

179 FERC ¶ 61,127  
UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

Before Commissioners: Richard Glick, Chairman;  
James P. Danly, Allison Clements,  
Mark C. Christie, and Willie L. Phillips.

California Independent System Operator Corporation      Docket No. ER22-1246-000

ORDER ACCEPTING TARIFF REVISIONS

(Issued May 20, 2022)

1. On March 10, 2022, the California Independent System Operator Corporation (CAISO) filed revisions to its Open Access Transmission Tariff (Tariff) to increase the existing scheduling parameter values associated with inertie transmission constraint relaxation in both the residual unit commitment (RUC) and real-time market.<sup>1</sup> In this order, we accept the revisions, effective as of the actual implementation date, as requested, subject to CAISO notifying the Commission of the actual effective date of the Tariff revisions within five business days of their implementation.

**I. Background**

2. CAISO explains that its market processes include both day-ahead and real-time wholesale electricity markets. CAISO states that the day-ahead market includes the integrated forward market and the RUC process, while the real-time market includes the hour-ahead scheduling process (HASP) and other market processes. CAISO explains that its market optimization software schedules and prices resources in two successive runs. CAISO states that first, the scheduling run produces resource schedules, which involves clearing bids, enforcing the priorities of self-schedules, and potentially relaxing constraints; second, the pricing run produces the locational marginal prices (LMPs) utilized in settlements.<sup>2</sup>

3. CAISO explains that the market software utilizes configurable market scheduling and pricing parameters to reach a feasible solution and set appropriate prices for the market in instances where effective economic bids are insufficient for a feasible solution

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<sup>1</sup> California Independent System Operator Corporation, CAISO eTariff, § 27.4.3 (CAISO Markets Scheduling and Pricing Parameters) (12.0.0).

<sup>2</sup> Transmittal at 4-5.

and the market must modify submitted self-schedules. CAISO states that the market parameters used throughout the day-ahead and real-time markets include penalty prices that apply when constraints enforced by the CAISO market are relaxed (or violated). CAISO provides that the various types of constraints have different price values that represent the cost at which the software will relax a constraint if it cannot reach a feasible solution while enforcing the constraint. CAISO explains that when it relaxes a constraint, CAISO's market software calculates the scheduling run LMPs based on administratively determined relaxation prices, i.e., the penalty prices.<sup>3</sup>

4. CAISO explains that its market clears economic bids and self-schedules for imports at interties in the CAISO market (i.e., the market software accepts such bids and schedules) based on a supply curve and that if the LMP in the scheduling run is lower than an economic import bid, that import bid will not clear. According to CAISO, the same principle applies to import self-schedules at an intertie; to be cut, the LMP has to be lower than an applicable penalty price used for adjusting the import self-schedule, and because penalty prices for import self-schedules are negative, the LMP must be more negative than the import penalty prices for the import self-schedule not to clear.<sup>4</sup>

5. CAISO states that its current Tariff includes a two-tier structure for capping energy offers: (1) a soft energy bid cap set at \$1,000/MWh for non-validated energy offers for non-import resources, and (2) a hard energy bid cap set at \$2,000/MWh. CAISO explains that its Tariff likewise includes two sets of market parameters – one set related to the soft energy bid cap and the other set related to the hard energy bid cap – and that a floor of negative \$150/MWh applies to all energy bids in the CAISO market.<sup>5</sup>

6. CAISO states that the Commission has previously found it just and reasonable for CAISO to adjust the scheduling parameter values noted above as needed. CAISO explains that it filed these original Tariff provisions in 2008 as part of the implementation of the CAISO's new market design and that in that filing, CAISO proposed a scheduling parameter value of \$5,000/MWh for both the integrated forward market and the real-time market and a scheduling parameter value of \$1,250/MWh for the RUC, which the Commission accepted.<sup>6</sup> CAISO explains that it continued using those same scheduling parameter values until 2013, when it filed a Tariff amendment to lower the scheduling parameter value for the real-time market from \$5,000/MWh to \$1,500/MWh (i.e., equal

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<sup>3</sup> *Id.* at 5.

<sup>4</sup> *Id.* at 5-6.

<sup>5</sup> *Id.* at 6.

<sup>6</sup> *Id.* at 7-8 (citing *Cal. Indep. Sys. Operator Corp.*, 126 FERC ¶ 61,147, at PP 13, 19-21, 43-45, 81-82 (2009)).

to the currently effective real-time market scheduling parameter related to the soft energy bid cap). CAISO notes that in the order accepting this proposal, the Commission stated “the \$5,000/MWh scheduling run transmission constraint relaxation parameter . . . was a flexible parameter and could be revised.”<sup>7</sup>

## II. CAISO Filing

7. CAISO states that it discovered that when the market software faces a condition that requires relaxation of both the power balance constraint (which ensures that supply equals demand) and an intertie transmission constraint to reach a feasible market solution, the resulting LMPs for imports at an intertie can be too high in relation to penalty prices to avoid overscheduling imports on that intertie. CAISO explains that this overscheduling problem occurred in the RUC at the Malin and Nevada-Oregon Border (NOB) interties on August 19, 2020, and at those same interties in the HASP on July 9, 2021. CAISO explains that overscheduling creates issues for both reliability and market efficiency because when the market software clears intertie schedules that exceed the intertie scheduling limit, CAISO operators must then manually curtail those excess intertie schedules after the market clears. CAISO asserts that overscheduling poses an especially large reliability risk during tight supply conditions and when overscheduling occurs, the market clearing process accounts for import supply that is not actually available, resulting in inaccurate market signals and an inefficient market solution. CAISO argues that to prevent overscheduling from occurring in similar future conditions, it is now proposing to revise the Tariff to make the scheduling parameter values for intertie transmission constraint relaxation sufficiently high in both the RUC and the real-time market so that, even when the power balance constraint and the intertie transmission constraint are relaxed at the same time, they will produce an LMP that reflects the scarcity of available intertie capacity. CAISO explains that it uses the penalty prices addressed in this filing and associated LMPs only in the scheduling runs of RUC and HASP to ensure constraints are respected and does not utilize them directly in settlements.<sup>8</sup>

8. CAISO proposes to increase the scheduling parameter for intertie transmission constraint relaxation in the RUC when the soft energy bid cap is in effect from its current value of \$1,250/MWh to \$3,200/MWh. CAISO explains that to determine the proposed scheduling parameter value, it started by subtracting the power balance constraint relaxation price (\$1,600/MWh) from the highest penalty price applicable to any import in the RUC (negative \$1,350/MWh). CAISO states that it then determined it was

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<sup>7</sup> *Id.* at 8 (citing *Cal. Indep. Sys. Operator Corp.*, 143 FERC ¶ 61,110, at P 22 (2013)).

<sup>8</sup> *Id.* at 2-3.

appropriate to include an additional margin of negative \$100/MWh for imports to account for the possibility of larger losses and to create sufficient separation in the priorities of the penalty prices. As such, CAISO calculated a total margin of difference among penalty prices of negative \$250/MWh for imports.<sup>9</sup>

9. Next, CAISO proposes to revise the scheduling parameter for intertie transmission constraint relaxation in the RUC when the hard energy bid cap is in effect from its current value of \$1,250/MWh to \$6,400/MWh. CAISO explains that this proposed scheduling parameter value under the hard energy bid cap doubles the proposed scheduling parameter value of \$3,200/MWh that will be in effect under the soft energy bid cap.<sup>10</sup>

10. CAISO also proposes to increase the scheduling parameter for intertie transmission constraint relaxation in the real-time market (including the HASP) when the soft energy bid cap is in effect from its current value of \$1,500/MWh to \$2,900/MWh. CAISO states that to determine the proposed scheduling parameter value, it started by subtracting the highest import penalty price for the real-time market, which is the power balance constraint relaxation price (\$1,450/MWh), from the lowest penalty price applicable to an import self-schedule in the HASP (negative \$1,200/MWh). CAISO explains that it then calculated a total margin of difference among penalty prices of negative \$250/MWh for imports. CAISO states that it also proposes to revise the scheduling parameter for intertie transmission constraint relaxation for the real-time market when the hard energy bid cap is in effect from its current value of \$3,000/MWh to \$5,800/MWh. CAISO explains that this proposed value is just and reasonable because it doubles the revised scheduling parameter value in effect under the soft energy bid cap, which is the same ratio used in the existing Tariff.<sup>11</sup>

11. CAISO avers that these Tariff revisions are just and reasonable because they will prevent overscheduling from occurring at the interties and will thus enhance reliability and market efficiency, especially during tight supply conditions that typically occur in the summer. CAISO explains that it has performed counterfactual simulations showing that, if the Tariff revisions had been in place when the overscheduling at the Malin and NOB interties occurred in the summers of 2020 and 2021, no overscheduling would have occurred and that therefore the Tariff revisions will address the identified concerns at the interties.<sup>12</sup>

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<sup>9</sup> *Id.* at 18.

<sup>10</sup> *Id.* at 19.

<sup>11</sup> *Id.* at 19-20.

<sup>12</sup> *Id.* at 17.

12. Finally, CAISO proposes to reorganize the Tariff provisions regarding scheduling parameters for transmission constraint relaxation when the soft energy bid cap is in effect so that the order of the Tariff provisions tracks the chronological order in which the CAISO market processes take place.<sup>13</sup>

13. CAISO states that it is targeting an effective date for these Tariff revisions of June 1, 2022, but no later than June 15, 2022, subject to CAISO filing a notice with the Commission within five days of the actual effective date. CAISO respectfully requests the Commission authorize CAISO to issue a market notice of the actual effective date of the Tariff revisions at least five calendar days before they are implemented.<sup>14</sup>

### **III. Notice and Responsive Pleadings**

14. Notice of CAISO's March 10, 2022 filing was published in the *Federal Register*, 87 Fed. Reg. 15,230 (Mar. 17, 2022), with interventions and protests due on or before March 31, 2022. Timely motions to intervene were filed by Balancing Authority of Northern California; the City of Santa Clara, California; City of Seattle Light Department; Modesto Irrigation District; the Cities of Anaheim, Azusa, Banning, Colton, Pasadena, and Riverside, California; Pacific Gas and Electric Company; Northern California Power Agency; Powerex Corp; and Southern California Edison Company. No protests or adverse comments were filed.

### **IV. Discussion**

#### **A. Procedural Matters**

15. Pursuant to Rule 214 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.214 (2021), the timely, unopposed motions to intervene serve to make the entities that filed them parties to this proceeding.

#### **B. Commission Determination**

16. CAISO's proposed Tariff revisions are just and reasonable and have not been shown to be unjust, unreasonable, unduly discriminatory or preferential, or otherwise unlawful. We find that CAISO's proposed revisions will help prevent overscheduling from occurring at the interties and will thus enhance both CAISO's reliability and market efficiency, especially during tight supply conditions. For example, as CAISO explains, preventing overscheduling when both the power balance constraint and intertie transmission constraints are relaxed will prevent the need for manual operator

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<sup>13</sup> *Id.* at 21.

<sup>14</sup> *Id.*

intervention to curtail excess intertie schedules under these conditions. Further, when overscheduling occurs, the market clearing process accounts for import supply that is not actually available, resulting in inaccurate price signals and an inefficient market solution. We reiterate the Commission's previous finding that these scheduling parameters are flexible parameters that CAISO could propose to revise as necessary.<sup>15</sup> We accept CAISO's proposed Tariff revisions, effective as of the actual implementation date, subject to CAISO notifying the Commission of the actual implementation date within five days of that date.

The Commission orders:

(A) CAISO's proposed Tariff revisions are hereby accepted for filing, to be effective as of the actual implementation date, as requested, as discussed in the body of this order.

(B) CAISO is hereby directed to notify the Commission of the actual effective date of the Tariff revisions within five business days of their implementation, in an eTariff submittal using Type of Filing Code 150 – Report.

By the Commission. Commissioner Danly is concurring with a separate statement attached.

( S E A L )

Debbie-Anne A. Reese,  
Deputy Secretary.

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<sup>15</sup> See *Cal. Indep. Sys. Operator Corp.*, 143 FERC ¶ 61,110 at P 22 (citing *Cal. Indep. Sys. Operator Corp.*, 126 FERC ¶ 61,147 at P 82 (explaining the Commission's expectation that CAISO would continually evaluate the parameters)).

UNITED STATES OF AMERICA  
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation

Docket No. ER22-1246-000

(Issued May 20, 2022)

DANLY, Commissioner, *concurring*:

1. I concur with this order<sup>1</sup> accepting a California Independent System Operator Corporation (CAISO) section 205 proposal<sup>2</sup> to change its filed rate to ensure that the CAISO market “more accurately reflects *actual supply available* . . . and mitigates *the reliability risk of overscheduling* . . . during tight supply conditions.”<sup>3</sup> This filing represents a critical incremental reliability improvement to CAISO’s markets and must be accepted. Though it scarcely bears stating, a just and reasonable market design should obviously “reflect actual supply available.”

2. I write separately to restate my serious concerns about the CAISO market and urge my colleagues to initiate a section 206 investigation to fulfill our statutory duty to ensure just and reasonable rates.<sup>4</sup> The CAISO market has been in a perpetual state of emergency since it experienced rolling blackouts in August 2020,<sup>5</sup> largely because of insufficient generation resources, distorted prices, and an over-reliance on less reliable renewable resources combined with out-of-market subsidies in support of the same.<sup>6</sup>

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<sup>1</sup> *Cal. Indep. Sys. Operator Corp.*, 179 FERC ¶ 61,127 (2022).

<sup>2</sup> 16 U.S.C. § 824d.

<sup>3</sup> Transmittal at 1 (emphasis added).

<sup>4</sup> 16 U.S.C. § 824e.

<sup>5</sup> See *Staff Presentation on Preliminary Observations on the August 2020 California Heat Storm* (AD21-3-000), FERC (Dec. 17, 2020), <https://www.ferc.gov/news-events/news/staff-presentation-preliminary-observations-august-2020-california-heat-storm-ad21>; *Staff Presentation on California Independent System Operator* (EL21-19-000), FERC (Dec. 17, 2020), <https://www.ferc.gov/news-events/news/staff-presentation-california-independent-system-operator-el21-19-000>.

<sup>6</sup> See *Transcript of the 1073rd Meeting*, FERC, at 31 (Dec. 17, 2020) <https://www.ferc.gov/news-events/events/december-17-2020-virtual-open-meeting-12172020> (“Overall, the August heat storm brought to life several potential shortcomings associated with the California planning processes, operating protocols, and market

3. Notwithstanding several emergency orders,<sup>7</sup> and today's latest order, news articles report this week that "California's electricity grid faces a shortfall of 1,700 megawatts

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design."); *see also Cal. Indep. Sys. Operator Corp.*, 176 FERC ¶ 61,159 (2021) (Danly, Comm'r, dissenting at P 1) ("CAISO seeks this latest emergency relief because of the ongoing and persistent failure of its markets to attract and retain adequate resources to maintain reliability."); *id.* (Danly, Comm'r, dissenting at PP 16-18); *Californians for Renewable Energy v. Cal. Indep. Sys. Operator Corp.*, 174 FERC ¶ 61,204 (Danly, Comm'r, concurring at PP 3-4) (the CAISO markets are failing because they "appear inadequate to allow dispatchable generation resources the opportunity to recover sufficient revenues to remain in operation or to invest in necessary equipment and upgrades" and because "subsidies for renewable power are doled out without sufficient consideration for their inferior reliability and security attributes, as compared to the generators they drive out of the market.").

<sup>7</sup> *See, e.g.*, Dep't of Energy, Order No. 202-21-2 (issued Sept. 10, 2021) (emergency order issued pursuant to Federal Power Act (FPA) section 202(c), 16 U.S.C. § 824a(c), determining that an emergency exists in California due to a shortage of electric energy, a shortage of facilities for the generation of electric energy, and other causes and authorizing specific electric generation resources located within California to test and operate at their maximum generation output levels when directed to do so by CAISO notwithstanding air quality or other permit limitations through Nov. 9, 2021); Dep't of Energy, Order No. 202-20-2 (issued Sept. 6, 2020) (FPA section 202(c), 16 U.S.C. § 824a(c), emergency order was issued to CAISO authorizing specific electric generating units located within the CAISO balancing authority area to operate at their maximum generation output levels due to an ongoing "Extreme Heat Event" and to preserve the reliability of bulk electric power system through Sept. 13, 2020); *see also Cal. Indep. Sys. Operator Corp.*, 176 FERC ¶ 61,159 (granting waiver to allow CAISO to immediately interconnect two generating units to address potential capacity shortfalls and maintain reliability); *Cal. Indep. Sys. Operator Corp.*, 175 FERC ¶ 61,245 (2021) (order accepting tariff revisions subject to further compliance filing to modify load, export, and wheeling priorities in the day-ahead and real-time optimization process and establish related market rules); *Cal. Indep. Sys. Operator Corp.*, 175 FERC ¶ 61,168 (2021) (order on tariff revisions to enhance CAISO's resource adequacy rules by: (1) adopting a minimum state of charge requirement for storage resources that provide resource adequacy capacity; (2) requiring substitute capacity for all maintenance outages of resource adequacy resources; (3) clarifying that extending the scope or duration of an existing outage requires a new outage request; and (4) updating the local capacity technical study criteria and permitting CAISO to designate capacity under the backstop capacity procurement mechanism if there are deficiencies relative to the revised criteria); *Cal. Indep. Sys. Operator Corp.*, 175 FERC ¶ 61,167 (2021) (order on tariff revisions regarding the import capability allocation process); *Cal. Indep. Sys. Operator Corp.*, 175 FERC ¶ 61,160 (2021) (order on tariff revisions to ensure CAISO has the appropriate



[MW] versus its planning goals during the hottest days this summer,” that “the projected supply shortfall will worsen over the next two years,” and “supply shortfalls could grow by another 4,600-5,600 MW this year and by as much as 8,800 MW more in 2025” if there is “extreme weather,” fire, or “continued supply chain backlogs delaying renewables and storage projects.”<sup>8</sup> So, business as usual in CAISO, since this is exactly the same circumstances we faced the last two summers.

4. In exchange for this reliability catastrophe-in-waiting, prices also are high and rising. “Bundled residential rates are forecasted to rise 70 percent for San Diego Gas & Electric customers above projected bill increases based on the rate of inflation since 2013 while customers of Pacific Gas & Electric will pay 40 percent more and Southern California Edison ratepayers will pay 20 percent more.”<sup>9</sup> Prices are somehow too low to retain critically needed generation resources<sup>10</sup> but also among the highest in the country. Perhaps it has something to do with the forced rapid conversion to a less-reliable renewables-only fleet?<sup>11</sup>

5. Meanwhile, California flouts basic reliability considerations like resource telemetry and metering data, excusing Distributed Energy Resources (DER) from such requirements even as vast quantities come online. A “California Public Utilities Commission administrative law judge recommended earlier this month that the [California Public Utilities Commission] take ‘immediate’ steps to bar distributed energy resources from being connected to the grid using a net-metering exemption in the commission’s existing interconnection rules that its staff says is causing safety and reliability risks.”<sup>12</sup> According to the administrative law judge, Kelly Hymes, “grid

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operational tools and market rules to address tight supply conditions).

<sup>8</sup> Jeff Beattie, *California officials foresee early-evening 1,700 MW grid shortfall this summer*, ENERGY DAILY, May 10, 2022, at 1, 3.

<sup>9</sup> *Id.* at 3.

<sup>10</sup> *Californians for Green Nuclear Power, Inc. v. N. Am. Elec. Reliability Corp.*, 174 FERC ¶ 61,203 (Danly, Comm’r, concurring) (expressing concern about the retirement of Diablo Canyon’s 2,240 MW of nuclear energy given California’s supply problems).

<sup>11</sup> See Janet Wilson, *California just shy of 100% powered by renewables for first time*, DESERT SUN, May 1, 2022, <https://www.desertsun.com/story/news/environment/2022/05/01/california-100-percent-powered-renewables-first-time/9609975002/>.

<sup>12</sup> John Siciliano, *California DER net-metering exemption poses reliability risk—*

reliability is at risk” because CAISO “cannot keep track of DERs that interconnect with the grid using the net-metering exemption because that process does not require generators to provide telemetry and metering data as is normally required under CAISO’s default interconnection process.”<sup>13</sup> This DER black hole is on top of the “increasingly serious problem that intermittent resources largely are planned for, operated, and compensated as if they provide reliability benefits that they, in fact, are incapable of providing. Thus the term ‘intermittent.’ The bulk power markets should treat intermittent resources as they actually perform, not as we hope them to.”<sup>14</sup>

6. I have zero confidence in the CAISO market design. I will be shocked if there are not rolling blackouts or worse in California in the near future. The Commission must act pursuant to FPA section 206. I am as perplexed now by my colleagues’ refusal as I have been for the last two years.<sup>15</sup> Modest incremental reforms like those at issue in today’s order, while appropriately approved pursuant to FPA section 205, cannot cover the full rot of the CAISO markets.<sup>16</sup>

For these reasons, I respectfully concur.

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James P. Danly  
Commissioner

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*ALJ*, ENERGY DAILY, May 16, 2022, at 5.

<sup>13</sup> *Id.*

<sup>14</sup> *Grid Resilience in Reg’l Transmission Orgs. & Indep. Sys. Operators*, 174 FERC ¶ 61,111 (2021) (Danly, Comm’r, concurring in the result at P 5).

<sup>15</sup> *See, e.g., Cal. Indep. Sys. Operator Corp.*, 176 FERC ¶ 61,159 (2021) (Danly, Comm’r, dissenting at PP 16-19) (refuting possible objections to a section 206 investigation).

<sup>16</sup> *Cal. Indep. Sys. Operator Corp.*, 177 FERC ¶ 61,153 (2021) (Danly, Comm’r, concurring at P 3) (“I remain concerned that CAISO continues to use band-aids to address its ongoing reliability challenges rather than the emergency surgery that is actually required. Each band-aid may mark a modest incremental improvement, but the patient is still bleeding to death.”).