

## Stakeholder Comments

### Subject: Reactive Power and Financial Compensation

Submitted by	Company	Date Submitted
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PG&E appreciates the opportunity to comment on CAISO's "Reactive Power and Financial Compensation" Issue Paper, dated May 22, 2015. In summary:

- PG&E opposes CAISO's proposal to establish reactive power capability payments for reactive power as it would lead to double payments to generators for the ability to provide reactive power and double charges to load serving entities (LSEs) for procuring reactive power.
- PG&E strongly encourages the CAISO to address cost allocation in its forthcoming Straw Proposal.
- Overall, PG&E is supportive of the CAISO's proposal to establish a uniform requirement for asynchronous resources to provide reactive power capability and voltage regulation including the technical and operational requirements associated with the reactive power requirements. However, PG&E seeks clarification from CAISO on a few important elements of the proposal that may have material impacts for successful implementation.

1. Please provide feedback on the reactive power technical requirements.

**A. PG&E is supportive of the CAISO's proposed technical requirements, but seeks clarification on the following issues:**

- PG&E is concerned that if CAISO issues a voltage schedule for an aggregated resource with one Resource ID that it will not be possible to parse out which resource will respond and accordingly which resource should be compensated. As a result, PG&E requests further clarification from CAISO on how it will handle communication and voltage schedules for aggregated resources.
- PG&E's interpretation is that the proposed technical requirements are limited to transmission interconnected resources. Please clarify if CAISO intends for the requirements to also apply to wholesale distributed generation resources and to aggregations of distributed energy resources (DERs) represented by Distributed Energy Resource Providers, as proposed in the Expanding Metering and Telemetry Options Phase 2 Draft Final Proposal.

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

**A. PG&E opposes CAISO’s proposal for reactive capability payments for providing reactive power on the basis that it would result in double payments for reactive power to generators and double charges for reactive power to load serving entities.**

There are differing market constructs between CAISO’s market and electricity markets that have provided capability payments for providing reactive power. CAISO should clarify what aspects are lacking in California’s market that cause CAISO to believe it is necessary to provide a capability payments for providing reactive power.

As PG&E understands it, a capability payment for reactive power is suitable for organized markets that have a centralized capacity market. Centralized capacity markets enable differentiating paying for capacity from capability. Without a requirement or the associated compensation for resources to provide reactive power, there is little incentive for generators in such markets to do so. As a result, when reactive power is needed in a centralized capacity market, it makes sense to establish a separate requirement and compensation for providing that service to the grid – which justifies FERC’s approval of reactive power requirements and capability payments in centralized capacity markets (e.g., PJM).

Conversely, California’s bilateral contracting process for capacity [e.g., Resource Adequacy (RA)], allows generators to incorporate costs associated with energy, capacity and Ancillary Services (defined in CAISO’s tariff to include reactive power<sup>1</sup>). Recognizing that the cost of providing reactive power is already priced into the bilateral contracting process for capacity in California, the argument that reactive power is undervalued and should therefore receive a capability payment no longer applies. A capability payment in a market which relies on bilateral contracting for capacity creates two payments to generators for the same service. Further, there would be double charges to the load serving entity – the cost of procuring RA capacity, and the allocation of costs by CAISO to cover the capability payments to generators. PG&E strongly recommends that CAISO remove the reactive power capability feature from the proposal.

**B. It is unclear why a requirement of interconnection is now considered a service that requires compensation.**

PG&E regards reactive power capability as a technical requirement and a cost of doing business. CAISO’s Generator Interconnection Agreement (GIA) outlines requirements for reactive power for all resources. Could CAISO clarify why this interconnection requirement to have the capability to provide reactive power is now considered an attribute that necessitates compensation?

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<sup>1</sup> Section 8.2.3.3

**C. Any discussion of payments for capability, provision, or for fast responding resources must also address cost allocation.**

In CAISO's Straw Proposal, CAISO proposes three compensation streams for resources that provide reactive power:

1. A provision payment for resources providing or absorbing reactive power outside of the band recommended in the Issue Paper.
2. A capability payment for providing reactive power.
3. An operating and maintenance payment for resources that are "very quickly" able to switch from providing real power to providing reactive power.

As CAISO has demonstrated in its Issue Paper, asynchronous resources are quickly displacing synchronous resources.<sup>2</sup> Without enough localized resources capable to either absorb or provide reactive power, there could be reliability impacts in the form of voltage collapse or over voltage situations. The resources that are offered a capability payment are also the same resources that necessitate the need for reactive power. PG&E requests that CAISO outline in its next Straw Proposal how these new payments will follow CAISO's Cost Allocation Guiding Principles,<sup>3</sup> especially the cost causation principle.

**D. CAISO should provide an estimate of costs associated with implementing any of the payment streams outlined in its Issue Paper.**

For stakeholders to assess the need and value of CAISO's proposal, any new payment option should be accompanied by an estimate of the expected incremental costs of the payments and the administrative implementation costs for establishing such a system.

**E. PG&E supports any provision payments financial compensation to be linked to compliance and testing beyond the 0.95 power factor range. PG&E believes compliance and testing for reactive power should be handled similarly to other Ancillary Services such as regulation.**

PG&E recommends that CAISO's approach for any provision payments be linked with compliance and testing to ensure that resources intended to provide reactive power do so when called upon. As voltage support is considered an Ancillary Service under CAISO's Tariff (Section 8.2.3.3), PG&E suggests that any failure of a resource to pass reactive power tests for voltage support beyond the .95 power factor, or failure to provide reactive power, could follow the same provisions as the existing tariff language for Ancillary Services.<sup>4</sup>

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<sup>2</sup> CAISO. Reactive Power Requirements and Financial Compensation Issue Paper. May 22, 2015. Figure 1: Actual/expected variable energy resources within the ISO footprint through 2024 (MW). Pg. 6.

<sup>3</sup> Cost Allocation Guiding Principles Draft Final Proposal. CAISO. March 15, 2012.

<sup>4</sup> Applicable Tariff sections include: Penalties For Failure To Pass Tests (Section 8.10.7), Rescission of Payments for Ancillary Service Capacity (Section 8.10.8). Rescission of Payments for Undispatchable Ancillary Service Capacity (Section 8.10.8.1), rescission of Payments for Unavailable Ancillary Service Capacity (Section 8.10.8.2) and Rescission of Payments for Undelivered Ancillary Service Capacity (Section 8.10.8.3).

**F. For the proposed provision payment category applicable to resources which are “very quickly” able to switch from providing real power to reactive power, PG&E requests clarification on CAISO’s definition of “quickly.”**

CAISO’s proposal includes a provision to provide compensation for provision and the operation and maintenance costs associated with “very quickly” switching from providing real power to reactive power. CAISO should provide a metric to explain how CAISO plans on defining “very quickly” switching between providing real power and reactive power.

**G. PG&E seeks clarification regarding a statement made by CAISO in its Issue Paper.**

In its Issue Paper on page 4, CAISO states:

“The ISO is informed that manufacturers routinely include this capability [for reactive power] in standard inverters used by asynchronous resources and therefore this approach creates virtually no incremental capital costs for interconnection customers.”

PG&E requests clarification by CAISO that this statement is only true in periods when the need for reactive power does not coincide with periods of maximum generation. Typically a project would install additional inverter capacity so that it can satisfy maximum reactive power requirements at the time of maximum generation.