A PUBLIC AGENCY
NCPA
NORTHERN CALIFORNIA POWER AGENCY

February 2, 2015

651 Commerce Drive
Roseville, CA 95678
(916) 781-3636
www.ncpa.com

Mr. Richard Maullin
Chair of Board of Governors
California Independent System Operator
PO Box 639014
Folsom, CA 95763-9014

SUBJECT: 2015 Stakeholder Initiatives Catalog Process

Dear Mr. Maullin:

The Northern California Power Agency (NCPA) has been engaged in discussions with CAISO staff for several years regarding an issue that we believe is unjust and unreasonable for market participants who provide Regulation services to the CAISO, and that could ultimately pose a significant threat to the reliability of the CAISO Balancing Authority Area. NCPA raised its concerns as part of the 2013 and 2015 Stakeholder Initiatives Catalog process, but unfortunately, the issue identified by NCPA has been ranked as a low priority by CAISO in both the 2013 and 2015 final Stakeholder Initiatives Catalogs. The purpose of this letter is to ensure that you and the other CAISO Board members are made aware of our concerns, and to request that you ask the Market Surveillance Committee to review this issue to evaluate its impact on market efficiency and reliability.

NCPA's concern focuses on the way in which Regulation services sold to the CAISO are settled. When a market participant provides Regulation services to the CAISO, the market participant is paid for the generation capacity that is made available to the CAISO. The capacity sold can then be used by the CAISO via its Automatic Generation Control (AGC) systems to manage system frequency variations every four (4) seconds. When the output of a generation resource providing Regulation Up service is increased by the CAISO, the extra amount of energy produced is sold to the CAISO and is priced at the five-minute, Real-Time Market price. Likewise, when the output of a generation resource providing Regulation Down service is reduced by the CAISO, the amount of energy that is not produced, that would have otherwise been produced based on a previously determined day-ahead schedule, is purchased back from the CAISO, and is priced at the Real-Time Market price.

The concern arises when the total daily capacity payments received by generation resources providing Regulation services are completely eliminated due to Real-Time Market price volatility that is out of the market participant's control and is unrelated to the actual services being provided. NCPA, which supplies both Regulation Up and Regulation Down services to the CAISO, has observed many instances in which the total daily capacity payment made to NCPA was completely eliminated due to Real-Time Market price volatility – again, volatility unrelated to the actual services being provided. In fact, NCPA has observed many instances in which NCPA's provision of Regulation services to the CAISO resulted in significant net losses, even though NCPA's generation resource was accurately responding to the CAISO's AGC signals. NCPA contends that if this settlement outcome becomes more frequent it could have negative impacts on market efficiency and reliability. NCPA and other market participants providing Regulation services to the CAISO may be forced to view the situation as one in which the risk of providing the service outweighs the benefits received for providing it. This may result in NCPA and others electing not to provide such services to the CAISO. We understand Regulation services, particularly Regulation Down services, will be an essential tool that the CAISO will need in order to reliably manage the grid as greater and greater concentrations of variable energy resources (e.g., wind and solar) are interconnected to the CAISO grid.

NCPA believes that this is a sufficiently serious issue to warrant the time and resources necessary to be further explored and analyzed by the Market Surveillance Committee. While NCPA was the only stakeholder to put this issue forward in the Stakeholder Initiatives Catalog processes, we believe it has a broad market impact now, and the potential to become an increasingly serious matter in terms of both efficiency and reliability going forward. Per this letter, NCPA is requesting that the CAISO Board ask the Market Surveillance Committee to undertake a study of the settlement results for market participants that are providing Regulation services to the CAISO, and to report back to the Board and CAISO stakeholders on the following analyses:

- The number of instances in which the daily compensation paid to generation resources for Regulation Down capacity has been completely eliminated (or nearly eliminated) by virtue of the generator being required to purchase back energy from the CAISO at Real-Time Market prices that are greater than the Day-Ahead market prices paid to the generator for its awarded schedule;

- The number of instances in which the daily compensation paid to generation resources for Regulation Up capacity has been completely eliminated (or nearly eliminated) by virtue of the generator being required to sell energy to the CAISO at Real-Time Market prices that are either (i) negative, or (ii) that are less than the variable operating cost of the generation resource;

- The Market Surveillance Committee assessment as to whether an increase in Real-Time Market price volatility and the number of instances where such price volatility results in a generation resource being financially harmed could lead to market participants withdrawing from the Regulation markets; and

- An assessment by the Market Surveillance Committee of whether the CAISO staff's suggestion that such risk can be incorporated into a market participant's capacity Bid (as further described in NCPA's comments appended to this letter as Attachment 2) is realistic and/or practical given the absence of any relationship between CAISO's use of Regulation capacity and the Real-Time Market prices.

This is a very detailed and technical issue. We have found that when we present this issue to individuals graphically, they immediately recognize the market and reliability concerns we have identified. However, due to the competitive implications associated with providing NCPA's actual market results, or other individual market participants' market results available in such graphical form, we are suggesting that the Market Surveillance Committee perform this analysis in order to protect the confidential nature of the resulting information to ensure continued competitive markets. NCPA is more than happy to assist in performing such analyses.

For your information and reference, we are attaching copies of NCPA's comments submitted to the CAISO as part of the previous Stakeholder Initiatives Catalog processes, and a set of informal notes that NCPA has used to discuss this issue with FERC. As you will see in the attached, in addition to identifying this issue as part of the Stakeholder Initiatives Catalog process, NCPA has also proposed a possible solution that it feels would mitigate this concern, which NCPA has generally referred to as Regulation Service Real-Time Energy Make Whole Settlement.

We thank you for your service on the CAISO Board, and we are hopeful that you will consider our request favorably.

Sincerely,

DAVID DOCKHAM
Assistant General Manager – Power Management
Northern California Power Agency
(916) 781-4256
dave.dockham@ncpa.com

cc: Ashutosh Bhagwat, Board Member CAISO
Angelina Galiteva, Board Member CAISO
David Olsen, Board Member CAISO
Steve Berberich, President and Chief Executive Officer
Keith Casey, Vice President Market and Infrastructure Development
Karen Edson, Vice President Policy and Client Services
Mark Rothleder, Vice President Market Quality and Renewable Integration

651 Commerce Drive
Roseville, CA 95678

phone (916) 781-3636
fax (916) 783-7693
web www.ncpa.com

Comments of Northern California Power Agency
Stakeholder Initiatives Catalog
November 19, 2014 Revised Draft Stakeholder Initiatives Catalog

December 5, 2014

Northern California Power Agency (NCPA) appreciates the opportunity to provide the following comments in response to the CAISO's Revised Draft Stakeholder Initiatives Catalog posted November 19, 2014 and its subsequent stakeholder call on November 21, 2014.

As a general comment, NCPA questions the value of the Stakeholder Initiatives Catalog process. Past iterations of this process have demonstrated that stakeholder input in support for an initiative doesn't correlate with the initiative being undertaken or even being prioritized in subsequent years. Additionally, experience has shown that the ability of the CAISO to accomplish the highly ranked initiatives is constrained by the availability of staff resources and the need to address acute market issues as they arise. NCPA therefore contends that while developing a catalog of current, potential, and mandated initiatives is a useful exercise, seeking stakeholder input in the ranking process of potential initiatives is perhaps misleading.

2.3 Multi-Day Unit Commitment in Integrated Forward Market

NCPA supports the CAISO's ranking of this initiative and looks forward to participating in the stakeholder process.

3.7 Hourly Bid Cost Recovery Reform

NCPA supports the CAISO's ranking of this initiative and looks forward to participating in the stakeholder process.

5.6 Regulation Service Real-Time Energy Market Whole Settlement

NCPA maintains that this initiative is important for the efficient and reliable operation of the CAISO market and that it should be highly ranked. In particular, this initiative was ranked as "3" by the CAISO in both the categories of "Grid Reliability" and "Improving Overall Market Efficiency." NCPA strongly disagrees with these rankings.

With the increasing capacity of intermittent generation sources in the generation fleet in California, concern about the need for responsive, flexible resources to enable the CAISO to operate the system reliably has been at the forefront in nearly every recent stakeholder initiative. Given this, NCPA contends that exposing Scheduling Coordinators for generators providing regulation services to Real-Time energy price risk significantly diminishes the incentive for SCs to bid regulation capacity into the market. This is especially the case given that the Area Control Error (ACE) for which the regulation capacity is converted to energy is on four-second intervals and thus well after the determination of the economic prices in the Real-Time market.

The suggestion is often made that the Real-Time energy price risk can be built into the Regulation bid price. NCPA notes, however, that this is a weak argument since (1) the energy prices are in MWh and the capacity payments are for MW, (2) forecasting Real-Time prices and Real-Time price volatility – which is significant in its frequency, magnitude, and causes – is a challenge to say the least, and the generator's ability to predict when the CAISO will move the generator relative to Real-Time prices to which it is exposed is completely speculative.

The consequence of the exposure to Real-Time energy price risk is a significant disincentive to provide Regulation Energy bids. This has a substantive negative impact on grid reliability and market efficiency and consequently NCPA asserts that the ranking for this initiative in both those categories should be "7."

6.1 Congestion Revenue Rights Enhancements to Address Revenue Inadequacy

NCPA supports the CAISO's ranking of this initiative and looks forward to participating in the stakeholder process.

11.14 Multiple Resource IDs per Generation Meter

NCPA does not support the foregone conclusion that a portion of a generator's output should be able to be modeled as a "pseudo-generator." Such an approach presents significant complexity in the bidding and settlement of such resources and NCPA feels this is an undue effort and expense. Subsets of resources, for example a subset of wind turbines in a wind farm, should establish metering and telemetry commensurate with rules for all other generators in order to participate as individual generators. Since, as described, there is already a mechanism to achieve this outcome, NCPA contends that the ranking of "7" in the category of "Improving Market Efficiency" is unwarranted and recommends that this score be changed to "0."

Except of Issue Paper Presented to FERC Chairman LaFluer's Office
May 14, 2014

Issue – Regulation Service Real-Time Energy Make Whole Settlement

In the current CAISO market a market participant can bid to provide Regulation Up and Regulation Down Ancillary Services to CAISO. Regulation Up and Regulation Down service provides an option for CAISO to dispatch a generator up or down in real-time (depending on the product) within a defined capacity range. Signals are delivered to the generator every four (4) seconds via automatic generator control signals ("AGC"). When the generator is dispatched from its scheduled operating level, the difference between the amount of energy that is produced within the awarded regulation capacity range and the amount of energy scheduled is treated as Regulation Energy and settled as a form of real-time instructed imbalance energy. Instructed Imbalance Energy is settled by the CAISO at the real-time LMP, and the market participant is either paid or charged by the CAISO for such difference.

NCPA has experienced many circumstances where the price at which the instructed imbalance energy settles results in a significant net loss to NCPA, even though the resource providing the regulation service to CAISO performed as dispatched by CAISO. In many instances, NCPA has sold Regulation Down capacity to CAISO and the CAISO dispatched the unit down in real-time. When this has occurred, NCPA effectively bought back energy from CAISO in real-time for a significant loss. Prices for each real-time settlement interval are calculated prior to CAISO's dispatch of Regulation Energy; therefore the real-time price does not reflect the movement or dispatch of the generator for regulation services. The CAISO has been very clear that Regulation service is and will continue to be a very important tool for managing variability and uncertainty on the system. NCPA strongly believes that the current settlement structure, in which a market participant providing this valuable service can lose significant amounts of money when it provides the service according to CAISO's instructions, is completely contradictory to the price signal that should be provided through the market to encourage the provision of the flexible ancillary services. If the CAISO would like market participants to continue providing Regulation service, and increase the amount offered over time with new investments in such attributes, the settlement of instructed imbalance energy associated with Regulation capacity must ensure that provision of the service is not a money-losing proposition for market participants.

NCPA has requested that CAISO add a new initiative to its Stakeholder Initiative Catalog to develop a solution so that a market participant is not financially harmed when providing Regulation service to CAISO. For example, a simple rule where the price for the instructed imbalance energy associated with Regulation Down could be equal to the minimum of a resource's cost or the real-time LMP, or the price for the instructed imbalance energy associated with Regulation Up could be equal to the maximum of a resource's cost or the real-time LMP. NCPA is open to consider other solutions to address this issue, but any solution must ensure that the market is providing the correct incentives for a very important reliability product.

NORTHERN CALIFORNIA POWER AGENCY
A PUBLIC AGENCY
NCPA

651 Commerce Drive
Roseville, CA 95678

phone (916) 781-3636
fax (916) 783-7693
web www.ncpa.com

Comments of Northern California Power Agency
2013 Stakeholder Initiatives Catalog

October 14, 2013

Northern California Power Agency ("NCPA") provides the following comments in response to CAISO's 2013 Stakeholder Initiatives Catalog. NCPA requests that the following discretionary initiative be added to the catalog and be treated as a high priority item:

- Regulation Service Real-Time Energy Make Whole Settlement

In the current CAISO market a market participant can transact Regulation Up and Regulation Down Ancillary Services with CAISO. Regulation Up and Regulation Down service provides an option for CAISO to dispatch a generator up or down in real-time (depending on the product transacted) within a defined capacity range. Signals are delivered to the generator every four (4) seconds via automatic generator control signals ("AGC"). When the generator is dispatched off of its scheduled operating level, the difference between the amount of energy that is produced within the awarded regulation capacity range and the amount of energy scheduled is treated as regulation energy and settled as a form of real-time instructed imbalance energy. Instructed imbalance energy is settlement by the CAISO at the real-time LMP, and the market participant is either paid or charged by the CAISO for such difference.

NCPA has experienced many circumstances where the price at which the instructed imbalance energy settlement results in a significant net loss to NCPA, even though the resource providing the regulation service to CAISO performed as dispatched by CAISO. NCPA has experienced many instances where it has sold Regulation Down capacity to CAISO, the CAISO dispatched the unit down in real-time, and NCPA was forced to buy back energy from CAISO in real-time for a significant loss. For example (hypothetical for confidentiality reasons; ignores time interval for simplicity):

- Regulation Down Capacity Sold – 10 MW
- Price for Regulation Down Capacity - $5 / MW
- Settlement for Regulation Down Capacity - $50 paid to NCPA

- Regulation Down Capacity Dispatched – 8 MW
- Resulting Instructed Imbalance Energy – 8 MW
- Real-Time LMP - $500 / MWh
- Resulting Energy Settlement - $4,000 charge to NCPA

The CAISO has been very clear that Regulation services is and will continue to be a very important tool for managing variability and uncertainty on the system. NCPA strongly believes that the current settlement structure, in which a market participant providing this valuable service can be significantly harmed for providing the service, is completely contradictory to the price signal that should be provided through the market to incent the provision of the service. If the CAISO would like market participants to continue providing Regulation service, and increase the amount offered overtime, the settlement of instructed imbalance energy associated with Regulation capacity that is dispatched by CAISO needs to be adjusted to ensure that the market participant is not financially harmed; otherwise the risk and reward balance is simply not equitable.

NCPA requests that CAISO add a new initiative to the catalog to develop a solution to this issue so that a market participant is not financially harmed when providing Regulation service to CAISO. For example, a simple rule where the price for the instructed imbalance energy associated with Regulation Down could be equal to the minimum of a resource's cost or the real-time LMP, or the price for the instructed imbalance energy associated with Regulation Up could be equal to the maximum of a resource's cost or the real-time LMP. NCPA is open to consider other solutions to address this issue, but to ensure the market is providing the correct incentives for a product that will be very important for reliability in the future, NCPA believes this issue should be assigned a very high priority and be addressed as soon as possible.