Attachment A – Clean Tariff

Tariff Amendment to Update Variable Operations and Maintenance Adders

California Independent System Operator Corporation

September 28, 2023
30.4.5.4 Variable Operations and Maintenance Adders

30.4.5.4.1 Generally

Each resource that satisfies the applicable fuel source and technology requirements set forth in Section 30.4.5.4.2 will receive the default Variable Operations and Maintenance Adders specified thereunder. The Scheduling Coordinator for any resource may choose to negotiate with the CAISO pursuant to Section 30.4.5.4.3 for negotiated Variable Operations and Maintenance Adders that supersede or replace any default Variable Operations and Maintenance Adders the resource may receive. Variable Operations and Maintenance Adders are subject to renegotiation pursuant to Section 30.4.5.4.4 and to informational filings pursuant to Section 30.4.5.4.5.

30.4.5.4.2 Default Variable Operations and Maintenance Adders

The default Variable Start-Up Operations and Maintenance Adder for a frame combustion turbine resource will equal $61.89 per start per MW multiplied by the PMax of the resource or MSG Configuration of the resource.

The default Variable Minimum Load Operations and Maintenance Adder will vary by fuel source or technology as follows: (1) for a natural gas-fired combined cycle resource, the adder will equal $2.07 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource; (2) for an aeroderivative combustion turbine resource, the adder will equal $5.20 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource; and (3) for a hydroelectric resource, the adder will equal $0.77 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource.

The default Variable Energy Operations and Maintenance Adder will vary by fuel source or technology as follows: (1) nuclear $1.28/MWh; (2) coal $3.19/MWh; (3) wind $0.33/MWh; (4) natural gas-fired combined cycle units $0.70/MWh; (5) steam units $0.39/MWh; (6) geothermal $1.38/MWh; (7) landfill gas $1.44/MWh; (8) frame combustion turbines $1.15/MWh; (9) aeroderivative combustion turbines $2.55/MWh; (10) reciprocating internal combustion engines $1.31/MWh; and (11) biomass $1.96/MWh.

30.4.5.4.3 Negotiated Variable Operations and Maintenance Adders

30.4.5.4.3.1 Principles

The CAISO will negotiate resource-specific and MSG Configuration-specific Variable Operations and
Maintenance Adders with a Scheduling Coordinator based on the following principles:

(a) Any operations costs proposed for inclusion in the Variable Operations and Maintenance Adders must be variable operations costs, meaning the costs of consumables and other costs that vary directly with electrical production (i.e., Start-Up/Shut-Down, run-hours, or electricity output) of a resource. Variable operations costs exclude maintenance costs, auxiliary power costs, Greenhouse Gas Allowance Prices, fuel costs, grid management charges, Opportunity Costs, and other excluded costs set forth in the Business Practice Manual.

(b) Any maintenance costs proposed for inclusion in the Variable Operations and Maintenance Adders must be variable maintenance costs, meaning the costs associated with the repair, overhaul, replacement, or inspection of a resource that meet the following conditions:

(i) The costs must vary with the electrical production (i.e., Start-Up/Shut-Down, run-hours, or electricity output) of the resource.

(ii) The costs should reflect future maintenance costs that are expected to be incurred within the service life of a major component of plant or equipment.

(iii) The costs should be consistent with Good Utility Practice.

(iv) The costs should not effect a substantial betterment of the resource.

(v) If the item is a replacement, it cannot be a replacement of an existing major component of plant or equipment.

30.4.5.4.3.2 CAISO Process

Scheduling Coordinators may submit updated resource-specific and MSG Configuration-specific information for purposes of seeking a change to any negotiated Variable Operations and Maintenance Adder, no sooner than thirty (30) Business Days after a negotiated Variable Operations and Maintenance Adder has been determined. The CAISO will evaluate the information provided by Scheduling Coordinators, and may require Scheduling Coordinators to provide additional information, to enable the CAISO to determine reasonable negotiated Variable Operations and Maintenance Adders or to conduct audits of negotiated Variable Operations and Maintenance Adders. Within fifteen (15) Business Days of
receipt of the information or any requested additional information, the CAISO will notify the Scheduling Coordinator in writing whether it has sufficient and accurate information to determine reasonable negotiated Variable Operations and Maintenance Adders to be included in the calculations for the Proxy Start-Up Cost, Proxy Minimum Load Cost, and/or Default Energy Bid under the Variable Cost Option. Within ten (10) Business Days after providing written notification to the Scheduling Coordinator that the information is sufficient and accurate, the CAISO will determine the reasonable negotiated Variable Operations and Maintenance Adders to be included in the Proxy Start-Up Costs, Proxy Minimum Load Costs, and/or Default Energy Bids under the Variable Cost Option, and will so inform the Scheduling Coordinator in writing.

In the event of a dispute regarding the sufficiency or accuracy of the information provided by the Scheduling Coordinator, the CAISO and the Scheduling Coordinator will enter a period of good-faith negotiations that terminates sixty (60) days after the date the dispute began. If the CAISO and the Scheduling Coordinator resolve the dispute during the 60-day negotiation period, within ten (10) Business Days of such agreement, the CAISO will determine the reasonable negotiated Variable Operations and Maintenance Adders and will provide the adders to the Scheduling Coordinator in writing. If the CAISO and the Scheduling Coordinator fail to agree upon the sufficiency or accuracy of the information during the 60-day negotiation period, the Scheduling Coordinator has the right to petition FERC to resolve the dispute as to the sufficiency or accuracy of its information.

In the event of a dispute regarding the CAISO’s determination of Variable Operations and Maintenance Adders, the CAISO and the Scheduling Coordinator will enter a period of good-faith negotiations that terminates sixty (60) days after the date the dispute began. If the CAISO and the Scheduling Coordinator resolve the dispute during the 60-day negotiation period, the agreed-upon negotiated Variable Operations and Maintenance Adders will be effective as of the third Business Day following the resolution date.

30.4.5.4.3.3 FERC Process

If the CAISO and the Scheduling Coordinator fail to agree on the Variable Operations and Maintenance Adders for the Proxy Start-Up Costs, Proxy Minimum Load Costs, and/or Default Energy Bids under the Variable Cost Option following the 60-day negotiation period, the Scheduling Coordinator has the right to file proposed values and supporting information for the adders with FERC pursuant to Section 205 of the
**Federal Power Act.**

**30.4.5.4.3.4 Interim Variable Operations and Maintenance Adders Pending Dispute Resolution**

In the event of a dispute regarding the reasonableness of the Variable Operations and Maintenance Adders determined by the CAISO, but not a dispute regarding the sufficiency or accuracy of the information provided by the Scheduling Coordinator, the CAISO will determine reasonable interim Variable Operations and Maintenance Adders until the adders are determined by agreement between the CAISO and the Scheduling Coordinator or by FERC. Any subsequent agreement or FERC order determining the Variable Operations and Maintenance Adders will be reflected in an adjustment to the interim Variable Operations and Maintenance Adders in the next applicable Settlement Statement.

**30.4.5.4.4 Renegotiation of Variable Operations and Maintenance Adders**

The CAISO may require the renegotiation of any negotiated or interim Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.3 that have become outdated, are possibly erroneous, or for which the Scheduling Coordinator has changed. In the renegotiation process, the CAISO may review and propose modifications to such Variable Operations and Maintenance Adders, and may require the Scheduling Coordinator to provide updated information to support their continuation.

**30.4.5.4.5 Informational Filings**

The CAISO shall make an informational filing with FERC of any default Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.2 and any negotiated or interim Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.3, no later than seven (7) days after the end of the month for which the Variable Operations and Maintenance Adders were established.
Attachment B – Marked Tariff

Tariff Amendment to Update Variable Operations and Maintenance Adders

California Independent System Operator Corporation

September 28, 2023
30.4.5.4 Variable Operations and Maintenance Adders

30.4.5.4.1 Generally

Each resource that satisfies the applicable fuel source and technology requirements set forth in Section 30.4.5.4.2 will receive the default Variable Operations and Maintenance Adders specified thereunder. The Scheduling Coordinator for any resource may choose to negotiate with the CAISO pursuant to Section 30.4.5.4.3 for negotiated Variable Operations and Maintenance Adders that supersede or replace any default Variable Operations and Maintenance Adders the resource may receive. Variable Operations and Maintenance Adders are subject to renegotiation pursuant to Section 30.4.5.4.4 and to informational filings pursuant to Section 30.4.5.4.5. Pursuant to Section 30.4.5.4.6, the CAISO will convert negotiated operations and maintenance values that were established for a resource prior to January 1, 2022 into corresponding negotiated Variable Operations and Maintenance Adders.

30.4.5.4.2 Default Variable Operations and Maintenance Adders

The default Variable Start-Up Operations and Maintenance Adder for a frame combustion turbine resource will equal \$52.13\textendash}\$61.89 per start per MW multiplied by the PMax of the resource or MSG Configuration of the resource.

The default Variable Minimum Load Operations and Maintenance Adder will vary by fuel source or technology as follows: (1) for a natural gas-fired combined cycle resource, the adder will equal \$1.74\textendash}\$2.07 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource; (2) for an aeroderivative combustion turbine resource, the adder will equal \$4.38\textendash}\$5.20 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource; and (3) for a hydroelectric resource, the adder will equal \$0.65\textendash}\$0.77 per run-hour per MW multiplied by the PMax of the resource or MSG Configuration of the resource.

The default Variable Energy Operations and Maintenance Adder will vary by fuel source or technology as follows: (1) nuclear \$1.08\textendash}\$1.28/MWh; (2) coal \$2.69\textendash}\$3.19/MWh; (3) wind \$0.28\textendash}\$0.33/MWh; (4) natural gas-fired combined cycle units \$0.59\textendash}\$0.70/MWh; (5) steam units \$0.33\textendash]\$0.39/MWh; (6) geothermal \$1.16\textendash]\$1.38/MWh; (7) landfill gas \$1.24\textendash]\$1.44/MWh; (8) frame combustion turbines \$0.97\textendash]\$1.15/MWh; (9) aeroderivative combustion turbines \$2.15\textendash]\$2.55/MWh; (10) reciprocating internal combustion engines \$1.10\textendash]\$1.31/MWh; and (11) biomass \$1.65\textendash]\$1.96/MWh.
Effective January 1, 2022, default adders established pursuant to this Section 30.4.5.4.2 will supersede and replace any then-existing default adders established prior to that effective date.

30.4.5.4.3 Negotiated Variable Operations and Maintenance Adders

30.4.5.4.3.1 Principles

The CAISO will negotiate resource-specific and MSG Configuration-specific Variable Operations and Maintenance Adders with a Scheduling Coordinator based on the following principles:

(a) Any operations costs proposed for inclusion in the Variable Operations and Maintenance Adders must be variable operations costs, meaning the costs of consumables and other costs that vary directly with electrical production (i.e., Start-Up/Shut-Down, run-hours, or electricity output) of a resource. Variable operations costs exclude maintenance costs, auxiliary power costs, Greenhouse Gas Allowance Prices, fuel costs, grid management charges, Opportunity Costs, and other excluded costs set forth in the Business Practice Manual.

(b) Any maintenance costs proposed for inclusion in the Variable Operations and Maintenance Adders must be variable maintenance costs, meaning the costs associated with the repair, overhaul, replacement, or inspection of a resource that meet the following conditions:

(i) The costs must vary with the electrical production (i.e., Start-Up/Shut-Down, run-hours, or electricity output) of the resource.

(ii) The costs should reflect future maintenance costs that are expected to be incurred within the service life of a major component of plant or equipment.

(iii) The costs should be consistent with Good Utility Practice.

(iv) The costs should not effect a substantial betterment of the resource.

(v) If the item is a replacement, it cannot be a replacement of an existing major component of plant or equipment.

30.4.5.4.3.2 CAISO Process

Scheduling Coordinators may submit updated resource-specific and MSG Configuration-specific information for purposes of seeking a change to any negotiated Variable Operations and Maintenance
Adder, no sooner than thirty (30) Business Days after a negotiated Variable Operations and Maintenance Adder has been determined. The CAISO will evaluate the information provided by Scheduling Coordinators, and may require Scheduling Coordinators to provide additional information, to enable the CAISO to determine reasonable negotiated Variable Operations and Maintenance Adders or to conduct audits of negotiated Variable Operations and Maintenance Adders. Within fifteen (15) Business Days of receipt of the information or any requested additional information, the CAISO will notify the Scheduling Coordinator in writing whether it has sufficient and accurate information to determine reasonable negotiated Variable Operations and Maintenance Adders to be included in the calculations for the Proxy Start-Up Cost, Proxy Minimum Load Cost, and/or Default Energy Bid under the Variable Cost Option. Within ten (10) Business Days after providing written notification to the Scheduling Coordinator that the information is sufficient and accurate, the CAISO will determine the reasonable negotiated Variable Operations and Maintenance Adders to be included in the Proxy Start-Up Costs, Proxy Minimum Load Costs, and/or Default Energy Bids under the Variable Cost Option, and will so inform the Scheduling Coordinator in writing.

In the event of a dispute regarding the sufficiency or accuracy of the information provided by the Scheduling Coordinator, the CAISO and the Scheduling Coordinator will enter a period of good-faith negotiations that terminates sixty (60) days after the date the dispute began. If the CAISO and the Scheduling Coordinator resolve the dispute during the 60-day negotiation period, within ten (10) Business Days of such agreement, the CAISO will determine the reasonable negotiated Variable Operations and Maintenance Adders and will provide the adders to the Scheduling Coordinator in writing. If the CAISO and the Scheduling Coordinator fail to agree upon the sufficiency or accuracy of the information during the 60-day negotiation period, the Scheduling Coordinator has the right to petition FERC to resolve the dispute as to the sufficiency or accuracy of its information.

In the event of a dispute regarding the CAISO’s determination of Variable Operations and Maintenance Adders, the CAISO and the Scheduling Coordinator will enter a period of good-faith negotiations that terminates sixty (60) days after the date the dispute began. If the CAISO and the Scheduling Coordinator resolve the dispute during the 60-day negotiation period, the agreed-upon negotiated Variable Operations and Maintenance Adders will be effective as of the third Business Day following the resolution date.
30.4.5.4.3 FERC Process

If the CAISO and the Scheduling Coordinator fail to agree on the Variable Operations and Maintenance Adders for the Proxy Start-Up Costs, Proxy Minimum Load Costs, and/or Default Energy Bids under the Variable Cost Option following the 60-day negotiation period, the Scheduling Coordinator has the right to file proposed values and supporting information for the adders with FERC pursuant to Section 205 of the Federal Power Act.

30.4.5.4.4 Interim Variable Operations and Maintenance Adders Pending Dispute Resolution

In the event of a dispute regarding the reasonableness of the Variable Operations and Maintenance Adders determined by the CAISO, but not a dispute regarding the sufficiency or accuracy of the information provided by the Scheduling Coordinator, the CAISO will determine reasonable interim Variable Operations and Maintenance Adders until the adders are determined by agreement between the CAISO and the Scheduling Coordinator or by FERC. Any subsequent agreement or FERC order determining the Variable Operations and Maintenance Adders will be reflected in an adjustment to the interim Variable Operations and Maintenance Adders in the next applicable Settlement Statement.

30.4.5.4.5 Renegotiation of Variable Operations and Maintenance Adders

The CAISO may require the renegotiation of any negotiated or interim Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.3 that have become outdated, are possibly erroneous, or for which the Scheduling Coordinator has changed. In the renegotiation process, the CAISO may review and propose modifications to such Variable Operations and Maintenance Adders, and may require the Scheduling Coordinator to provide updated information to support their continuation.

30.4.5.4.6 Informational Filings

The CAISO shall make an informational filing with FERC of any default Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.2 and any negotiated or interim Variable Operations and Maintenance Adders established pursuant to Section 30.4.5.4.3, no later than seven (7) days after the end of the month for which the Variable Operations and Maintenance Adders were established.

30.4.5.4.6 Conversion of Existing Negotiated Values

Notwithstanding any other provision in this Section 30.4.5.4, effective January 1, 2022, the CAISO will
convert any then-existing adder values for major maintenance expenses previously established for a
resource pursuant to Section 30.4.5.4 (or any predecessor of that Section), and will convert any then-
existing negotiated operations and maintenance values previously established for a resource pursuant to
Section 39.7.1.1.2 (or any predecessor of that Section), into corresponding negotiated Variable
Operations and Maintenance Adders with values equivalent to the previously established values. Each
Scheduling Coordinator for a resource for which the CAISO performs such conversions will subsequently
have the option to either: (1) retain the corresponding Variable Operations and Maintenance Adders for
the resource; (2) negotiate changes to all of the corresponding Variable Operations and Maintenance
Adders for the resource pursuant to Section 30.4.5.4.3; or (3) negotiate changes to some of the
corresponding Variable Operations and Maintenance Adders for the resource pursuant to Section
30.4.5.4.3, and have the CAISO convert the balance of the corresponding Variable Operations and
Maintenance Adders into default Variable Operations and Maintenance Adders pursuant to Section
30.4.5.4.2.