

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.

Investigation 17-02-002
(Filed February 9, 2017)

**INFORMAL COMMENTS OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

The California Independent System Operator Corporation (CAISO) appreciates this opportunity to provide comments on California Public Utilities Commission's (Commission) June 15, 2018 Update to the Scenarios Framework (Scenarios Framework) developed by Energy Division staff. The Scenarios Framework will inform Investigation (I.) 17-02-002, which will determine whether use of the Aliso Canyon natural gas storage facility (Aliso) can be minimized or eliminated while maintaining energy and electric reliability in the region.

I. Introduction

The CAISO appreciates Energy Division staff's efforts in preparing and updating the Scenarios Framework. The Scenarios Framework outlines the scope of the Commission's proposed Aliso-related studies. The Commission plans to conduct three types of studies in the course of this investigation: (1) a hydraulic modeling analysis, (2) a production cost modeling analysis, and (3) an economic modeling analysis. The CAISO agrees with this general framework, but continues to believe that CAISO power flow modeling should be used to inform both the hydraulic and production cost modeling.¹ The CAISO's power flow modeling will provide critical information regarding the levels of local gas generation necessary to reliably operate the electric grid, as discussed in more detail below.

¹ The CAISO previously raised this issue in comments filed July 24, 2017 and at the Commission's August 1, 2017 workshop regarding the Scenarios Framework.

II. Discussion

A. The Commission Should Incorporate Results of the CAISO's Power Flow Modeling into its Production Cost Modeling and Hydraulic Analyses.

As discussed at the August 1, 2017 workshop in this proceeding, the CAISO understands that the Commission plans to incorporate the CAISO's power flow model into the production cost model to produce hourly (or sub-hourly) generation profiles for inputs to the hydraulic model. However, the current Scenarios Framework does not articulate clearly the process by which the CAISO's power flow inputs will be incorporated into the production cost model. The Commission should clarify the Scenarios Framework to explicitly outline the use of the CAISO's power flow inputs in the production cost model.

B. The Commission Should Study Multiple Unplanned Gas Transmission and Storage Outages.

Currently, the Scenarios Framework states that "pipeline and storage outages can significantly impact the ability of the natural gas system to serve load on peak days."² The Scenarios Framework goes on to state that for the Reliability Assessment portion of the hydraulic modeling, the "gas pipeline system [will] be subject to a single plausible unplanned outage (pipeline or storage) that results in the maximum loss of aggregate gas send out."³ However, the CAISO notes that there are currently multiple main gas transmission outages that affect gas delivery into the southern California area.⁴ Based on current conditions, the CAISO recommends that the Commission incorporate multiple gas transmission and/or storage field outages in the hydraulic model as part of the study process. The CAISO understands that the Commission has directed SoCalGas to determine plausible unplanned outage events based on review of historical outages for gas transmission system in the area, but suggests that the Commission specify that multiple gas outage events should be studied in the hydraulic modeling.

² Scenarios Framework, p. 14.

³ *Id.*

⁴ CPUC's Draft 2018 Summer Supplemental Report, PUC Code Section 715 - Aliso Canyon Working Gas Inventory, Production Capacity, Injection Capacity, and Well Availability for Reliability, June 18, 2018. (http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/News_Room/Draft715Report_Summer2018.pdf).

C. The Commission Should Consider Electric Reliability Based on Multiple Perspectives.

The CAISO recommends that the Commission review electric reliability from both a “top-down” and “bottom-up” perspective. The “top-down” approach would use the Commission’s production cost modeling and hydraulic modeling to provide the CAISO information regarding the gas available for electric generation. The CAISO could then use the available gas information to determine whether the level would be sufficient to meet minimum electric generation requirements in the area. For the “top-down” approach, the CAISO will be dependent on the output for the amount of available gas for electric generation from the production cost and hydraulic model to check for adequacy of the gas resources for electric gas-fired generation to meet minimum generation requirement as determined from the power flow study.

The “bottom-up” approach would use minimum electric generation requirements from the CAISO’s power flow modeling to use as inputs into the Commission’s production cost and hydraulic modeling. For the “bottom-up” approach, the CAISO power flow study results for minimum gas generation will be used as inputs to the production cost model and the production cost model study results (i.e., gas generation profiles) are used as inputs to the hydraulic model study. Both the “top-down” and “bottom-up” approaches provide valuable information that will help determine whether electric reliability can be maintained and, importantly, the quantity of natural gas necessary to maintain electric reliability.

In addition, the CAISO recommends that the Commission consider western region impacts that were identified in the Western Electricity Coordinating Council’s recent Western Interconnection Gas-Electric Interface Study (WECC Study).⁵ The WECC Study found that “[t]he configuration of the gas-electric system combined with the retirement of Aliso Canyon creates region-wide reliability issues, resulting in widespread loss of electric load.” The WECC Study concluded that “the potential closure of Aliso Canyon creates region-wide reliability issues centered around the markets concentrated in Southern California and Phoenix; disruption scenarios revolving around a [Desert Southwest] pipeline rupture or Permian/San Juan Basin supply freeze-offs routinely result in unserved energy and/or unmet spinning reserves.” The

⁵ Accessible at: [https://www.wecc.biz/Administrative/WECC Gas Study Public Presentation.pdf](https://www.wecc.biz/Administrative/WECC_Gas_Study_Public_Presentation.pdf).

Commission should consider the WECC Study and regional reliability considerations in its determinations regarding whether and how to reduce reliance on the Aliso Canyon facility.

D. The Commission’s Production Cost Modeling Should Consider Multiple Reliability Objectives.

The Scenarios Framework suggests that the production cost modeling will establish a desired reliability level based on a loss of load expectation (LOLE) analysis. The LOLE analysis focuses on reviewing the expected number of loss of load events over a 10-year horizon. The CAISO is concerned about whether the production cost model can be used to meet both a specific LOLE metric and specific generation dispatch levels needed to meet local reliability requirements. The CAISO’s primary concern is that the production cost run may meet LOLE metrics for system wide reliability, but would not be able to commit minimum generation needed for local capacity requirements. The CAISO suggests that the generation needed to maintain local capacity requirements be represented in the production cost modeling through a nomogram or a similar modeling mechanism that maintains a minimum amount of local gas-fired electric generation during peak load hours.

E. More Granular Modeling is Necessary to Study Post-Contingency Ramping Needs.

Local electric generation needs are determined based on power flow modeling analysis that considers the impact of specified transmission or generation contingency events. To determine whether the local area can adequately withstand such contingency events, local generation must respond within thirty minutes after the studied contingency. Local gas-fired generation may be dispatched to quickly ramp up generation to address the contingency. The proposed hydraulic and production cost modeling will provide hourly granularity, which may miss potential ramping issues that occur on a post-electric contingency basis. To accurately capture post-contingency ramping needs, the Commission should conduct more granular analysis in its hydraulic and production cost modeling. The CAISO recommends conducting these analyses with thirty minute step sizes (rather than hourly), at the maximum.

F. The CAISO Recommends Studying 2020 for the Near-Term Study Year.

The Scenarios Framework recommends studying 2019, 2024 and 2029 as the relevant study years for production cost modeling analysis. The CAISO recommends studying 2020, rather than 2019, as the near-term study year. The studies are expected to be completed in the 2019

timeframe. As a result, using assumptions, scenarios and models for 2020 will provide the most up-to-date information.

G. Historical Electric Pricing Information May Have Limited Value in Determining Future Dispatch and Pricing.

The Scenarios Framework suggests that the economic modeling should use the CAISO OASIS pricing information to evaluate the potential correlation between daily natural gas price difference and the daily congestion rent revenue from the power generation in Southern California.⁶ Part 4 (The Impact of Tighter Gas Supply in SoCal Gas system on Power Gas Generation in the CAISO Territory) will assess the effect of storage availability on customers of electric generation by analyzing the impacts of gas curtailment on hourly energy prices and implied market heat rate.⁷ The CAISO's view is that using the historical data in the analysis may not provide forward looking information for future system conditions but does not object reviewing the historical data to determine if there is a potential cause and effect between gas curtailment and generation dispatch and power prices. However, the CAISO is concerned about using the results of historical events to determine the potential effects in the future as well as the degree of linearity of the comparison.

III. Conclusion

The CAISO appreciates this opportunity to comment on the Scenarios Framework and looks forward to cooperating with the Commission going forward in this proceeding.

Dated June 28, 2018

⁶ Scenarios Framework, p. 29.

⁷ Scenarios Framework, p. 24.