

## Stakeholder Comments

### Subject: Reactive Power and Financial Compensation

Submitted by	Company	Date Submitted
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CalPeak Power LLC (“CalPeak”) and Malaga Power, LLC (“Malaga”) appreciate the opportunity to provide comments on the CAISO’s “Reactive Power and Financial Compensation” Straw Proposal, dated August 13, 2015 (“Straw Proposal”)<sup>1</sup> as part of the on-going stakeholder process.

CalPeak and Malaga are submitting comments regarding the portions of the Straw Proposal relating to financial compensation and the proposed effective date. Additional feedback on the technical requirements consists of comments on reactive power production record keeping at CAISO, as well as the publication of reactive power capability and consumption data.

Supplemental information on CalPeak and Malaga can be found at the end of these comments, which were also provided in the Issue Paper comments submitted June 11, 2015.<sup>2</sup>

1. Please provide feedback on the financial compensation for reactive power.

In summary, CalPeak and Malaga:

- Submit that the CAISO should not focus on providing financial capability compensation exclusively for reactive power from *new* generators. Double payment cannot be assumed in all cases. Existing merchant generators, in particular, must rely on recovery of costs through energy bids.
- Support the continuation of provision payments based on the current structure.

<sup>1</sup> California ISO, *Reactive Power Requirements and Financial Compensation*, (“Straw Proposal”), August 13, 2015, [http://www.caiso.com/Documents/StrawProposal\\_ReactivePowerRequirements\\_FinancialCompensation.pdf](http://www.caiso.com/Documents/StrawProposal_ReactivePowerRequirements_FinancialCompensation.pdf), (accessed August 26, 2015).

<sup>2</sup> Available at [http://www.caiso.com/Documents/CalPeak-MalagaComments\\_ReactivePowerRequirements\\_FinancialCompensation-IssuePaper.pdf](http://www.caiso.com/Documents/CalPeak-MalagaComments_ReactivePowerRequirements_FinancialCompensation-IssuePaper.pdf)

- Support alternative provision payments for resources that can provide reactive power outside of typical circumstances (such as when generating real power), and support a structure utilizing a Default Energy Bid value that allows for a provision payment when such resources provide reactive power.
- Submit that the CAISO should consider developing financial compensation rules in phases, starting with rules for synchronous generators.

**a. FERC Requirements**

- i.* CalPeak and Malaga suggest that the CAISO is overlooking important facts by focusing its straw proposal on providing compensation only for “new” generators. Rather, the CAISO’s focus should be on providing compensation first and foremost to existing generators. It has been ten years since FERC required the CAISO to develop mechanisms to provide compensation to existing generators and all other ISOs/RTOs have done so, some for longer than ten years. Failure to provide a mechanism to provide compensation for reactive power means that the incentives have been inadequate for generators to put themselves in a position where they can provide reactive power to the CAISO once initial contract terms expired. The failure to provide appropriate financial signals may well have driven up ratepayer costs. For example, the CAISO has approved several new synchronous condenser projects for Southern California costing hundreds of millions of dollars without considering whether some of the voltage support needs could have been more efficiently met by providing financial compensation to existing generators to enable them to provide more voltage support.
- ii.* CalPeak and Malaga also suggest that the CAISO errs in believing that it is necessary to develop financial compensation rules that cover inverters at this time.<sup>3</sup> While FERC required that ISOs provide financial compensation for voltage support in 2005, the purpose of providing such compensation was to ensure that there would be adequate reactive resources for reliability reasons. It may well be that the need for reactive power can be met cost-effectively without requiring asynchronous generators to install costly inverters. Thus, it would be appropriate for the CAISO to phase its consideration of financial compensation rules such that rules are written first for synchronous generators. For instance, in the case of PJM, rules were in place for financial compensation for reactive power from synchronous generators long before for asynchronous generators were adopted.

**b. Capability Payments**

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<sup>3</sup> California ISO (“CAISO”), *Reactive Power Requirements and Financial Compensation – Straw Proposal Stakeholder Meeting*, (“Agenda”), August 20, 2015, at PP 27-28, [http://www.caiso.com/Documents/Agenda\\_Presentation\\_ReactivePowerRequirements\\_FinancialCompensationStrawProposal.pdf](http://www.caiso.com/Documents/Agenda_Presentation_ReactivePowerRequirements_FinancialCompensationStrawProposal.pdf) (accessed August 26, 2015).

- i. In the discussion of capability payments the CAISO offers that “Some ISO/RTOs provide financial compensation for the capability and/or provision of reactive power.”<sup>4</sup> CalPeak and Malaga note that among ISO-NE, NYISO, PJM, MISO and SPP, only SPP does not offer a capability rate.<sup>5</sup> Accordingly, CalPeak and Malaga submit that the predominant best practice among leading ISOs/RTOs is to offer a capability payment.
- ii. Although all other ISO’s/RTOs provide financial compensation for the capability and/or provision of reactive power, the CAISO now suggests that it will only provide compensation for “new” resources.<sup>6</sup> The CAISO differentiates itself from ISO-NE, NYISO, PJM and MISO, in that “ISO does not administer a centralized capacity market, instead LSEs participate in Resource Adequacy program.” Consequently, “ISO does not propose to provide a capability payment to existing resources because the costs of the associated equipment are already covered under contracts.”<sup>7</sup>

CalPeak and Malaga, as merchant generators, have no long-term contracts to rely upon for recovery of costs and instead rely primarily upon the value of Resource Adequacy (“RA”), which fluctuates year-to-year, and the value of energy at the plant nodes, which fluctuates in real-time. RA and energy, either individually or in aggregate, do not necessarily cover the cost of equipment and operations related to real power, reactive power, or any other products, nor is reactive power contemplated in RA contracts CalPeak and Malaga have executed to date.<sup>8</sup>

CalPeak and Malaga echo concerns raised by WPTF during the straw proposal stakeholder meeting on August 20, 2015, that fixed capability payments exclusively for new generators raises discriminatory practice red flags as long as existing generators are left to recover costs through energy bids.

- iii. The CAISO indicated that “a capability payment could be intended to compensate resources for fixed costs for the ability of the resource to operate within the normal leading/lagging standard required under the current tariff”<sup>9</sup> and explained how this capability payment is determined in other ISOs/RTOs, all of which have capacity markets. It appears to CalPeak and Malaga that the best way to move forward is for the CAISO to change the way it is viewing the “capability payment” in its proposal.

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<sup>4</sup> CAISO, *Agenda*, at P 18.

<sup>5</sup> FERC Staff Report, *Payment for Reactive Power*, Docket No. AD14-7, April 22, 2014, P 15, <https://www.ferc.gov/legal/staff-reports/2014/04-11-14-reactive-power.pdf> (accessed August 26, 2015).

<sup>6</sup> CAISO, *Straw Proposal*, at P 25.

<sup>7</sup> CAISO, *Agenda*, at PP 21-22.

<sup>8</sup> CalPeak and Malaga are affiliates of the owner of the Midway Peaker Plant. Midway’s PPA does not provide financial compensation for providing reactive power out of the required leading and lagging range.

<sup>9</sup> CAISO, *Straw Proposal*, at P 27.

Several parties have argued that this “capability payment” is not needed in the CAISO since costs are already covered. Thus, it is time for the CAISO to be much more precise about what is an appropriate “capability payment” in the context of the CAISO market.

CalPeak and Malaga believe that the “capability payment” should be limited to the new fixed incremental cost a generator incurs in order to be able to provide reactive power *outside* the normal leading and lagging in accordance with instructions from the CAISO. For instance, if a generator is to provide voltage support, the payment would cover the costs of installing the software and, if needed, the cost of installing a clutch or other hardware so that the generator is in a position to respond to CAISO calls for voltage support.

CalPeak and Malaga believe that compensation for incremental costs that must be incurred for existing generators to be able to provide reactive power is desirable from a policy perspective since it minimizes the overall cost of procuring reactive power. For instance, if the CAISO is contemplating requiring utilities to install new synchronous condensers, all of the costs of these new facilities should be taken into account since providing voltage support is their only function. When the CAISO pays an existing generator to modify its facility to operate in dual synchronous condenser or generator mode, however, compensation would be based on the much lower incremental cost of the relatively minor modifications necessary to provide voltage support outside the normal leading and lagging range.

**c. Provision Payments**

- i.* CalPeak and Malaga support the continuation of provision payments based on the calculation of opportunity cost as the LMP less the higher of the Energy Bid price or the Default Energy Bid price.
- ii.* CalPeak and Malaga appreciate that the CAISO recognizes there are resources on the system that are capable of providing reactive power, but are not currently optimized.<sup>10</sup> CalPeak and Malaga fully support alternative provision payments for such resources.
- iii.* Regarding technology of “non-typical” reactive power resources, the CAISO references “fast switching” clutches. It is reiterated that all CalPeak Pratt & Whitney FT8-2 units were designed as dual-mode capable generator / synchronous condensers. The addition of a clutch is not necessary to operate in synchronous condenser mode; the capability exists as the resources were originally designed. In addition, Malaga is one such resource that could be retro-fitted with clutches to provide reactive power.

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<sup>10</sup> CAISO, *Agenda*, at P 27.

Each of the four CalPeak resources are nominally rated at 60 MVAR producing and 19.5 MVAR reactive power absorbing, as detailed in the table below. No fuel or water is consumed by the CalPeak units while operating in synchronous condenser mode.

### Generator and Synchronous Condenser Capabilities of the CalPeak Units

Name of Facility (Including Unit Number)	CAISO Resource ID	Generator Mode Net Qualifying Capacity MW	Generator Mode Overexcited (Lagging) "+" MVAR Capability @ 15 deg C	Generator Mode Underexcited (Leading) "-" MVAR Capability @ 15 deg C	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	48	16	-16	60.5	-19.5
CalPeak Power Enterprise Unit 1	ESCND0_6_UNITB1	48	16	-16	63.5	-19.5
CalPeak Power Panoche Unit 1	PNOCHE_1_UNITA1	48	16	-16	60.5	-19.5
CalPeak Power Vaca Dixon Unit 1	VACADX_1_UNITA1	48	16	-16	60.5	-19.5

Alternative provision payments for dual-mode generator / synchronous condensers, depending upon how structured, could incentivize CalPeak to install equipment necessary to engage the synchronous condenser mode remotely at which point the reactive power product could be offered on a 24-hour, seven day-a-week basis. At present, the capability to switch between synchronous generator and synchronous condenser modes exists only with the operation of a manual switch on the synchronous machine's control panel located at the "un-manned" facility. This capability is not reflected in the California ISO in the Master File (Resource Data Template) and therefore remains invisible to the resource/transmission planning processes, the generation desk or dispatch optimization software/models.

- iv. Regarding the form of compensation for "non-typical" reactive power resources, CalPeak and Malaga support a structure allowing a Default Energy Bid value that allows for a provision payment when resources are providing reactive power. Ultimately, there should be linkage between the real energy price at the LMP and the reactive power value, as the voltage support is directly enabling the delivery of real power for which a market price exists. In lieu of an LMP-linked structure, CalPeak and Malaga would also support a Negotiated Rate Option for the Default Energy Bid.

CalPeak and Malaga note other ISOs/RTOs have already developed rules for determining the costs for providing voltage support with synchronous condensers. For instance, PJM has a business practice manual which sets

out how these costs are to be determined. See *PJM Manual 15: Cost Development Guidelines*, at Sections 2.7 and 6.7.

- v. To most effectively implement provision payments for reactive power in special cases, CalPeak and Malaga recommend exploration of changes to the loading order to recognize the fact that **certain “non-typical” resources provide reactive power without emitting GHGs and without consumption of water.**

2. Please provide feedback on the effective date proposal.

CalPeak and Malaga submit that timely implementation should be in the interest of all participants as the FERC order directing the CAISO to submit a plan to implement a voltage procurement market dates to 2005. As such, the CAISO’s proposed *timing* of the application of the policy linked to Cluster 9, planned for April 2016, appears reasonable. CalPeak and Malaga note, however, that the ambiguity around a targeted cluster is unfavorable when compared to a specific date.

3. Please provide any additional feedback on the reactive power technical requirements.

CalPeak and Malaga strongly encourage the California ISO to begin keeping records of the reactive power production and consumption in Operational Meter Analysis and Reporting (“OMAR”) data that is currently disregarded in the Meter Data Acquisition System (“MDAS”) process. The telemetry and data is already captured and available in the existing metering equipment installed at all of the CalPeak and Malaga facilities. We assume this is also the case at most other telemetered resources on the system. The CAISO, however, does not retrieve the data from the meter and record or report it in OMAR.

Most settlement quality meter data (“SQMD”) devices (“revenue meters”) already provide four separate data acquisition channels including kilowatts produced and consumed (two channels), and kilovars produced and consumed (two channels). Accurate metering of real and reactive power generated or consumed provides key data inputs for accurate settlement calculations. Direct measurement of a generator or load participant through telemetry allows the ISO to manage and monitor real and reactive power generation or consumption in real-time.

At a minimum, the CAISO should immediately begin recording this data in OMAR and begin reporting and analyzing this information in its various market reports, and to OASIS, as to better inform stakeholders of the extent to which reactive power is produced and absorbed on the system by generation and load.

CalPeak and Malaga ask the CAISO to take the necessary steps to publish historic reactive power production and consumption data to better inform the stakeholders in this process.

We recognize that recording, reporting, and analyzing information associated with reactive power will be time-consuming and expensive for the CAISO. We submit, however, that the effort is needed to better understand the reactive power resources currently available that are capable of ensuring reliability prior to designing structures such as compensation for new asynchronous resources.

### **Addendum – CalPeak and Malaga Descriptions**

CalPeak’s subsidiaries, CalPeak Power – Border LLC, CalPeak Power – Enterprise LLC, CalPeak Power – Panoche LLC and CalPeak Power – Vaca Dixon LLC (CalPeak and its four subsidiaries are collectively referred to herein as the “CalPeak Companies”), operate four substantially identical peaker plants. Two of them, CalPeak Power Border Unit1 (“Border”) and CalPeak Power Enterprise Unit 1 (“Enterprise”), are located in SDG&E’s electric and gas service territories. The other two, CalPeak Power Panoche Unit 1 (“Panoche”) and CalPeak Power Vaca Dixon Unit 1 (“Vaca Dixon” and collectively with Border, Enterprise and Panoche, the “CalPeak Units”), are in PG&E’s electric and gas service territories.

All four plants utilize Pratt & Whitney, Model FT8-2 TWINPAC. The FT8-2 TWINPAC utilizes a Dry Low NOx combustor technology that can achieve lower emissions **without using water or steam** to reduce combustion temperature. Each TWINPAC is comprised of two combustion turbines (“CT”) that, singly or together (a multi-stage generator or MSG), turn a single Brush Synchronous Machine. In a 2-on-1 configuration, i.e., with both CTs operating at each unit, the minimum generation (“PMin”) in this configuration for each power plant is 44 MW and the maximum generation (“PMax”) values range between 48 and 52 megawatts (“MW”), depending on the unit. In a 1-on-1 configuration, i.e., with one CTs operating at each unit, the PMin in this configuration for each power plant is 44 MW and the PMax values range between 48 and 52 MW, depending on the unit.

The TWINPAC’s industrial aero-derivative combustion turbine generator packages 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).

Malaga Power, LLC, acquired title to the Malaga Peaking Plant on April 14, 2015. The Malaga Peaking Plant is a 98 MW peaker located near Fresno, California, in PG&E’s service territory. This power plant was previously owned by Kings River Conservation District and operated under contract with the Department of Water Resources. The power plant is now a merchant participating generator in the CAISO.