



California Independent System Operator Corporation

December 22, 2016

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Re: California Independent System Operator Corporation  
Filing in Compliance with November 28, 2016 Order  
Docket ER17-110-\_\_\_\_\_**

Dear Secretary Bose:

The California Independent System Operator Corporation (CAISO) submits this filing in compliance with the Federal Energy Regulatory Commission's (Commission) "Order Accepting Tariff Revisions, Subject to Condition," issued in this proceeding on November 28, 2016.<sup>1</sup>

The November 28 Order granted the CAISO's tariff amendment to maintain in effect for one year certain tariff provisions previously accepted on an interim basis to address the limited operability of the Aliso Canyon facility. The November 28 Order also instructed the CAISO to submit a compliance filing to submit the second set of tariff sheets to become effective on November 30, 2017, which the CAISO inadvertently omitted due to clerical error.<sup>2</sup> Furthermore, the Commission directed the CAISO to submit a compliance filing to revise tariff Section 39.7.1.1.1.3(d) to state that the CAISO will notify market participants of any revisions to the natural gas adders.<sup>3</sup>

In compliance with the November 28 Order, the CAISO proposes to revise Section 39.7.1.1.1.3(d) so that it clearly states that the CAISO will notify market participants of any revisions to the natural gas adders. Also in compliance with the Commission's November 28 Order, the CAISO is submitting eTariff records that reflect the tariff sheets that will become effective on November 30, 2017.

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<sup>1</sup> *Cal. Independ. Sys. Operator Corp.*, 157 FERC ¶ 61,151 (2016) (November 28 Order).

<sup>2</sup> *Id.* at P. 25.

<sup>3</sup> *Id.* at P. 30.

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In addition to this transmittal letter, the CAISO is including attachments A through D:

- Attachment A: Clean CAISO tariff sheets reflecting the tariff revisions to Section 39.7.1.1.3(d).
- Attachment B: Redline that shows proposed revisions to Section 39.7.1.1.3(d).
- Attachment C: Clean tariff sheets to reflect that the tariff language that will be effective on November 30, 2017.
- Attachment D: Redline that shows the CAISO tariff sheets that will be effective on November 30, 2017.

The CAISO respectfully requests that the Commission approve this compliance filing, in accordance with the Commission's November 28 Order. If there are any questions or concerns regarding this filing, please contact the undersigned.

Respectfully submitted,

By: /s/ Anna M. McKenna

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## CERTIFICATE OF SERVICE

I certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceedings, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California this 22<sup>nd</sup> day of December, 2016.

/s/ Grace Clark

Grace Clark

**Attachment A – Clean Tariff Records (Section 39.7.1.1.3(d))**

**Filing in Compliance with November 28 Order**

**California Independent System Operator Corporation**

### **39.7.1 Calculation Of Default Energy Bids**

#### **39.7.1.1.3 Calculation of Natural Gas Price**

- (a) The CAISO will use different gas price indices for the Day-Ahead Market and the Real-Time Market. If a gas price index is unavailable for any reason, the CAISO will use the most recent available gas price index as set forth in Section 39.7.1.1.3(c).
- (b) For the Day-Ahead Market, the CAISO will use a gas price index based on natural gas prices reported by the Intercontinental Exchange one (1) day prior to the applicable Trading Day between 8:00 and 9:00 a.m. Pacific Time for natural gas deliveries on the Trading Day, which is a volume-weighted average price calculated by the Intercontinental Exchange based on trades transacted that day on the Intercontinental Exchange during its next-day trading window.
- (c) For the Real-Time Market, the CAISO will calculate a gas price index using at least two prices from two or more of the following publications: Natural Gas Intelligence, SNL Energy/BTU's Daily Gas Wire, Platt's Gas Daily, and the Intercontinental Exchange. The CAISO will update gas price indices for the Real-Time Market between the hours of 19:00 and 22:00 Pacific Time using natural gas prices published one (1) day prior to the applicable Trading Day for natural gas deliveries on the Trading Day, unless gas prices are not published on that day, in which case the CAISO will use the most recently published prices that are available.
- (d) For the Real-Time Market, the CAISO will increase the gas price calculated pursuant to Section 39.7.1.1.3(c) for resources receiving gas service from Southern California Gas Company and San Diego Gas & Electric Company by an amount that: (1) improves the dispatch of these resources so that they are more likely to be dispatched to address local needs rather than system needs; (2) better accounts for systematic differences between day-ahead and same-day natural gas prices; and (3) improves the ability to manage the generators' gas usage within applicable gas balancing rules. For applicable resources, the CAISO will initially increase the gas commodity price used in the calculation of Start-Up Costs, Minimum Load Costs, and Transition Costs pursuant to Section 30.4.1.1, and Generated Bids pursuant to Section 40.6.8, by seventy-five (75) percent, and may decrease this amount or increase it further by an amount not to exceed \$2.50/therm plus two (2) times the next-day gas index price calculated pursuant to

Section 39.7.1.1.1.3(b). For applicable resources, the CAISO will initially increase the gas commodity price used in the calculation of Default Energy Bids pursuant to Section 39.7.1.1 by twenty-five (25) percent, and may decrease this amount or increase it further by an amount not to exceed one hundred (100) percent. Upon determining that a subsequent change in the gas price is necessary after the initial increase, the CAISO will issue a Market Notice specifying the amount of any price change.

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**Attachment B – Marked Tariff Records (Section 39.7.1.1.3(d))**

**Filing in Compliance with November 28 Order**

**California Independent System Operator Corporation**

### **39.7.1.1.1.3 Calculation of Natural Gas Price**

- (a) The CAISO will use different gas price indices for the Day-Ahead Market and the Real-Time Market. If a gas price index is unavailable for any reason, the CAISO will use the most recent available gas price index as set forth in Section 39.7.1.1.1.3(c).
- (b) For the Day-Ahead Market, the CAISO will use a gas price index based on natural gas prices reported by the Intercontinental Exchange one (1) day prior to the applicable Trading Day between 8:00 and 9:00 a.m. Pacific Time for natural gas deliveries on the Trading Day, which is a volume-weighted average price calculated by the Intercontinental Exchange based on trades transacted that day on the Intercontinental Exchange during its next-day trading window.
- (c) For the Real-Time Market, the CAISO will calculate a gas price index using at least two prices from two or more of the following publications: Natural Gas Intelligence, SNL Energy/BTU's Daily Gas Wire, Platt's Gas Daily, and the Intercontinental Exchange. The CAISO will update gas price indices for the Real-Time Market between the hours of 19:00 and 22:00 Pacific Time using natural gas prices published one (1) day prior to the applicable Trading Day for natural gas deliveries on the Trading Day, unless gas prices are not published on that day, in which case the CAISO will use the most recently published prices that are available.
- (d) For the Real-Time Market, the CAISO will increase the gas price calculated pursuant to Section 39.7.1.1.1.3(c) for resources receiving gas service from Southern California Gas Company and San Diego Gas & Electric Company by an amount that: (1) improves the dispatch of these resources so that they are more likely to be dispatched to address local needs rather than system needs; (2) better accounts for systematic differences between day-ahead and same-day natural gas prices; and (3) improves the ability to manage the generators' gas usage within applicable gas balancing rules. For applicable resources, the CAISO will initially increase the gas commodity price used in the calculation of Start-Up Costs, Minimum Load Costs, and Transition Costs pursuant to Section 30.4.1.1, and Generated Bids pursuant to Section 40.6.8, by seventy-five (75) percent, and may decrease this amount or increase it further by an amount not to exceed \$2.50/therm plus two (2) times the next-day gas index price calculated pursuant to Section 39.7.1.1.1.3(b). For applicable resources, the CAISO will initially increase the gas

commodity price used in the calculation of Default Energy Bids pursuant to Section 39.7.1.1 by twenty-five (25) percent, and may decrease this amount or increase it further by an amount not to exceed one hundred (100) percent. Upon determining that a subsequent change in the gas price is necessary after the initial increase, the CAISO will issue a Market Notice specifying the amount of any price change~~the increase~~.

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**Attachment C – Clean Tariff Records**

**(Tariff Language Effective on November 30, 2017)**

**Filing in Compliance with November 28 Order**

**California Independent System Operator Corporation**

## **6.2.1 Scheduling Coordinators**

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### **6.2.1.3 Individually Assigned Login Accounts**

The CAISO will provide an interface for data exchange between the CAISO and Scheduling Coordinators who shall each have individually assigned login accounts via digital certificates. Through the use of the security provisions of CAISO's secure communication system, data will be provided by the CAISO to Scheduling Coordinators on a confidential basis (such as Day-Ahead Schedules for individual Scheduling Coordinators). Other CAISO data that is not confidential (such as CAISO Demand Forecasts) will be published on the public access reporting system of the CAISO Website and be available to anyone.

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## **6.5.2 Communications Prior To The Day-Ahead Market**

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### **6.5.2.3.4 Greenhouse Gas Price Indices**

The CAISO will publish relevant natural gas price indices and greenhouse gas price indices when available.

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## **7.9.2 Reasons for Suspension or Limitation**

The CAISO may suspend or limit the ability of one or more Scheduling Coordinators to submit Virtual Bids if the CAISO determines that virtual bidding activities of one or more Scheduling Coordinators on behalf of one or more Convergence Bidding Entities detrimentally affect System Reliability or grid operations. Virtual bidding activities can detrimentally affect System Reliability or grid operations if such activities contribute to threatened or imminent reliability conditions, including but not limited to the following circumstances:

- (a) Submitted Virtual Bids create a substantial risk that the CAISO will be unable to obtain sufficient Energy and Ancillary Services to meet Real-Time Demand and Ancillary Service requirements in the CAISO Balancing Authority Area.
- (b) Submitted Virtual Bids render the CAISO Day-Ahead Market software unable to process Bids submitted into the Day-Ahead Market.

- (c) Submitted Virtual Bids render the CAISO unable to achieve an alternating current (AC) solution in the Day-Ahead Market for an extended period of time.

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**27.11 [Not Used]**

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**30.4.1.2 Registered Cost Methodology**

- (a) Under the Registered Cost methodology, the Scheduling Coordinator for a Use-Limited Resource may register values of its choosing for Start-Up Costs and/or Minimum Load Costs in the Master File subject to the maximum limit specified in Section 39.6.1.6. A Scheduling Coordinator for a Multi-Stage Generating Resource that is a Use-Limited Resource registering a Start-Up Cost must also register Transition Costs for each feasible MSG Transition, subject to the maximum limit specified in Section 39.6.1.7. For a Use-Limited Resource to be eligible for the Registered Cost methodology there must be sufficient information in the Master File to calculate the value pursuant to the Proxy Cost methodology, which will be used to validate the specific value registered using the Registered Cost methodology. Any such values will be fixed for a minimum of 30 days in the Master File unless: (a) the resource's costs for any such value, as calculated pursuant to the Proxy Cost methodology, exceed the value registered using the Registered Cost methodology, in which case the Scheduling Coordinator may elect to switch to the Proxy Cost methodology for the balance of any 30-day period, except as set forth in Section 30.4.1.2(b); or (b) any cost registered in the Master File exceeds the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7 after this minimum 30-day period, in which case the value will be lowered to the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7. If a Multi-Stage Generating Resource elects to use the Registered Cost methodology, that election will apply to all the MSG Configurations for that resource. The cap for the Registered Cost values for each MSG Configuration will be based on the Proxy Cost values calculated for each MSG Configuration, including for each MSG Configuration that cannot be directly started, which are also subject to the

maximum limits specified in Sections 39.6.1.6 and 39.6.1.7.

- (b) If the alternative natural gas price set forth in Section 39.7.1.1.1.3(b) is triggered, and a Use-Limited Resource's Start-Up Costs or Minimum Load Costs calculated pursuant to the Proxy Cost methodology using the alternative gas price exceeds the value registered in the Master File, then the CAISO will switch the Use-Limited Resource to the Proxy Cost methodology. Any Use-Limited Resource switched to the Proxy Cost methodology pursuant to Section 30.4.1.2(b) will revert to the Registered Cost methodology when the Use-Limited Resource's alternative Proxy Cost calculation no longer exceeds the value registered using the Registered Cost methodology. These determinations will be made separate for both Start-Up Costs and Minimum Load Costs. The CAISO will not make a separate determination for Transition Costs but if a Start-Up Cost is switched to the Proxy Cost methodology, the Transition Costs of the Use-Limited Resource will also be switched to the Proxy Cost methodology.

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- 30.12** [Not Used]
- 30.12.1** [Not Used]
- 30.12.2** [Not Used]
- 30.12.3** [Not Used]
- 30.12.4** [Not Used]

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#### **31.6.1 Criteria For Temporary Waiver Of Timing Requirements**

The CAISO may at its sole discretion implement any temporary variation or waiver of the timing requirements of this Section 31 and Section 6.5.3 (including the omission of any step) if any of the following criteria are met:

- (i) such waiver or variation of timing requirements is reasonably necessary to preserve System Reliability, prevent an imminent or threatened System Emergency or to retain Operational Control over the CAISO Controlled Grid during an actual System Emergency.

- (ii) because of error or delay, the CAISO requires additional time to fulfill its responsibilities;
- (iii) problems with data or the processing of data cause a delay in receiving or issuing Bids or publishing information on the CAISO's secure communication system;
- (iv) problems with telecommunications or computing infrastructure cause a delay in receiving or issuing Day-Ahead Schedules or publishing information on the CAISO's secure communication system;
- (v) the alternative natural gas price set forth in Section 39.7.1.1.1.3(b) is triggered.

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### **39.7.1 Calculation Of Default Energy Bids**

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#### **39.7.1.1.3 Calculation of Natural Gas Price**

- (a) Except as set forth in Section 39.7.1.1.1.3(b), the CAISO will use different gas price indices for the Day-Ahead Market and the Real-Time Market and a gas price index will be calculated using at least two prices from two or more of the following publications: Natural Gas Intelligence, SNL Energy/BTU's Daily Gas Wire, Platt's Gas Daily, and the Intercontinental Exchange. If a gas price index is unavailable for any reason, the CAISO will use the most recent available gas price index. For the Day-Ahead Market, the CAISO will update the gas price indices between 19:00 and 22:00 Pacific Time using natural gas prices published on the day that is two (2) days prior to the applicable Trading Day, unless gas prices are not published on that day, in which case the CAISO will use the most recently published prices that are available.
- (b) If a daily gas price reported by the Intercontinental Exchange on the morning of the Day-Ahead Marked run exceeds one hundred twenty-five (125) percent of any natural gas price index calculated for the Day-Ahead Market between 19:00 and 22:00 Pacific Time on the preceding day, the CAISO will utilize the gas price reported by the Intercontinental Exchange in all CAISO

cost formulas and market processes for that day's Day Ahead Market that would normally utilize the natural gas price index calculated pursuant to this Section 39.7.1.1.3.

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## **39.7.2            Competitive Path Designation**

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### **39.7.2.2        Criteria**

Subject to Section 39.7.3, for the DAM and RTM, a Transmission Constraint will be non-competitive only if the Transmission Constraint fails the dynamic competitive path assessment pursuant to this Section

#### **39.7.2.2.1**

(a)        Transmission Constraints for the DAM - As part of the MPM process associated with the DAM, the CAISO will designate a Transmission Constraint for the DAM as non-competitive when the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section

##### **39.7.2.2(a):**

(i)        Counter-flow to the Transmission Constraint means the delivery of Power from a resource to the system load distributed reference bus. If counter-flow to the Transmission Constraint is in the direction opposite to the market flow of Power to the Transmission Constraint, the counter-flow to the Transmission Constraint is calculated as the shift factor multiplied by the resource's scheduled Power.

Otherwise, counter-flow to the Transmission Constraint is zero.

(ii)        Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers and all internal Virtual Supply Awards not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available capacity reflects the highest capacity of a resource's Energy Bid adjusted for Self-Provided Ancillary Services and derates.

- (iii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply and Virtual Supply Awards that provide counter-flow to the Transmission Constraint.
- (iv) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint.
- (v) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Section 4.5.1.1.12 and all effective internal Virtual Supply Awards of the Scheduling Coordinator and/or Affiliate. Effectiveness in supplying counter-flow is determined by scaling generation capacity and/or Virtual Supply Awards by the shift factor from that location to the Transmission Constraint being tested.
- (vi) A portfolio of a net seller means any portfolio that is not a portfolio of a net buyer. A portfolio of a net buyer means a portfolio for which the average daily net value of Measured Demand minus Supply over a twelve (12) month period is positive. The average daily net value is determined for each portfolio by subtracting, for each Trading Day, Supply from Measured Demand and then averaging the daily value for all Trading Days over the twelve (12) month period. The CAISO will calculate whether portfolios are portfolios of net buyers in the third month of each calendar quarter and the calculations will go into effect at the start of the next calendar quarter. The twelve (12) month period used in this calculation will be the most recent twelve (12) month period for which data is available. The specific mathematical formula used to perform this calculation will be set forth in a Business Practice Manual. Market Participants without physical resources will be deemed to be net sellers for purposes of this Section 39.7.2.2(a)(vi).
- (vii) In determining which Scheduling Coordinators and/or Affiliates control the resources in the three (3) identified portfolios, the CAISO will include resources and Virtual Supply Awards directly associated with all Scheduling Coordinator ID Codes associated with the Scheduling Coordinators and/or Affiliates, as well as

all resources that the Scheduling Coordinators and/or Affiliates control pursuant to Resource Control Agreements registered with the CAISO as set forth Section 4.5.1.1.13. Resources identified pursuant to Resource Control Agreements will only be assigned to the portfolio of the Scheduling Coordinator that has control of the resource or whose Affiliate has control of the resource pursuant to the Resource Control Agreements.

- (b) Transmission Constraints for the RTM - As part of the MPM processes associated with the RTM, the CAISO will designate a Transmission Constraint for the RTM as non-competitive when the sum of the supply of counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint and the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section 39.7.2.2(b):
- (i) Counter-flow to the Transmission Constraint has the meaning set forth in Section 39.7.2.2(a)(i).
  - (ii) Supply of counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint means the minimum available capacity from internal resources controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. The minimum available capacity for the current market interval will reflect the greatest amount of capacity that can be physically withheld. The minimum available capacity is the lowest output level the resource could achieve in the current market interval given its dispatch in the last market interval and limiting factors including Minimum Load, Ramp Rate, Self-Provided Ancillary Services, Ancillary Service Awards (in the Real-Time Market only), and derates.
  - (iii) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint

that can be withheld. Counter-flow supply to the Transmission Constraint that can be withheld reflects the difference between the highest capacity and the lowest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute FMM interval or the preceding five (5) minute RTD interval, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM, or adjusted for Ancillary Service Awards and derates in determining whether to designate a Transmission Constraint as non-competitive for the FMM. In determining whether to designate a Transmission Constraint as non-competitive for the RTM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the PMin of each Short Start Unit with a Start-Up Time of sixty (60) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval of the FMM. In determining whether to designate a Transmission Constraint as non-competitive for the RTM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the PMin of each Short Start Unit with a Start-Up Time of fifteen (15) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval.

- (iv) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Sections 4.5.1.1.12 and 39.7.2.2(a)(vii). Effectiveness in supplying counter-flow is determined by scaling generation capacity by the shift factor from that location to the Transmission Constraint being tested.
- (v) A portfolio of a net seller has the meaning set forth in Section 39.7.2.2(a)(vi).
- (vi) Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available

capacity reflects the highest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute interval of the FMM or five (5) minute interval of the RTD, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM, or adjusted for Ancillary Service Awards and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM.

- (vii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply that provides counter-flow to the Transmission Constraint.

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**Attachment D – Marked Tariff Records**

**(Tariff Language Effective on November 30, 2017)**

**Filing in Compliance with November 28 Order**

**California Independent System Operator Corporation**

## **6.2.1 Scheduling Coordinators**

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### **6.2.1.3 Individually Assigned Login Accounts**

The CAISO will provide an interface for data exchange between the CAISO and Scheduling Coordinators who shall each have individually assigned login accounts via digital certificates. Through the use of the security provisions of CAISO's secure communication system, data will be provided by the CAISO to Scheduling Coordinators on a confidential basis (such as Day-Ahead Schedules ~~and resource-specific pricing data resulting from the enforcement of a natural gas constraint as specified in Section 27.11~~ for individual Scheduling Coordinators). Other CAISO data that is not confidential (such as CAISO Demand Forecasts) will be published on the public access reporting system of the CAISO Website and be available to anyone.

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## **6.5.2 Communications Prior To The Day-Ahead Market**

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### **6.5.2.2.3 ~~Advisory Day-Ahead Market Results~~**

~~The CAISO may provide to the responsible Scheduling Coordinator its MWh amounts scheduled in the preliminary RUC process the CAISO conducts two (2) days prior to the Trading Day, that is based on Bids and forecasts of system conditions as available in the CAISO Market systems at the time the CAISO conducts the preliminary RUC process. This information is for advisory purposes only and is not financially binding.~~

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### **6.5.2.3.4 Greenhouse Gas Price Indices**

The CAISO will publish ~~relevant natural gas price indices and daily~~ greenhouse gas price indices when available.

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## **6.5.4 RTM Communications Before The Trading Hour**

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### **6.5.4.2.3 ~~The CAISO will publish the natural gas price indices used for the Real-Time Market when~~**

available.

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### 7.9.2 Reasons for Suspension or Limitation

The CAISO may suspend or limit the ability of one or more Scheduling Coordinators to submit Virtual Bids if the CAISO determines that virtual bidding activities of one or more Scheduling Coordinators on behalf of one or more Convergence Bidding Entities detrimentally affect System Reliability or grid operations. Virtual bidding activities can detrimentally affect System Reliability or grid operations if such activities contribute to threatened or imminent reliability conditions, including but not limited to the following circumstances:

- (a) Submitted Virtual Bids create a substantial risk that the CAISO will be unable to obtain sufficient Energy and Ancillary Services to meet Real-Time Demand and Ancillary Service requirements in the CAISO Balancing Authority Area.
- (b) Submitted Virtual Bids render the CAISO Day-Ahead Market software unable to process Bids submitted into the Day-Ahead Market.
- (c) Submitted Virtual Bids render the CAISO unable to achieve an alternating current (AC) solution in the Day-Ahead Market for an extended period of time.
- (d) ~~Submitted Virtual Bids detrimentally affect CAISO Market efficiency related to enforcement of natural gas constraint pursuant to Section 27.11.~~

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### 27.11 [Not Used] Natural Gas Constraint

~~The CAISO may enforce constraints that limit the maximum amount of natural gas that can be burned by natural gas fired resources in the Southern California Gas Company and San Diego Gas & Electric Company gas regions, based on limitations in applicable gas regions anticipated by the CAISO during specific hours. In the event that such a constraint is binding, the Shadow Price of the constraint will be reflected in the Marginal Cost of Congestion component of the Locational Marginal Prices of only the affected natural gas-fired resources. The Shadow Price of the constraint will not be reflected in the Marginal Cost of Congestion component of the Locational Marginal Prices for purposes of settling cleared Demand, Virtual Bids, or Congestion Revenue Rights. The same Marginal Cost of Congestion used for~~

~~Settling Demand, Virtual Bids, or Congestion Revenue Rights is used for the calculation of the Real-Time Congestion Offset pursuant to Section 11.5.4.1.1. The CAISO will allocate any non-zero amounts that are attributable to the price differential between the Marginal Cost of Congestion used for settling a Generating Unit's scheduled or Dispatched amounts at their location and the Marginal Cost of Congestion used for settling Demand, Virtual Bids, or Congestion Revenue Rights pursuant to Section 11.5.4, except that for Day-Ahead settlements the CAISO will allocate the difference through the CRR Balancing Account pursuant to Section 11.2.4.5. The CAISO will provide, through the procedures set forth in Section 6.5.10.1.1, information on whether the CAISO plans to enforce a natural gas constraint in the Day-Ahead Market, and after the Day-Ahead Market is executed, whether it enforced a natural gas constraint in the Day-Ahead Market. In addition, to the extent feasible in advance of the deadline for submitting Bids for the Day-Ahead or Real-Time Market, as applicable, the CAISO will issue a notice through its market notification system indicating its intent to enforce a natural gas constraint along with the affected areas and the magnitude and expected duration of the natural gas constraint.~~

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#### **30.4.1 Start-Up and Minimum Load Costs**

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##### **30.4.1.2 Registered Cost Methodology**

(a) Under the Registered Cost methodology, the Scheduling Coordinator for a Use-Limited Resource may register values of its choosing for Start-Up Costs and/or Minimum Load Costs in the Master File subject to the maximum limit specified in Section 39.6.1.6. A Scheduling Coordinator for a Multi-Stage Generating Resource that is a Use-Limited Resource registering a Start-Up Cost must also register Transition Costs for each feasible MSG Transition, subject to the maximum limit specified in Section 39.6.1.7. For a Use-Limited Resource to be eligible for the Registered Cost methodology there must be sufficient information in the Master File to calculate the value pursuant to the Proxy Cost methodology, which will be used to validate the specific value registered using the Registered Cost methodology. Any such values will be fixed for a minimum of 30 days in the Master File unless: (a) the resource's costs for any such value, as calculated

pursuant to the Proxy Cost methodology, exceed the value registered using the Registered Cost methodology, in which case the Scheduling Coordinator may elect to switch to the Proxy Cost methodology for the balance of any 30-day period, except as set forth in Section 30.4.1.2(b); or (b) any cost registered in the Master File exceeds the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7 after this minimum 30-day period, in which case the value will be lowered to the maximum limit specified in Section 39.6.1.6 or Section 39.6.1.7. If a Multi-Stage Generating Resource elects to use the Registered Cost methodology, that election will apply to all the MSG Configurations for that resource. The cap for the Registered Cost values for each MSG Configuration will be based on the Proxy Cost values calculated for each MSG Configuration, including for each MSG Configuration that cannot be directly started, which are also subject to the maximum limits specified in Sections 39.6.1.6 and 39.6.1.7.

- (b) If the alternative natural gas price set forth in Section 39.7.1.1.1.3(b) is triggered, and a Use-Limited Resource's Start-Up Costs or Minimum Load Costs calculated pursuant to the Proxy Cost methodology using the alternative gas price exceeds the value registered in the Master File, then the CAISO will switch the Use-Limited Resource to the Proxy Cost methodology. Any Use-Limited Resource switched to the Proxy Cost methodology pursuant to Section 30.4.1.2(b) will revert to the Registered Cost methodology when the Use-Limited Resource's alternative Proxy Cost calculation no longer exceeds the value registered using the Registered Cost methodology. These determinations will be made separate for both Start-Up Costs and Minimum Load Costs. The CAISO will not make a separate determination for Transition Costs but if a Start-Up Cost is switched to the Proxy Cost methodology, the Transition Costs of the Use-Limited Resource will also be switched to the Proxy Cost methodology.

\* \* \* \*

**30.12 [Not Used] Eligibility to Submit Filings to Recover Marginal Fuel-Related Costs**

**30.12.1 [Not Used] Applicability**

A Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator may seek to recover

~~through a FERC filing pursuant to Section 205 of the Federal Power Act any actual margin fuel procurement costs that cannot be recovered through CAISO market revenues under the following conditions:~~

- ~~(i) A Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator is mitigated to its Default Energy Bid that is calculated pursuant to any of the options set forth in Section 39.7.1, or the competitive LMP through the Local Market Power Mitigation as specified in Sections 31.2 and 34.1.5;~~
- ~~(ii) A Scheduling Coordinator whose Exceptional Dispatch is mitigated pursuant to Section 39.10 for any of the options set forth in Section 39.7.1, or submits no Bid, and the Exceptional Dispatch is settled at the greater of the applicable Default Energy Bid or resource-specific LMP;~~
- ~~(iii) A Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator that is required by FERC order to submit Bids no greater than its Default Energy Bid calculated pursuant to any of the options set forth in Section 39.7.1, and submit Bids at the Default Energy Bid; or~~
- ~~(iv) A Scheduling Coordinator that is subject to a Generated Bid as set forth in Sections 30.7.3.4, 39.7.1.1.1, and 40.6.8.~~

#### **30.12.2 [Not Used] Notice and Process**

~~The Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator must notify the CAISO within thirty (30) Business Days after the Operating Day on which the resource incurred the unrecovered costs, and must submit the filing to FERC within ninety (90) Business Days after that Operating Day. Within sixty (60) Business Days after the Operating Day for which the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator provides notice to the CAISO per this Section, the CAISO will provide the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator with a written explanation of any effect that events or circumstances in the CAISO Markets and fuel market conditions may have had on the resource's inability to recover the costs on the Trading Day.~~

#### **30.12.3 [Not Used] Documentation Required for FERC Filing**

~~Each filing the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator submits to FERC must include:~~

- ~~(1) Data supporting the Scheduling Coordinator's or EIM Participating Resource Scheduling Coordinator claim to the unrecovered costs it seeks, including invoices related to the unrecovered costs;~~
- ~~(2) A description of the resource's participation in any gas pooling arrangements;~~
- ~~(3) An explanation of why recovery of the costs is justified; and~~
- ~~(4) A copy of the written explanation from the CAISO to the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator described above in this Section.~~

**30.12.4 [Not Used] Payment and Allocation of Costs Recovered Pursuant to a FERC Order**

~~To the extent that FERC authorizes the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator to recover any costs pursuant to the Scheduling Coordinator's or EIM Participating Resource Scheduling Coordinator's filing, the CAISO will pay the Scheduling Coordinator or EIM Participating Resource Scheduling Coordinator any amounts the Commission deems recoverable and will allocate such amounts pursuant to Section 11.14.~~

\* \* \* \*

**31.6.1 Criteria For Temporary Waiver Of Timing Requirements**

The CAISO may at its sole discretion implement any temporary variation or waiver of the timing requirements of this Section 31 and Section 6.5.3 (including the omission of any step) if any of the following criteria are met:

- (i) such waiver or variation of timing requirements is reasonably necessary to preserve System Reliability, prevent an imminent or threatened System Emergency or to retain Operational Control over the CAISO Controlled Grid during an actual System Emergency.
- (ii) because of error or delay, the CAISO requires additional time to fulfill its responsibilities;

- (iii) problems with data or the processing of data cause a delay in receiving or issuing Bids or publishing information on the CAISO's secure communication system;
- (iv) problems with telecommunications or computing infrastructure cause a delay in receiving or issuing Day-Ahead Schedules or publishing information on the CAISO's secure communication system; -
- (v) the alternative natural gas price set forth in Section 39.7.1.1.1.3(b) is triggered.

\* \* \* \*

### **39.7.1 Calculation Of Default Energy Bids**

\* \* \* \*

#### **39.7.1.1.3 Calculation of Natural Gas Price**

- (a) Except as set forth in Section 39.7.1.1.3(b), The CAISO will use different gas price indices for the Day-Ahead Market and the Real-Time Market and a gas price index will be calculated using at least two prices from two or more of the following publications: Natural Gas Intelligence, SNL Energy/BTU's Daily Gas Wire, Platt's Gas Daily, and the Intercontinental Exchange. If a gas price index is unavailable for any reason, the CAISO will use the most recent available gas price index as set forth in Section 39.7.1.1.3(c). For the Day-Ahead Market, the CAISO will update the gas price indices between 19:00 and 22:00 Pacific Time using natural gas prices published on the day that is two (2) days prior to the applicable Trading Day, unless gas prices are not published on that day, in which case the CAISO will use the most recently published prices that are available.
- (b) If a daily gas price reported by the Intercontinental Exchange on the morning of the Day-Ahead Marked run exceeds one hundred twenty-five (125) percent of any natural gas price index calculated for the Day-Ahead Market between 19:00 and 22:00 Pacific Time on the preceding day, the CAISO will utilize the gas price reported by the Intercontinental Exchange in all CAISO cost formulas and market processes for that day's Day Ahead Market that would normally utilize the natural gas price index calculated pursuant to this Section 39.7.1.1.3. For the Day-Ahead

~~Market, the CAISO will use a gas price index based on natural gas prices reported by the Intercontinental Exchange one (1) day prior to the applicable Trading Day between 8:00 and 9:00 a.m. Pacific Time for natural gas deliveries on the Trading Day, which is a volume-weighted average price calculated by the Intercontinental Exchange based on trades transacted that day on the Intercontinental Exchange during its next-day trading window.~~

- (c) ~~For the Real-Time Market, the CAISO will calculate a gas price index using at least two prices from two or more of the following publications: Natural Gas Intelligence, SNL Energy/BTU's Daily Gas Wire, Platt's Gas Daily, and the Intercontinental Exchange. The CAISO will update gas price indices for the Real-Time Market between the hours of 19:00 and 22:00 Pacific Time using natural gas prices published one (1) day prior to the applicable Trading Day for natural gas deliveries on the Trading Day, unless gas prices are not published on that day, in which case the CAISO will use the most recently published prices that are available.~~
- (d) ~~For the Real-Time Market, the CAISO will increase the gas price calculated pursuant to Section 39.7.1.1.1.3(c) for resources receiving gas service from Southern California Gas Company and San Diego Gas & Electric Company by an amount that: (1) improves the dispatch of these resources so that they are more likely to be dispatched to address local needs rather than system needs; (2) better accounts for systematic differences between day-ahead and same-day natural gas prices; and (3) improves the ability to manage the generators' gas usage within applicable gas balancing rules. For applicable resources, the CAISO will initially increase the gas commodity price used in the calculation of Start-Up Costs, Minimum Load Costs, and Transition Costs pursuant to Section 30.4.1.1, and Generated Bids pursuant to Section 40.6.8, by seventy-five (75) percent, and may decrease this amount or increase it further by an amount not to exceed \$2.50/therm plus two (2) times the next-day gas index price calculated pursuant to Section 39.7.1.1.1.3(b). For applicable resources, the CAISO will initially increase the gas commodity price used in the calculation of Default Energy Bids pursuant to Section 39.7.1.1 by twenty-five (25) percent, and may decrease this amount or increase it further by an amount not to exceed one hundred (100) percent. Upon determining that a subsequent change in the gas price~~

~~is necessary after the initial increase, the CAISO will issue a Market Notice specifying the amount of any price change.~~

\* \* \* \*

#### **39.7.1.7 Filings with FERC to Recover Actual Marginal Fuel Procurement Costs**

~~A Scheduling Coordinator for a resource subject to any of the Default Energy Bid Options in Section 39.7.1 may seek to recover actual marginal fuel procurement costs pursuant to a filing with FERC in accordance with Section 30.12.~~

\* \* \* \*

### **39.7.2 Competitive Path Designation**

\* \* \* \*

#### **39.7.2.2 Criteria**

~~(A) Notwithstanding the provisions in Section 39.7.2.2(B), when the CAISO enforces the natural gas constraint pursuant to Section 27.11, the CAISO may deem selected internal constraints to be non-competitive for specific days or hours based on its determination that actual electric supply conditions may be non-competitive due to anticipated electric supply conditions in the Southern California Gas Company and San Diego Gas & Electric Company gas regions.~~

~~(B) Subject to Section 39.7.3, for the DAM and RTM, a Transmission Constraint will be non-competitive only if the Transmission Constraint fails the dynamic competitive path assessment pursuant to this Section 39.7.2.2.~~

(a) Transmission Constraints for the DAM - As part of the MPM process associated with the DAM, the CAISO will designate a Transmission Constraint for the DAM as non-competitive when the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section 39.7.2.2(a):

(i) Counter-flow to the Transmission Constraint means the delivery of Power from a

resource to the system load distributed reference bus. If counter-flow to the Transmission Constraint is in the direction opposite to the market flow of Power to the Transmission Constraint, the counter-flow to the Transmission Constraint is calculated as the shift factor multiplied by the resource's scheduled Power.

Otherwise, counter-flow to the Transmission Constraint is zero.

- (ii) Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers and all internal Virtual Supply Awards not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available capacity reflects the highest capacity of a resource's Energy Bid adjusted for Self-Provided Ancillary Services and derates.
- (iii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply and Virtual Supply Awards that provide counter-flow to the Transmission Constraint.
- (iv) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint.
- (v) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Section 4.5.1.1.12 and all effective internal Virtual Supply Awards of the Scheduling Coordinator and/or Affiliate. Effectiveness in supplying counter-flow is determined by scaling generation capacity and/or Virtual Supply Awards by the shift factor from that location to the Transmission Constraint being tested.
- (vi) A portfolio of a net seller means any portfolio that is not a portfolio of a net buyer. A portfolio of a net buyer means a portfolio for which the average daily net value of Measured Demand minus Supply over a twelve (12) month period is positive. The average daily net value is determined for each portfolio by subtracting, for each Trading Day, Supply from Measured Demand and then averaging the daily value for all Trading Days over the twelve (12) month period. The CAISO will

calculate whether portfolios are portfolios of net buyers in the third month of each calendar quarter and the calculations will go into effect at the start of the next calendar quarter. The twelve (12) month period used in this calculation will be the most recent twelve (12) month period for which data is available. The specific mathematical formula used to perform this calculation will be set forth in a Business Practice Manual. Market Participants without physical resources will be deemed to be net sellers for purposes of this Section 39.7.2.2(a)(vi).

- (vii) In determining which Scheduling Coordinators and/or Affiliates control the resources in the three (3) identified portfolios, the CAISO will include resources and Virtual Supply Awards directly associated with all Scheduling Coordinator ID Codes associated with the Scheduling Coordinators and/or Affiliates, as well as all resources that the Scheduling Coordinators and/or Affiliates control pursuant to Resource Control Agreements registered with the CAISO as set forth Section 4.5.1.1.13. Resources identified pursuant to Resource Control Agreements will only be assigned to the portfolio of the Scheduling Coordinator that has control of the resource or whose Affiliate has control of the resource pursuant to the Resource Control Agreements.

- (b) Transmission Constraints for the RTM - As part of the MPM processes associated with the RTM, the CAISO will designate a Transmission Constraint for the RTM as non-competitive when the sum of the supply of counter-flow from all portfolios of potentially pivotal suppliers to the Transmission Constraint and the fringe supply of counter-flow to the Transmission Constraint from all portfolios of suppliers that are not identified as potentially pivotal is less than the demand for counter-flow to the Transmission Constraint. For purposes of determining whether to designate a Transmission Constraint as non-competitive pursuant to this Section 39.7.2.2(b):

- (i) Counter-flow to the Transmission Constraint has the meaning set forth in Section 39.7.2.2(a)(i).
- (ii) Supply of counter-flow from all portfolios of potentially pivotal suppliers to the

Transmission Constraint means the minimum available capacity from internal resources controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. The minimum available capacity for the current market interval will reflect the greatest amount of capacity that can be physically withheld. The minimum available capacity is the lowest output level the resource could achieve in the current market interval given its dispatch in the last market interval and limiting factors including Minimum Load, Ramp Rate, Self-Provided Ancillary Services, Ancillary Service Awards (in the Real-Time Market only), and derates.

- (iii) Potentially pivotal suppliers mean the three (3) portfolios of net sellers that control the largest quantity of counter-flow supply to the Transmission Constraint that can be withheld. Counter-flow supply to the Transmission Constraint that can be withheld reflects the difference between the highest capacity and the lowest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute FMM interval or the preceding five (5) minute RTD interval, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM, or adjusted for Ancillary Service Awards and derates in determining whether to designate a Transmission Constraint as non-competitive for the FMM. In determining whether to designate a Transmission Constraint as non-competitive for the RTM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the PMin of each Short Start Unit with a Start-Up Time of sixty (60) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval of the FMM. In determining whether to designate a Transmission Constraint as non-competitive for the RTM, counter-flow supply to the Transmission Constraint that can be withheld also reflects the

- PMin of each Short Start Unit with a Start-Up Time of fifteen (15) minutes or less that was off-line in the immediately preceding fifteen (15) minute interval.
- (iv) Portfolio means the effective available internal generation capacity under the control of the Scheduling Coordinator and/or Affiliate determined pursuant to Sections 4.5.1.1.12 and 39.7.2.2(a)(vii). Effectiveness in supplying counter-flow is determined by scaling generation capacity by the shift factor from that location to the Transmission Constraint being tested.
- (v) A portfolio of a net seller has the meaning set forth in Section 39.7.2.2(a)(vi).
- (vi) Fringe supply of counter-flow to the Transmission Constraint means all available capacity from internal resources not controlled by the identified potentially pivotal suppliers that provide counter-flow to the Transmission Constraint. Available capacity reflects the highest capacity of a resource's Energy Bid (not taking into account the Ramp Rate of the resource), measured from the Dispatch Operating Point for the resource in the immediately preceding fifteen (15) minute interval of the FMM or five (5) minute interval of the RTD, as applicable (taking into account the Ramp Rate of the resource), adjusted for Self-Provided Ancillary Services and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM, or adjusted for Ancillary Service Awards and derates in determining whether to designate a Transmission Constraint as non-competitive for the RTM.
- (vii) Demand for counter-flow to the Transmission Constraint means all internal dispatched Supply that provides counter-flow to the Transmission Constraint.

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#### **40.6.8        Use Of Generated Bids**

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##### **40.6.8.1.6        Filings with FERC to Recover Actual Marginal Fuel Procurement Costs**

A Scheduling Coordinator for a resource subject to a Generated Bid may seek to recover actual marginal fuel procurement costs pursuant to a filing with FERC in accordance with Section 30.12.