

Introduction

The CAISO is publishing this paper to address three independent tariff issues: (1) inconsistencies between the tariff definition of “Business Day” and the CAISO’s current settlement practices; (2) a tariff drafting issue associated with the Intertie Deviation Settlement (IDS) initiative affecting the under/over delivery charge of intertie resources; and (3) discrepancies in how long start and short start resources are defined in the tariff and the Scheduling Infrastructure Business Rules (SIBR) for the day ahead and real-time markets.

“Business Day” Issue Summary

The CAISO proposes a tariff clarification to address an inconsistency between the tariff language and the CAISO’s operational practice. The definition of “Business Day” in Appendix A of the tariff excludes all federal holidays, regardless of the CAISO’s observance or non-observance of the holiday. Because the CAISO remains operational on a number of federally-recognized holidays, those days are currently considered business days in the calculation of settlement deadlines, resolution of settlement disputes, and creation of the Payment Calendar. For example, the current preparation of the Payment Calendar considers Columbus Day and Veterans Day as normal business days. However, if they are included as holidays, per the definition of Business Day in Appendix A, publication timelines and weekly invoice periods for T+9B statements and deadlines for T+22B settlement disputes all shift by one day. As a result, the inconsistency between the tariff language and prevailing CAISO practices can create confusion and additional conflicts. Accordingly, the CAISO proposes several amendments to clarify the tariff so that it aligns with ongoing CAISO practices.

In determining the most effective solution, the CAISO considered two approaches: (1) amending the definition of Business Day in Appendix A to include federal holidays that are not observed by the CAISO; or (2) utilizing the undefined phrase (“business day”) to signal a variance from the defined term, applied exclusively to Sections 11.29.7, 11.29.8, 11.29.10, and 11.29.24, while also adding a reference list of affected holidays to the Business Practice Manual. Although Option One requires less change to the tariff language, it has overly broad implications as Business Day is used, as defined, in multiple other sections. Option Two resolves the discrepancy without changing any other sections apart from those related to Settlements and the Payment Calendar. Concurrently, the CAISO will include a list of affected holidays in the BPM so that future modifications, such as the addition of new federal holidays (e.g. Juneteenth), can be made without amending the tariff.

Below are the relevant tariff sections and the proposed tariff amendments implementing Option Two:

TARIFF

11.19.1.2 Annual Charges Assessment

Scheduling Coordinators shall pay FERC Annual Charges assessed against them by the CAISO on a monthly or annual basis. Scheduling Coordinators that pay FERC Annual Charges on a monthly basis shall make the payment for such charges ~~within five (5) Business Days after issuance of the~~ on the Payment Date for any market Invoice or Payment Advice containing the charges. Scheduling Coordinators that must pay FERC Annual Charges on an annual basis shall make the payment for such charges ~~within five (5) Business Days from no later than~~ the Payment Date stated on the Invoice for FERC Annual Charges. For Scheduling Coordinators electing monthly settlement of the FERC Annual Charges, these charges are assessed for a given Trading Month in the same semi-monthly Invoice and Payment Advice containing the market Settlement and Grid Management Charge issued in accordance with the CAISO Payments Calendar.

11.29.7 Settlements Cycle

For Section 11.29.7, the use of the uncapitalized term “business day” refers to a day that the CAISO is open for business. This deviates from the formal definition in Appendix A of the capitalized term “Business Day” because it includes certain holidays that are federally recognized but remain regular operation days for the CAISO. Please see the Business Practice Manual for the most current list of affected holidays.

11.29.7.1 Timing of the Settlements Process

The CAISO will issue: (i) Initial Settlement Statements T+9B on the ninth (9) ~~Business Day~~ business day from the relevant Trading Day (T+9B); (ii) Recalculation Settlement Statements T+70B on the seventieth (70) ~~Business Day~~ business day from the relevant Trading Day (T+70B); (iii) Recalculation Settlement Statements T+11M on the two hundred thirty-fourth (234) ~~Business Day~~ business day after the Trading Day, which is approximately eleven (11) months after the Trading Day (T+11M), if necessary; (iv) Recalculation Settlement Statements T+21M on the four hundred forty-sixth (446) ~~Business Day~~ business day after the Trading Day, which is approximately twenty-one (21) calendar months from the relevant Trading Day (T+21M), if necessary; (v) Recalculation Settlement Statements T+24M on the five hundred twelfth (512) ~~Business Day~~ business day after the Trading Day, which is approximately twenty-four (24) calendar months from the relevant Trading Day (T+24M), if necessary and (vi) any Unscheduled Recalculation Settlement Statement issued pursuant to Section 11.29.7.3. The CAISO will issue a Market Notice if a Recalculation Settlement Statement T+11M, Recalculation Settlement Statement T+21M, Recalculation Settlement Statement T+24M, or any Unscheduled Recalculation Settlement Statement pursuant to Section 11.29.7.3 is issued for a Trading Day. The CAISO will notify affected Market Participants regarding failed or late issuance of any settlement statements specified above and will rectify such failed or late issuance pursuant to its procedure posted on the CAISO Website.

11.29.7.1.1 Initial Settlement Statement T+9B

The CAISO will provide to each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO for validation an Initial Settlement Statement T+9B for each Trading Day within nine (9) ~~Business Day~~ business days of the relevant Trading Day, covering all Settlement Periods in that Trading Day. The Initial Settlement Statement T+9B shall be based on the Settlement Quality Meter Data (actual or Scheduling Coordinator estimated) received in SQMDS. In the event Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received from a

Scheduling Coordinator or CAISO Metered Entity, the CAISO will estimate Settlement Quality Meter Data for that outstanding metered Demand or Generation, including Demand Response Resources, for the Initial Settlement Statement T+9B calculation as follows:

- (a) CAISO Estimated Settlement Quality Meter Data for metered Generation will be based on total Expected Energy.
- (b) CAISO Estimated Settlement Quality Meter Data for metered Demand, including Non-Participating TO demand will be based on Scheduled Demand by the appropriate LAP. This value will be increased by fifteen (15) percent if the total actual system Demand in Real Time, as determined by the CAISO each hour, is greater than the total Scheduled Demand by more than fifteen (15) percent. CAISO Estimated Settlement Quality Meter Demand for Participating Load will not be increased by fifteen (15) percent.
- (c) CAISO Estimated Settlement Quality Meter Data for Demand Response will be calculated using the same method as set forth in Section 11.1.4(a) for metered Generation.
- (d) To estimate net load for a Metered Subsystem, the CAISO will apply a monthly historical based net/gross ratio to the MSS's estimated gross load. The historical monthly ratio shall be specific to each MSS Operator and shall be calculated as the sum of each entity's monthly actual net load divided by the sum of each entity's monthly actual gross load of the previous year.

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11.29.7.4 Settlement Cycle for Trading Days before January 1, 2021

For Trading Days January 1, 2018 through December 31, 2020 only, the following additional rules apply:

11.29.7.4.1 Timing of Settlements Process

Instead of the Settlement Statements identified in Section 11.29.7.1, the CAISO will publish Settlement Statements as follows:

- (a) Initial Settlement Statements T+3B on the third (3) ~~Business Day~~business day from the relevant Trading Day (T+3B);
- (b) Recalculation Settlement Statements T+12B on the twelfth (12) ~~Business Day~~business day from the relevant Trading Day (T+12B);
- (c) Recalculation Settlement Statements T+55B on the fifty-fifth (55) ~~Business Day~~business day from the relevant Trading Day (T+55B);
- (d) Recalculation Settlement Statements T+9M on the one-hundred and ninety-fourth (194) ~~Business Day~~business day after the Trading Day, which is approximately nine (9) months after the Trading Day (T+9M), if necessary;
- (e) Recalculation Settlement Statements T+18M on the three hundred and eighty third (383) ~~Business Day~~business day after the Trading Day, which is approximately eighteen (18) calendar months from the relevant Trading Day (T+18M), if necessary;
- (f) Recalculation Settlement Statements T+33M on the six hundred and ninety-third (693) ~~Business Day~~business day after the Trading Day, which is approximately thirty-three (33) calendar months from the relevant Trading Day (T+33M), if necessary; and

(g) Recalculation Settlement Statements T+36M on the seven hundred and fifty-ninth (759) [Business Daybusiness day](#) after the Trading Day, which is approximately thirty-six (36) calendar months from the relevant Trading Day (T+36M), if necessary.

11.29.7.4.2 Initial Settlement Statement T+3B

The CAISO will provide to each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO for validation an Initial Settlement Statement T+3B for each Trading Day within three (3) [Business Daybusiness day](#)s of the relevant Trading Day, covering all Settlement Periods in that Trading Day. Each Initial Settlement Statement T+3B will be solely based on CAISO Estimated Settlement Quality Meter Data in accordance with Section 11.29.7.4.3. The Initial Settlement Statement T+3B will include the following:

- (a) the amount payable or receivable by the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO for each charge referred to in Section 11 for each Settlement Period in the relevant Trading Day;
- (b) the total amount payable or receivable by that Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO for each charge in that Trading Day after the amounts payable and the amounts receivable under (a) have been netted off pursuant to Section 11.29; and
- (c) the components of each charge.

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11.29.7.4.4 Meter Data and SQMD for Recalculation Settlement State T+12B

(a) The CAISO's Recalculation Settlement Statement T+12B shall be based on the Settlement Quality Meter Data (actual or Scheduling Coordinator estimated) received in SQMDS. In the event Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data is not received from a Scheduling Coordinator or CAISO Metered Entity, the CAISO will estimate Settlement Quality Meter Data for that outstanding metered Demand or Generation, including Demand Response Resources, for the Recalculation Settlement Statement T+12B calculation. CAISO Estimated Settlement Quality Meter Data for metered Generation, metered Demand, and Demand Response will be calculated using the same method as set forth in Section 11.29.7.4.3.

(b) Scheduling Coordinators must submit Actual Settlement Quality Meter Data for the Scheduling Coordinator Metered Entities they represent to the CAISO no later than midnight on the forty-eighth (48) [Business Daybusiness day](#) after the Trading Day (T+48B) for the Recalculation Settlement Statement T+55B calculation. A Scheduling Coordinator that timely submits Actual Settlement Quality Meter Data for the Initial Settlement Statement T+12B may submit revised Actual Settlement Quality Meter Data for the Recalculation Settlement Statement T+55B no later than the forty-eighth (48) [Business Daybusiness day](#) after the Trading Day pursuant to this Section.

(1) When Actual Settlement Quality Meter Data is not received by the CAISO for a Scheduling Coordinator Metered Entity by forty-eight (48) [Business Daybusiness days](#) after the Trading Day (T+48B), the Scheduling Coordinator has failed to submit complete and accurate meter data as required by Section 37.5.2.1 and will be subject to monetary penalty pursuant to Section 37.5.2.2.

(2) Any Scheduling Coordinator Estimated Settlement Quality Meter Data submitted by a Scheduling Coordinator on behalf of the Scheduling Coordinator Metered Entities it represents that is not replaced with Actual Settlement Quality Meter Data by forty-eight (48) [Business Daybusiness days](#) after the Trading Day (T+48B) has failed to submit complete and accurate meter data as required by Section 37.5.2.1 and will be subject to monetary penalty pursuant to Section 37.5.2.2. In the absence of Actual

Settlement Quality Meter Data, Scheduling Coordinator Estimated Settlement Quality Meter Data will be used in the Recalculation Settlement Statements.

(3) The CAISO will not estimate a Scheduling Coordinator Metered Entity's Settlement Quality Meter Data for any outstanding metered Demand and/or Generation for use in a Recalculation Settlement Statement T+55B calculation. Any previous CAISO Estimated Settlement Quality Meter Data that the Scheduling Coordinator does not replace with Actual Settlement Quality Meter Data by forty-eight (48) ~~Business Day~~ business days after the Trading Day (T+48B) will be set to zero. A Scheduling Coordinator that fails to replace CAISO Estimated Settlement Quality Meter Data with Actual Settlement Quality Meter Data by forty-eight (48) ~~Business Day~~ business days after the Trading Day (T+48B) has failed to provide complete and accurate Settlement Quality Meter Data as required by Section 37.5.2.1 and will be subject to monetary penalty pursuant to Section 37.5.2.2.

(c) Scheduling Coordinators may submit Actual Settlement Quality Meter Data for the Scheduling Coordinator Metered Entities they represent to the CAISO for use in Recalculation Settlement Statement T+9M up to one hundred seventy two ~~Business Day~~ business days after the Trading Day (T+172B). Scheduling Coordinators submitting Actual Settlement Quality Meter Data after forty-eight ~~Business Day~~ business days after the Trading Day (T+48B) have failed to provide complete and accurate Settlement Quality Meter Data as required by Section 37.5.2.1 and will be subject to monetary penalty pursuant to Section 37.5.2.2. Any Actual Settlement Quality Meter Data that is submitted by a Scheduling Coordinator after T+172B, will be rejected by the CAISO and not used in settlement calculations.

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11.29.7.4.8 Validation of Recalculation Settlement Statements and Right of Dispute

(a) Each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO will have the opportunity to review the terms of any Recalculation Settlement Statement that it receives, and the right to dispute items in Recalculation Settlement Statements as described in subsection (b)(ii). The Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO will be deemed to have validated each Recalculation Settlement Statement unless it has raised a dispute or reported an exception that satisfies the requirements of subsection (b). Once validated, a Recalculation Settlement Statement will be binding, meaning that the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO that it relates to waives any and all right to bring any form of legal or equitable challenge in any forum to any of the charges or credits on the Recalculation Settlement Statement.

(b) A dispute or exception must satisfy requirements (i) through (v) below.

(i) Contents of Notice. The notice of the dispute, if any, must clearly state: the Trading Day; the issue date of the Recalculation Settlement Statement; which Recalculation Settlement Statement contains the disputed item (*i.e.*, T+12B, T+9M, etc.); the item disputed; the reasons for the dispute; and the amount claimed (if appropriate). In addition, the notice of dispute must be accompanied with all available evidence reasonably required to support the claim;

(ii) Items subject to dispute. With respect to a Recalculation Settlement Statement T+12B or a Recalculation Settlement Statement T+55B, any item is subject to dispute except for CAISO or Scheduling Coordinator Estimated Settlement Quality Meter Data. With respect to a Recalculation Settlement Statement T+9M, Recalculation Settlement Statement T+18M, Recalculation Settlement Statement T+33M, the only items subject to dispute are incremental changes that appear on that Recalculation Settlement Statement, meaning a change in dollar value of a specific Charge Code or any new Charge Codes or Trading Day charges appearing for the first time. An incremental change may include the manner in which the CAISO implemented adjustments in response to a dispute that it accepted;

(iii) T+36M not subject to dispute. Recalculation Settlement Statement T+36M will not be subject to either a dispute by a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO, or adjustment by the CAISO, except as directed by the CAISO Governing Board or by an order issued by FERC. Nothing herein shall be construed to restrict the right of the CAISO or any Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO to seek redress from FERC in accordance with the Federal Power Act;

(iv) Means of submittal. The notice of dispute must be submitted through the means specified in the Business Practice Manual;

(v) Deadline: A dispute of a Recalculation Settlement Statement T+12B must be submitted no later than fourteen (14) Business Daybusiness days from the date of issuance. A dispute of a Recalculation Settlement Statement T+55B, a Recalculation Settlement Statement T+9M, a Recalculation Settlement Statement T+18M, a Recalculation Settlement Statement T+33M, or an Unscheduled Recalculation Settlement Statement issued pursuant to either Section 11.29.7.3 or Section 11.29.7.4.6 must be submitted no later than twenty-two (22) Business Daybusiness days from the date of issuance.

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11.29.8 Confirmation and Validation

For Section 11.29.8, the use of the uncapitalized term "business day" refers to a day that the CAISO is open for business. This deviates from the formal definition in Appendix A of the capitalized term "Business Day" because it includes certain holidays that are federally recognized but remain regular operation days for the CAISO. Please see the Business Practice Manual for the most current list of affected holidays.

11.29.8.1 Confirmation

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11.29.8.2 Validation of Recalculation Settlement Statements and Right of Dispute

(a) Each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO will have the opportunity to review the terms of any Settlement Statement that it receives, and the right to dispute items in Settlement Statements described in subsection (b)(ii). The Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO will be deemed to have validated each Settlement Statement unless it has raised a dispute or reported an exception that satisfies the requirements of subsection (b). Once validated, a Settlement Statement will be binding, meaning that the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO that it relates to waives any and all right to bring any form of legal or equitable challenge in any forum to any of the charges or credits on the Settlement Statement.

(b) A dispute or exception must satisfy requirements (i) through (v) below.

(i) Contents of Notice. The notice of the dispute, if any, must clearly state: the Trading Day; the issue date of the Settlement Statement; which Recalculation Settlement Statement contains the disputed item (*i.e.*, T+9B, T+11M, etc.); the item disputed; the reasons for the dispute; and the amount claimed (if appropriate). In addition, the notice of dispute must be accompanied with all available evidence reasonably required to support the claim;

- (ii) Items subject to dispute. With respect to an Initial Settlement Statement T+9B, and Recalculation Settlement Statement T+70B any item is subject to dispute except for CAISO or Scheduling Coordinator Estimated Settlement Quality Meter Data. With respect to a Recalculation Settlement Statement T+11M, Recalculation Settlement Statement T+21M, the only items subject to dispute are incremental changes that appear on that Recalculation Settlement Statement, meaning a change in dollar value of a specific Charge Code or any new Charge Codes or Trading Day charges appearing for the first time. An incremental change may include the manner in which the CAISO implemented adjustments in response to a dispute that it accepted;
- (iii) T+24M not subject to dispute. Recalculation Settlement Statement T+24M will not be subject to either a dispute by a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO, or adjustment by the CAISO, except as directed by the CAISO Governing Board or by an order issued by FERC. Nothing herein shall be construed to restrict the right of the CAISO or any Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TOs to seek redress from FERC in accordance with the Federal Power Act.
- (iv) Means of submittal. The notice of dispute must be submitted through the means specified in the Business Practice Manual;
- (v) Deadline: A dispute of a Settlement Statement must be submitted no later than twenty-two (22) [Business Daybusiness days from](#) the date of issuance.

11.29.8.3 [Not Used]

11.29.8.4 Recurring Disputes or Exceptions

A Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO may request the CAISO to treat as recurring a dispute or exception raised in accordance with Sections 11.29.8.2 above. A request for recurring treatment may be made for any valid reason provided that Settlement Statements for subsequent Trading Days would be affected, including, but not limited to, that the disputed calculation will recur, or that a disagreement as to policy will affect calculations in subsequent Settlement Statements. If a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO wishes to request that the CAISO treat a dispute as recurring, it must, in the notice, clearly indicate that it requests such treatment and set forth in detail the reasons that support such treatment. To the extent possible, the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO must state the types of charges and dates to which the dispute will apply, and provide estimates of the amounts that will likely be claimed on each date.

The CAISO will make a determination on such a request within five (5) [business days Business Days](#) of receipt. To preserve its right to dispute an item, a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO must continue to raise a dispute or report an exception until it is notified by the CAISO that the CAISO agrees to treat the dispute or exception as recurring. If the CAISO grants a request to treat a dispute or exception as recurring, the dispute raised or exception reported by the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO will be deemed to apply to every subsequent Settlement Statement provided to the Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO from the date that the CAISO grants the request for recurrent treatment until: a) ninety (90) days have elapsed, unless the CAISO indicates a different expiration date on its response to the request, in which case the expiration date shall be as stated by the CAISO in its response; or b) the dispute or exception is resolved, whichever is shorter. The CAISO may deny a request that the CAISO treat a dispute as recurring for any valid reason, including because the request is not adequately specific as to the basis for recurring treatment or the subsequent calculations that will be affected.

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11.29.8.5 CAISO Timeline for Determining Settlement Statement Disputes

The timeline for the CAISO to reach a determination on a settlement statement dispute will be as follows:

(a) The CAISO will reach a determination to approve or deny a dispute, and provide electronic notice of the outcome to the Scheduling Coordinator that submitted the dispute, no later than thirty-one (31) ~~Business Day~~business days after the end of the dispute period for that settlement statement; with the exception of complex disputes or unless otherwise agreed to by the disputing Scheduling Coordinator. In the event that the CAISO's determination results in an adjustment to payments and/or charges, the CAISO in its notice to the disputing Scheduling Coordinator will identify the subsequent recalculation settlement statement expected to include the adjustment.

(b) Complex settlement statement disputes involve policy considerations, entail extensive research, require granular review of previous market runs, include complicated data or calculations, or depend on additional information to be provided by the disputing Scheduling Coordinator or a third party. The CAISO in its sole discretion may designate a settlement statement dispute to be a complex dispute. The CAISO will advise the disputing Scheduling Coordinator within thirty-one (31) ~~Business Day~~business days after the end of the dispute period for that settlement statement if a dispute is a complex dispute. The CAISO will make reasonable efforts to reach a determination to approve or deny a complex dispute resulting from: (i) an Initial Settlement Statement T+9B no later than nine (9) months after the Trading Day so that any resultant adjustment will be included on the Recalculation Settlement Statement T+11M; and (ii) Recalculation Settlement Statement T+70B or a Recalculation Settlement Statement T+11M and an Unscheduled Recalculation Settlement Statement, no later than nineteen (19) months after the Trading Day so that any resultant adjustment will be included on the Recalculation Settlement Statement T+21M.

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11.29.10 Billing and Payment

The CAISO shall prepare and issue to each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO an Invoice or Payment Advice on Wednesday of each week, which will be deemed to have been issued on Wednesday if it is issued by 5:00 a.m. the next calendar day. If Wednesday falls on a ~~CAISO~~ holiday, the CAISO will issue the Invoice or Payment Advice on the next ~~Business Day~~business day. Each Invoice or Payment Advice shall show the amount that is payable by or to each Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO, which amount shall equal the positive or negative total of all net charges reflected on the relevant Settlement Statements, the Payment Date, being the date on which such amounts is to be paid or received, and details of the CAISO Clearing Account to which any amounts owed by or to Scheduling Coordinators, CRR Holder, Black Start Generator, or Participating TO is to be paid. Revenues owed from a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO that is a CAISO Debtor are expressed as a positive amount on an Invoice. Revenues owed to a Scheduling Coordinator, CRR Holder, Black Start Generator, or Participating TO that is a CAISO Creditor are expressed as a negative amount on a Payment Advice. Payments or charges for the items referred to in an Invoice shall be made four (4) ~~Business Day~~business days after the date on which the weekly Invoice or Payment Advice is issued. If the fourth (4) ~~Business Day~~business day after an Invoice or Payment Advice is issued falls on a ~~federal~~ ~~CAISO~~ holiday, then the Payment Date for the Invoice or Payment Advice shall be the next ~~Business Day~~business day.

For Section 11.29.10, the use of the ~~uncapitalized~~ term "business day" refers to a day that the CAISO is open for business. This deviates from the formal definition in Appendix A of the ~~capitalized~~ term "Business Day" because it includes certain holidays that are federally recognized but remain regular

[operation days for the CAISO. Please see the Business Practice Manual for the most current list of affected holidays.](#)

11.29.10.1 Billing Periods

Each Invoice or Payment Advice will include Settlement Statements as provided in the CAISO Payments Calendar. Each billing period will be shown and totaled separately on the Invoice or Payment Advice but the net Invoice or Payment Advice will reflect the entity's net financial obligations in all billing periods included on the Invoice or Payment Advice.

11.29.10.2 Interest

Interest will be applied to any Incremental Changes between Initial Settlement Statement T+9B and Recalculation Settlement Statement T+70B, and thereafter to any Incremental Changes between each subsequent Recalculation Settlement Statement through Recalculation Settlement Statement T+24M. Interest will be calculated on a daily basis and will apply from the Payment Date for the Invoice of Payment Advice to the Payment Date for the next Recalculation Settlement Statement. The rate of interest will be the interest rate calculated in accordance with 18 C.F.R. 35.19a of FERC's regulations.

11.29.10.3 Other Invoicing Provisions

The Invoices or Payment Advices will also include any disbursements associated with a shortfall receipt distribution.

A separate Invoice for the FERC Annual Charges due annually will be issued by the CAISO to the Scheduling Coordinator in accordance with Section 11.19.1.2. The CAISO will issue separate Invoices for NERC/WECC Charges as described in Section 11.20.

A shortfall invoice showing the adjustments to payments resulting from any shortfall allocation will be issued by the CAISO to Scheduling Coordinators in the event of a payment default in accordance with Section 11.29.17.1.

In the event of an allocation of a payment default in accordance with Section 11.29.17.2, the CAISO may issue a shortfall invoice to Default-Invoiced SCIDs pursuant to Section 11.29.17.2.1.

Unscheduled Directed Recalculation Settlement Statements, and the financial outcomes of CAISO ADR Procedures and any other dispute resolution may be invoiced separately from market activities. The CAISO shall provide a Market Notice at least five (5) [Business Day](#) [business days](#) prior to such invoicing identifying the components of such Invoice or Payment Advice.

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11.29.24 CAISO Payments Calendar

[For Section 11.29.24, the use of the term "business day" refers to a day that the CAISO is open for business. This deviates from the formal definition in Appendix A to include several holidays which are federally recognized but remain regular operation days for the CAISO. Please see the Business Practice Manual for the most current list of affected holidays.](#)

-11.29.24.1 Preparation

In September of each year, the CAISO will prepare a draft CAISO Payments Calendar for the following calendar year showing for each Trading Day:

- (a) The date by which Scheduling Coordinators are required to provide Actual Settlement Quality Meter Data or Scheduling Coordinator Estimated Settlement Quality Meter Data for all their Scheduling Coordinator Metered Entities for each Settlement Period in the Trading Day;
- (b) The date on which the CAISO will issue Initial Settlement Statements T+9B and Invoices and Payment Advices for that Trading Day;
- (c) The date on which the CAISO will issue the Recalculation Settlement Statements T+70B; T+11M, T+21M, and T+24M, and Invoices and Payment Advices for that Trading Day;
- (d) The dates by which Scheduling Coordinators, CRR Holders, Black Start Generators, and Participating TOs are required to notify the CAISO of any disputes in relation to their Initial Settlement Statements T+9B, Recalculation Settlement Statements T+70B, T+11M, and T+21M;
- (e) The date and time by which CAISO Debtors are required to have made payments into the CAISO Clearing Account in payment of Invoices for that Trading Day;
- (f) The dates and times on which the CAISO Clearing Account will remit payments to the CAISO Creditors of amounts owing to them for that Trading Day; and
- (g) In relation to RMR Charges and RMR compensation, the details are set out in Sections 11.13 and 41 and Appendix H for Legacy RMR Units.

The CAISO will make a draft of the CAISO Payments Calendar available on the CAISO Website to Scheduling Coordinators, CRR Holders, Black Start Generators, Participating TOs, and RMR Owners that may submit comments and objections to the CAISO within two weeks of the date of posting of the draft on the CAISO Website. No later than October 31 in each year, the CAISO will publish the final CAISO Payments Calendar for the following calendar year, after considering the comments and objections received from Scheduling Coordinators, CRR Holders, Black Start Generators, Participating TOs, and RMR Owners. The final CAISO Payments Calendar will be posted on the CAISO Website, and will show for the period from January 1 to December 31 in the next succeeding year (both dates inclusive), the dates that Settlement Statements will be published by the CAISO and the Payment Dates that the CAISO will pay the Participating TOs the Wheeling revenues allocated to them pursuant to Section 26.1.4.3.

Appendix A

Master Definitions Supplement

- Business Day

Monday through Friday, excluding federal holidays and the day after Thanksgiving Day. The undefined term 'business day' as used in some subsections of Section 11.29 refers to all days on which the CAISO is open for business, including certain days that are recognized as federal holidays but remain regular operation days for the CAISO. Please see the Business Practice Manual for the most current list of affected holidays.

Intertie Deviation Settlement (IDS) Issue Summary

The CAISO has identified a tariff drafting issue associated with the IDS initiative. To address this error, the CAISO proposes bringing the tariff into full alignment with the Draft Final Proposal of the IDS initiative, which is how the CAISO implements the Under/Over Deliver Price rules applicable to Intertie Awards for Hourly Block Resources.

On May 22, 2020, the CAISO filed tariff amendments in docket no. ER20-1890 to enhance several parts of its market rules regarding the treatment of energy transactions scheduled at its interties. A major element of the filing was to strengthen the CAISO's non-delivery charge for deviations from scheduled intertie transactions by replacing the "Decline Potential Charge" with a new "Under/Over Delivery Charge."

The Commission accepted the proposed revisions through an order issued on September 17, 2020.¹ The CAISO ultimately implemented the new under/over delivery charge on February 1, 2021. With several months of experience under this new penalty mechanism, the CAISO has identified several targeted tariff clarifications to ensure the policy intent behind the under/over delivery charge is realized fully.

Under the tariff revisions, for each fifteen-minute market interval, the CAISO assesses an *under/over delivery charge* to a scheduling coordinator with an intertie transaction if the intertie resource supporting that transaction has a positive *under/over delivery quantity*. The under/over delivery charge equals the intertie resource's under/over delivery quantity multiplied by the *under/over delivery price* for the resource's corresponding intertie in that FMM interval.

The under/over delivery quantity for a fifteen-minute market interval is the difference between the quantity awarded in the hour-ahead scheduling process (HASP) and the final energy profile on the E-Tag.² The CAISO excludes several categories of deviations from the under/over delivery quantity, including cases where a "Balancing Authority or EIM Transmission Service Provider curtailed the delivery for reliability reasons."³

The under/over delivery price generally is 50 percent of the highest LMP at the relevant intertie during the fifteen-minute period, subject to a minimum price of \$10.⁴ The CAISO charges an enhanced under/over delivery price of 75 percent where a scheduling coordinator accepts an award in the automated dispatch system (ADS) and

¹ *Cal. Indep. Sys. Operator Corp.*, 172 FERC ¶ 61,234 (2020) (September 17 Order).

² CAISO tariff sections 11.31.1.1 (determining quantity for hourly block schedules) and 11.31.1.2 (determining quantity for fifteen-minute dispatchable resources).

³ CAISO tariff section 11.31.1.3.

⁴ CAISO tariff section 11.31.2. Specifically, the CAISO evaluates four separate LMPs in determining the penalty price—the LMP for the fifteen-minute interval and the LMP for the three five-minute RTD intervals corresponding to the FMM interval.

does not deliver the awarded energy. The enhanced price is also subject to a \$10 minimum price.

The CAISO has identified three ways the tariff rules related to the enhanced 75 percent penalty do not implement the policies underlying the under/over delivery charge. The CAISO now proposes targeted tariff amendments to address these three issues.

The first issue is that the enhanced penalty does not apply to over-deliveries. Section 11.31.2 applies the enhanced penalty if ADS “recognizes a Scheduling Coordinator as accepting an award at an Intertie . . . and the awarded Energy *is not delivered*”⁵ The phrase “is not delivered” means that an over-delivery cannot trigger the enhanced penalty. As the CAISO explained in its initial May filing, deviations from an accepted intertie schedule are particularly harmful because they give the CAISO less time to adjust to the deviation than where a scheduling coordinator notifies the CAISO upfront that it will not deliver on an awarded intertie transaction. The CAISO explained that the enhanced penalty “will incent scheduling coordinators to timely give CAISO system operators the information they need to take actions to better ensure reliability, such as manually dispatching a resource to provide the energy not delivered by a scheduling coordinator under its scheduled intertie transaction.”⁶ This rationale applies equally to under- and over-deliveries. Of particular concern is the case where a scheduling coordinator accepts an export transaction in ADS and over-delivers to the intertie at which it seeks to export. The impact on the CAISO is no different than where a scheduling coordinator under-delivers on an accepted import. The penalty should be the same to recognize that reality. To address this concern, the CAISO now proposes that the enhanced penalty will apply where the “final quantity of the Energy profile on the Intertie transaction’s E-Tag is not equal to the quantity accepted in ADS”⁷ This change will create needed symmetry for the enhanced penalty between under- and over-deliveries relative to the quantity accepted in ADS.

The second concern is the provisions on the enhanced penalty did not contemplate that in a fifteen-minute interval, a scheduling coordinator could deviate from its HASP award both because of a reliability curtailment *and* because it did not secure the energy needed for the intertie transaction. A simple example highlights this scenario. Assume in a fifteen-minute interval a scheduling coordinator is awarded a 100 MW import schedule. The scheduling coordinator then timely notifies the CAISO through ADS it will deliver only 80 MW to the CAISO. Then that import is subject to a 30 MW reliability curtailment, meaning that the energy profile on the final E-Tag shows an import of 50 MW. The CAISO will exclude from the under/over delivery quantity the 30 MW undelivered due to the reliability curtailment, meaning the quantity subject to charge is 20 MW. However, in this scenario the energy profile is still lower than the quantity

⁵ CAISO tariff section 11.31.2 (emphasis added).

⁶ [p. 24 of initial filing].

⁷ Amended section 11.31.2.

accepted in ADS and the scheduling coordinator would face the enhanced penalty. This is an inappropriate outcome because, absent the reliability curtailment over which it had no control, the scheduling coordinator would have faced the standard 50 percent penalty. The CAISO thus proposes to amend the tariff to clarify that if the deviation between the ADS-accepted quantity and the final energy profile quantity is equal to the curtailment amount, then the scheduling coordinator will face the 50 percent penalty.⁸

The third concern is that the floor price in applying the enhanced penalty is the same as the standard penalty scenario. This means that when market prices are low, a scheduling coordinator subject to the enhanced penalty either does not face a materially higher penalty or faces no penalty enhancement. Specifically, if the highest price in a fifteen-minute interval is \$13.33 or below, then under the current provisions, a scheduling coordinator faces the same penalty regardless of what happens with ADS.⁹ When the price is \$13.33, the penalty price under the standard penalty scenario is \$10 because a 50 percent penalty would be \$6.65 and thus the \$10 floor price would apply. In the enhanced scenario, the penalty price also would be \$10 because 75 percent of \$13.33 is \$9.99, meaning that the \$10 floor applies. Once the market price goes to \$13.34, then a 75 percent penalty would be \$10.01 and the \$10 floor no longer would apply. Even here, the penalty is enhanced by only one cent. These outcomes do not reflect the policy that accepting a schedule in ADS and then deviating from it should subject a scheduling coordinator to a larger penalty. To address this oversight, the CAISO proposes to raise the floor price in the enhanced penalty scenario to \$15 so it is proportional to the difference between a 50 percent and 75 percent penalty.

[The CAISO proposes the tariff clarification below to align the tariff with policy and implementation. For reference, the CAISO is also providing the relevant excerpts from the draft final proposal and the specific Business Requirements \(BRQs\):](#)

TARIFF

11.31.1 Determining the Under/Over Delivery Quantity

11.31.1.1 Under/Over Delivery Quantity for Hourly Block Schedules For Self-Schedule Hourly Blocks for Energy and Ancillary Services and Economic Hourly Block Bids for Energy and Ancillary Services, and Economic Hourly Block Bids with Intra-Hour Option for Energy, the Under/Over Delivery Quantity is the

⁸ Amended section 11.31.2 (enhanced penalty applies if energy profile differs from ADS-accepted quantity “for any reason other than a reliability-based curtailment covered by Section 11.31.1.3.”

⁹ When the price is \$13.33, the penalty price under the standard penalty scenario is \$10 because a 50 percent penalty would be \$6.65 and thus the \$10 floor price would apply. In the enhanced scenario, the penalty price also would be \$10 because 75 percent of \$13.33 is \$9.99, meaning that the \$10 floor applies. Once the market price goes to \$13.34, then a 75 percent penalty would be \$10.01 and the \$10 floor no longer would apply.

absolute value of the difference between the: (1) HASP Block Intertie Schedule or HASP Advisory Schedule, as appropriate; and (2) final quantity of the Energy profile on the Intertie transaction's E-Tag. In the case of an Exceptional Dispatch or other manual Dispatch Instruction, the Under/Over Delivery Quantity is the absolute value of the difference between the: (1) Exceptional Dispatch or manual Dispatch Instruction quantity; and (2) final quantity of the Energy profile on the Intertie transaction's E-Tag

11.31.2 Determining the Under/Over Delivery Price If ADS recognizes a Scheduling Coordinator as accepting an award at an Intertie (either because the Scheduling Coordinator actively accepts the award or because the Scheduling Coordinator fails to decline it) and the [final quantity of the Energy profile on the Intertie transaction's E-Tag is not equal to the quantity accepted in ADS for any reason other than a reliability-based curtailment covered by Section 11.31.1.3, awarded Energy is not delivered](#), then the Under/Over Delivery Price is the greater of: (a) 75% of the LMP in the corresponding FMM interval at the intertie where the resource was scheduled; (b) 75% of the highest LMP among the three RTD intervals corresponding to the FMM interval at the intertie where the resource was scheduled; or (c) ~~\$15.00~~**\$10.00**. In all other cases, the Under/Over Delivery Price is the greater of: (a) 50% of the LMP in the corresponding FMM interval at the Intertie where the resource was scheduled; (b) 50% of the highest LMP among the three RTD intervals corresponding to the FMM interval at the Intertie where the resource was scheduled; or (c) \$10.00.

DRAFT FINAL PROPOSAL

7.9 Price and Allocation of the Under/Over Delivery Charge

- Because the CAISO cannot predict whether the fifteen-minute or real-time dispatch price will be higher, the CAISO believes it is appropriate that the under/over delivery charge is equal to 50% of the greater of the real-time dispatch or fifteen-minute market locational marginal price.
- The intent of the under/over delivery charge is to incentivize market participants to accept their hour-ahead scheduling process award and deliver the award energy. If deviations occur, the charge is applied. However, based on the logic described above, scheduling coordinators would be paid for deviations if pricing is negative. This would potentially incentivize deviations when pricing is negative – payment for deviations would contradict the purpose of the under/over delivery charge. Therefore, the CAISO proposes to keep the floor of \$10 for the under/over delivery charge.

7.10 Accept/Decline Functionality in the Automated Dispatch System

- The CAISO always expects energy awarded in HASP to be delivered. If, however, the energy cannot be delivered, it is beneficial for the scheduling coordinator not notify the CAISO prior to the fifteen-minute market run. This enables the CAISO grid operator to manually dispatch if necessary. The CAISO market is most negatively impacted when a scheduling coordinator accepts an award in the automated dispatch system but fails to deliver the energy. To address this concern, the ISO proposes an additional 25% charge at the greater of the FMM or RTD LMP when the scheduling coordinator accepts an award in ADS but fails to deliver the energy. Said differently, if a scheduling coordinator fails to decline the award in ADS and subsequently does not deliver the energy, the additional 25% will apply. The additional 25% will apply to the entire portion of the under/over delivered quantity as defined in section 7.4.

BRS

IDS-
BRQ021

The under/over delivery charge shall be settled at a price equal to 50% of the greater of the real-time dispatch or 15-minute locational marginal price. This



	charge shall be applied for each interval in which an under/over delivery quantity is calculated.
IDS-BRQ023	System shall keep a floor of \$10 for the under/over delivery charge.
IDS-BRQ024	System shall levy an additional 25% charge at the greater of the FMM or RTD LMP when the scheduling coordinator accepts an award in ADS but fails to deliver the energy. The 25% charge will apply to the entire portion of the under/over delivered quantity.

Short/Long Start Tariff Amendments Issue Summary

The CAISO proposes tariff amendments to address inconsistencies between how the CAISO has defined short start and long start resources in the tariff. For example, a Short Start Unit is currently defined in terms of both start up time and minimum run time, whereas the current definition of Long Start Units does not include minimum run time. SIBR and the CAISO markets use both start up time and minimum run time for commitment decisions. This means that certain resources which do not meet the definition of a long start unit are nonetheless treated as long start resources in the market software.

Consequently, this discrepancy becomes an issue for the application of RAIM penalties. Long start resources for resource adequacy that are not picked up in the day-ahead market are not obligated to submit bids in the real-time market. Due to the misalignment of the current definition of Long Start Units with SIBR and the market, they are at risk for RAIM penalties if they do not submit bids because the RAIM penalty is tied to the tariff definition. The proposed tariff clarifications will include both start up and minimum run time and will be aligned with the SIBR and market time lines for the day-ahead and real time markets. In addition, the CAISO has simplified the definitions and related tariff sections for resources that are startable in the day ahead or real-time market. Resources startable in the day-ahead market are the Long Start resources and the resources startable in the real-time market are the Short Start resources. We are proposing to eliminate as unnecessary the definitions of Fast Start and Medium Start. Finally the CAISO is updating the timing to align more accurately with the SIBR and market timelines.

[Below are summaries of the proposed Market System and RAIM changes:](#)

Summary of Market System Changes*

Generator Commitments	Today	After change
Real-Time and Day Ahead Markets	Cycle time less than or equal to 270 minutes	Cycle time less than or equal to 240 minutes
Day-Ahead Market Only	Cycle time greater than 270 minutes and Start-Up Time less than or equal to 1080 minutes	Cycle time greater than 240 minutes and Start-Up Time less than or equal to 1080 minutes
Beyond Day-Ahead Market (Extremely Long-Start)	Start-Up Time less than or equal to 1080 minutes	No change

Summary of RAIM Changes*

* Cycle time is defined as the sum of minimum up time and start up time.

The following examples demonstrate the proposed changes applied to a resource:

	System	Today	After change
Today			
Based on current definition which just includes start-up time of 270 minutes.	Market	Considered for commitment in Day- Ahead Market only	Considered for commitment in Day-Ahead Market only (same)
Example 1	RAAIM	Must bid in Real-Time Market or else incur penalty	Does not need to bid in Real-Time Market

Resource with the following characteristics:

- Start-Up Time of 15 minutes
- Minimum Up Time of 600 minutes
- Cycle Time of 615 minutes

System	Today	After change
Market	Considered for commitment in Day-Ahead and Real-Time Markets	Considered for commitment in Day-Ahead Market only

Example 2

Resource with the following characteristics:

- Start-Up Time of 75 minutes
- Minimum Up Time of 180 minutes
- Cycle Time of 255 minutes

RAAIM	Must bid in Real-Time Market or else incur penalty	Does not need to bid in Real-Time Market
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Below are the relevant tariff sections and proposed amendments:

11.8.1.1 IFM Self-Commitment Period

An IFM Self-Commitment Period for a Bid Cost Recovery Eligible Resource shall consist of one or more sets of consecutive Trading Hours during which the relevant Bid Cost Recovery Eligible Resource has either a Self-Schedule or, except for Self-Provided Ancillary Services for Non-Spinning Reserve by a [FastShort](#) Start Unit, has a non-zero amount of Self-Provided Ancillary Services. An IFM Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be less than the relevant Minimum Run Time (MRT), rounded up to the next hour. Consequently, if a Bid Cost Recovery Eligible Resource first self-commits in hour h of the Trading Day, the self-commitment will be extended to hour h + MRT. Two IFM Self-Commitment Periods for a Bid Cost Recovery Eligible Resource may not be apart by less than the relevant Minimum Down Time (MDT) (rounded up to the next hour). Consequently, if a Bid Cost Recovery Eligible Resource has submitted a Self-Schedule or Submission to Self-Provide an Ancillary Service in hours h and h + n, and n is less than the MDT, the IFM Self-Commitment Period will be extended to the hours in between h and h + n inclusive. The number of IFM Self-Commitment Periods for a Bid Cost Recovery Eligible Resource within a Trading Day cannot exceed the relevant Maximum Daily Start-Ups (MDS), or MDS + 1 if the first IFM Self-Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day. Consequently, if a Bid Cost Recovery Eligible Resource has submitted a Self-Schedule or Submission to Self-Provide an Ancillary Service, such that after applying the preceding two rules, the number of disjoint Self Commitment Periods for the Operating Day exceeds the Maximum Daily Start-Ups (MDS), or MDS + 1 if the first IFM Self-Commitment Period is the continuation of an IFM or RUC Commitment Period from the previous Trading Day, the disjoint Self

Commitment Periods with smallest time gap in between will be joined together to bring down the number of disjoint Self Commitment Periods to MDS or MDS + 1 as relevant. To determine whether an extension of the IFM Self-Commitment Period applies for Multi-Stage Generating Resources, the CAISO will ensure that the respective Minimum Run Time and Minimum Down Time for both the Generating Unit and MSG Configuration levels are simultaneously respected.

* * * * *

11.8.1.2 Real-Time Self-Commitment Period

A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource shall consist of all consecutive Dispatch Intervals not in an IFM Commitment Period or a RUC Commitment Period where the Bid Cost Recovery Eligible Resource has a Self-Schedule or, except for Self-Provided Ancillary Services for Non-Spinning Reserve by a [FastShort](#) Start Unit, has a non-zero amount of Self-Provided Ancillary Services. A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be less than the relevant MUT (rounded up to the next 15-minute Commitment Interval) when considered jointly with any adjacent IFM Self-Commitment Period. For example, if a Bid

Cost Recovery Eligible Resource self-commits at time h , the self-commitment will be extended to Commitment Interval $h + \text{MUT}$, unless an IFM or RUC Commitment Period exists starting after hour h , in which case the self-commitment will be extended to Commitment Interval $h + \min(\text{MUT}, t)$, where t represents the time interval between the Real-Time Market Self-Commitment Period and the IFM or RUC Commitment Period. A Real-Time Market Self-Commitment Period for a Bid Cost Recovery Eligible Resource may not be apart from an IFM or RUC Commitment Period by less than the relevant MDT (rounded up to the next 15-minute Commitment Interval). For example, if a Bid Cost Recovery Eligible Resource self-commits at time T_1 and has a RUC Schedule at time $T_2 < T_1$, the Real-Time Market Self-Commitment Period will be extended to the interim Commitment Intervals if $T_1 - T_2 < \text{MDT}$. The number of Real-Time Market Self-Commitment Periods for a Bid Cost Recovery Eligible Resource within a Trading Day, when considered jointly with any adjacent IFM Self-Commitment Period, may not exceed the relevant MDS (or $\text{MDS} + 1$ if the first Real-Time Market Self-Commitment Period is the continuation of a Real-Time Market Commitment Period from the previous Trading Day). For example, if a Bid Cost Recovery Eligible Resource self-commits at time T_1 and has a RUC Schedule at time $T_2 > T_1$, the Real-Time Market Self-Commitment Period will be extended to the interim Commitment Intervals if an additional Real-Time Market Start-Up at T_1 would violate the MDS constraint. To determine whether an extension of the RTM Self-Commitment Period applies for Multi-Stage Generating Resources, the CAISO will ensure that the respective Minimum Run Time and Minimum Down Time for both the Generating Unit and MSG Configuration levels are simultaneously respected.

* * * * *

30.5.2.7 Ancillary Service Bids

There are four distinct Ancillary Services: Regulation Up, Regulation Down, Spinning Reserve and Non-Spinning Reserve. A resource shall be eligible to provide Ancillary Service if it has complied with the CAISO's certification and testing requirements as contained in Appendix K and the CAISO's Operating Procedures. Scheduling Coordinators may use Dynamic System Resources to Self-Provide Ancillary Services as specified in Section 8. All System Resources, including Dynamic System Resources and Non-Dynamic System Resources, will be charged the Shadow Price as prescribed in Section 11.10, for any awarded Ancillary Services. A Scheduling Coordinator may submit Ancillary Services Bids for Regulation Up, Regulation Down, Spinning Reserve, and Non-Spinning Reserve for the same capacity by providing a separate price in \$/MW per hour as desired for each Ancillary Service. The Bid for each Ancillary Services is a single Bid segment. Only resources certified by the CAISO as capable of providing Ancillary Services are eligible to provide Ancillary Services and submit Ancillary Services Bids. In addition to the common elements listed in Section 30.5.2.1, all Ancillary Services Bid components of a Supply Bid must contain the following: (1) the type of Ancillary Service for which a Bid is being submitted (2) Ramp Rate (Operating Reserve Ramp Rate and Regulation Ramp Rate, if applicable); and (3) Distribution Curve for Physical Scheduling Plant or System Unit. A Scheduling Coordinator may only submit an Ancillary Services Bid or Submission to Self-Provide an Ancillary Service for Multi-Stage Generating Resources for the Ancillary Service for which the specific MSG Configurations are certified. For any such certified MSG Configurations the Scheduling Coordinator may submit only one Operating Reserve Ramp Rate and Regulation Ramp Rate. An Ancillary Services Bid submitted to the Day-Ahead Market when submitted to the Day-Ahead Market may be, but is not required to be, accompanied by an Energy Bid that covers the capacity offered for the Ancillary Service. Submissions to Self-Provide an Ancillary Services submitted to the Day-Ahead Market when submitted to the Day-Ahead Market may be, but are not required to be, accompanied by an Energy Bid that covers the capacity to be self-provided. If a Scheduling Coordinator's Submission to Self-Provide an Ancillary Service is qualified as specified in Section 8.6, the Scheduling Coordinator must submit an Energy Bid that covers the self-provided capacity prior to the close of the Real-Time Market for the day immediately following the Day-Ahead Market in which the Ancillary Service Bid was submitted. Except as provided below, the Self-Schedule for Energy need not include a Self-Schedule for Energy from the resource that will be self-providing the Ancillary

Service. If a Scheduling Coordinator is self-providing an Ancillary Service from a [FastShort](#) Start Unit, no Self-Schedule for Energy for that resource is required. If a Scheduling Coordinator proposes to self-provide Spinning Reserve, the Scheduling Coordinator is obligated to submit a Self-Schedule for Energy for that particular resource, unless as discussed above the particular resource is a [FastShort](#) Start Unit. When submitting Ancillary Service Bids in the Real-Time Market, Scheduling Coordinators for resources that either have been awarded or self-provide Spinning Reserve or Non-Spinning Reserve capacity in the Day-Ahead Market must submit an Energy Bid for at least the awarded or self-provided Spinning Reserve or Non-Spinning Reserve capacity, otherwise the CAISO will apply the Bid validation rules described in Section 30.7.6.1.

As provided in Section 30.5.2.6.4, a Submission to Self-Provide an Ancillary Service shall contain all of the requirements of a Bid for Ancillary Services with the exception of Ancillary Service Bid price information. In addition, Scheduling Coordinators must comply with the Ancillary Services requirements of Section 8. Scheduling Coordinators submitting Self-Schedule Hourly Blocks for Ancillary Services Bids for the Real-Time Market must also submit an Energy Bid for the associated Ancillary Services Bid under the same Resource ID, otherwise the bid validation rules in Section 30.7.6.1 will apply to cover any portion of the Ancillary Services Bid not accompanied by an Energy Bid. As described in Section 34.2.3, if the resource submits a Self-Scheduled Hourly Block, the CAISO will only use the Ancillary Services Bid in the RTM optimization and will not use the associated Energy Bid for the same Resource ID to schedule Energy from the Non-Dynamic System Resource in the RTM. Scheduling Coordinators must also comply with the bidding rules associated with the must offer requirements for Ancillary Services specified in Section 40.6.

34.3.1 RTUC Optimization

The Real-Time Unit Commitment (RTUC) process uses SCUC and is run every fifteen (15) minutes to make commitment decisions for [Fast Start and Short Start Units having Start-Up Times within the applicable time periods described below in this section](#) for the next four to seven subsequent fifteen-minute intervals, depending on when during the hour the run occurs. For Multi-Stage Generating Resources the RTUC will issue a binding Transition Instruction separately from the binding Start-Up or Shut Down instructions. The RTUC can also be run with the Contingency Flag activated, in which case the RTUC can commit Contingency Only Operating Reserves. If RTUC is run without the Contingency Flag activated, it cannot commit Contingency Only Operating Reserves. RTUC is run at the following time intervals: (1) at approximately 7.5 minutes prior to the first Trading Hour, to serve as the HASP run, for T-45 minutes to T+60 minutes; (2) at approximately 7.5 minutes into the current hour for T-30 minutes to T+60 minutes; (3) at approximately 22.5 minutes into the current hour for T-15 minutes to T+60 minutes; and (4) at approximately 37.5 minutes into the current hour for T to T+60 minutes, where T is the beginning of the next Trading Hour. The HASP is a special RTUC run that is performed at approximately 67.5 minutes before each Trading Hour and has the additional responsibility of pre-dispatching Energy and awarding Ancillary Services for HASP Block Intertie Schedules. A Day-Ahead Schedule or RUC Schedule for an MSG Configuration that is later impacted by the resource's derate or outages, will be reconsidered in the RTUC and the FMM taking into consideration the impacts of the derate or outage on the available MSG Configurations. Not all resources identified as needed in a given RTUC run will necessarily receive CAISO commitment instructions immediately, because during the Trading Day the CAISO may issue a commitment instruction to a resource only at the latest possible time that allows the resource to be ready to provide Energy when it is expected to be needed.

34.3.2 Commitment Of [Fast Start And Short Start Units](#)

RTUC produces binding and advisory Start-Up and Shut-Down Dispatch Instructions for [Fast Start and Short Start Units](#) that [have Start-Up Times that would allow the resource to can](#) be committed prior to the end of the relevant time period of the RTUC run as described in Section 34.3.1. A Start-Up Dispatch Instruction is considered binding in any given RTUC run if [the Start-Up Time of the resource is such that](#) there would not be sufficient time for a subsequent RTUC run to Start-Up the resource. A Start-Up Instruction is considered advisory if it is not binding, such that the resource could achieve its target Start-Up Time as determined in the current RTUC run in a subsequent RTUC run based on its Start-Up Time. A Shut-Down Instruction is considered binding if the resource could achieve the target Shut-Down Time as determined in the current RTUC run in a subsequent RTUC run. A Shut-Down Dispatch Instruction is considered advisory if the resource Shut-Down Instruction is not binding such that the resource could achieve its target Shut-Down time as determined in the current RTUC run in a subsequent RTUC run. A binding Dispatch Instruction that results in a change in Commitment Status will be issued, in accordance with Section 6.3, after review and acceptance of the Start-Up Instruction by the CAISO Operator. An advisory Dispatch Instruction changing the Commitment Status of a resource may be modified by the CAISO Operator to a binding Dispatch Instruction and communicated in accordance with Section 6.3 after review and acceptance by the CAISO Operator. Only binding and not advisory Dispatch Instructions will be issued by the CAISO. For Multi-Stage Generating Resources the CAISO will also issue binding Transition Instructions when the Multi-Stage Generating Resource must change from one MSG Configuration to another. A Transition Instruction is considered binding in any given RTUC run if the Transition Time for the Multi-Stage Generating Resource is such that there would not be sufficient time for a subsequent RTUC run to transition the resource.

* * * * *

34.6 Short-Term Unit Commitment

Once per hour, near the top of each Trading Hour, immediately after the FMM and the RTUC for the same interval is completed the CAISO performs [an approximately five \(5\) hour](#) Short-Term Unit Commitment (STUC) run using SCUC and the CAISO Forecast of CAISO Demand to commit [Medium Start Units and Short Start Units](#) with Start-Up Times greater than the time period covered by the RTUC described in Section 34.3. In any given Trading Hour, the STUC may commit resources for the third fifteen-minute interval of the current Trading Hour and extending into the next four (4) Trading Hours. The STUC looks ahead over a period of at least three (3) hours beyond the Trading Hour for which the RTUC optimization was run. STUC will utilize: (1) Bids previously submitted in the RTM by the Scheduling Coordinator for that Trading Hour; or (2) the Clean Bid from the Day-Ahead Market if the resource has a Day-Ahead Schedule or received a Start-Up Instruction in RUC for the Trading Hour; or (3) the Generated Bid if the resource has a Real-Time must-offer obligation for that Trading Hour and has not submitted a Bid in the RTM. The CAISO revises these replicated Bids each time the hourly STUC is run, to utilize the most recently available Bids. Not all resources identified for need as a given STUC run will necessarily receive CAISO commitment instructions immediately, because during the Trading Day the CAISO may issue a commitment instruction to a resource only at the latest possible time that allows the resource to be ready to provide Energy when it is expected to be needed. A Start-Up Instruction produced by STUC is considered binding if the resource could not achieve the target Start-Up Time as determined in the current STUC run in a subsequent RTUC or STUC run as a result of the Start-Up Time of the resource. A Start-Up Instruction produced by STUC is considered advisory if it is not binding, such that the resource could achieve its target start time as determined in the current RTUC run in a subsequent STUC or RTUC run based on its Start-Up Time. A binding Dispatch Instruction produced by STUC that results in a change in Commitment Status will be issued, in accordance with Section 6.3, after review and acceptance of the Start-Up Instruction by the CAISO Operator. The STUC will only decommit a resource to the extent that resource's physical characteristics allow it to be cycled in the same

approximately ~~240 minute~~ ~~five (5) hour~~ look-ahead time period for which it was previously committed. STUC does not produce Locational Marginal Prices for Settlement. A Day-Ahead Schedule or RUC Schedule for an MSG Configuration that is later impacted by the resource's derate or outages, will be reconsidered in the STUC process taking into consideration the impacts of the derate or outage on the available MSG Configurations.

* * * * *

40.6.1.1 Day-Ahead Availability - Specific RA Resource Types

(a) **Distributed Generation Facilities** – Distributed Generation Facilities shall comply with the IFM and RUC bidding requirements that apply to the same technology type of a resource connected to the CAISO Controlled Grid.

(b) **Non-Generator Resources**

(1) Non-Generator Resources that do not use Regulation Energy Management shall submit –

(A) Economic Bids or Self-Schedules into the IFM for all RA Capacity for all hours of the month the resource is physically capable of operating; and

(B) \$0/MW RUC Availability Bids for all RA Capacity for all hours of the month the resource is physically capable of operating,

(2) Non-Generator Resources using Regulation Energy Management shall submit Economic Bids or Self-Schedules into the IFM for all RA Capacity for Regulation for all hours of the month the resource is physically capable of operating.

(c) **Extremely Long-Start Resources.** Extremely Long-Start Resources that are Resource Adequacy Resources must make themselves available to the CAISO by complying with -

(1) the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the ELS Resource upon instruction from the CAISO, if physically capable; and

(2) the applicable provisions of Section 40.6.1 regarding Day-Ahead availability for the Trading Days for which it was committed.

40.6.2 Real-Time Availability

(a) **General Requirement.** Resource Adequacy Resources that have received an IFM Schedule for Energy or Ancillary Services or a RUC Schedule for all or part of their Resource Adequacy Capacity must remain available to the CAISO through Real-Time for Trading Hours for which they receive an IFM or RUC Schedule, including any Resource Adequacy Capacity of such resources that is not included in an IFM Schedule or RUC Schedule, except for Resource Adequacy Capacity that is subject to Section 40.6.4.

(b) **Short Start Units or Medium Start Units.** Short Start Units ~~or Medium Start Units~~ that are Resource Adequacy Resources that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour must be available to the CAISO through Real-Time. Resource Adequacy Resources with Resource Adequacy Capacity that is required to be available to the CAISO through Real-Time and does not have an IFM Schedule or a RUC Schedule for a given Trading Hour must submit to the RTM for that Trading hour: (a) Energy Bids and Self-Schedules for the full amount of the available Resource Adequacy Capacity, including capacity for which it has submitted Ancillary Services Bids or Submissions to Self-Provide Ancillary Services; and (b) Ancillary Services Bids and Submissions to Self-Provide Ancillary Services for the full amount of the available Ancillary Service-

certified Resource Adequacy Capacity and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids and Self-Schedules. The CAISO may waive these availability obligations for a resource that is not a Long Start Unit or an Extremely Long-Start Resource that does not have an IFM Schedule or a RUC Schedule based on a procedure to be published on the CAISO Website. The CAISO will insert Generated Bids in accordance with Section 40.6.8 for any Resource Adequacy Capacity subject to the above requirements for which the resource has failed to submit the appropriate bids to the RTM.

(c) **Long Start Units.** Long Start Units not committed in the Day-Ahead Market will be released from any further obligation to submit Self-Schedules or Bids for the relevant Operating Day. Scheduling Coordinators for Long Start Units are not precluded from self-committing the unit after the Day-Ahead Market and submitting a Self-Schedule or Wheeling-Out in the RTM, unless precluded by terms of their contracts.

(d) **Extremely Long-Start Resources.** Once an Extremely Long-Start Resource providing Resource Adequacy Capacity is committed by the CAISO, it shall comply, for the Trading Days for it was committed, with the Real-Time availability provisions in sub-sections (a) and (b) of this Section 40.6.2, including those provisions that otherwise apply only to Short Start Units ~~or Medium Start Units~~.

(e) **Self-Schedules.** The CAISO will honor submitted Energy Self-Schedules of Resource Adequacy Capacity unless the CAISO is unable to satisfy one hundred (100) percent of its Ancillary Services requirements. In such cases, the CAISO may curtail all or a portion of a submitted Energy Self-Schedule to allow Ancillary Service-certified Resource Adequacy Capacity to be used to meet the Ancillary Service requirements, as long as such curtailment does not lead to a real-time shortfall in energy supply. If the CAISO reduces a submitted Real-Time Energy Self-Schedule for Resource Adequacy Capacity when that capacity is needed to meet an Ancillary Services requirement, the Ancillary Service Marginal Price for that capacity will be calculated in accordance with Sections 27.1.2 and 40.6.1.

(f) **Distributed Generation Facilities.** Distributed Generation Facilities shall comply with the RTM bidding requirements that apply to the same technology type of resource connected to the CAISO Controlled Grid.

(g) **Non-Generator Resources**

(1) Non-Generator Resources that do not use Regulation Energy Management shall submit –

(A) Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity scheduled in the IFM or RUC; and

(B) Economic Bids or Self-Schedules into the RTM for all RA Capacity not scheduled in the IFM.

(2) Non-Generator Resources using Regulation Energy Management that are not Use-Limited Resources under Section 40.4.6.1 shall submit Economic Bids or Self-Schedules into the RTM for any remaining RA Capacity from resource scheduled in IFM or RUC.

40.6.4.4 Proxy Demand Resources

(a) Short Start ~~and Medium Start~~ Proxy Demand Resources that provide Resource Adequacy Capacity shall submit \$0/MW RUC Availability Bids for all of their Resource Adequacy Capacity for all hours of the month the resource is physically available; However, any RUC schedule for these resources will not be binding.

(b) Long Start Proxy Demand Resources are not required to submit Bids or Self Schedules in the RUC for their Resource Adequacy Capacity.

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40.10.6 Flexible RA Capacity Must-Offer Obligation

40.10.6.1 Day-Ahead and Real-Time Availability

(a) **Must-Offer Obligation.** The Scheduling Coordinator for a resource supplying Flexible

RA Capacity must submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the applicable Trading Hours that is capable of being economically dispatched as follows, except as provided in Section 40.10.6.1(e)

Through (h) –

(1) Flexible Capacity Category for base ramping resources - the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week;

(2) Flexible Capacity Category for peak ramping resources - the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, seven days a week; and

(3) Flexible Capacity Category for super-peak ramping resources – the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, weekdays, except holidays and as provided in Section 40.10.6.1(h), until the resource receives during the five-hour period of the must offer obligation and responds to five CAISO dispatches for Start-Up during the month, after which the resource will not be subject to a must-offer obligation as a super-peak ramping resource for the remainder of that month; however, any other must-offer obligations for Resource Adequacy Capacity will still apply.

(b) **Availability Requirement.** During the period of the applicable must-offer obligation, a

Flexible RA Capacity Resource must be operationally available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.

(c) **Co-optimization.** Through the IFM co-optimization process, the CAISO will utilize available Flexible RA Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.

(d) **Participation in RUC.** A Flexible RA Capacity Resource must participate in the RUC to the extent that the resource has available Flexible RA Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid. Flexible RA Capacity selected in RUC will not be eligible to receive a RUC Availability Payment.

(e) **Use-Limited Resources.**

(1) A Use-Limited Resource providing Flexible RA Capacity must be capable of responding to Dispatch Instructions and, consistent with its use-limitations, must submit Economic Bids for Energy for the full amount of its Flexible RA Capacity in the Day-Ahead Market and the Real-Time Market for the Trading Hours applicable to the resource's Flexible Capacity Category for that month for the Trading Hours that it is capable of being economically dispatched.

(2) The Scheduling Coordinator for the Use-Limited Resources designated as a combined resource under Section 40.10.3.2(b), 40.10.3.3(b) or 40.10.3.4(b) must submit Economic Bids for Energy for either resource for the full amount of the Flexible RA Capacity required by the applicable must-offer obligation; however, Economic Bids for Energy must be submitted for only one resource in the combination per Trade Day.

(f) **Short, ~~Medium~~ or Long Start Units.**

(1) Short Start Units ~~or Medium Start Units~~ providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.2 that apply to Short Start Units providing RA Capacity.

(2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.2 that apply to Long Start Units providing RA Capacity.

(3) If availability is required under Section 40.6.2, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Economic Bids for Energy for the full amount of the available Flexible RA Capacity, including capacity for which it has submitted Economic Bids for Ancillary Services; and (ii) Economic Bids for Ancillary Services for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services and that did not receive a day-ahead award, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Economic Bids for Energy.

(g) **Extremely Long-Start Resources.** Flexible RA Capacity Resources that are Extremely Long-Start Resources must be available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the resource upon instruction from the CAISO, if physically capable. Once an Extremely Long-Start Resource is committed by the CAISO, it is subject to the provisions of Section 40.10.6 regarding Day-Ahead Availability and Real-Time Availability for the Trading Days for which it was committed.

(h) **Non-Generator Resources, Regulation Energy Management.** Non-Generator Resources providing Flexible RA Capacity and Regulation Energy Management must submit Economic Bids for Regulation Up and Regulation Down for Trading Hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and shall not submit Bids for Energy or other Ancillary Services.

Appendix A

Master Definitions Supplement

~~Fast Start Unit~~

~~A Generating Unit that has a Start-Up Time less than two hours and can be committed in the FMM and STUC.~~

- Long Start Unit

A Generating Unit that has a cycle time of more than 240 minutes (Start-up Time plus Minimum Run Time is more than 240 minutes) and requires ~~between five and up to~~ 18 hours to Start-Up and synchronize to the grid.

~~–Medium Start Unit~~

~~A Generating Unit that requires between two and five hours to Start-Up and synchronize to the grid.~~

- Real-Time Unit Commitment (RTUC)

An application of the RTM that runs every 15 minutes and commits ~~FastShort~~ Start Units ~~and Medium Start Units~~ using the SCUC to adjust from Day-Ahead Schedules, EIM Base Schedules, and HASP Advisory Schedules.

. - Self-Commitment Period

The portion of a Commitment Period of a unit with an Energy Self-Schedule or a Submission to Self-Provide an Ancillary Service, except for Non-Spinning Reserve self-provision by a Fast Start Unit. The Self-Commitment Period may include Time Periods without Energy Self-Schedules or AS self-provision if it is determined by inference that the unit must be on due to Minimum Run Time, Minimum Down Time, or Maximum Daily Start-Up constraints.

- Short Start Unit

A Generating Unit that has a cycle time less than or equal to 240 minutes five hours (Start-Up Time plus Minimum Run Time is less than or equal to 240 minutes five hours), ~~has a Start-Up Time less than two hours~~, and can be fully optimized with respect to this cycle time.

- Short-Term Unit Commitment (STUC)

The Unit Commitment procedure run at approximately 52.5 minutes prior to the applicable Trading Hour to determine whether certain ~~Medium-Short~~ Start Units need to be started early to meet the Demand within the STUC forward-looking time period as described in Section 34.4 using the CAISO Forecast of CAISO Demand. The STUC produces a Unit Commitment solution for every 15-minute interval within the STUC forward-looking time periods and issues binding Start-Up Instructions only as necessary.