Comments of CalPeak Power LLC and Malaga Power, LLC on CAISO's
***Reactive Power Requirements and Financial Compensation Issue Paper,* dated May 22, 2015**

Submitted June 11, 2015

CalPeak Power LLC ("CalPeak") and Malaga Power, LLC ("Malaga") appreciate the opportunity to provide comments on the California Independent System Operator Corporation's ("CAISO's") *Reactive Power Requirements and Financial Compensation Issue Paper*, dated May 22, 2015 ("Issue Paper").[1] These comments relate to the financial compensation portions of the Straw Proposal.

A. Background and Participant Descriptions

CalPeak's subsidiaries, CalPeak Power – Border LLC, CalPeak Power – Enterprise LLC, CalPeak Power – Panoche LLC and CalPeak Power – Vaca Dixon LLC, own four substantially identical peaker plants. Two of the peaker plants, CalPeak Power Border Unit 1 ("Border") and CalPeak Power Enterprise Unit 1 ("Enterprise"), are located in SDG&E's electric and gas service territories. The other two plants, CalPeak Power Panoche Unit 1 ("Panoche") and CalPeak Power Vaca Dixon Unit 1 ("Vaca Dixon," collectively with Border, Enterprise and Panoche, the "CalPeak Units"), are in PG&E's electric and gas service territories. The CalPeak Units utilize a Dry Low NOx combustor technology that can achieve lower emissions without using water or steam to reduce combustion temperature. The CalPeak Units are comprised of two combustion turbines ("CT") that, singly or together (a multi-stage generator or "MSG"), turn a single generator. In a 2-on-1 configuration, the minimum generation ("PMin") is 44 MW, and the maximum generation ("PMax") values range between 48 and 52 megawatts ("MW"), depending on the unit. The CalPeak Units have heat rates in the range of 10,500 to 12,400 Btu/kWh depending on the MSG configuration.

In addition to their real power generating capability, each of the CalPeak Units is designed as a dual-mode capable generator /synchronous condenser. Each resource is nominally rated at 60 MVAR producing and 19.5 MVAR reactive power absorbing. ***It should be noted that no fuel or water is consumed by the CalPeak Units while they are operating in synchronous condenser mode.***

[1] California ISO, *Reactive Power for Asynchronous Resources Issue Paper and Straw Proposal*, dated May 22, 2015, available at http://www.caiso.com/Documents/CalPeakPowerComments_ReactivePowerRequirements_AsynchronousResources_IssuePaper_StrawProposal.pdf (accessed June 6, 2015).

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	ESCNDO_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

CalPeak's affiliate, Malaga, acquired the Malaga Peaking Plant on April 14, 2015. This is a 96 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 California Department of Water Resources. The power plant is now a merchant participating generator in CAISO.

B. Comments in Support of Reactive Power Compensation

The CAISO Revised Draft 2015 Stakeholder Initiatives Catalog, dated January 23, 2015, includes the following item:

> **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.*

CalPeak and Malaga fully support development of market-based compensation for the procurement of voltage support (including reactive power and active power control) ancillary services products to meet grid reliability needs. The uncompetitive and non-market cost of service compensation model practiced in other markets is not appropriate in CAISO. CalPeak and Malaga instead urge CAISO to use this opportunity to set a goal of co-optimization of both real and reactive power for its Day-Ahead, Fifteen Minute and Real-Time Market solutions as a least cost, best fit model for other markets to emulate.

As described in the 2014 Stakeholder Initiatives Catalog, the stated purpose of the FERC-mandated Voltage Support Procurement stakeholder process is to potentially develop a competitive procurement methodology for voltage support services. In light of CAISO's prior focus on developing a competitive procurement methodology, it is unclear why the Issue Paper

does not consider this option. Instead, the Issue Paper focuses on a cost-based compensation proposal which would effectively negate the intended purpose to develop a competitive procurement methodology for voltage support services as an Ancillary Services product.

Attempting to "copy-and-paste" archaic compensation methodologies from other Regional Transmission Organizations ("RTO") is an inefficient and inappropriate approach. It is inefficient because it will result in a sub-optimal solution not befitting CAISO's stakeholders. It is inappropriate because other RTOs have very different capacity markets and energy markets with significant differences in the way resources are compensated for their going-forward costs and the way generators are allowed to bid their products into the markets.

CAISO's proposal hinges on the incorrect premise that resources are appropriately compensated for their going-forward costs via bi-lateral Resource Adequacy payments, tolling agreements, or comparable arrangements. However, Resource Adequacy arrangements are capacity agreements for real power that do not compensate resources for the market value of reactive power services. Therefore, offering incremental cost of service payments for the additional provision of reactive power capability will not result in adequate compensation for many market participants. Furthermore, a single fixed capability payment fails to recognize the inherent value of some resources over others based on their locational attributes or unique capabilities.

In order to develop an optimal approach, CAISO should follow FERC's lead by also considering development of a competitive procurement methodology. In the FERC Staff Report: *Payment for Reactive Power*, Docket No. AD14-7, dated April 22, 2014 (hereinafter "FERC Staff Paper"), FERC indicates that one of the options that should be considered is competitive, market-based solicitation of reactive power.[2] Moreover, in an earlier FERC Staff Paper, *Principles for Efficient and Reliable Reactive Power Supply and Consumption*, Docket No. AD 05-1, dated February 4, 2005, FERC also considered competitive, market-based solutions for providing reactive power.[3]

It appears from the Issue Paper that CAISO has dismissed consideration of a competitive market mechanism since "reactive power is highly localized" and "[a] competitive market for reactive power would have extreme market power concerns to such an extent that marginal cost reactive power pricing would be infeasible."[4] While it may be true that reactive power is inherently a more localized product than real power due to the lack of ability to transmit VARs over long distances, CAISO erroneously concludes from that fact, without support, that certain market participants will have local market power that cannot be mitigated even though CAISO has a number of mitigation tools available to it. Further, the FERC staff has noted that there are reasons to think market power may not be an issue since there are many potential sources of reactive power and certain minimum requirements can be established to alleviate market power concerns such as the use of a competitive solicitation procurement process.[5] FERC recently

[2] FERC Staff Report at 22. FERC Staff Report, *Payment for Reactive Power*, Docket No. AD-17, dated April 22, 2014, available at http://www.ferc.gov/legal/staff-reports/2014/04-11-14-reactive-power.pdf.

[3] FERC Staff Paper, *Principles for Efficient and Reliable Reactive Power Supply and Consumption*, Docket No. AD 05-1, dated February 4, 2005, is available at http://www.ferc.gov/EventCalendar/Files/20050310144430-02-04-05-reactive-power.pdf

[4] Issue Paper at 27.

[5] FERC Staff Paper at 22.

revised its policy governing the sale of ancillary services at market-based rates to allow for sales of reactive power at market-based rates outside of ISO/RTO markets.[6] FERC has not foreclosed the possibility of allowing similar sales in ISO/RTO markets but merely indicated that additional information is required to evaluate any market power concerns. CalPeak and Malaga urge CAISO to take this opportunity to fully consider a competitive market-based mechanism for reactive power compensation in development of the Straw Proposal. It should be noted that the CAISO market comes readily equipped with massive reactive power capability already interconnected and distributed throughout the grid that has not been adequately studied. The existence of such capability may be more than sufficient to mitigate any local market power concerns.

There are many ways that CAISO can seek to ensure it maintains necessary reactive power margins while simultaneously accommodating an ever increasing mix of renewable resources into its system. CalPeak and Malaga suggest that CAISO begin with a discussion of the latest academic models for minimization of transmission losses such as the Particle Swarm Optimization ("PSO") and Reactive Optimal Power Flow ("ROPF").[7]

CalPeak and Malaga suggest that CAISO set a goal of moving to a competitive voltage support procurement model as an ancillary services product that is co-optimized with real power procurement. This should encourage the entry of new resource technologies associated with solar energy, such as energy storage and advance inverters. As it will take time to fully develop, model and implement a market, CalPeak and Malaga further suggest that this year, during Phase 1 of this stakeholder proceeding, CAISO should develop a methodology for providing compensation for reactive power and should begin to use it without any further delay.[8] To provide the greatest opportunity for successful and immediate implementation, a "safe harbor" approach is preferable. In Phase 2, CAISO should add competitive voltage support procurement to the list of bid-in ancillary services products that are co-optimized in its market solution.

CalPeak and Malaga believe that in order to balance a grid with many intermittent renewable resources, reactive power will potentially be of greater economic value than real power. Reactive power should therefore take center stage and be priced accordingly. At the very least, it should share the stage with real power as the market makes its transformation towards 50% and greater renewable resource penetration.

CalPeak and Malaga sincerely appreciate this opportunity to share its comments in this very important stakeholder process.

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[6] *See* FERC Order 784, 144 FERC ¶ 61,056 (2013) (relating to regulation of competition in the ancillary services market)

[7] M. Mary Linda, Dr. T. Ruban Deva Prakash, and P. R. Sujin, "Particle Swarm Optimization Based Reactive Power Optimization," *Journal of Computing* 2, issue 1, (2010): 73-78, available at http://journalofcomputing.org/volume-2-issue-1-january-2010/(accessed June 9, 2015).

[8] For instance, as an interim measure, CalPeak supports the suggestion in the Issue Paper that CAISO develop a new exceptional dispatch category for resources that are able to switch between providing real power and reactive power very quickly. *See* Issue Paper at 30. With a modest investment, the CalPeak units could provide this capability.