155 FERC ¶ 61,224
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Norman C. Bay, Chairman;
Cheryl A. LaFleur, Tony Clark,
and Colette D. Honorable.

California Independent System Operator Corporation Docket No. ER16-1649-000

ORDER ACCEPTING TARIFF REVISIONS, SUBJECT TO CONDITION, AND ESTABLISHING A TECHNICAL CONFERENCE

(Issued June 1, 2016)

1. On May 9, 2016, the California Independent System Operator Corporation (CAISO) filed, pursuant to section 205 of the Federal Power Act (FPA),[1] revisions to its tariff to address limitations in the natural gas delivery system in southern California that could adversely impact the reliability of CAISO's electric grid and market operations during the summer of 2016. In this order, we accept, subject to condition and further compliance, the proposed tariff revisions, to be effective June 2, 2016 and July 6, 2016, as discussed below.

2. In addition, we note that our conditional acceptance of CAISO's proposal for this interim set of measures is based on the unique set of circumstances CAISO will face this summer due to the limited operability of the Aliso Canyon natural gas storage facility in southern California. It is only under this set of unique and widely acknowledged reliability-related circumstances, in addition to CAISO's commitment to sunset the proposed revisions by November 30, 2016, that we find CAISO's proposal, subject to condition and further compliance, to be just and reasonable. We recognize that questions remain regarding Aliso Canyon's return to full capability and that longer-term solutions to some of these fuel-related issues may be necessary. Therefore, we direct Commission staff to convene a technical conference to facilitate a discussion regarding the efficacy of the measures accepted here and the need for additional and/or longer-term measures.

[1] 16 U.S.C. § 824d (2012).

I. Background

3. As explained by CAISO, in October 2015, the Aliso Canyon natural gas storage facility in southern California experienced a large natural gas leak that significantly depleted the storage field. The leaking gas well was capped in February 2016, but the State of California has prohibited injections of natural gas into Aliso Canyon at least until a comprehensive safety review is completed. The facility is a key part of the gas system serving customers in the Los Angeles Basin and San Diego, California, including many gas-fired power plants. Operational limits imposed on the storage facility are expected to stress the gas system this summer when gas-fired electric generation is called upon to serve both high summer electric load and sudden and large changes in electric load due to the variable nature of renewable generation. Depending upon physical conditions on southern California's power and gas systems, including weather, load, and planned or unplanned outages, it may be necessary to curtail gas to electric generators, which may lead to electric service interruptions in the area.[2]

4. CAISO worked with the California Energy Commission (CEC), California Public Utilities Commission (CPUC), Los Angeles Department of Water and Power (LADWP), and Southern California Gas Company (SoCalGas) as part of an inter-agency task force created to assess risks to the gas and electric markets due to the limited operability of the Aliso Canyon storage facility. In April 2016, the task force published both its Technical Risk Assessment Report[3] and Action Plan,[4] which identified the major risks to the SoCalGas operating region beginning in the summer of 2016 and proposed potential mitigation measures to reduce the possibility of gas and electric service interruptions. CAISO initiated an expedited stakeholder process to develop market mechanisms and operational tools to mitigate the risks identified in the Technical Assessment Report to

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[2] CAISO Filing, Attachment C at 6-7.

[3] Aliso Canyon Technical Risk Assessment Report (April 5, 2016), http://www.energy.ca.gov/2016_energypolicy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Risk_Assessment_Technical_Report.pdf (Risk Assessment Report).

[4] Aliso Canyon Action Plan to Preserve Gas and Electric Reliability for the Los Angeles Basin, http://www.energy.ca.gov/2016_energypolicy/documents/2016-04-08_joint_agency_workshop/Aliso_Canyon_Action_Plan_to_Preserve_Gas_and_Electric_Reliability_for_the_Los_Angeles_Basin.pdf.

avoid electric service interruptions, to the extent possible. The outcome of the expedited stakeholder process led to the instant filing.[5]

II. CAISO Filing

5. According to CAISO, the proposed tariff revisions should mitigate operational risks that might lead to electric service outages on the CAISO controlled grid due to restrictions of gas deliveries to electric generators.[6] In addition, the proposed tariff revisions should promote generator bids that reflect gas system limitations, which should reduce the chance that CAISO will dispatch generators in a manner that would adversely impact gas system reliability. CAISO states its belief that, based upon the reliability challenges that it is facing this summer and the limited amount of time that CAISO had to develop a workable solution, the instant filing is just and reasonable and should be approved in its entirety.[7] Further, as noted, CAISO proposes these revisions as interim measures that will expire on November 30, 2016, and commits to making another filing pursuant to section 205 of the FPA to either revert to the tariff provisions in effect before the instant revisions became effective or to retain the instant revisions with or without modification.[8] CAISO requests that the majority of the proposed revisions become effective on June 2, 2016, with the exception of the proposed revisions to (1) implement an improved day-ahead gas price index and delete the existing gas price-spike provisions for the day-ahead market, and (2) allow CAISO to increase the gas price applicable to commitment cost caps, generated bids, and default energy bids for resources on the SoCalGas and San Diego Gas & Electric (SDG&E) systems, as discussed in greater detail below, for which CAISO requests an effective date of July 6, 2016.[9] The individual measures CAISO proposes are described below.

III. Notice of Filing and Responsive Pleadings

6. Notice of CAISO's filing was published in the *Federal Register*, 81 Fed. Reg. 30,292 (2016), with interventions and protests due on or before May 16, 2016. Timely motions to intervene were filed by: DC Energy, LLC; Inertia Power VII, LLC;

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[5] CAISO Filing, Attachment C at 3.

[6] CAISO Filing at 10.

[7] *Id.* at 2.

[8] *Id.* at 41-42.

[9] *Id.* at 40-41.

Modesto Irrigation District; Powerex Corp.; Transmission Agency of Northern California; SDG&E; the City of Santa Clara, California and M-S-R Public Power Agency; Northern California Power Agency; Electric Power Supply Association (EPSA); and California Department of Water Resources State Water Project.

7. Timely motions to intervene and comments and/or protests were filed by: Calpine Corporation (Calpine); Shell Energy North America (US), L.P. (Shell); NRG Power Marketing LLC and GenOn Energy Management, LLC (NRG); La Paloma Generating Company, LLC (La Paloma); the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California (Six Cities); Southern California Edison Company (SCE);[10] Pacific Gas & Electric Company (PG&E); NV Energy, Inc. (NV Energy); XO Energy Companies (XO Energy);[11] Western Power Trading Forum (WPTF) and EPSA (collectively, Joint Commenters); Financial Marketers Coalition (Financial Marketers); Power Trading Institute of the Commodity Markets Council (Power Trading); and Environmental Defense Fund (EDF).

8. Motions to intervene out-of-time were filed by the Office of the Nevada Attorney General, Bureau of Consumer Protection; Imperial Irrigation District; and Starwood Energy Group Global, L.L.C. Comments out-of-time were filed by Power Trading. CAISO filed an answer on May 25, 2016. On May 26, 2016, WPTF and NRG filed answers.

IV. Discussion

A. Procedural Matters

9. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2015), the timely, unopposed motions serve to make the entities that filed them parties to this proceeding.

10. Pursuant to Rule 214(d) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214(d) (2015), the Commission will grant the late-filed motions to intervene and will accept Power Trading's comments given the parties' interest in the proceeding, the early stage of the proceeding, and the absence of undue prejudice or delay.

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[10] SCE filed brief comments expressing support for CAISO's proposal.

[11] For purposes of this filing, XO Energy includes XO Energy CAL, LP and XO Energy CAL2, LP.

11. Rule 213(a)(2) of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.213(a)(2) (2015), prohibits answer to a protest unless otherwise ordered by the decisional authority. We are not persuaded to accept the answers filed by CAISO, WPTF, and NRG will, therefore, reject them.

B. Substantive Matters

12. We accept CAISO's proposed tariff revisions, subject to condition, as discussed in greater detail below.[12] With respect to those elements of the proposal not expressly discussed herein,[13] we find that they are just and reasonable because they constitute appropriate improvements upon CAISO's current tariff provisions that should enable CAISO to address limitations in the natural gas delivery system in southern California and facilitate fuel cost recovery by generators.[14]

13. We find good cause to grant waiver of the Commission's prior notice requirements[15] to permit the majority of the proposed tariff revisions to become effective as of June 2, 2016.[16] As CAISO notes, gas usage in connection with electric generation

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[12] The Commission can revise a proposal filed under section 205 of the FPA as long as the filing utility accepts the change. *See City of Winnfield v. FERC*, 744 F.2d 871, 875-77 (D.C. Cir. 1984). The filing utility is free to indicate that it is unwilling to accede to the Commission's conditions by withdrawing its filing.

[13] In addition to the proposed revisions discussed herein, CAISO also proposes revisions to (1) improve the accuracy of the gas price index that it uses to calculate commitment costs, generated bids, and default energy bids used in the day-ahead market; (2) permit scheduling coordinators to rebid commitment costs in real-time; and (3) revise its short-term unit commitment process to facilitate a resource's gas procurement evaluations. CAISO Filing at 12-14, 20-24.

[14] We note that we are accepting CAISO's proposal to use an ICE-generated index. Currently, ICE does not report an index between 8 and 9 a.m. We remind CAISO that in order to use an index reported by ICE, the index must conform to the Commission's *Policy Statement on Natural Gas and Electric Price Indices*, 104 FERC ¶ 61,121, *order on clarification*, 105 FERC ¶ 61,282 (2003).

[15] 18 C.F.R. § 35.3 (2015).

[16] *Central Hudson Gas & Electric Corporation*, 60 FERC ¶ 61,106, *reh'g denied*, 61 FERC ¶ 61,089 (1992), and *Prior Notice and Filing Requirements Under Part II of the Federal Power Act*, 64 FERC ¶ 61,139, *clarified*, 65 FERC ¶ 61,081 (1993).

is generally highest beginning in the summer.[17] Thus, we find that making the majority of the revisions effective June 2, 2016 will help CAISO to address in a timely manner the risks resulting from the limited operability of Aliso Canyon. The remainder of the proposed tariff revisions will become effective July 6, 2016, as discussed below. Importantly, we note that, as proposed, the tariff revisions accepted here will automatically expire on November 30, 2016. CAISO has committed to making a section 205 filing with the Commission ahead of the automatic expiration date to either confirm that it has determined that the provisions should expire, or to explain why the provisions should remain in effect in some form. The Commission will consider the merit of any future proposal by CAISO to address issues related to the limited availability of Aliso Canyon at that time.

1. Release of Advisory Schedules

a. CAISO Proposal

14. CAISO proposes to make additional information available to scheduling coordinators prior to the day-ahead market so that they can better manage their gas nominations during the more liquid parts of the gas trading day. To do so, CAISO requests authority to release the results of its internal two-day-ahead market run[18] to scheduling coordinators that are responsible for bidding resources into the day-ahead market.[19] Specifically, CAISO would provide the scheduling coordinator with its respective MWh advisory schedule produced by CAISO's residual unit commitment process.[20] The results of the two-day-ahead market run are advisory only, but CAISO states that providing this information to scheduling coordinators would improve their ability to plan for gas procurement. CAISO notes that a resource's advisory schedule will be provided to the respective scheduling coordinator through CAISO's secure

[17] CAISO Filing at 1.

[18] CAISO currently uses this market run for operational planning purposes in advance of the day-ahead market run. CAISO notes that the information produced in this market run is only meaningful to the extent that there are supply and demand bids to clear the market run as the submission of bids to CAISO prior to the day-ahead market run are voluntary. *Id.* at 11.

[19] *Id.* at 11-12.

[20] *Id.*

communication system and will not include prices. CAISO does not propose to share the advisory schedule with other market participants.[21]

b. Comments

15. Joint Commenters and NRG argue that CAISO's proposal to release two-day-ahead advisory schedules only to scheduling coordinators is discriminatory and reduces the transparency of CAISO's markets.[22] Joint Commenters request that the Commission direct CAISO to post aggregated market information resulting from this advisory run, including, at a minimum, the aggregated supply and demand amounts and locational marginal prices that result from the advisory run. In addition, Joint Commenters request that the Commission clarify that a scheduling coordinator's submission of bids for CAISO's two-day-ahead process is voluntary and that scheduling coordinators are not prohibited from subsequently modifying or adjusting their bids.[23] NRG argues that these projections have the ability to move the market and should therefore be published in order to enable market participants other than generators to anticipate and plan for expected conditions.[24]

c. Commission Determination

16. We accept CAISO's proposal to provide advisory information in the form of the MWh advisory schedules from the two-day-ahead market run to scheduling coordinators bidding resources in the day-ahead market, effective June 2, 2016. While this information from CAISO's two-day-ahead process is advisory and is not financially binding, it can help scheduling coordinators make more informed gas procurement decisions and more closely match their gas procurement with their potential gas consumption by nominating an amount of gas to match their expected generation output for each hour. This, in turn, can help reduce gas and electric reliability risks associated with imbalances between the amount of gas that electric generators nominate and the amount of gas that they burn. Therefore, we find this aspect of CAISO's proposal to be just and reasonable and not unduly discriminatory in the interim period when there is uncertainty about the operation of Aliso Canyon and the associated impact on gas and electric system reliability.

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[21] *Id.*

[22] Joint Commenters Protest and Comments at 20-21; NRG Protest at 13-14.

[23] Joint Commenters Protest and Comments at 21.

[24] NRG Protest at 13-14.

17. We reject Joint Commenters' and NRG's request that the advisory information from the two-day-ahead process be provided to all market participants. First, CAISO's proposal is not unduly discriminatory because not all market participants are similarly situated to those scheduling coordinators that need a better estimate of their fuel requirements in advance of the day-ahead market. In addition, the schedules are confidential and should not be shared with other market participants. Second, CAISO provides all market participants with aggregated market data such as demand forecasts, network and system conditions, and ancillary service requirements ahead of the day-ahead market.[25] Therefore, all market participants already have access to data that can inform their market activity.

18. We clarify, as Joint Commenters request, that submission of bids for CAISO's two-day-ahead process is voluntary and that scheduling coordinators are not prohibited from subsequently modifying or adjusting their bids. However, we encourage scheduling coordinators to submit bids in advance of the two-day-ahead process so that the process provides more accurate results and can help improve gas-electric coordination.

2. Gas Adder for Commitment Costs and Default Energy Bids

a. CAISO Proposal

19. CAISO states that the constraints on the SoCalGas system arising from the limited availability of Aliso Canyon will likely result in decreased gas availability in real-time, which will tend to increase the price of gas for generators. CAISO states that the current tariff provisions regarding the caps on commitment costs,[26] generated bids,[27] and default energy bids[28] will likely not fully accommodate these conditions, creating the possibility that generators may not always be able to fully recover their fuel costs. Thus, CAISO

[25] CAISO Tariff, § 6.5.2.3.

[26] Commitment costs include the costs of starting a resource, the costs of running a resource at its minimum operating level, and transition costs for resources that can operate in different configurations. CAISO Filing at 7.

[27] Generated bids are cost-based bids created by CAISO in the instance when a scheduling coordinator does not submit a bid for a resource that is subject to the must-offer requirement or other applicable tariff requirements. *Id*. at 9-10.

[28] Default energy bids (subject to the variable cost option) are calculated by CAISO using incremental fuel costs and are substituted for a resource's market bid when that resource is mitigated under CAISO's market power mitigation process. *Id.* at 9.

proposes to increase the gas price used to calculate the caps on commitment costs, generated bids, and default energy bids by an amount necessary to ensure the real-time market appropriately recognizes the increased constraints on resources in the southern California region. According to CAISO, increasing the gas price in these calculations should (1) improve the dispatch of these resources so that they are more likely to be dispatched to address local needs rather than system needs, (2) better account for systematic differences between day-ahead and same-day natural gas prices, and (3) improve the ability to manage the generators' gas usage within applicable gas balancing rules.[29]

20. To achieve this goal, CAISO proposes that, for resources connected to the SoCalGas or SDG&E systems, CAISO will initially increase the gas commodity price used for determining commitment costs in the real-time market by 75 percent.[30] In support of this proposed increase, CAISO notes that its Department of Market Monitoring (DMM) performed an analysis where the objective was to determine at what point generating resources in the SoCalGas and SDG&E gas areas became more expensive than resources outside those areas such that these resources would be slightly higher in the economic dispatch order. Thus, these resources would be less likely to be dispatched for system needs, which would have the effect of preserving gas in the constrained region. According to CAISO, the DMM's analysis indicated that a 75 percent adder to the fuel cost in the commitment cost bid cap would result in approximately 80 percent of the generating resources in the SoCalGas and SDG&E gas areas becoming more expensive than resources outside of those gas areas. CAISO states that commitment cost bids will still be capped at 125 percent of the cost calculated by CAISO.[31]

21. CAISO also proposes that, for resources connected to the SoCalGas or SDG&E systems, it will increase the gas commodity price used for calculating generated bids and default energy bids in the real-time market by 25 percent. CAISO states that it is not necessary to use the same percentage adder for generated and default energy bids as that used for commitment cost bids as resources can manage around gas availability issues by submitting energy bids up to the bid cap of $1,000/MWh.[32] CAISO notes that its DMM recommended a 25 percent increase in the gas price used in calculating the default energy

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[29] *Id.* at 14-15.

[30] *Id.* at 17.

[31] *Id.* at 15.

[32] *Id.* at 19.

bid based on DMM's conclusion that a 25 percent increase should be sufficient to provide additional headroom for generators to manage their gas usage in real-time when being limited by local market power mitigation procedures. Further, CAISO asserts that a lower adder for default energy bids and generated bids is appropriate because those bids can set system-wide locational marginal prices, whereas commitment cost bids do not.[33]

22. CAISO proposes to increase or decrease the percentage adder applied to the gas price in these calculations based on its evaluation of whether the adders are accomplishing the three criteria described above. CAISO states that it will cap any increase to the adder in the commitment cost gas price at $2.50 plus two times the next-day gas index price. CAISO asserts that this cap is reasonable as it represents the price that a generator would pay for gas if it violated an operational flow order (OFO) based upon the current SoCalGas and SDG&E gas tariffs. Thus, CAISO states that this price represents what is likely to be the highest real-time gas price that resources in southern California will be exposed to in managing their gas balancing rules.[34] CAISO proposes to cap any increase in the generated or default energy bid gas price at 100 percent. CAISO states that capping the gas price adder for generated and default energy at 100 percent represents a reasonable balance between a generating resource's ability to manage real-time gas prices and the impact that gas price has on system-wide locational marginal prices.[35] CAISO proposes that if it determines that an increase or decrease is warranted in either the gas price for the commitment cost bid adder or the generated and default energy bid adder, it will issue a market notice specifying the amount of the change.[36]

b. **Comments and Protests**

23. NV Energy and Calpine assert that CAISO should develop a gas adder for generators outside of the SoCalGas and SDG&E systems. NV Energy argues that intraday gas price volatility is not limited to southern California, but instead contends that when there is limited gas supply in the southern California region, the gas supply in the neighboring regions also becomes oversubscribed and prices increase in both areas.[37]

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[33] *Id.* at 19-20.

[34] *Id.* at 18.

[35] *Id.* at 20.

[36] *Id.* at 17.

[37] NV Energy Protest at 7. According to NV Energy, a study of day-ahead prices on ICE over a four-year period for two delivery points that correspond to where

(continued…)

Further, NV Energy notes that CAISO's proposed remedies rely upon Energy Imbalance Market (EIM) entities, like NV Energy, to assist in meeting real-time imbalances in CAISO's markets. NV Energy explains that the Commission requires it to bid into the EIM at its default energy bid and therefore NV Energy cannot protect itself from being dispatched by bidding at the $1,000/MWh energy bid cap. Absent the ability to recover its costs in its bids, NV Energy states that it may have to limit its participation in the EIM. Accordingly, NV Energy argues that the same gas adders applicable to commitment costs and default energy bids for resources connected to the affected gas systems in southern California should be applied to NV Energy's EIM participating resources.[38] Similarly, Calpine contends that through normal liquid market functions, incremental gas charges to generators connected to the SoCalGas and SDG&E systems will be reflected in increases in prices in other gas areas, particularly for intra-day gas. Accordingly, because generators in areas outside the gas constraint will likely be needed for reliability purposes to serve load within the gas constrained area, Calpine asserts that a gas adder is appropriate for those generators.[39]

24. Joint Commenters, EDF, and NRG argue that CAISO's proposal to increase the gas adder is insufficient to ensure full recovery of gas costs. Joint Commenters recognize that the instant proposal is a step in the right direction, but argue that the goal should be to allow generators to bid their actual start-up and minimum load costs. Joint Commenters contend that even with CAISO's proposed improvements, there is no assurance that actual gas costs will be reflected in market prices, creating a risk of under-recovery of costs. According to Joint Commenters, CAISO should immediately initiate efforts to implement biddable startup and minimum load costs, with the goal of replacing the interim measures proposed in this proceeding no later than the sunset date for CAISO's proposed changes, i.e., November 30, 2016.[40]

25. EDF states that it supports CAISO's proposal as an interim emergency measure, but requests that the Commission condition acceptance of this proposal on a requirement for CAISO to resolve, by or before December 31, 2016, price formation issues that

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NV Energy and southern California generators buy gas indicates that the price correlation for those two markets is greater than 0.98. *Id.* at 8.

[38] *Id.* at 10-13. NV Energy also requests that the Commission grant rehearing in Docket Nos. ER15-2281-001 and ER15-2282-001 to enable NV Energy to bid into the EIM during unconstrained hours at market-based rates. *Id.* at 17 n.36.

[39] Calpine Comments at 5.

[40] Joint Commenters Protest at 18-19.

prevent generators from accurately reflecting and/or recovering fuel costs in the CAISO markets. EDF argues that failing to accurately reflect these costs in the market can mute investment price signals and obscure the value of reliability. EDF notes that the Commission has previously emphasized the need for CAISO to address this issue,[41] yet CAISO has not completed enhancements to effectively allow marginal costs to be fully reflected in market bids. EDF contends that the Aliso Canyon crisis buttresses the compelling and immediate needs for these market enhancements.[42]

26. NRG asserts that the proposed default energy bid calculation fails to include an adder to account for actual OFO penalty costs, and it also fails to contemplate that the price of natural gas will increase when the market believes that there is a risk of an OFO. Thus, NRG requests that the Commission direct CAISO to eliminate the proposed cap on the gas adder and instead mandate that CAISO utilize applicable OFO charges and relevant gas procurement costs in its calculation of default energy bids. Further, given that spikes in gas prices can cause extraordinary losses over short periods of time, NRG requests that the Commission direct CAISO to (1) minimize any delay between spikes in real-time gas costs and a generator's ability to reflect those costs, and (2) reset the price caps if actual gas procurement costs exceed the levels CAISO anticipates.[43]

27. Specifically, NRG notes that as proposed, CAISO would increase the commitment cost bid cap and default energy bid calculation when CAISO detects "systematic differences between day-ahead and same-day natural gas prices."[44] NRG argues that CAISO should strike the word "systematic" because waiting for CAISO to determine whether differences are "systematic" could subject generators to significant financial losses. In addition, NRG contends that its data show tremendous volatility in same-day trading costs that exceeds the gas commodity price components CAISO proposes. Thus, NRG argues that CAISO should be required to increase its commitment cost cap and default energy bid calculation when gas prices increase in anticipation of an OFO or when an OFO actually occurs. NRG recognizes that prices for gas in the same-day market in the SoCalGas area have not, on average, historically exceeded prices in the market for next-day delivery, but contends that an analysis of price differential should focus on historical and potential outliers and not on historic averages because it is

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[41] EDF Comments at 5 (citing *Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,284 (2014)).

[42] *Id.* at 4-6.

[43] NRG Protest at 7-9.

[44] *Id.* at 8.

precisely on outlier days that generators are exposed to the risk of being unable to recover their costs. Further, NRG cautions that the gas market will be highly volatile this summer and will remain so until Aliso Canyon returns to service, thereby necessitating the inclusion of the OFO price in commitment cost offer caps or default energy bids and generated bids.[45]

28. Joint Commenters and NRG assert that CAISO made a mistake in its proposed tariff language addressing the up-to cap on the gas adder for commitment costs, which is supposed to align with SoCalGas's proposed penalties. They contend that, in order to align the gas penalty price with CAISO's proposal, the adder should be $2.50/therm ($25/MMBtu) rather than the $2.50/MMBtu stated by CAISO in its proposal. Joint Commenters and NRG request that the Commission direct CAISO to correct this error in a compliance filing.[46]

c. Commission Determination

29. The Commission accepts, subject to condition, CAISO's proposal to increase the gas price that is used to calculate commitment costs and generated and default energy bids for gas-fired resources located in the SoCalGas and SDG&E systems, effective July 6, 2016. We find that CAISO has put forth sufficient bases to support the proposed reforms. Essentially, CAISO has devised a system to increase or decrease the price of gas a generator may include as part of its bid as a means to allow these resources to manage gas balancing requirements under the tightened balancing tolerance bands. In addition, the proposed reform should improve a generator's ability to recover fuel costs during this interim period of potential volatility.

30. We disagree with Calpine and NV Energy that the increased gas price should apply to resources outside the SoCalGas and SDG&E systems. While the Commission recognizes that the increase of gas prices in southern California could result in an increase of prices in other areas as well, the purpose of the gas price adder is to reflect the specific constraints and limitations of gas-fired resources in the SoCalGas and SDG&E gas systems. Due to the limited availability of Aliso Canyon, the gas-fired resources in southern California need a mechanism by which to manage gas-balancing requirements within tightened tolerance bands. This is not the case with resources outside of southern California.

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[45] *Id.* at 9-10.

[46] Joint Commenters Protest at 19-20; NRG Protest at 5-6.

31. Further, a combination of gas balancing requirements and limited gas storage in southern California make it preferable for the real-time market to dispatch gas-fired resources in southern California to meet local needs and not to meet general system needs that could be met by resources not subject to these strict gas limitations.[47] We agree with CAISO that, given the new gas price adder, gas-fired resources in southern California will presumably reflect tightened balancing requirements in their bids, which will achieve this desired result.[48] Allowing all resources that bid into CAISO to include the proposed gas price adder would not allow the market to differentiate between resources in and outside of southern California and could prevent CAISO from having enough capacity from gas-fired resources reserved in the real-time market to meet the local needs in southern California.[49]

32. In addition to the current 125 percent adder that applies to all resources that bid commitment costs in the CAISO market and the 10 percent adder for default energy bids, the other components of the CAISO's proposal make it more probable that resources outside of southern California will still be able recoup their gas costs in light of any potential increase in gas prices due to the constrained gas system in southern California. For example, CAISO's proposal to use timelier and more accurate gas commodity prices for commitment costs bid caps, default energy bids, and generated bids in the day-ahead market and to permit scheduling coordinators to rebid commitment costs in real-time will assist resources outside of southern California to reflect actual gas costs in their bids.

33. The Commission appreciates Joint Commenters' and EDF's recommendations for CAISO to address price formation issues related the recovery of fuel costs. However, these issues are beyond the scope of this proceeding, which focuses narrowly on the merits of the tariff revisions CAISO proposed. While we encourage CAISO to continue to work with stakeholders to refine how it calculates fuel costs in the various bid components, we will not condition acceptance of the CAISO's proposal on a requirement that it adopt a certain policy or resolve a certain issue. We also reject NRG's request to

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[47] CAISO Filing at 15.

[48] *Id.*

[49] We note that NV Energy's request that the Commission grant rehearing in Docket Nos. ER15-2281 and ER15-2282, and its alternative request that the Commission permit NV Energy's marketing affiliate to bid into the market at other than the default energy bid, are beyond the scope of this proceeding and are more appropriately addressed in the aforementioned dockets. Therefore, we will not further address those requests here.

direct CAISO to (1) delete the word “systematic” from proposed section 39.7.1.1.1.3(d), and (2) reset the price caps if actual gas procurement costs exceed the levels CAISO anticipates. NRG has not provided any compelling reason to suspect that CAISO will unreasonably delay increasing this adder if system conditions warrant such a modification. However, we expect CAISO to closely monitor and evaluate the efficacy of the gas price adder and to make any necessary adjustments as soon as practicable.

34. We reject NRG’s request to direct CAISO to utilize applicable OFO charges in its calculation of default energy bids. There is no evidence before the Commission to suggest that the CAISO’s proposed adder to default energy bids is insufficient to reflect a resource’s marginal cost as a result of the limited availability of Aliso Canyon. Further, while we believe it is appropriate to use an OFO charge as the upper limit in the calculation of the commitment cost cap, we find that CAISO has justified its proposal to establish the adder for default energy bids and generated bids at a lower level than for commitment costs. We agree with CAISO that it is reasonable to use a lower initial increase in the gas commodity price for determining the default energy bids as compared to commitment costs, because this recognizes the smaller impact a resource’s default energy bid price has on its ability to manage imbalances than do commitment costs. Further, higher default energy bids would increase system-wide locational marginal prices, whereas higher commitment costs do not increase the market clearing price.[50] Finally, assuming a resource’s bid is not mitigated, the energy bid cap of $1000/MWh should allow it enough flexibility to price the risk of unexpected day-to-day increases in the gas price into its energy bids.[51]

35. Finally, while we accept CAISO’s proposal for the reasons discussed above, we agree with Joint Commenters and NRG that CAISO needs to clarify the unit of gas to which its proposed $2.50 adder applies. We therefore direct CAISO to make a compliance filing, within 30 days of the date of this order, to make the necessary correction.

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[50] CAISO Filing at 19.

[51] Also, the Commission is currently considering reforms regarding offer caps in a generic rulemaking. *Offer Caps in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 154 FERC ¶ 61,038 (2016).

3. Implementation of Gas Constraint

a. CAISO Proposal

36. CAISO proposes to implement a constraint in its markets that limits the maximum or minimum amount of natural gas that can be burned by natural gas-fired resources, based on anticipated limitations, in applicable gas regions anticipated by CAISO, during specific hours. CAISO states that it will enforce the natural gas constraint in the day-ahead market, the real-time market, or both depending upon electric or gas system conditions.[52] As a result of the constraint, generator dispatch would be limited in the affected gas areas to match either (i) the limitation imposed on the maximum amount of gas that can be used for the operating day or (ii) the limitation on the maximum or minimum gas usage imposed to maintain gas system balance limits during the operating day. CAISO notes that it will coordinate, to the greatest extent possible, with the gas companies to ensure that limitations CAISO places in its market are consistent with limitations observed on the gas system. In addition, CAISO states that it will notify affected generators that they are subject to the constraint or constraints.[53]

37. CAISO contends that its gas constraint proposal will allow it to proactively respond to conditions on the gas system as they develop and ensure that its generator dispatch decisions reflect actual gas system conditions. CAISO argues that even with the improvements it proposes in this filing for more accurate gas pricing in generator bids, it is still possible to dispatch generators in a manner that would aggravate constrained gas system conditions, which could lead to gas curtailments to electric generators and the inevitable loss of electric service to load.[54] CAISO notes that absent the authority to reflect gas system limitations in its market, the Risk Assessment Report concluded that without Aliso Canyon, CAISO faces the risk of electric service curtailments on several days across the summer.

38. CAISO states that it will implement the constraint using generation nomograms that will include the generators within the affected gas areas. The nomogram will affect the congestion component of the relevant generators' locational marginal prices and will have a relaxation parameter value (i.e., a "penalty price") associated with relaxing the constraint. CAISO may limit the enforcement of the constraint to specific affected area(s) and hours, and maximum or minimum gas burn for each hour based on

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[52] CAISO Filing at 25.

[53] *Id.* at n. 57.

[54] *Id.* at 26.

information it obtains through coordination with the gas company. In the event that CAISO determines that additional generation from the affected gas-fired resources is needed above the level of the constraint for electric reliability purposes, CAISO will dispatch such additional generation through exceptional dispatches after coordinating with the applicable gas system operator.[55]

39. CAISO explains that when the constraint is binding, the shadow price of the constraint will be reflected in the marginal cost of congestion component of the resource-specific locational marginal prices of only the affected gas-fired resources.[56] CAISO states that it will implement this approach by applying the constraint only to the resource-specific price at the connectivity node (CNode) used to dispatch affected generators but not to the bus location reflecting the point of delivery or receipt on the CAISO controlled grid. In practice, CAISO notes that pricing of the constraint will work as follows: when a maximum gas burn limit is binding, the CNode locational marginal price (i.e., the affected generator's locational marginal price) will decrease, which will tend to reduce the amount of energy the CAISO market dispatches from an affected generator and when the minimum gas burn limit is binding, the CNode locational marginal price will increase, which will tend to increase the amount of energy the CAISO market dispatches from an affected generator. Thus, because the constraint is created solely to determine the dispatch of the affected gas-fired resource, CAISO does not propose to include the shadow price of the constraint in the pricing node (PNode) prices for settling virtual bids and congestion revenue rights or prices used for trading hubs or load aggregation points.[57]

40. CAISO notes that due to the need to implement the constraint for the summer, it will be unable to perform a market simulation prior to instituting the constraint. However, CAISO states that it has performed internal testing of the constraint consistent with its standard software development process. Further, CAISO states that it will have the flexibility to modify the level of the constraint or remove it if CAISO determines that the constraint is leading to adverse market outcomes.[58]

41. In conjunction with the ability to impose a natural gas constraint in CAISO's market, CAISO also proposes to add tariff language whereby CAISO may deem certain

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[55] *Id.* at 26-27.

[56] *Id.* at 27.

[57] *Id.* at 29.

[58] *Id.* at 31.

transmission paths to be non-competitive when the natural gas constraint is enforced. According to CAISO, it included this provision in the instant filing based on a recommendation from the DMM.[59] CAISO explains that its local market power mitigation process does not incorporate the impact of the natural gas constraints that will be used in CAISO's markets this summer; therefore, selected paths into southern California may erroneously be deemed to be competitive. Hence, CAISO requests authority to deem transmission constraints into southern California to be non-competitive based upon actual system conditions.[60]

b. <u>Comments and Protests</u>

42. Calpine argues that application of any gas constraint is important market information that should be communicated to all market participants before the constraint is imposed in CAISO's market runs. Calpine requests that if a constraint is to be enforced in the day-ahead market, CAISO should notify market participants of the location and magnitude of the constraint and should use best efforts to post this information before day-ahead bids are due. In addition, if the constraint is enforced in the real-time markets, i.e., after the day-ahead market runs, Calpine asserts that CAISO should post, when known, the hours of enforcement, and the location and magnitude of the constraint. Calpine also requests that the Commission direct CAISO to file monthly reports detailing each imposition of the gas constraint in the day-ahead and real-time markets.[61]

43. In addition, Calpine argues that the Commission should reject CAISO's proposal to implement shadow pricing of the gas constraint only at the CNode of affected southern California generators and not at the associated PNodes even though these locations are often identical. Calpine states that CAISO's proposal will create a systematic difference in load and generation prices that could create unintended consequences. Calpine contends that because CAISO will not reflect the gas constraint in the calculation of congestion revenue rights or trading hub prices, the effectiveness of congestion revenue rights' hedges will be negatively impacted.[62]

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[59] *Id.* at 31.

[60] *Id.* at 31, (citing CAISO Filing, Attachment F at 10-12).

[61] Calpine Comments at 8.

[62] *Id.* at 8-10.

44. Similarly, Joint Commenters assert that CAISO's implementation of the gas constraint through use of a shadow price at the generator's CNode will distort market prices and settlements.[63] Joint Commenters argue that CAISO's pricing proposal for the gas constraint creates a disconnect between settlement for generators at the CNode and the hedges that market participants would use for other products at the generator's location such as congestion revenue rights, virtual bids, and trading hubs, thereby creating market inefficiencies. Joint Commenters request that the Commission direct CAISO to reflect the gas constraint in the PNode and align the CNode and PNode pricing to reflect the shadow price of the gas constraint in all prices for settlement of those nodes associated with affected resources.[64]

45. Calpine, NRG, and Joint Commenters note that CNode prices are not currently published; therefore, market participants will be unable to perform their own shadow settlements to gauge the effectiveness of their bidding strategy or whether CAISO's gas constraint is working properly.[65]

46. Six Cities support CAISO's proposal to implement a new gas constraint but request that the Commission direct CAISO to work with Six Cities to address local reliability issues affecting two of their members, Pasadena and Riverside. As Six Cities explain, due to limitations on imports into the Pasadena and Riverside electric systems, under high load conditions, each city would have to start internal gas-fired generation that if subject to a *pro rata* gas curtailment from SoCalGas, could have a disproportionate impact on the amount of load that those cities would have to curtail. Six Cities argue that CAISO should take specific steps to put in place procedures to ensure that local load pockets like Pasadena and Riverside are not unfairly affected by gas curtailments this summer in order to mitigate electric outage risks to those systems.[66]

47. Joint Commenters contend that CAISO's proposal to deem internal transmission paths to be uncompetitive so that those paths may be subject to market power mitigation protocols has nothing to do with maintaining reliability and is further evidence of CAISO's interference with the functioning of its markets. Joint Commenters argue that CAISO provides no justification for this element of its proposal, which lacks any objective standard for when local market power mitigation measures should be applied,

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[63] Joint Commenters Protest at 16-17.

[64] *Id.* at 18.

[65] Calpine Comments at 10; NRG Protest at 14; Joint Commenters Protest at 17.

[66] Six Cities Comments at 2-5.

and leaves the application of bid mitigation solely to the market operator's subjective assessment of grid conditions. Therefore, Joint Commenters request that the Commission reject CAISO's proposal to deem certain internal transmission paths to be uncompetitive.[67] Power Trading likewise asserts that CAISO has failed to provide evidence that it requires the authority to deem paths uncompetitive outside the market power mitigation process.[68]

c. Commission Determination

48. The Commission accepts, subject to condition, CAISO's proposal to institute a constraint in its market solution to reflect gas limitations under certain conditions, effective June 2, 2016. We find that this proposal is a reasonable measure to ensure the reliable operation of the electric grid within the bounds necessarily imposed on it by the operation of the natural gas system, which is outside of CAISO's control. We agree with CAISO that these measures are necessary because electric reliability could be compromised if market inputs do not accurately reflect gas system constraints.[69] We find that the proposed method of using generator nomograms with a penalty factor is an appropriate interim means to achieve this goal.

49. Regarding the notice of the constraint, we agree with NRG, Calpine, and Joint Commenters that some information should be made available to market participants to allow them the opportunity to better plan their own market activities. Therefore, we direct CAISO to submit a compliance filing, within 30 days of the date of this order, to add tariff language specifying the type of information it will make available regarding enforcement of the gas constraint and how and when it will make this information available. Further, we find that details regarding CAISO's plans to coordinate with pipeline operators regarding system conditions are properly included in the business practice manuals and encourage CAISO to work with its stakeholders to make the necessary revisions. This, along with information already posted by SoCalGas and other pipeline operators, should provide sufficient information to market participants. We will not, however, require monthly reporting, as requested by Calpine. Instead, as discussed below, we are directing Commission staff to convene a technical conference to discuss the ongoing need for any of these revisions, along with any refinements or longer-term solutions that may be warranted.

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[67] Joint Commenters Protest at 13-15.

[68] Power Trading Comments at 3.

[69] CAISO Filing at 25.

50. Calpine and Joint Commenters request that the Commission require CAISO to apply this constraint at the relevant PNode, arguing that the proposal could result in unintended consequences and will not allow market participants to assess the effectiveness of their hedging strategies. We disagree with this argument and accept CAISO's proposal to apply the constraint to the CNode and not the PNode. First, the intent of this proposal is to reflect the cost of honoring the gas constraint only for generators on the affected system at the specific resource location. To impose the gas constraint on the PNode rather than the CNode could have the opposite effect on gas consumption as that intended by this proposal. For example, in the event of a maximum burn limit, a decreased CNode price would send a signal to the generator to reduce output, whereas as a lower PNode price under that situation would send a signal to load to increase consumption, thereby placing a greater strain on the gas system. To the extent that the gas constraint changes generator dispatch and transmission congestion, market participants should still have adequate information to hedge accordingly. Second, the constraint, by its nature, is not implemented uniformly between the day-ahead and real-time markets, and therefore its price effect is not subject to convergence by virtual bidding. As described by CAISO, imposing this constraint at the PNode can introduce scenarios where investments in congestion revenue rights and submission of virtual trades can be made at little or no cost and with little or no risk, serving not as a hedge but as a purely money-making mechanism, the cost of which would be borne by load while providing no benefit to the market or the physical grid.[70]

51. Regarding the publication of CNode prices, we recognize that CAISO does not currently publish this information. However, commenters raise a valid concern that without access to the CNode price, scheduling coordinators cannot perform shadow settlements and thus have limited ability to contest or dispute their CAISO settlement data. Therefore, we direct CAISO to provide the respective CNode data to each scheduling coordinator responsible for bidding generating resources into CAISO's markets through CAISO's secure Customer Markets Results Interface or other appropriate means. Scheduling coordinators with generating resources would be at a disadvantage to other market participants that can conduct shadow settlements through PNode data; hence, it is reasonable to require CAISO to provide scheduling coordinators with their CNode data. Accordingly, we direct CAISO to submit a compliance filing, within 30 days of the date of this order, to include in its tariff a procedure to provide a scheduling coordinator with its respective CNode data.

52. In conjunction with CAISO's proposal to enforce the gas constraint, the Commission accepts CAISO's proposal to add provisions to the existing tariff allowing it

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[70] *Id.* at 30.

to designate a transmission constraint as non-competitive when necessary based on actual system conditions. We find that CAISO has provided sufficient justification for this measure because, as CAISO explains, actual electric supply conditions may be non-competitive when the natural gas constraint is enforced due to anticipated electric supply conditions in the SoCalGas and SDG&E gas regions.[71] While we acknowledge Joint Commenters concerns about the lack of an objective standard for when local market power mitigation should be applied, we agree with the DMM's analysis finding that the impact of the natural gas constraint on the assessment of competitive paths can only be assessed based on actual system conditions once the constraint is in place.[72]

53. Finally, we encourage CAISO to work with Six Cities and any other affected entities to ensure that their specific distribution system reliability needs are met.

4. <u>Reservation of Internal Transmission Transfer Capability and Limitation on Congestion Revenue Rights</u>

a. <u>CAISO Proposal</u>

54. CAISO anticipates needing flexibility to reserve sufficient internal transmission transfer capability to ensure reliable grid operations during this summer. CAISO states that this will likely be necessary to meet energy needs in southern California due to differences between the day-ahead forecast of loads and real-time load and assuring deliverability of ancillary services. CAISO expects to need this flexibility specifically with regard to Path 26, which is a set of 500 kV lines running between PG&E in northern California and SCE in southern California, but it may also need this flexibility to reserve capability on other internal transmission paths. Accordingly, CAISO proposes to revise its tariff to manage a new transmission constraint in its market for purposes of reserving internal transfer capability in the day-ahead or real-time markets based upon anticipated conditions on the natural gas delivery system, to serve load in specific areas of CAISO's system, or to ensure deliverability of ancillary services.[73]

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[71] *Id.* at 31 (citing DMM Comments, CAISO Filing, Attachment F at 10-12 (noting that CAISO's automated dynamic competitive path assessment will not incorporate the new gas constraint, therefore, it will likely overestimate the competitiveness of a variety of constraints in southern California; thus, the DMM concludes that the impact of the gas constraint can only be assessed based on actual system conditions once the gas constraint is in place)).

[72] *See id.*

[73] *Id.* at 32-33.

55. CAISO recognizes that there are tradeoffs to reserving internal transfer capability in the day-ahead market as well as releasing that transfer capability in the real-time market. Thus, CAISO requests discretion as to whether to release the transfer capability or not depending upon natural gas and electric system conditions or observed market inefficiencies. CAISO proposes to inform market participants of any transfer capability release via a market notice specifying the amount of the release.[74]

56. CAISO states that it is also evaluating the impact that reserving transmission capability on internal paths will have on revenue sufficiency associated with congestion revenue rights. In order to avoid negative impacts on congestion revenue right revenue sufficiency, CAISO proposes tariff language to adjust the amount of congestion revenue rights that it releases in the monthly auction and allocation process to account for possible adjustments to the available internal transfer capability.[75]

b. <u>Comments and Protests</u>

57. Joint Commenters, Financial Marketers, XO Energy, Power Trading, and La Paloma object to CAISO's proposal to reserve internal transmission transfer capability and its associated proposal to limit the monthly auction of congestion revenue rights. Joint Commenters and Financial Marketers argue that this proposal may distort day-ahead and real-time prices, as demonstrated by CAISO's associated proposal to limit the availability of congestion revenue rights in monthly auctions, and that CAISO fails to demonstrate that its proposal is narrowly tailored to maintain reliability. In addition, Joint Commenters and Financial Marketers assert that CAISO's proposal is overly broad and provides CAISO with unfettered discretion to withhold and release transfer capability on any path in CAISO's system.[76]

58. Even assuming that reserving internal transmission transfer capability is necessary to maintain reliability in southern California, Joint Commenters argue that CAISO's authority to do so should be limited to paths where there is a demonstrated risk that transfer constraints may harm reliability. Thus, Joint Commenters state that if the Commission accepts CAISO's proposal on an interim basis, the Commission should direct CAISO to make a compliance filing to specifically identify the paths that CAISO will reserve, along with a demonstration as to why those paths are needed. In addition, Joint Commenters contend that CAISO should be directed to set forth in an operating

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[74] *Id.* at 34.

[75] *Id*.

[76] Joint Commenters Protest at 9-10; Financial Marketers Protest at 6-8.

procedure or business practice manual the process that CAISO will use to determine how much transfer capability it will withhold and how it will communicate that information to the market with enough advance warning that market participants can hedge against CAISO's actions. Joint Commenters request similar limitations on CAISO's authority to limit monthly congestion revenue right auctions.[77] Financial Marketers contend that any authority to reserve internal transfer capability should be based on objective triggers which are clearly visible on the natural gas delivery system.[78]

59. La Paloma supports the comments submitted by Joint Commenters. In addition, La Paloma argues that CAISO's proposal to reserve internal transmission transfer capability on Path 26 should be regarded by CAISO as a Capacity Procurement Mechanism (CPM) trigger if generating assets north of Path 26 are called upon to maintain transmission capability on that path.[79]

60. XO Energy argues that this proposal would give CAISO's operators the authority to manipulate both day-ahead and real-time prices on a discretionary basis by forcing the unit commitment of certain generators in the day-ahead market. According to XO Energy, CAISO's transfer capability reservation proposal will result in high day-ahead and low real-time prices in the LA Basin, which will result in millions of dollars in uplift payments to all real-time load and net short virtual positions – the very transfer of wealth from one group to another that CAISO's proposal seeks to avoid.[80]

61. Further, XO Energy asserts that CAISO's proposal to limit the amount of monthly congestion revenue rights that would be awarded on that path will cripple the ability of market participants to hedge their forward congestion risk. XO Energy contends that market participants have already purchased forward congestion revenue rights positions that cover the period from June through August. Thus, according to XO Energy, it is economically rational for a market participant to buy the position in the upcoming monthly auctions that CAISO proposes to limit if that market participant believes that

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[77] Joint Commenters Protest at 10-11.

[78] Financial Marketers Protest at 7 (citing *Neptune Regional Transmission System, LLC v. PJM Interconnection, L.L.C.*, 110 FERC ¶ 61,098, at P 25 (2005), (tariff provisions must be construed with "some reasonable boundary" in light of the tariff provisions purposes and Commission policies)).

[79] La Paloma Comments at 1-2, 4.

[80] XO Energy Comments at 5-6.

day-ahead prices on a transmission path are going to be higher than the forward monthly congestion revenue rights auction.[81]

62. Calpine requests that the Commission require CAISO to post in advance on CAISO's Open Access Same-Time Information System (OASIS) any instances when CAISO intends to reserve internal transmission transfer capability and also file monthly reports with the Commission detailing each action taken by CAISO.[82]

c. Commission Determination

63. We accept CAISO's proposal to reserve internal transmission transfer capability based upon anticipated conditions on the natural gas delivery system, to reliably serve load in specific geographic regions of the CAISO balancing authority area, or to assure the deliverability of ancillary services, effective June 2, 2016. We find that this proposal constitutes a proactive approach that should assist CAISO in managing reliability this summer in a flexible manner that can react to day-to-day and hour-to-hour changes on the gas system.

64. We are not persuaded by commenters' assertions that CAISO has failed to demonstrate that the reservation of internal transfer capability is necessary to maintain reliability in this situation. To the contrary, we find that CAISO has made a compelling demonstration as to why its proposal to reserve internal transfer capability will benefit reliability given the current situation. In order to maintain pipeline pressure to prevent gas curtailments, CAISO may have to increase or decrease generation in southern California in real-time. By reserving internal transfer capability on Path 26 and other paths, CAISO will be able to move power in or out of southern California to preserve the gas system and by extension the electric system.

65. Moreover, while commenters such as XO Energy and Joint Commenters essentially advocate for maintaining the status quo with respect to internal transfer capability, we find that these commenters fail to address the Risk Assessment Report's finding that gas curtailment events could interrupt electric supply from 22 to 32 days, with 14 of those days potentially occurring this summer.[83] Thus, the potential exists for 14 days of electric service interruptions based upon modeling done on a CAISO system that utilized efficient bidding rules and least-cost economic dispatch. Based on this

[81] *Id.* at 6-7.

[82] Calpine Comments at 11-12.

[83] Risk Assessment Report at 4.

analysis, it does not appear that CAISO can rely solely on economic dispatch to avoid 14 days of potential electric service interruptions without resorting to some level of operator intervention in the marketplace, such as reserving internal transfer capability for the reasons that CAISO prescribes. Commenters have not offered an alternative to the status quo, which CAISO has demonstrated is no longer just and reasonable for the interim period.

66. We recognize, as does CAISO, that this proposal could lead to differences between day-ahead and real-time prices.[84] However, we find that the need to avoid the costs associated with electric supply interruptions outweighs the potential cost of short-term market inefficiencies related to these price differentials. Absent a compelling analysis to the contrary regarding the potential magnitude of load loss in southern California this summer, we find that it is reasonable to accept CAISO's proposal to reserve internal transfer capability on an interim basis.

67. We find that the triggers that CAISO proposes to determine when it will reserve internal transfer capability are sufficient, and appropriately limit CAISO's discretion to use this authority. We disagree with Financial Marketers that more objective triggers, such as significant curtailments of natural gas flowing into California or other disruptions to natural gas delivery, should be used. The purpose of this proposal is to permit CAISO to proactively respond to changing conditions on the gas system, and many of these suggested triggers would not allow CAISO sufficient time to do anything other than curtail electric load as gas flow would have already been interrupted.

68. We will not require CAISO to make a compliance filing, as Joint Commenters request, that identifies each internal transfer path that it may reserve in the future and why that particular path is needed. Path 26 may be the appropriate path to reserve in most instances, but conditions can change such that another path would be more appropriate based upon the unique circumstances of that day. The Commission notes that CAISO's proposed tariff language provides that it will issue a notice specifying the amount of any reservation.[85] We interpret that notice to require CAISO to immediately inform its market participants of the amount when it reserves internal transmission transfer capability. In addition, CAISO commits to revise its business practice manual for the full network model to provide implementation details regarding reservations of internal

[84] CAISO Filing at 34.

[85] CAISO Tariff, proposed § 27.5.6(f).

transfer capability.[86] We find that these actions should provide sufficient notice to market participants regarding CAISO's reservation of internal transfer capacity.

69. We also find CAISO's proposal to limit the release and allocation of monthly congestion revenue rights related to the reserved transfer capability to be reasonable under the presented circumstances and will therefore accept the proposed tariff revisions. We note that CAISO's existing tariff addressing the amount of congestion revenue right capacity that will be available in the monthly auction already takes into account a number of variables that are not quantified in the tariff such as unplanned transmission outages and possible unscheduled flow at the interties.[87] Commenters have not explained why the addition of another limiting variable to account for possible adjustments for internal transfer capability in the monthly congestion revenue right auction process will limit their ability to hedge their forward congestion risk any more than the existing variables may impact the monthly auction. Further, even assuming CAISO's proposal is distinguishable from other existing variables, we find that the need to avoid the costs associated with electric supply interruptions outweighs any negative consequences of limiting the availability of monthly congestion revenue rights.

70. We reject La Paloma's request that we direct CAISO to use its CPM mechanism to procure resource adequacy capacity from resources such as La Paloma to ensure maximum power flows on Path 26 as beyond the scope of the instant filing. CAISO has a suite of tools available to manage resources in northern California (e.g., exceptional dispatch and CPM), and we find that La Paloma has not presented any reason for us to prescribe how CAISO will manage those resources.

71. We will not require monthly reporting, as Calpine requests. Instead, as discussed below, we are directing Commission staff to convene a technical conference to discuss the ongoing need for any of these revisions, along with any refinements or longer-term solutions that may be warranted. Further, as noted above, CAISO's proposed tariff language already includes the requirement for CAISO to issue notifications specifying the amount of any reservation; thus, we are not persuaded to also require CAISO to post this information on its OASIS.

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[86] CAISO Filing at n.65.

[87] CAISO Tariff, § 36.4.

5. Suspension of Virtual Bidding for Market Efficiency

a. CAISO Proposal

72. CAISO proposes to add a provision to its tariff that would permit CAISO to limit or suspend the ability of one or more scheduling coordinators to submit virtual bids if those bids detrimentally affect CAISO's market efficiency.[88] CAISO provides several examples of how virtual bidding could have adverse consequences for CAISO's reservation of internal transfer capability. For instance, CAISO argues that when it releases the reserved transfer capability in real-time, the day-ahead congestion price of the transfer path is likely to be higher than the real-time congestion price. Thus, CAISO explains, virtual supply placed downstream of the path—e.g., in southern California—and virtual demand placed upstream of the path—e.g., in northern California—could expect to profit from this difference in the path's congestion price.[89] However, CAISO states, downstream virtual supply and upstream virtual demand would reduce the day-ahead schedules of downstream gas-fired generation and increase the day-ahead schedules of upstream generation, which is opposite of the intended effects of reserving the transfer capability.[90]

73. CAISO notes that it will include implementation details regarding this tariff authority in the applicable business practice manual. In addition, in the event that CAISO exercises its authority under this tariff provision, it commits to filing an informational report with the Commission explaining why it took the action.[91]

b. Comments and Protests

74. PG&E argues that the Commission should suspend all virtual bidding in CAISO's footprint for the duration of the interim measures, rather than permit CAISO to selectively suspend virtual bidding for market efficiency purposes. PG&E contends that there is no evidence that virtual bidding will narrow the gap between day-ahead and real-time prices when CAISO is operating under the requested constraint conditions and, therefore, the risk of market manipulation may outweigh any potential benefits that

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[88] CAISO Filing at 35.

[89] Assuming that Path 26 is used in the example.

[90] CAISO Filing at 35.

[91] *Id.* at 36.

virtual bidding may bring to the market under ordinary operating conditions.[92] Moreover, PG&E notes that none of the criteria that the Commission required CAISO to demonstrate if CAISO sought to reinstate virtual bidding at the interties is present with the limited availability of Aliso Canyon.[93]

75. Joint Commenters, Financial Marketers, XO Energy, and Power Trading argue that CAISO has failed to support its proposal to suspend virtual bidding for market efficiency purposes and request that the Commission reject this element of CAISO's proposal. Joint Commenters, Financial Marketers, and XO Energy point out that the very example that CAISO uses to support its position involves a situation where CAISO has reserved internal transmission transfer capability and thereby creates the market distortion that it blames on virtual bidders.[94]

76. Joint Commenters and XO Energy also assert that the proposed suspension authority is unnecessary. Joint Commenters state that CAISO already has the authority to suspend virtual bids when those bids detrimentally affect system reliability or grid operations.[95] XO states that if virtual bidding negatively impacts market efficiency, then it will be unprofitable and the market participants will lose money and thereby stop entering into those kinds of transactions.[96]

77. Financial Marketers and XO Energy stress the benefits that virtual bidding brings to the CAISO markets. Financial Marketers argue that virtual bidding has brought significant value to CAISO's market through the dispatch of more efficient generation. XO Energy contends that when virtual bidding is profitable, it is adding value and efficiency to the market as a whole beyond just the profitability of the virtual bidding, but also on bid production costs for both the day-ahead and real-time markets.[97]

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[92] PG&E Comments at 3-4.

[93] *Id.* at 4 (citing *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,234, at P 17 (2015)).

[94] Joint Commenters Protest at 12; Financial Marketers Protest at 10; XO Energy Comments at 10.

[95] Joint Commenters Protest at 13, n.34 (citing CAISO Tariff at 7.9.2).

[96] XO Energy Comments at 8-9.

[97] *Id.* at 9-19.

78. Financial Marketers also note that the arbitrage CAISO seeks to prevent through the suspension of virtual bidding could be accomplished by suppliers or Load Serving Entities through "implicit virtual bidding." Financial Marketers state that CAISO's proposal does not recognize this potential gaming by market participants.[98]

79. XO Energy argues that rather than suspend virtual bidding, CAISO should expand it by offering additional products such as a financial transmission rights in the day-ahead market.[99]

c. Commission Determination

80. We accept, subject to condition, effective June 2, 2016, CAISO's proposal to suspend virtual bidding[100] when and if it determines that such trading runs counter to market economic efficiency. Unlike its normal market operations, CAISO will be enforcing the new gas constraint differently in the day-ahead and real-time markets. Further, its use of internal transfer capability may need to differ considerably between day-ahead and real-time markets. These differences will affect locational marginal prices in the day-ahead and real-time market and locational marginal prices may not be subject to the benefits virtual bidding may normally yield. During the interim period, with the limited availability of Aliso Canyon and the operational steps that CAISO may undertake to address electric and gas reliability, there may be times when promoting price convergence may run contrary to the efficient economic solution of the market. Both of these variables could create sustained differences in prices between locations and between day-ahead and real-time markets that could be exploited by virtual bidders without yielding any market benefits. However, we find that, as proposed, the authority CAISO requests is overly broad and not narrowly tailored to address the potential market inefficiencies created by other aspects of this proposal. Further, as these tariff revisions are intended to be interim measures, we find that it would be inappropriate to characterize the requested authority as a clarification of CAISO's existing authority to suspend virtual bidding for reliability purposes because doing so would effectively make it a permanent part of CAISO's tariff. Thus, to better align the scope of the requested authority with its intended purpose, we direct CAISO to submit a compliance filing, within 30 days of the date of this order, to clarify that CAISO may only suspend virtual bidding for market

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[98] Financial Marketers Protest at 11-12.

[99] XO Energy Comments at 19-20.

[100] The terms "convergence bidding" and "virtual bidding" refer to the same trading practice and are used interchangeably by CAISO and commenters in this proceeding.

efficiency purposes in relation to its reservation of internal transfer capacity or its enforcement of the gas constraint.

81. We reject PG&E's request that CAISO be required to suspend virtual bidding system-wide for the duration of these interim measures. PG&E has not demonstrated that, under most circumstances, the benefits of virtual bidding will not continue to outweigh any risks of manipulation as it asserts. Further, we note that section 7.9.2 of CAISO's tariff gives it the authority to suspend virtual bidding selectively for reliability purposes. PG&E has not offered any justification for why this suspension authority should limit CAISO's authority to engage in a tailored response to a specific adverse event.

82. We find that the arguments by Joint Commenters and Financial Marketers that CAISO is causing the very problem they blame on virtual bidders to be unpersuasive. As discussed above, we find CAISO's proposals to enforce a gas constraint and to reserve internal transfer capability to be reasonable interim solutions to address the reliability risk posed by the limited availability of Aliso Canyon. However, as also discussed above, these measures also create the potential for predictable price differentials that could result in a transfer of wealth from consumers to virtual bidders with no economic benefit to the system. In such instances, we find it appropriate for CAISO to have the narrow authority to suspend virtual trading for the reasons discussed herein.

83. We disagree with Joint Commenters' argument that CAISO has failed to justify its proposal to suspend virtual bidding based on market inefficiencies. The limited availability of Aliso Canyon constitutes an extraordinary circumstance that threatens to interrupt normal market operations and presents new operational challenges. Given the uncertainty surrounding the extent to which CAISO may have to use internal transfer capability or enforce the gas constraint to address threats to reliability, or the impact that these actions will have on market outcomes, we find that CAISO has demonstrated a potential need for limited intervention in market outcomes to ensure these measures achieve their stated objectives. These situations could arguably fall outside the scope of CAISO's existing authority to suspend virtual bidding for reliability reasons, thereby justifying this additional suspension authority during the period when these other interim measures are in effect. We find that Financial Marketers' concern regarding the potential for "implicit virtual bidding" is beyond the scope of this proceeding and is inapposite as to the question of whether CAISO has justified its proposal in this filing to suspend virtual bidding for market efficiency purposes.

84. Further, we reject XO Energy's recommendation that virtual trading opportunities be expanded. We find that this request is beyond the scope of this proposal CAISO has not proposed to expand virtual bidding. Additionally, XO Energy has not provided any justification for expanding financial trading opportunities, particularly in light of CAISO's demonstration that the tools it may use to address the limited availability of

Aliso Canyon introduce the possibility that virtual bidding could have a negative impact on the market and on the stated objectives of this proposal.

6. Allowance for After-the-Fact Fuel Cost Recovery Filings

a. CAISO Proposal

85. CAISO proposes to establish a procedure in its tariff that would allow scheduling coordinators to make a section 205 filing with the Commission to recover gas costs that are not recovered through CAISO's tariff mechanisms. Under the proposed procedure, if a scheduling coordinator representing a resource incurs, but cannot recover through CAISO's bid cost recovery process, actual marginal fuel procurement costs that exceed (1) the caps on bids for start-up costs, minimum load costs, or transition costs, (2) the incremental fuel cost calculated under the variable cost option for default energy bids, or (3) the incremental fuel cost calculated for generated bids, the scheduling coordinator may seek to recover those costs through a filing submitted to the Commission. CAISO notes that eligibility for bid cost recovery uplift is contingent on a scheduling coordinator's costs exceeding its market revenues during the applicable period and, therefore, a scheduling coordinator electing to utilize this process would need to demonstrate in its filing that it would have been entitled to bid cost recovery uplift under CAISO's tariff in the first instance.[101]

86. Under CAISO's proposal, the scheduling coordinator must notify CAISO within 30 business days after the operating day on which the scheduling coordinator believes that it did not recover its costs and must submit the filing to the Commission within 90 business days after that operating day. Within 60 business days after the scheduling coordinator provides the notice to CAISO described above, CAISO will provide the scheduling coordinator with a written explanation of any effect that events or circumstances in CAISO's markets may have had on the scheduling coordinator's inability to recover those costs on the operating day. CAISO's proposal requires that the explanation that it provides to the scheduling coordinator be included in the material that the scheduling coordinator files with the Commission.[102]

87. CAISO states that it developed this procedure independent of any issues that it expects due to the limited availability of Aliso Canyon. However, CAISO states that it seeks to implement this authority on an expedited basis due to market participant concerns that the limited availability of Aliso Canyon has the potential to increase gas

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[101] CAISO Filing at 36-37.

[102] *Id.* at 37.

price volatility and/or result in higher commodity prices and penalties that exceed the gas price values CAISO uses. In addition, CAISO notes that its proposal closely resembles a similar procedure the Commission accepted for use in ISO New England's markets.[103] CAISO believes that it is just and reasonable to accept this provision on an interim and expedited basis despite all the other market rule changes that CAISO proposes.

b. Comments and Protests

88. PG&E states that it is not opposed to after-the-fact cost recovery submissions to the Commission under limited circumstances. However, PG&E argues that gas penalties serve a purpose in maintaining gas system reliability and, therefore, if generators are allowed to recover these costs in all instances, then generators have less of an incentive to stay in balance and operate consistent with the requirements of the gas system. PG&E asserts that any cost recovery permitted by the Commission should be used sparingly and further limited to costs incurred due to a CAISO dispatch order occurring between 4:00 p.m. and midnight, i.e., during the post-intraday window when generators are unable to make adjustments to their gas nominations.[104]

89. NV Energy contends that it is unclear from CAISO's tariff whether EIM participants would be eligible to make after-the-fact section 205 filings with the Commission to recover their marginal fuel costs. NV Energy argues that even if the Commission clarifies that EIM entities are eligible to make such filings, this remedy is not a substitute for the required improvements to the commitment cost and default energy bids that NV Energy requests.[105]

90. NRG supports CAISO's proposal to permit generators to make after-the-fact filings with the Commission to recover costs but requests that the Commission clarify several aspects of this process. First, NRG requests that all OFO and real-time gas procurement costs incurred to follow CAISO dispatch instructions should be included in the costs that may be recovered. Second, NRG requests that gas disposal costs be included as a legitimate ground on which to seek cost recovery at the Commission. NRG explains that if a generator purchases same-day gas to meet a CAISO dispatch, and then the dispatch is rescinded or the gas company curtails service to the generator due to local pressure concerns, the generator may have to liquidate gas or sell it back to the pipeline at a steep discount. Thus, NRG asserts that gas disposal costs are legitimate costs, beyond a

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[103] *Id.* at 36.

[104] PG&E Comments at 4-5.

[105] NV Energy Protest at 14-15.

generator's control, but are not addressed in CAISO's tariff language. Third, NRG requests that the Commission direct CAISO to clarify the timing of the process for seeking cost recovery with the Commission because as proposed, the 90-day deadline may not be feasible given that the information required from CAISO for the filing may not be received until the 90th day after the operating day at issue.[106]

c. Commission Determination

91. We accept, subject to condition, CAISO's proposal to permit after-the-fact cost recovery for scheduling coordinators that cannot recover their fuel costs through the bid cost recovery process, effective June 2, 2016. As discussed elsewhere in this order, because of the uncertainty and potential price volatility introduced into the market due to the limited availability of Aliso Canyon, there remains the possibility that fuel costs may exceed the amounts recoverable under CAISO's normal cost recovery provisions. Thus, we find that, in the interim, permitting scheduling coordinators the opportunity to file to recover actual marginal incurred fuel costs through section 205 filings at the Commission is reasonable during this period of extraordinary circumstances.

92. We agree with NV Energy that after-the-fact cost recovery cannot be a substitute for properly functioning markets. Properly functioning markets should allow natural gas generators to recover actually incurred costs without regular intervention by the Commission and should incent the development of sufficient generation and storage resources to ensure the reliability of CAISO's system. However, given the situation facing CAISO and the need to ensure reliable operation of the grid at just and reasonable rates, we find reasonable the interim solution to improving a scheduling coordinators' ability to recover fuel costs. Further, long-term issues, including fuel cost recovery solutions may be raised at the technical conference established in this order.

93. We will not further limit the after-the-fact filings to only those costs incurred within a specific time-frame, as requested by PG&E. Gas generators may be unable to recover costs for legitimate reasons that are not limited to the circumstances identified by PG&E. However, the Commission will carefully consider the costs incurred prior to approving them on a case-by-case basis. We agree with PG&E that gas generators must have a strong incentive to stay in balance and operate consistent with the requirements of the gas system. Indeed, under the circumstances anticipated for this summer, it is even more crucial that shippers obey OFOs so as not to pose further risk to the integrity of the gas system. However, we acknowledge the possibility of extraordinary situations under which a gas generator might be able to support a request for prudent after-the-fact cost

[106] NRG Protest at 10-12.

recovery. For example, the Commission might consider granting requests for additional financial compensation, on a case-by-case basis, in situations where a sudden need for a gas generator to run arises following issuance of an OFO, and CAISO, prior to dispatching the unit, communicates with SoCalGas and the generator to ensure that CAISO can dispatch the generator without causing operational problems on the gas pipeline. Continuous communication and coordination between CAISO, SoCalGas, and relevant generation owners will be critical to ensure reliable operations this summer. Thus, we do not believe that a blanket prohibition on the ability to seek recovery of incurred penalties in a section 205 filing is appropriate at this time. We note that any scheduling coordinator seeking after-the-fact cost recovery must clearly present the justification for its actions and the reasons it was unable to recover its costs.

94. We find that CAISO's after-the-fact cost recovery tariff provisions do not extend to EIM participants as alleged by NV Energy. Section 29 of CAISO's tariff contains the provisions related to the EIM. Section 29 specifies that other provisions of CAISO's tariff apply to the EIM to the extent they expressly refer to section 29; are cross referenced in section 29; or are not limited in applicability to the CAISO controlled grid, the CAISO balancing authority area, or CAISO markets.[107] CAISO did not include a reference to these after-the-fact cost recovery provisions in section 29, and did not reference EIM resources or section 29 in its proposed tariff provisions. Thus, we find that CAISO did not intend to include EIM participants in this provision. However, CAISO has not explained why it is appropriate to exclude EIM participants from the after-the-fact recovery provisions as EIM resources may be subject to mitigation and their respective default energy bids may not recover the resources marginal fuel costs. Thus, we find it discriminatory to exclude EIM participants from this cost recovery mechanism and direct CAISO to submit a compliance filing within 30 days of the date of this order expressly extending the after-the-fact cost recovery provisions to EIM participants.

95. We agree with NRG's concern regarding CAISO's proposed timeline for scheduling coordinators to make cost recovery filings with the Commission. As proposed, scheduling coordinators must submit any such requests to the Commission within 90 days of the relevant operating day. Further, the scheduling coordinator is required to include an analysis by CAISO in its filing, yet CAISO is not required under the current proposal to provide this analysis until the 90th day after the relevant operating day. Thus, CAISO's proposal creates the possibility that a scheduling coordinator may not be receiving the information required for its cost recovery filing until the day the filing is due at the Commission. We find that this proposed timeline is problematic because it could hinder the scheduling coordinator from being able to meet the 90-day

[107] CAISO Tariff, § 29.1(b)(2).

deadline for making its filing with the Commission. Thus, we direct CAISO to submit a compliance filing, within 30 days of the date of this order, that revises the timeline such that CAISO is required to provide the required analysis within 60 days after the unrecovered costs are incurred, thereby leaving the affected scheduling coordinator with an additional 30 days to prepare its filing for the Commission.

96. We reject requests to clarify that gas disposal costs are legitimate for inclusion in cost recovery filings with the Commission. CAISO's proposal is limited to costs incurred for the dispatch of electric generation and we find no reason to expand upon CAISO's proposal here. Likewise, we reject NRG's request to include OFO penalty costs within the scope of fuel costs recoverable under these provisions. The Commission has previously found that "[a]llowing generators to recover costs and penalties associated with unauthorized natural gas consumption could jeopardize the reliability of natural gas pipeline and transmission systems and is therefore at odds with the reliability and costs benefits otherwise associated with allowing generators to recover actual fuel costs in reference levels."[108] We find that the Commission's rationale in that proceeding applies with equal force here, especially given the potential stress on the natural gas pipeline system due to the limited availability of the Aliso Canyon storage facility. Notwithstanding those limitations, any scheduling coordinator making a filing under these provisions must demonstrate that fuel costs were incurred as a result of a CAISO dispatch instruction and the Commission will evaluate these filings on a case-by-case basis.

7. Further Action

a. Comments and Protests

97. PG&E urges the Commission to require that CAISO perform two weeks of market simulation before CAISO is allowed to implement the changes set forth in the instant filing. PG&E states that the short timeframe in which CAISO plans to implement the proposed changes severely limits opportunities to conduct necessary systems testing and preparation by CAISO and market participants. In addition, PG&E requests that the Commission direct CAISO to submit monthly status reports detailing how the market is functioning under CAISO's interim solution.[109]

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[108] *New York Indep. Sys. Operator, Inc.*, 154 FERC ¶ 61,111, at P 39 (2016). In that order, the consumption of natural gas in violation of the terms of an OFO was expressly identified as a circumstance that could constitute unauthorized natural gas consumption. *Id.* P 6.

[109] PG&E Comments at 6-7.

98. Joint Commenters state that they support CAISO's proposal to limit the duration of the tariff changes up to November 30, 2016, but argue that additional measures are needed to monitor the effectiveness of CAISO's proposal so that market participants and CAISO can work towards a long-term solution to the limited availability of Aliso Canyon. Joint Commenters request that the Commission direct CAISO to submit monthly reports, which would be subject to comment from market participants, detailing the status and implementation of any proposals the Commission accepts in this proceeding. Joint Commenters contend that monthly status reports and comments from market participants would help the Commission assess the impact of CAISO's proposal on market operations and indicate areas for improvement. In addition, Joint Commenters request that the Commission hold a technical conference in California after CAISO submits its second monthly status report to provide a forum to address the effectiveness of CAISO's proposal and whether any immediate changes are needed.[110]

99. Calpine contends that if the Commission accepts CAISO's filing as proposed, at a minimum, the Commission should require CAISO to (1) disclose out-of-market interventions in advance whenever possible and (2) detail after-the-fact evaluation of those interventions. Calpine notes that greater transparency in the entire process should result in less interference with competitive and fair electric markets. Calpine recommends that the Commission direct CAISO to restart the stakeholder process to develop market-based solutions to replace CAISO's administrative market interventions.[111]

100. Due to the magnitude of electric-gas coordination issues raised by the Aliso Canyon crisis and the expedited nature of the stakeholder process that led to CAISO's proposal, NRG recommends that the Commission direct CAISO to develop a document, such as a dedicated business practice manual, detailing how CAISO will implement its emergency authority. NRG also requests that CAISO clarify how it will coordinate with pipeline operations. NRG asserts that three-way conversations between CAISO, the affected generator, and the gas utility will minimize the danger of generators receiving conflicting information. In addition, NRG urges the Commission to direct CAISO to put into place, by December 1, 2016, permanent fixes to its market rules pertaining to gas cost recovery during periods of stress and volatility on the natural gas system.[112]

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[110] *Id.* at 23.

[111] Calpine Comments at 12-13.

[112] NRG Protest at 12, 14-15.

101. EDF and Financial Marketers emphasize the importance of CAISO finding longer-term solutions to the problems highlighted by the Aliso Canyon situation. EDF requests that the Commission require CAISO to revisit its decision to maintain the current timing of the natural gas and electric markets. EDF argues that without Aliso Canyon's storage, the current timing of the day-ahead market and natural gas scheduling cycles is suboptimal and reconsideration of this issue is warranted so that day-ahead market results are announced before the timely nomination cycle.[113] Financial Marketers argue that CAISO must consider longer term solutions to its gas transportation and gas storage needs.[114]

102. EDF argues that, in developing the instant proposal, CAISO focused too narrowly on overcoming gas constraints and should have considered additional market-based measures on the electricity demand side. EDF notes the well-documented benefits of demand response in wholesale markets, including increased reliability and consumer savings, and requests that the Commission require CAISO to develop and propose a demand response program element should there be a need to continue out-of-market reliability measures beyond the summer of 2016.[115]

b. Commission Determination

103. We will not require CAISO to conduct market simulation prior to implementing this proposal as PG&E requests as that would adversely delay the effective date of the proposed changes. While market simulation is common and beneficial in rolling out major market changes, we find that the importance and benefits of facilitating timely implementation of these market changes outweigh the potential benefits of requiring market simulation in this instance. However, we expect that CAISO will perform internal testing of the impact of the proposed measures before implementing them.[116] In addition, we expect CAISO to closely evaluate the impact of these measures after implementation and to take all necessary steps to address any adverse impacts that may occur. Furthermore, we will not require monthly reports as PG&E and Joint Commenters request. We expect CAISO to report on the operational and market impacts of this proposal in the course of regular stakeholder meetings it holds and the regular reports it

[113] EDF Comments at 6-7.

[114] Financial Marketers Protest at 5.

[115] EDF Comments at 7-8.

[116] CAISO states that it will perform internal testing consistent with its standard software development process. CAISO Filing at 20.

publishes,[117] which should provide sufficient transparency for stakeholders regarding the impact of these measures. However, we also agree with Calpine that prior notice regarding CAISO's potential out-of-market interventions is desirable. Thus, as discussed above, we direct CAISO to notify market participants when it invokes the gas constraint or internal transfer capability provisions of the tariff.

104. We agree with Joint Commenters that a technical conference is appropriate after CAISO and market participants have some experience operating under CAISO's proposed market changes. We believe a technical conference several months after CAISO has implemented its proposed market changes will provide a forum to discuss lessons learned regarding the efficacy of and need for retention of any of the instant tariff revisions, as well as other potential longer-term solutions. Thus, we direct Commission staff to establish a technical conference for this purpose. The details, timing, and location of the technical conference will be set forth in a subsequent notice issued by the Commission.

105. We decline, at this time, to direct CAISO to put in place long-term changes to its market rules pertaining to gas cost recovery during periods of stress and volatility on the natural gas system by December 1, 2016 as NRG requests. We find that it is premature to require CAISO to implement long-term changes by a date certain when the scope and duration of any potential problems are currently unknown. Longer-term solutions, such as those that NRG, Calpine, and Financial Marketers Coalition seek, may be considered in the technical conference established herein.

106. Likewise, we find that NRG's request for a dedicated business practice manual is premature given the interim nature of CAISO's proposal and CAISO's commitment to make expedited changes to its business practice manuals in order to provide appropriate implementation detail regarding its tariff revisions.[118]

107. We reject EDF's request to require CAISO to reconsider the timing of its electricity markets to better coincide with the gas nomination cycle. As CAISO notes, this change was considered and rejected during the stakeholder process that led to this filing because CAISO determined that doing so would be counterproductive due to the

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[117] For example, the Market Performance and Planning Forums that are regularly conducted by CAISO. *See* Cal. Indep. Sys. Operator Corp., *Market Performance and Planning Forum* http://www.caiso.com/Documents/Agenda_Presentation_MarketPerformance_PlanningForum_May172016.pdf.

[118] CAISO Filing at 5.

risk of increased forecast error that would be associated with moving the day-ahead market timeline to earlier in the day.[119] We thus find this issue to be beyond the scope of the current proceeding addressing CAISO's proposal. Likewise, we find that EDF's request to require demand side alternatives to the instant proposal is beyond the scope of this proceeding. Moreover, we note that CAISO's proposal does not preclude demand response solutions and we encourage all involved to deploy demand side alternatives to the fullest extent possible.

The Commission orders:

(A) CAISO's proposed tariff revisions are hereby accepted subject to condition, effective June 2, 2016 and July 6, 2016, as discussed in the body of this order.

(B) CAISO's request for waiver of the Commission's notice requirements is hereby granted for good cause shown, as discussed in the body of this order.

(C) CAISO is hereby directed to submit a compliance filing within 30 days of the date of this order, as discussed in the body of this order.

(D) Commission staff is hereby directed to establish a technical conference, as discussed in the body of this order.

By the Commission.

(S E A L)

Kimberly D. Bose,
Secretary.

[119] *Id.* at 12.