Comments of Pacific Gas and Electric Company on the Aliso Canyon Gas-Electric Coordination Straw Proposal

Submitted by	Company	Date Submitted
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Introduction

Pacific Gas and Electric Company (PG&E) offers the following comments on the California Independent System Operator's (CAISO's) Aliso Canyon Gas-Electric Coordination Initiative, based on the Straw Proposal issued on April 15, 2016, and discussion during the Market Surveillance Committee (MSC) meeting on April 19, 2016.

First, PG&E appreciates the urgency and dedication with which the CAISO and other market participants are evaluating the challenges generated by the unavailability of gas from Aliso Canyon and the complex interplay of gas and electric operations and markets. PG&E believes the CAISO has scoped proposals that respect the guideposts PG&E included in its earlier comments on the issue paper[1], essentially taking a "do no harm" approach. PG&E offers some suggestions on further prioritization of CAISO's proposals.

Any new market interventions should promote flexibility during these exceptional circumstances and be limited as narrowly as possible to avoid unintended consequences and second-order effects. As indicated by CAISO staff during the MSC, we look forward to the Draft Final Proposal and Draft Tariff Language providing further detail on the monitoring action, cost allocation and the geographic and temporal limits of these proposals where it is currently lacking, for example:

- Monitoring spillover effects: As CAISO introduces market changes that impact the Northern California generation in order to respond to limited gas supplies in the Southern California region, PG&E requests that CAISO track and monitor information related to units dispatched beyond their start limitations due to environmental restrictions. In addition, PG&E requests that applicable rules and cost recovery should be applied equally to all generators and that CAISO's Cost Allocation Guiding Principles should be followed.

[1] See http://www.caiso.com/informed/Pages/StakeholderProcesses/AlisoCanyonGasElectricCoordination.aspx, "PG&E Comments – Aliso Canyon Gas Electric Coordination Issue Paper," 3/31/2016, pp. 1-2.

- The precise meaning of the term "affected area": PG&E understands CAISO intends to limit the applicability of new gas constraints, based on new daily and intra-day communications with SoCal Gas and SDG&E, to just specific gas operating zones that need to be constrained on an event-by-event basis. PG&E agrees with the reasonableness of this geographic approach and we look forward to seeing it specified further.
- The duration (and any off-ramps) for the enforcement of each new constraint or market mechanism: PG&E understands that the extraordinary measures contemplated in the Straw Proposal will likely be in place for the coming summer 2016 and possibly winter 2016-2017 season, or at least until such time as gas withdrawal is available from Aliso Canyon again. However, we are concerned about the precedential nature of any extraordinary measures and would like to see some combination of either an explicit sunset provision or a scheduled stakeholder review process reflected in the Draft Final Proposal and Draft Tariff Language.[2]

PG&E organizes the remainder of its comments with reference to the proposals contained in the Straw Proposal. For clarity, each CAISO proposal is assigned a number, along with a citation to the corresponding section in the Straw Proposal. PG&Es positions are summarized in Table 1 below. Several additional recommendations for further consideration are included at the end.

Table 1 -- Summary of PG&E Positions

No.	Proposal	PG&E position
P-1	Gas availability constraint	PG&E recommends using a generator-specific constraint
P-2	Reserve internal transfer capability on electric transmission	Support with clarifications
P-3	Increase access to information prior to day-ahead	Neutral
P-4	Introduce gas balancing constraint in real-time	[Discussion grouped with P-1 below]
P-5	Gas price quote submitted by generators	Lower priority
P-6	VWAP of exchange trades	Lower priority
P-7	Accelerate select commitment cost bidding enhancements	Lower priority
P-8	Routinely use improved day-ahead gas price index	Lower priority
-	Monitoring spillover effects	Support
-	Cost allocation of exceptional dispatch events	Support

[2] CAISO could include, for example, a commitment to a stakeholder review of the performance and continuing need for each measure that would be triggered upon the issuance of an order restoring service or setting forth the future conditions on availability of the Aliso Canyon facility.

-	Suspension of virtual bidding in the affected area	Support
-	Implementation testing	Support
-	Clarifying the role/benefits of the EIM and imports	Support

Proposal #1 (Section 5.1) Introduce Gas Availability Constraint
Proposal #4 (Section 6.2) Introduce Gas Balancing Constraints in Real-time

PG&E recommends CAISO pursue mitigating gas variation arising from Real-Time dispatch in the Southern California area by focusing on daily balancing requirements rather than a SoCal Gas system-wide constraint for a given day.

CAISO has referenced two SoCalGas constraints due to the Aliso Canyon restriction: SoCalGas's system-wide constraint and SoCalGas' proposed customer-specific daily balancing requirement. CAISO's use of the gas system constraint on any given day to restrict thermal generation in the Real-Time market would not preclude Real Time dispatches that would result in violations of a customer's daily balancing requirement and the associated impacts of the penalty costs. A preferred solution would be to constrain the difference between the gas burn required for a generator to produce its Day-Ahead schedule and the gas burn for the generator to produce its Real-Time dispatch to within the daily balancing requirement.[3]

As large gas customers can group facilities for purposes of balancing requirements, PG&E suggests that the Real Time dispatch constraint be applied to the generator's balancing group[4]. CAISO could use the Day-Ahead schedules for the plants in a given group, along with their heat rates, to calculate the gas burn by hour needed to meet the Day-Ahead energy schedules for these plants.

CAISO runs its Real-Time market on a rolling basis. The schedule in the first interval is binding while later intervals are advisory. Only the change in gas burn by balancing group arising in the first interval is binding. In subsequent runs of the Real-Time market, the change in gas schedule for the first interval can be used to adjust the allowable change over the intervals in the horizon of the Real-Time market. By tracking the changes in gas burn and adjusting the allowable

[3] Note that the recommended Real Time dispatching constraint would pertain to a sustained daily balancing requirement or the use of an OFO procedure implemented in a timely manner.
[4] A balancing group can be considered all customer meters served under the same order control code for the purposes of imbalance considerations as described in https://www.socalgas.com/regulatory/tariffs/tm2/pdf/G-IMB.pdf

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change in the next run that would avoid a penalty, CAISO can work to keep the change in gas burn between Day-Ahead and Real-Time within the allowable daily tolerance band.

Proposal # 2 (Section 5.2) Reserve Internal Transfer Capability

While PG&E supports the concept, we request clarification regarding some aspects of the CAISO proposal.

The CAISO proposes to reserve transfer capability on Path 26 in its Day-Ahead (DA) and Real-Time (RT) markets to facilitate its ability to adjust the dispatch of resources in Northern California in Real-Time to meet changing Real-Time requirements in the affected SoCal area. When coupled with a constraint in the CAISO's Real-Time market that would limit (to within a balancing range) the change in gas burn for generator balancing groups in the SoCal area relative to the gas burn for the group's Day-Ahead schedules, this proposal could facilitate CAISO's use of resources in Northern California to meet changing Real-Time requirements in the SoCal area while limiting the change in gas burn within the SoCal area. This could allow CAISO to help reduce strain on the SoCal Gas system caused by deviations in gas use on the affected SoCal Gas area.

As PG&E understands the proposal, CAISO would reserve transmission capacity on Path 26 for two reasons:

- Enable CAISO to adjust the real-time dispatch of resources in Northern California to respond to changes in requirements between Day-Ahead and Real-Time in Southern California (e.g. changes in load forecasts, changes in Variable Energy Resource (VER) forecasts, etc.)
- Allow CAISO to procure reserves in Northern California to meet reserve requirements in Southern California and ensure that CAISO can deploy the reserves in Northern California to meet contingencies that occur in Southern California.

More information as to how CAISO would determine the amount of transmission capacity to reserve for each of these reasons would help in assessing the proposal. Also, CAISO should clarify that they may reserve transmission capacity in both directions on Path 26. For example, CAISO may reserve transmission capacity from North to South on Path 26 to be able to increase the energy dispatched from resources in Northern California in Real-Time in response to increases in Real-Time requirements in Southern California. CAISO may also wish to reserve transmission capacity from South to North on Path 26, to be able to decrease the energy dispatched from resources in Northern California in Real-Time in response to decreases in Real-Time requirements in Southern California.

CAISO proposes to reserve transmission capacity in the Day-Ahead and Real-Time market and to manually release the transfer capability in Real-Time if the transfer capability is needed to deliver energy to the SoCal area. In our view, when the reserved transmission capacity should be released for use differs based on the reason the transmission capacity was reserved. CAISO should provide more detail regarding when it would release capacity held aside on Path 26. CAISO should release any transmission capacity that it reserved on Path 26 to enable the Real-Time market (FMM and RTD) to use resources in Northern California to meet variations in Real-Time requirements in Southern California prior to running the Real-Time market. Keeping the reserved transmission capacity out of the Real-Time market would negate the purpose of reserving transmission capacity to allow the Real-Time market to adjust resources in the North in response to changing requirements in the South.

CAISO may want to procure contingency reserves in Northern California to meet Southern California requirements to avoid increasing gas use if contingency reserves held on gas-fired resources in Southern California were deployed. To allow the reserves held in the North to be deployed in response to a contingency in Southern California, unloaded transmission capacity on Path 26 would be needed. Any transmission capacity reserved for this purpose should be held out of the Day-Ahead and Real-Time markets. It should be released only if a contingency in Southern California were to occur that required the deployment of reserves in Northern California.

Reserving transmission capacity on Path 26 in the Day-Ahead Market so that the capacity would be available to move power between North and South in the Real-Time Market is a reasonable first step. It may also be prudent for CAISO to have the flexibility to reserve transmission capacity connecting the SoCal area to generation in other locations in the Day-Ahead Market so that CAISO would have the transmission capacity available to move power between the SoCal area and other areas in the Real-Time Market. CAISO may find that flexible resources are available in other locations and reserving transmission capacity to those areas would enhance its ability to meet changing Real-Time requirements in the SoCal area. Particularly if the CAISO identifies cascading impacts affecting Northern California such as increased OFO's, insufficient flexibility in Northern California, or significant impacts on the number of starts being used on resources in Northern California with use limitations (such as maximum yearly starts), CAISO should be thinking about and developing potential future procedures to have the transmission capacity available to move power between the SoCal area and other areas in the Real-Time Market.

CAISO recognizes that reserving transmission capacity on Path 26 in the Day-Ahead market will reduce congestion rents collected in the market and could adversely affect CRR revenue adequacy unless it changes the CRR allocation. CAISO suggests that it can address this by reducing the additional CRRs that it releases in the monthly CRR process. This may be adequate provided that CAISO reduces the CRRs that place significant flow on Path 26 in the monthly process. CRRs that do not place significant flows on Path 26 should not be reduced.
In addition, at the MSC meeting, CAISO stated that it would determine the amount of transmission capacity it will reserve on Path 26 based on anticipated gas and electric

conditions. If experience shows that the amount reserved varies from day to day, withholding CRRs out of a monthly CRR process may not provide the flexibility to follow Path 26 capacity reservations that vary from day to day. In this case, PG&E recommends CAISO consider also having the authority to price the transmission capacity reserved on Path 26 in each hour of the Day-Ahead Market at the shadow price of the transmission constraint. Since the transmission capacity is reserved for SoCal area reliability, the resulting market cost of the reserved transmission capacity should be collected from participants in the affected area via an uplift charge, in line with CAISO's costs causation principles. This would provide the revenue needed to avoid adverse impacts on CRR revenue adequacy if the CRR monthly process is not changed.

Last, from a Balancing Authority (BA) perspective, PG&E encourages CAISO BA to explore ways to improve coordination with LADWP BA to help manage the Southern California gas system balancing needs across short-term planning and market time horizons. For example, methods of facilitating imports and exports between CAISO and LADWP in CAISO Real-Time markets, coupled with the ability to reserve Day-Ahead transmission capacity on each other's systems to provide real-time flexibility, may give the parties the ability to dispatch more resources outside the SoCal area to help meet changes in SoCal area requirements in Real-Time and decrease stresses on the gas systems in the SoCal area.

Proposal #3 (Section 6.1) Increase access to information prior to day-ahead

PG&E is neutral with respect to the CAISO's proposed provision of additional 2 Day Ahead (2DA) advisory run information. Since the primary period of concern is the interval between the Day-Ahead and Real-Time Markets, it is not clear to us that additional 2DA information will add significant value, especially given that the information is likely to be only partial and not fully validated.

PG&E recommends the remaining proposals be considered lower priorities, due to the limited time to implement solutions and the perceived limited benefits these solutions provide.

Proposal #5 (Section 7.1) Gas price quote submitted by generators

PG&E appreciates the transparency CAISO is proposing in its proposal to add granularity to Day-Ahead bids by requiring bids to also include a commodity price and gas transport cost. However, PG&E questions the ability to test and implement such enhancements to CAISO market systems prior to May 1, 2016. Further, this mitigation measure will not prevent price spikes or market volatility.

PG&E agrees that CAISO should still monitor submitted gas bids and potentially submit these for further review either through an audit or by referring activity to FERC's Office of Enforcement.

Proposal #6 (Section 7.2) VWAP of Exchange Trades

CAISO proposes to upgrade its functionality to calculate a volume weighted average price (VWAP) using trades observed on ICE, either transacted intraday or same day. However, as CAISO noted in their April 15, 2016 Straw Proposal, there is not a printed index for real-time trades, there is an extremely limited oversight of intraday or same day transactions and the use of an average which could increase the vulnerability risk from artificial prices influencing its market outcomes, and auditing and monitoring would be difficult. In order to add stability to intraday prices, PG&E agrees that CAISO could pursue this suggestion on a trial basis. However, such efforts may not be central to or in time for effectively dealing with the immediate Aliso Canyon constraints.

Proposal #7 (Section 8) Accelerate implementation of select commitment cost bidding improvements enhancements

In light of time and resource limitations for testing and implementing market tool changes and the aforementioned recommendation to prioritize customer daily balancing requirements, PG&E questions the relative benefits associated with CAISO's proposal to accelerate select commitment cost bidding improvement enhancements such as allowing re-bidding commitment costs in real-time if the resource has not been committed in the Day-Ahead Market. As noted above, PG&E is advocating for a simpler solution for CAISO to prioritize daily balancing requirements as it is unclear how generators within a constrained system will know if their accepted bid will result in a balancing penalty, and as a result, this may encourage the inclusion of such a penalty in bids or leave generators stranded (i.e., if the generator is long or short in the intra-day time period). PG&E recommends that CAISO maintain current procedures and include a commitment cost bid cap at 125% of ISO's proxy cost calculation for start-up, transition or minimum load costs. PG&E supports after-the-fact cost recovery if needed in extreme outlier events including appropriate cost recovery for resources in Northern California that might be subject to costs not recovered through the CAISO's normal market and settlement processes.

Additionally, PG&E strongly recommends CAISO track and monitor information related to gas units in Northern California that are close to reaching annual start limitations (or on a trajectory to exceed their use limits) based on additional exceptional dispatches or starts if the commitment costs might not reflect the actual opportunity cost given the extenuating circumstances being addressed in this proposal.

Proposal #8 (Section 9) Routinely use improved day-ahead gas price index.

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CAISO proposes to implement a routine use of GD 2 timely trading as the basis for cost estimates in the Day-Ahead timeframe, either using the gas price submitted by generators to reflect the marginal cost of gas or a rolling VWAP of exchange traded intraday and same day for each commodity trading hub. For the latter option, PG&E supports the proposal, pending resolution with vendors if such a solution is implementable in time.

Additional PG&E Issues and Concerns:

PG&E suggests CAISO also include additional information in its Final Draft Proposal with respect to the following topics:

- ***Virtual Bidding:*** In the March 17, 2016 Issue Paper, CAISO suggested suspending virtual bidding in the affected Aliso Area. PG&E strongly recommends CAISO pursue this option moving forward in its Draft Final Proposal.

  PG&E supports the previously proposed suspension of virtual bidding in the affected Aliso Canyon area as a temporary mitigation effort. With market design changes and higher uncertainty in prices for intraday trades, there could be larger deviation between Day Ahead and Real Time; this increases PG&E's concern regarding possible manipulation of virtual bids. PG&E strongly urges CAISO to resume discussions on limited virtual bidding suspension in the affected Aliso Area in the forthcoming Final Draft Proposal and Tariff.

- ***Exceptional Dispatch and Bid Cost Recovery****:* In accordance with CAISO's Cost Allocation Guiding Principles, PG&E recommends CAISO examine whether any exceptional dispatch as a result of limited supplies out of the affected area should have the costs allocated accordingly to the affected area.

- ***Implementation Testing:*** PG&E remains concerned regarding the aggressive implementation timeline associated with any changes that would require market interface modifications. PG&E strongly recommends CAISO provide testing scenarios for market simulation the week of April 25th in the event that CAISO pursues any market systems changes by May 1, 2016.

- ***EIM Benefits:*** PG&E requests CAISO further evaluate whether additional changes to the EIM market including setting aside transmission or making contractual arrangements with generators in the EIM areas could be used if the changes proposed here are not sufficient to ensure reliability at an affordable price.