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Submitted to inittativecomments@caiso.com

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Dear Ms. Colbert,

Comments on CAISO's Aliso Canyon Gas-Electric Coordination Straw Proposal

EDF appreciates the opportunity to comment on CAISO's Aliso Canyon Gas-Electric Coordination Straw Proposal dated April 15, 2016, exploring market mechanisms to address electric reliability risks arising from the limited operability of Aliso Canyon (the "Straw Proposal").

1. Commitment Cost Bidding Enhancements

As previously noted by EDF¹, unless the full costs of providing energy services are reflected in energy bids and commitment cost bid caps, ineffective price formation will diminish the impetus for market participation. Accurate price formation is especially critical when the resources in question have a substantial role in providing system resiliency and flexibility. In this regard, flexibility is a fundamental attribute for maintaining reliability, and price signals are the core market element for calling forth flexible resources. A market design that values and accurately prices energy and ancillary services will optimize reliability as well as environmental and economic outcomes.

CAISO proposes to seek FERC approval for expedited treatment of two market enhancements that have already been approved by the CAISO Board of Governors, and are aimed at improving market participants' ability to more accurately reflect generators' commitment costs, better ensure cost recovery, and better manage their use by the market:

- Market participants will have the ability to re-bid commitment costs in the real-time market when a resource has not been committed in the day-ahead market.
- Market participants will have the opportunity to file with FERC to recover commitment costs that exceed the commitment cost bid cap and result in a net revenue shortfall over the day considering all market revenue.

CAISO's proposal to seek FERC approval for expedited implementation of these key market refinements to enhance price formation will foster improved system-wide outcomes. As such, the refinements address not only immediate reliability concerns, but also advance electric market design in California from a broader and longer-term perspective.

2. Increasing Access to Day Ahead Information

CAISO proposes to provide advisory information regarding forecast load and system conditions two days ahead to allow market participants to better plan in advance of the day ahead market.

¹ Environmental Defense Fund's Comments dated March 30, 2016 on CAISO's Aliso Canyon Gas-Electric Coordination Issue Paper.

As other stakeholders have noted², actual electric conditions will likely vary significantly from those reflected in the two day ahead market, which only produces advisory results. Given the likely variances from actual conditions on a given operating day, particularly under peak demand conditions, there would remain significant real time changes that would require transacting in intra-day cycles. For this reason, the effectiveness of this proposed measure in providing market participants greater visibility into the day ahead market is likely very limited.

3. Proposed New Gas Dispatch Constraint

CAISO proposes to implement a new constraint in its real-time market that would limit the re-optimization of the affected electric generation (i.e. gas fired generation in the SoCalGas and SDG&E operating zones) in order to support pipeline operations.

As per the Straw Proposal, the proposed constraint would limit the change in gas burn relative to day-ahead schedules' burn to within a balancing range over the day. If the constraint were violated, the price of the constraint would be reflected in market prices. To the extent that CAISO determines that additional generation from the affected generators is needed beyond the balancing range for electric reliability, additional generation could only be dispatched through exceptional dispatches coordinated with the gas system operator.

As noted by other stakeholders³, instead of artificially constraining dispatch, CAISO should focus on allowing all costs and risks associated with natural gas procurement to be accurately reflected in bids and recovered through the CAISO market. This would allow for the marginal cost to express the value of overcoming the reliability constraint going forward.

4. Using Real-Time Gas Price Information to Increase Efficiency of Real-Time Dispatch

CAISO notes the need for generators to have the ability to submit commitment cost and incremental energy offers reflective of their marginal cost, given the expected strictness of the proposed gas balancing constraint. CAISO acknowledges the need for effective price formation, noting that market prices reflecting constrained gas conditions will only be possible if bid prices submitted into the ISO market are accurate.

CAISO's proposal to increase the accuracy of its cost estimates for commitment costs and incremental energy used in the real-time market to estimates based on a valuation of real-time gas prices will enhance price formation and improve market efficiency. In particular, the Straw Proposal considers two options for estimating commitment and incremental energy costs based on a valuation of real-time gas prices:

- Gas price submitted by generators reflecting marginal cost of gas; and
- Rolling volume weighted average price of exchange traded intraday and same day transactions for each commodity trading hub defined within a fuel region

From a market efficiency perspective, the first option (i.e. using gas price submitted by generators reflecting marginal cost of gas) is preferable as marginal cost is the most accurate reflection of value. CAISO proposes to evaluate the implementation feasibility of these options to increase the accuracy of its commitment cost and default energy bid cost estimates. In addition, CAISO must carefully consider these two alternatives to determine which of these would be most beneficial for California's energy markets, not

² NRG Energy, Inc.'s comments dated March 30, 2016 on CAISO's Aliso Canyon Gas-Electric Coordination Issue Paper.

³ NRG Energy, Inc.'s comments dated March 30, 2016 on CAISO's Aliso Canyon Gas-Electric Coordination Issue Paper.

only from the perspective of addressing near term reliability concerns, but also from the broader vantage point of advancing market efficiency.

While CAISO's alternative proposal to increase the real-time commitment cost bid cap and the adder on default energy bids to values reflecting intraday gas price variations (relative to the gas index price used to calculate these values) as an interim measure may offer some benefits, it cannot stand in for substantive market refinements which will increase the accuracy of its cost estimates for commitments and incremental energy used in the real-time market, thereby facilitating effective price formation.

5. Addressing Misalignment between Gas and Electric Market Schedules

In its Straw Proposal, CAISO acknowledges that the misalignment between gas and electric market schedules imposes challenges for gas procurement and nominations to meet CAISO commitments or dispatches. Because of this misalignment, generators may be compelled to procure gas at relatively illiquid trading periods in the gas market.

The Joint Agency Aliso Canyon Action Plan to Preserve Gas and Electric Reliability for the Los Angeles Basin dated April 5, 2016 (the "Action Plan") also recognizes that the mismatch between nominated gas flows and actual gas demand, arising from the misalignment of gas and electric market schedules, is at the heart of existing reliability concerns prompted by the limited operability of Aliso Canyon.

In order to address this misalignment, EDF suggests that CAISO consider seeking FERC approval for a common gas and electric day in California to better align the two markets. The Federal Energy Regulatory Commission advanced efforts to optimize such alignment so that day ahead commitments preceded the timely nomination cycle (Docket PL 14-2- 000) when gas markets are most liquid. At the time, with natural gas storage being available in California for balancing supply and demand, the market changes needed to align gas and electric market schedules were determined to be unnecessary.

With the limitations on short notice fuel supply resulting from a diminished Aliso Canyon, CAISO must reconsider the matter, and reassess the benefits of aligning the two markets. Aligning the two markets would facilitate price formation and limit the mismatch between nominated gas flows and actual gas demand, which lies at the heart of existing electric reliability concerns over summer/winter 2016.

6. Need to Prioritize Market Refinements and for Cost-Benefit Analysis of Extra-Market Measures

CAISO's proposed market refinements to address near term reliability concerns arising from the limited operability of Aliso Canyon will facilitate price formation and are likely to improve system-wide outcomes. While some short-term measures may be needed to address the reliability challenges posed by the now diminished Aliso Canyon facility, CAISO must recognize that these challenges may extend into the future, beyond summer/winter 2016, making this an opportune time to implement lasting market refinements to facilitate price formation.

To the extent that extra-market measures are found to be necessary to address immediate reliability concerns, CAISO must undertake a cost-benefit analysis of the proposed alternatives, assessing not only the incremental reliability impacts, but also GHG emissions impact and customer impacts, in order to be able to effectively prioritize among various alternatives. It is important to ensure that these interventions do not lead to unintended consequences that conflict with the state's existing regulatory mandate to develop a more efficient and cleaner grid. If several of these new measures are proposed to be pursued jointly, their combined impacts on system reliability must be assessed to avoid unintended negative impacts resulting

from the interaction of these interventions. Without such an analysis, it will be a challenge to prioritize among alternatives.

Thank you for considering these comments. Please feel free to reach out with any questions or comments.

Sincerely,

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