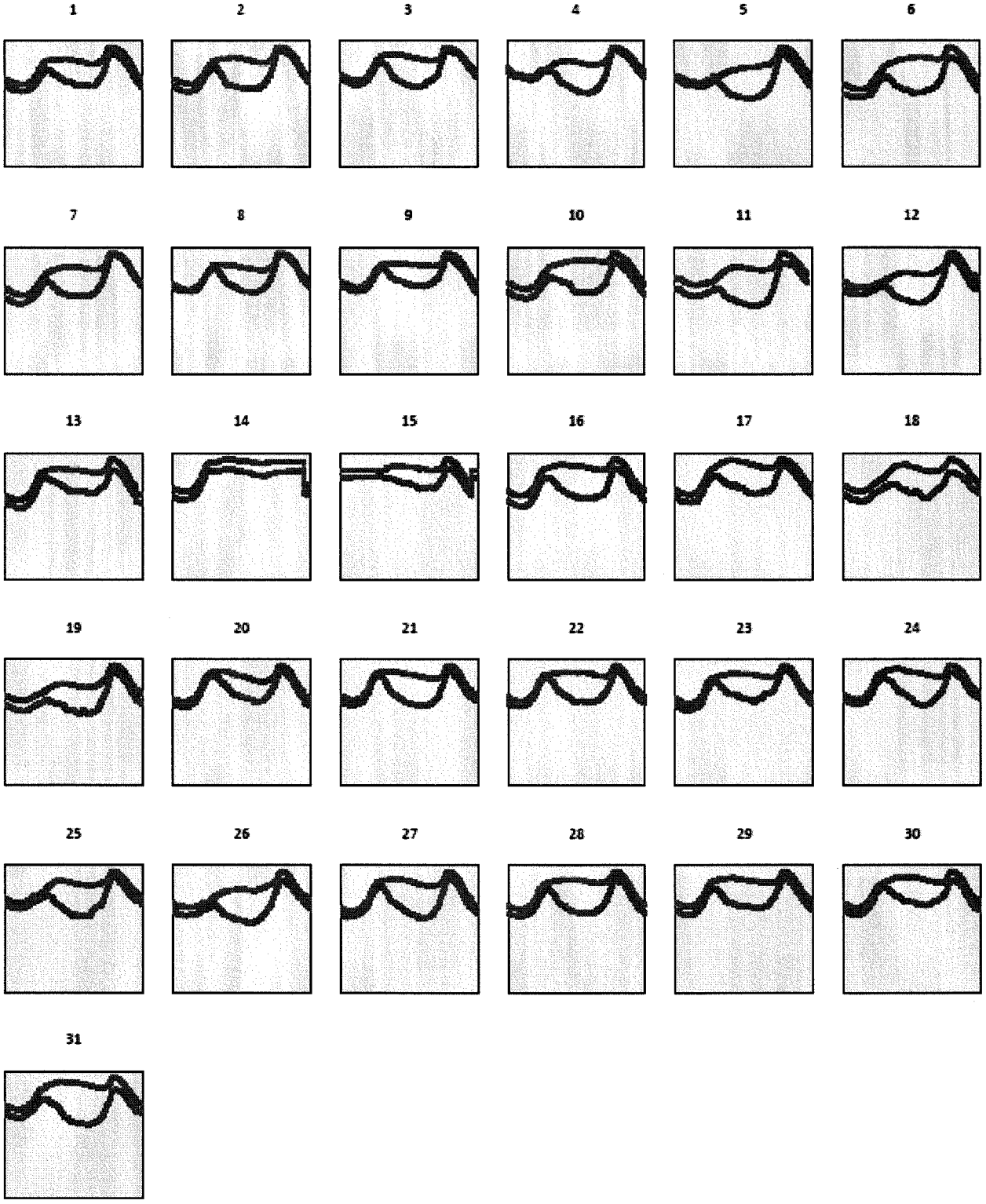
As the CAISO has recognized, there is ample justification for adding reactive power support to meet reactive margin requirements and to partially replace the inertia and dynamic reactive capability of retiring the San Onofre Nuclear Generating Station ("SONGS") and once-through-cooling ("OTC") generation. Adding reactive power support also furthers the renewable integration objectives of the State of California and the CAISO by providing dynamic reactive capabilities that wind and photovoltaic solar generation cannot provide while at the same time reducing the risk of voltage collapse during high import conditions.

Since the CAISO has recognized a need for adding reactive power, during the 2013-2014 Transmission Planning Process request window CalPeak submitted requests to study a change in the way the CalPeak units are used. CalPeak plans to resubmit its proposals again the 2014-2015 Transmission Planning Process. The CalPeak units all utilize Pratt & Whitney, Model FT8 (DLN), Twin-Pac industrial gas turbine packages which enable the plants to operate not only as generators, but also as synchronous condensers to provide voltage support, and, with minimal capital investment, the ability to toggle between being generators and synchronous condensers. Currently, the ability of these units to provide voltage support (outside of what is provided when operating as a generator) is not being utilized. CalPeak believes enabling the units to run as either generators or synchronous condensers is a fast, low-cost way to provide additional voltage support with no environmental impact. Since the units are already constructed and permitted, the solution is available almost immediately and without construction and permitting risks. The recommended solution provided by the CAISO will not be available for years and still needs to cross the hurdles related to developing the sites/projects (acquiring site, permitting, construction, etc.). To support its request, CalPeak submitted information regarding the existing units, power flow study results prepared by its consultant, Navigant, and our proposal for providing this product. The power flow studies showed that each of the CalPeak units can provide significant voltage support, particularly in SDG&E's service territory where, with the shutdown of SONGS, the need for voltage support is most acute.

Unfortunately, it appears from the Draft 2013-2014 Transmission Plan that the CAISO did not properly evaluate CalPeak's proposal to provide synchronous condenser capability. For the 2014-2015 Transmission Planning Process, CalPeak requests that CAISO evaluate CalPeak's dual-use synchronous condenser/synchronous generators under varying load conditions that are representative of anticipated future conditions. For example, CalPeak suggests that the following scenarios be studied with consideration of the capability of the CalPeak units to dynamically switch between synchronous condenser mode and synchronous generator mode.

During the Flexible Resource Adequacy Criteria and Must-Offer Obligation working group session held on December 13, 2013 regarding the Flexible Resource Adequacy Criteria and Must-Offer Obligation, CAISO outlined its flexible capacity needs using a slide entitled: "The flock of ducks (forecasted March 2016 below)" Please refer to Figure 3 on the next page. There are days that will have evening-only needle peak ramp requirements and other days where there are both morning and evening needle peak ramp requirements. Karl Meeusen, Ph.D., CAISO, pointed out that the "duck slides" are "smoothed" and do not adequately depict the very jagged and highly variable spikes that can occur throughout the day on cloudy days and days where wind is intermittent, etc. Therefore, there is a need for multiple start-ups per day from flexible resources (not just to meet the morning and evening ramps).

Figure 3: Outlining the ISO's flexible capacity needs: The flock of ducks (forecasted March 2016)



For any given grid condition, including those in the above Figure, CAISO will have the flexibility to dispatch the Facility in whichever mode of operation it deems most appropriate for

the situation; power generation or synchronous condensing. 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 other 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. Adding the synchronous condenser capability to the existing generator resource will give CAISO significant added flexibility to adjust the conditions on the electric power transmission grid. The California ISO 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). Additionally, synchronous condenser capability is a far superior solution to other voltage support options available to the California ISO. 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.

Operationally, once the upgrades are completed, the CalPeak units can be dispatched in either synchronous condensing mode or power generation mode. Following are operational descriptions of the various operating modes of the Facility:

1) Dispatched for synchronous condensing from an offline condition:
   One of the two FT8 engines will be started to accelerate the generator to speed, the generator is synchronized to the grid and the FT8 engine will then be shut down. The generator remains on-line producing VARs as required by the system.

2) Dispatched for power generation from an offline condition:
   The FT8 engines, either one or two as required by the dispatch order, are started and loaded in the same way as they were prior to the upgrade.

3) Transition from a power generation mode to a synchronous condensing mode:
   The generator is on line producing power. The FT8 engine(s) are simply shut down but the generator remains online producing VARs as required by the system.

4) Transition from a synchronous condensing mode to power generation mode:
   The generator breaker is closed and the generator is at speed, The FT8 engine(s) are started and once they accelerate to speed, the generator will produce Watts and VARs as required by the system.

CAISO System and Local Area Emergencies Caused by Natural Gas Supply Shortages

CAISO should study scenarios similar to the recent System and Local Area Emergencies Caused by Natural Gas Supply Shortages similar to the one that occurred on December 9, 2013 and February 6, 2014. Included in these scenarios, CAISO should model the CalPeak Units in synchronous condenser mode to determine what benefits could be achieved by having reactive power and voltage support to the grid in the absence of significant gas-fired generation. Since the CalPeak units do not consume natural gas to remain online as synchronous condensers,

CAISO would not have been required to issue Exceptional Dispatch notices to these units as they did in December and February when the need arose for significant gas curtailments of generation facilities in the Southern California Gas Company (SoCalGas) and San Diego Gas and electric Company (SDG&E) service areas (especially the Southern portion of the system). To re-iterate, instead of issuing exceptional dispatches to the Border and Enterprise units to come offline and shut-down, CAISO could have instructed the units to remain online providing voltage support by having them switch to synchronous condenser operating mode. Because CAISO lacked the flexibility to dispatch the units as synchronous condensers, the shut-down instructions only added to the escalading System Emergency.

Because CalPeak's existing generators can provide synchronous condensing when not generating, the need to dispatch additional units can be reduced. In addition, based on our understanding that some existing generators are currently dispatched in order to provide MVARs, making use of units like CalPeak avoids what is currently a very expensive and environmentally harmful way to address the situation.

Although the CAISO did not model the CalPeak proposals in the 2013-2014 TPP, it did find a need for synchronous condensers to provide voltage support. In particular, the Draft Transmission Plan indicates that the CAISO has identified the need for an additional 450 - 700 MVAR of dynamic reactive support at future SONGS Mesa Substation or electrically equivalent location in the vicinity. Draft TP at 103. To address this need the ISO recommends installing two synchronous condensers at the San Luis Rey substation totaling 450 MVAR and notes there is a potential need for 250 MVAR of additional dynamic reactive support at SONGS Mesa or an electrically equivalent location which will be reviewed in future planning cycles. *Id.* The cost of the synchronous condensers at the San Luis Rey substation is estimated to be $80 million and they would not be in service until June of 2018. Draft TP at 284. The synchronous condensers would be constructed by SDG&E rather than being subject to competitive solicitation process. Draft TP at 288.

The CAISO's determination to not study the CalPeak proposal, even though CAISO found a need for synchronous condensers, is not in ratepayer interests. CalPeak believes that the possible use of existing units to provide voltage support should be studied before ratepayers are asked to pay the bill for synchronous condensers that may be larger than necessary and will not be available for many years. Making the changes needed to enable the CalPeak units to run as both generators and synchronous condensers is desirable because:

- Making changes to the existing units is much less expensive than building new synchronous condensers.
- Voltage support can be available almost immediately from the units, rather than waiting many years for new synchronous condenser units to be built (and taking the risk that the new units can't be permitted/constructed as proposed).
- There is no environmental impact associated with the enabling the units to run as synchronous condensers.

Allowing the peakers to earn some additional income for providing voltage support also helps to address the so-called "missing money problem" which is being experienced by many owners of units that do not have power purchase agreements. Earning extra income for providing voltage

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support helps ensure that the peakers meet the revenue requirements necessary to stay in operation and, thus, to be available to provide power or voltage support to the grid.

Even if the CAISO is not able to evaluate the CalPeak proposals and thus make them part of the 2013-2014 Final Transmission Plan, CalPeak believes that the CPUC may well be interested in further evaluation of the proposal as part of the 2014-2015 Final Transmission Plan.

Thank you for this opportunity to provide comments.

Sincerely,

Clifford D. Evans, Jr.
Vice President

CalPeak Power LLC
CalPeak Power – Border LLC
CalPeak Power – Enterprise LLC
CalPeak Power – Panoche LLC
CalPeak Power – Vaca Dixon LLC