

Comments of Pacific Gas and Electric Company

Revised Draft 2015 Stakeholder Initiatives Catalog

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Pacific Gas and Electric Company (PG&E) appreciates the opportunity to comment on the California Independent System Operator's (CAISO) 2015 Revised Draft Stakeholder Initiatives Catalog (Catalog) and offers the following comments.

Through multiple public policy forums and processes, including the 2014 CAISO Stakeholder Symposium, the issue of overgeneration in California due to increasing levels of variable energy resources has been highlighted as a key challenge to address. PG&E does not believe that the CAISO's high level ranking fully captures this objective and we would like to better understand the reasoning behind some of the high level rankings. PG&E feels that it would be beneficial to have a more detailed understanding of the CAISO's priorities and drivers when coming up with its highest ranked initiatives.

PG&E believes the following initiatives should have their ranking adjusted upwards based on the critical challenges that the system is facing given growing levels of variable resources within the CAISO market and the ranking criteria defined by the CAISO. The details of each initiative are discussed further below.

- 10.3 Active Power Control Interconnection Requirements for VERs
- 11.12 Storage Generation Plant Modeling
- 2.6 Difference Bidding in Integrated Forward Market for Energy Storage Resources
- 6.1 Congestion Revenue Rights Enhancements to Address Revenue Inadequacy
- 7.4 Review of Convergence Bidding Uplift Allocation
- 8.4 Simplified Reporting of Forced Outages

PG&E also includes comments concerning the following initiatives:

- 2.2 Marginal Loss Surplus Allocation Alternative Approaches
- 10.8.2 Reallocation of Maximum Import Capability between Electrically Adjacent Import Paths to achieve State Policy Objectives

PG&E also has a few general comments regarding the CAISO's high level prioritization process.

The CAISO Should Provide Further Detail on its Highest Ranked Initiatives

PG&E feels that it would be beneficial to have a more detailed understanding of the CAISO's priorities and drivers when coming up with its highest ranked initiatives. Specifically, PG&E requests that the CAISO provide further explanation on the reasoning for ranking its top three initiatives:

- 3.11 Generator Contingency Modeling;
- 3.4 Extend Look Ahead for Real Time Optimization;
- 2.3 Multi-Day Unit Commitment in the Integrated Forward Market (IFM).

Looking at the CAISO's ranking of these initiatives, it looks as if certain criteria are overrated in each case. Each of the top three ranked initiatives has rankings of 7 for both grid reliability and improving overall market efficiency. It is not clear how each of these initiatives provide this level of benefit and furthermore, there is only one initiative in the CAISO's entire ranking that has a higher value for either of these criteria. PG&E requests that the CAISO provide more information about these specific benefits for these initiatives.

An additional example is initiative 7.3, Implement Point-to-Point (PTP) Convergence Bids. The CAISO has given this initiative a ranking of 7 for the improving overall market efficiency criteria; however, PG&E does not believe that there are reliability or market efficiency benefits¹ to be achieved from doing this and in fact it could lead to high uplift costs as such offsetting virtual bids have often been used to exploit modeling differences between day ahead and real time market models. For example, CAISO saw a significant change in the real-time congestion offset that occurred in July and August of 2012 jumping from an average of less than \$5 million a quarter since the market started in 2010 to over \$100 million in the third quarter of 2012. As described by the CAISO in their filing to FERC in lowering the transmission relaxation penalty parameter to address this uplift costs issue, the greater part of the increase in real-time congestion offset was attributable to convergence bids. As such, PG&E does not understand the measurement criteria showing both reliability and efficiency benefits from a market design proposal that would help facilitate such offsetting convergence bids leading to an increase in uplift costs. Additionally, the CAISO has given this initiative a ranking of 7 for the desired by stakeholders criteria. PG&E recommends that this ranking is lowered to a 3 because although multiple stakeholders may support the initiative, they are contained to a specific segment of stakeholders. Furthermore, the CAISO has given this initiative a ranking of 3 for grid reliability; however, PG&E does not

¹ The CAISO's Department of Market Monitoring also has found that in practice convergence demand at internal scheduling points (which in theory could result in additional capacity being committed and available in the real-time market to help alleviate these issues) has in practice not materialized. The Department of Market Monitoring's Q4 2012 Report on Market Issues and Performance in fact found that "In practice, the impact of internal virtual demand on real-time price spikes appears to have been limited by the fact that any additional capacity available to convergence bidding may not be enough to resolve congestion or the short-term ramping limitations. This is further exacerbated by the hour-ahead market, which often does not reflect the same system conditions as in the real-time market and frequently reduces net imports, decreasing the benefits of additional capacity added in the day-ahead market. Price spikes associated with upward ramp insufficiencies are typically associated with brief shortages of ramping capacity and congestion." (Page 36)

believe that allowing point-to-point virtual bids will improve grid reliability and recommends a ranking of 0.

One other initiative, 3.5 Extended Pricing Mechanisms, should also be a lower priority. While PG&E does not oppose this initiative, we strongly recommend that the CAISO defer any consideration of an Extended Pricing Mechanism stakeholder process until at least 2016, at which point the effects of FERC Order 764, the Energy Imbalance Market, Contingency Modeling Enhancements, and the Flexible Ramping Product on prices and uplift in the CAISO's markets should be better understood. PG&E does not believe that the timing is suitable to address this initiative at this time and recommends that the rankings for improving market efficiency and desired by stakeholders should be lowered from 7's to 3's. PG&E also notes that the development of Extended Locational Marginal Pricing (ELMP) in the Midwest ISO took roughly six years and involved the development and testing of new software capabilities, which speaks to the importance of a cautious, rather than hasty, approach to exploring the possibility of Extended Pricing Mechanisms in the CAISO's markets.

The CAISO Should Adjust the Rankings for the Following Initiatives Upwards

PG&E believes the following initiatives should have their ranking adjusted upwards based on the critical challenges that the system is facing given growing levels of variable resources within the CAISO market. The following initiatives directly address the issue of overgeneration in the CAISO's system.

1. 10.3 Active Power Control Interconnection Requirements for VERs

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
CAISO	3	3	3	7	10	26
PG&E	<u>7</u>	<u>7</u>	3	7	10	<u>34</u>

Grid Reliability

Due to the significant increase in variable energy resources (VERs) in California, and with the amount of additional VERs expected to come online by 2020, it is essential that interconnection requirements for these resources are established that will provide stability to the overall transmission system. A lack of control over VER output could present serious reliability concerns.

Improving Overall Market Efficiency

From 2014 to 2016, total CAISO variable resource capacity is expected to increase by 20%; almost 1,700 MW of that increase will be solar PV, which increases upward and downward ramping needs around the morning and evening peak use periods.² A lack of control over VER output could contribute to over-generation conditions, especially when net load levels are low (e.g. low load, high solar and hydro) and could increase the costs of operating the system. Allowing VERs to fully participate in the market and support its needs by having control is critical for the future operation of the grid. There has been broad support for similar requirements in other markets, including the Midwest ISO where the Dispatchable Intermittent Resources Initiative recognized the operational efficiency and market efficiency benefits of automated dispatch for intermittent resources.

2. 11.12 Storage Generation Plant Modeling

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
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² CPUC Final 2014 Flexible Capacity Needs Assessment.
http://www.caiso.com/Documents/Final_2014_FlexCapacityNeedsAssessment.pdf

CAISO	3	3	3	7	3	19
PG&E	3	<u>7</u>	<u>7</u>	7	3	<u>27</u>

Improving Overall Market Efficiency

Improved storage generation modeling will allow the CAISO to dispatch storage resources more efficiently by using its state of charge (charging vs. discharging) and ancillary services capabilities to meet real-time conditions. Improved storage generation modeling will also allow the CAISO to more effectively use storage resources to ensure grid reliability during periods of the day where flexibility is critical. Storage, if efficiently integrated into the market should be a useful tool to address renewable integration challenges and potential over-generation.

Desired by Stakeholders

The number of energy storage resources will increase significantly as a result of the CPUC's decision³ that mandates that investor-owned utilities procure 1,325 MW of new energy storage resources by 2020. This decision impacts many types of stakeholders such as load-serving entities and transmission-connected and distribution-connected energy storage resources. The CAISO and its diverse stakeholders would benefit from an initiative that improves storage generation modeling.

3. 2.6 Difference Bidding in Integrated Forward Market for Energy Storage Resources

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
CAISO	3	3	3	7	7	23
PG&E	3	<u>7</u>	<u>7</u>	7	7	<u>31</u>

Improving Overall Market Efficiency

As the number of storage resources increases, PG&E believes that the bidding enhancements proposed in this initiative for storage resources in the IFM could significantly improve overall market efficiency by allowing scheduling coordinators to actively manage the state of charge.

Desired by Stakeholders

Considering the CPUC's procurement target for energy storage resources, this initiative would impact a broad base of stakeholders.

³ Adopting Energy Storage Procurement Framework and Design Program (D.13-10-040)

PG&E believes the following initiatives should also have their ranking adjusted upwards based on the ranking criteria defined by the CAISO.

4. 6.1 Congestion Revenue Rights Enhancements to Address Revenue Inadequacy

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
CAISO	3	7	3	7	3	23
PG&E	3	7	<u>7</u>	7	3	<u>27</u>

Desired by Stakeholders

The CAISO's Department of Market Monitoring's white paper on CRR Revenue inadequacy has sparked considerable interest from stakeholders. The scope of this proposed initiative is broad and considers multiple changes⁴ that may address the issue of revenue inadequacy, including consideration of DMM's alternative allocation methodology for CRR revenue shortfall.⁵ Currently, revenue inadequacy is allocated to load serving entities based on measured demand share and therefore does not send correct price signals to participants wanting to procure CRRs. PG&E supports a more comprehensive review and holistic approach and believes that the CAISO should evaluate all possible alternatives.

5. 7.4 Review of Convergence Bidding Uplift Allocation

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
CAISO	0	3	7	7	3	20
PG&E	<u>3</u>	<u>7</u>	7	<u>10</u>	3	<u>30</u>

Grid Reliability

Convergence bidding affects unit selection and commitment decisions, which can have an impact on grid reliability.

Improving Overall Market Efficiency

⁴ Allocation methodology of revenue inadequacy, restrictions on CRRs that clear at no or minimal cost, modifications to the CRR claw back rule, allocate real-time congestion offset to CRRs.

⁵ DMM's white paper on Congestion Revenue Rights (CRR) revenue inadequacy proposes to allocate CRR revenue inadequacy costs to CRRs on an hourly constraint by constraint basis.

A cost allocation methodology that adheres to the CAISO's cost causation principle will improve market efficiency. Currently, significant uplifts associated with convergence bidding are allocated based on measured demand share through Real Time Imbalance Energy Offset and Real Time Congestion Offset. Virtual bidders currently benefit from the congestion that results from their participation in the CAISO markets, but are not allocated any associated costs and therefore are not given appropriate price signals to participate in the CAISO market. This issue becomes increasingly important with the reinstatement of convergence bidding at the interties.

Market Participation Implementation

PG&E expects the implementation impact on market participants to be very low, since the allocation will be done by the CAISO.

6. 8.4 Simplified Reporting of Forced Outages

Ranking	Grid Reliability	Improving Overall Market Efficiency	Desired by Stakeholders	Market Participant Implementation	CAISO Implementation	Total Score
CAISO	0	0	3	10	7	20
PG&E	<u>3</u>	<u>3</u>	<u>7</u>	10	<u>10</u>	<u>33</u>

Grid Reliability

Simplifying the reporting of forced outages for small units will allow real-time operations to focus on duties that are more critical to grid reliability.

Improving Overall Market Efficiency

Current forced outage reporting requirements differ for resources depending on their technology type, capacity size, or Resource Adequacy type. In the near future, the number of resources with a capacity of less than 10 MW will increase, but the total capacity provided by these resources will be minimal.

Desired by Stakeholders

Many stakeholders will benefit from an initiative that streamlines and removes the administrative burden of the forced outage reporting process.

CAISO Implementation

PG&E expects the implementation impact to the CAISO to be low, since one of the recommendations of this initiative is to remove the need for resources with a Pmax less than 10 MWs to report forced outages to the CAISO.

Other Comments

2.2 Marginal Loss Surplus Allocation

PG&E supports the CAISO's decision not to delete this initiative from the Catalog. PG&E appreciates the CAISO's commitment to release a report on alternative marginal loss surplus allocation methodologies by the end of 2014. PG&E notes that this initiative was not ranked by the CAISO in its initial rankings. PG&E recommends that the CAISO include in its high-level ranking a stakeholder initiative that would analyze the conclusions of this report and then formulate any appropriate changes to the current allocation methodologies.

10.8.2 Reallocation of Maximum Import Capability between Electrically Adjacent Import Paths to achieve State Policy Objectives

In light of the recent CPUC decision on the RPS Plan which changed the CPUC policy objective related to the Imperial Irrigation District (IID) deliverability evaluation, there is no need for additional MIC from IID, and therefore the CAISO should re-examine its ranking of this initiative. In that decision (D.14-11-042), the CPUC removed its requirement to assume a maximum import capability of 1,400 MW from IID Balancing Authority Area as directed in June 7, 2011 ACR and D.12-11-016.⁶ However, PG&E does support MIC Reallocation to be considered as a potential alternative to new transmission in the TPP.

General Comments on CAISO's High Level Prioritization Assessment

The CAISO states that its high level assessment of proposed market initiatives includes a simplified ranking process of the three benefit and two feasibility criteria based on stakeholder input and the CAISO's assessment. PG&E believes that stakeholders would benefit from a more detailed explanation of the internal process that the CAISO conducts to grade each initiative's benefit and feasibility. For instance, when considering the CAISO implementation impact, does the CAISO consider the resources and personnel it has available organization-wide or does it consider the specific resources and personnel it has available that would address that specific initiative. Additionally, it would be helpful if the CAISO provides an indication about the potential size of the overall MW of generation that would be impacted by the proposed initiative. For instance, it would be beneficial to know if the CAISO believes that an enhancement will impact only a few hundred MW of generation versus another initiative that will impact a few thousand MW of generation. Providing that level of information in the catalog could help stakeholders as they are thinking about the feasibility of addressing certain initiatives in the coming year.

⁶ D.14-11-042, Ordering Paragraph 10, p.126.