

Attachment A – Clean Tariff

2023 Grid Management Charge – Cost-of-Service Study Update

California Independent System Operator Corporation

September 29, 2023

Appendix A
Definitions

- CRR Services Charge

The Grid Management Charge component described in Section 11.22.2.5.5.

- Grid Management Charge (GMC)

The CAISO charge on all Scheduling Coordinators that provides for the recovery of the CAISO's costs listed in Section 11.22.2 through the service charges described in Section 11.22.2.5 calculated in accordance with the formula rate set forth in Appendix F, Schedule 1, Part A.

- System Operations Balancing Authority Area Services Charge

A component of the Grid Management Charge that represents the costs to support services within the CAISO Balancing Authority Area.

- System Operations Charge

The Grid Management Charge component described in Section 11.22.2.5.2.

- System Operations Real-Time Dispatch Charge

A component of the Grid Management Charge that represents the costs to support real-time dispatch services to the CAISO Balancing Authority Area customers, EIM, and EDAM.

Section 11

11.22.2.5 Allocation of the GMC Among Scheduling Coordinators

The costs will be allocated to the service charges that comprise the Grid Management Charge according to the formula in Appendix F, Schedule 1, Part A. The costs recovered through the Grid Management Charge shall not exceed \$202 million for 2024, \$245 million for 2025, and \$250 million for 2026 and thereafter unless the CAISO submits a tariff amendment increasing this amount pursuant to Section 205 of the FPA and FERC accepts such amendment. The service charges, as described in more detail in Appendix F, Schedule 1, Part A, are as follows:

- (a) Market Services Charge;
- (b) System Operations Charge (for 2024 and 2025);
- (c) System Operations Real-Time Dispatch Charge (for 2026 and thereafter);
- (d) System Operations Balancing Authority Area Services Charge (for 2026 and thereafter); and
- (e) CRR Services Charge.

As described in the Business Practice Manual, the CAISO assesses these charges separately on all Scheduling Coordinators based on their demand, energy, or ancillary services, as applicable, consistent with the formulae set out in Appendix F, Schedule 1, Part A.

11.22.2.5.1 Market Services Charge

Subject to Section 11.22.4, the Market Services Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A.

11.22.2.5.2 System Operations Charge

Subject to Section 11.22.4, the System Operations Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A. This charge will expire December 31, 2025, and the charges described in 11.22.2.5.3 and 11.22.2.5.4 will apply thereafter.

11.22.2.5.3 System Operations Real-Time Dispatch Charge

Beginning in 2026, the CAISO will calculate the System Operations Real-Time Dispatch Charge for each Scheduling Coordinator according to the formula in Appendix F, Schedule 1, Part A, subject to Section 11.22.4.

11.22.2.5.4 System Operations Balancing Authority Area Services Charge

Beginning in 2026, the CAISO will calculate the System Operations Balancing Authority Area Services Charge for each Scheduling Coordinator according to the formula in Appendix F, Schedule 1, Part A, subject to Section 11.22.4.

11.22.2.5.5 CRR Services Charge

The CRR Services Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A.

11.22.4 TOR Charge

The CAISO will exempt TORs from the Market Services Charge and the system operations charges that are calculated through the formula set forth in Appendix F, Schedule 1, Part A. The TOR Charge will be \$0.325/MWh, assessed on the minimum of a Scheduling Coordinator's TOR supply or TOR demand per Settlement Interval. The TOR Charge is subject to adjustment as described in Appendix F, Schedule 1, Part A. The CAISO will credit amounts recovered through the TOR Charge against the revenue requirement for the system operations' real-time dispatch charges.

Section 29

29.11 Settlements and Billing for EIM Market Participants.

- (i) **EIM Administrative Charge.**
 - (1) **In General.** The CAISO will charge EIM Market Participants an EIM Administrative Charge consisting of the real-time portion of the Market Services Charge and the system operations charges described in Section 11.22.2.
 - (2) **Market Services Charge.** The Market Services Charge shall be the product of the Market Services Charge for each Scheduling Coordinator as calculated according to the formula in Appendix F,

Schedule 1, Part A, the real-time market percentage as calculated in the cost-of-service study according to Appendix F, Schedule 1, Part A, and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments).

- (3) **System Operations Charge.** In 2024 and 2025, the System Operations Charge will be the product of the System Operations Charge for each Scheduling Coordinator, as calculated according to the formula in Appendix F, Schedule 1, Part A, the real-time dispatch percentage as calculated in the cost-of-service study conducted according to Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.
- (4) **System Operations Real-Time Dispatch Charge.** Beginning in 2026, the System Operations Real-Time Dispatch Charge will be the product of the System Operations Real-Time Dispatch Charge for each Scheduling Coordinator, as calculated according to the formula in Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.
- (5) **Minimum EIM Administrative Charge.** The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum

of the real-time activities associated with Market Services Charge and the real-time activities associated with system operations, as well as –

- (A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus
- (B) five percent of the total gross absolute value of Demand of all EIM Market Participants.

- (6) **Withdrawing EIM Entity.** If the EIM Entity notifies the CAISO of its intent to terminate participation in the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in its Balancing Authority Area under Section 29.4(b)(4), the CAISO will charge the EIM Entity the minimum EIM Administrative Charge calculated under Section 29.11(i)(4) during the notice period.
- (7) **Application of Revenues.** The CAISO will apply revenues received from the EIM Administrative Charge against the costs to be recovered through the Grid Management Charge as described in Appendix F, Schedule 1, Part A.

29.30 Bid and Self-Schedule Submission for CAISO Markets.

- (a) **In General.** The provisions of Section 30 that are applicable to the Real-Time Market, as supplemented by Section 29.30, shall apply to EIM Market Participants.
- (b) **Start-Up and Minimum Load.** For the determination of Proxy Start-Up

Costs and Proxy Minimum Load Costs, the CAISO will utilize the Market Services Charge and system operations charges described in Section 11.22.2 reflected in the EIM Administrative Charge.

29.39 EIM Market Power Mitigation.

- (d) **Default Energy Bids.** The CAISO shall use the methods and standards set forth in Section 39.7 to determine Default Energy Bids for EIM Participating Resources, except that the CAISO will use the Market Services Charge and system operations charges described in Section 11.22.2 reflected in the EIM Administrative Charge.

Section 33

33.11.6 Administrative Charge

The CAISO will charge each EDAM Market Participant an EDAM Administrative Charge, which consists of the System Operations Real-Time Dispatch Charge and the Market Services Charge, both volumetric charges. The CAISO will no longer collect the EIM Administrative Charge from an EDAM Market Participant. The Systems Operations Real-Time Dispatch Charge and the Market Services Charge are described in Appendix F, Schedule 1, Part A.

33.11.6.1 Temporary EDAM Administrative Charge Transitional Load Ramp-in

The EDAM Administrative Charge assessed to Scheduling Coordinators' demand-related charge codes will be assessed on an incremental percentage at the outset of

EDAM. Each incremental percentage will apply to the calendar year, January to December, such that the CAISO would assess the incremental percentage to an EDAM Entity joining after January to the remaining part of the calendar year only. The first year EDAM is available for participation, the CAISO will assess five (5) percent of the MWh of each EDAM Scheduling Coordinator's metered demand to apply the EDAM Administrative Charge. In the second year, the CAISO will assess twenty-five (25) percent. In the third year, the CAISO will assess fifty (50) percent. In the fourth year and thereafter, the CAISO will assess seventy-five (75) percent. In the fifth year and thereafter, the CAISO will assess one-hundred (100) percent. The foregoing does not apply to EDAM Scheduling Coordinators' MWh of Energy or Supply: The CAISO will assess one-hundred (100) percent of the MWh of each EDAM Scheduling Coordinator's Energy to apply the EDAM Administrative Charge at the outset of EDAM and thereafter.

33.30.5 Start-Up and Minimum Load

For the determination of Proxy Start-Up Costs and Proxy Minimum Load Costs, the CAISO will utilize the Market Services Charge and System Operations Real-Time Dispatch Charge reflected in the EDAM Administrative Charge.

Appendix F

Rate Schedules

Schedule 1

Grid Management Charge

Part A – Calculation of Grid Management Charge (GMC)

The GMC consists of the following separate service charges for 2024 and 2025: (1) the Market Services Charge; (2) the System Operations Charge; and (3) the CRR Services Charge. The GMC revenue requirement, determined in accordance with Part C of this Schedule 1, will be allocated to the service charges specified in Part A of this Schedule 1 as follows: forty-nine (49) percent to Market Services; forty-nine (49) percent to System Operations; and two (2) percent to CRR Services. Beginning in 2026, the GMC will consist of the following separate service charges: (1) the Market Services Charge; (2) the System Operations Real-Time Dispatch Charge; (3) the System Operations Balancing Authority Area Services Charge; and (4) the CRR Services Charge. The GMC revenue requirement, determined in accordance with Part C of this Schedule 1, will be allocated to the service charges specified in Part A of this Schedule 1 as follows: forty-nine (49) percent to Market Services; twenty-three (23) percent to System Operations Real-Time Dispatch Charge; twenty-six (26) percent to System Operations Balancing Authority Area Services Charge; and two (2) percent to CRR Services.

Every three (3) years, the CAISO will conduct an updated cost-of-service study, in consultation with stakeholders and using costs from the previous year. In conducting each cost-of-service study, the CAISO will recalculate the service charge percentages and the rates for the fees and charges that constitute the Grid Management Charge as set forth in Section 11.22. In addition, the cost-of-service study results will be used to update the RC Funding Percentage used to calculate the annual RC Funding Requirement, as well as the real-time percentages of the Market Services Charge. If, based on the cost-of-service study results, the service category revenue requirement allocation percentages or the level of fees and charges have changed, the CAISO will submit tariff amendments to reflect such changes pursuant to Section 205 of the FPA.

1. The rate for the Market Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category net the projected Bid Segment Fees, Inter-SC Trade Transaction Fees, and the SCID Charge by the forecast annual gross absolute value of MW per hour of Ancillary Services capacity awarded in the Day-Ahead and Real-Time Markets, MWh of Energy cleared in the Day-Ahead market, Virtual Demand Award, Virtual Supply Award, and FMM Instructed Imbalance Energy and RTD Instructed Imbalance Energy, less the forecast annual gross absolute value of such Energy as may be excluded for a load following MSS pursuant to an MSS agreement, Standard Ramping Energy, Regulation Energy, Ramping Energy Deviation, Residual

Imbalance Energy, Exceptional Dispatch Energy and Operational Adjustments for the Day-Ahead and Real-Time.

2. The rate for the System Operations Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category, net the projected TOR Charges by forecast annual gross absolute value of MWh of real-time energy flows on the CAISO Controlled Grid, net of amounts excluded pursuant to Part E of this Schedule.
3. Beginning in 2026, the rate for the System Operations Real-Time Dispatch Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category net the proportional projected TOR Charges by forecast annual gross absolute value of MWh of real-time energy flows of CAISO, EIM, and EDAM Market Participants.
4. Beginning in 2026, the rate for the System Operations Balancing Authority Area Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category by forecast annual gross absolute value of MWh of real-time energy flows on the CAISO Controlled Grid.
5. The rate for the CRR Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category, net the projected CRR Auction Bid Fees, by the forecast annual sum of awarded MW of CRRs per hour.

The rates for the foregoing charges will be adjusted automatically each year, effective January 1 for the following twelve (12) months, in the manner set forth in Part D of this Schedule.

Part C – Costs Recovered through the GMC

As provided in Section 11.22.2 of the CAISO Tariff, the GMC includes the following costs, as projected in the CAISO's budget for the year to which the GMC applies:

- CAISO Operating Costs;
- CAISO Financing Costs, including debt service on CAISO capital expenditures;
- CAISO Other Costs and Revenues, including penalties, interest earnings and other revenues;
- CAISO Operating Cost Reserve adjustment; and

- CAISO Cash Funded Capital and Project Costs

Such costs, for the CAISO as a whole, are allocated to the service charges that comprise the GMC: (1) market services, (2) system operations, and (3) CRR services, according to the factors listed in Part A of this Schedule 1, and

adjusted annually for:

- any surplus revenues from the previous year as deposited in the CAISO Operating Reserve Account, or deficiency of revenues, as recorded in a memorandum account;

divided by:

- forecasted annual billing determinant volumes;

adjusted quarterly for:

- a change in the volume estimate used to calculate the individual GMC components, if, on an annual basis, the change is two (2) percent or \$1 million, whichever is greater, from the estimated revenue collections provided in the annual informational filing.

The GMC revenue requirement formula is as follows:

GMC revenue requirement =

CAISO Operating Costs + CAISO Financing Costs + CAISO Other Costs and Revenues + CAISO Operating Cost Reserve adjustment + CAISO Cash Funded Capital and Project Costs,

[The “USoA” reference below is the FERC Uniform System of Accounts, and is intended to include subsequent re-numbering or re-designation of the same accounts or subaccounts.]

Where,

- (1) CAISO Operating Costs include:
 - (a) Transmission expenses (USoA 560-574);
 - (b) Regional market expenses (USoA 575.1-575.8);
 - (c) Maintenance accounts (USoA 576-576.5)
 - (d) Customer accounting expenses (USoA 901-905);

- (e) Customer service and informational expenses (USoA 906-910);
 - (f) Sales expenses (USoA 911-917);
 - (g) Administrative & general expenses (USoA 920-935);
 - (h) Taxes other than income taxes that relate to CAISO operating income (USoA 408.1); and
 - (i) Miscellaneous, non-operating expenses, penalties and other deductions (USoA 426 subaccounts).
- (2) CAISO Financing Costs include:
- (a) For any fiscal year, scheduled principal and interest payments, sinking fund payments related to balloon maturities, repayment of commercial paper notes, net payments required pursuant to a payment obligation, or payments due on any CAISO notes. This amount includes the current year accrued principal and interest payments due in the first one hundred twenty (120) days of the following year.
 - (b) The debt service coverage requirement, which is a percentage of the senior lien debt service, i.e., all debt service that has a first lien on CAISO net operating revenues. The coverage requirement is twenty-five (25) percent, unless otherwise specified by the rate covenants of the official statements for each CAISO bond offering.
- (3) CAISO Other Costs and Revenues include:
- (a) Interest earnings (USoA 419) on funds not restricted by bond or note proceeds specifically designated for capital projects or

capitalized interest. Unrealized gains or losses shall be excluded and realized gains and losses shall be included. If it has been determined that a permanent impairment in an investment has occurred, it shall be included.

- (b) Miscellaneous revenues, which includes fees and fines assessed and collected by the CAISO (USoA 421, 456, 457.1 and 457.2 subaccounts).
 - (c) Other interest expenses (USoA 431) not provided for elsewhere.
- (4) CAISO Operating Cost Reserve adjustment is the sum of:
- (a) The actual excess or shortfall in collections of the prior year's rates compared to the budgeted amounts;
 - (b) The actual excess or shortfall in CAISO Operating Costs, CAISO Other Costs and Revenues and CAISO Financing Costs for the prior year compared to the budgeted amounts except any excess in the prior year budgeted amount for self-insured healthcare costs compared to actual self-insured healthcare costs;
 - (c) The estimate of current year collections and costs compared to budgeted amounts for the current year; and
 - (d) The change in CAISO Operating Cost Reserve consistent with the level of the CAISO Operating Cost Reserve requirement.
- (5) CAISO Cash-Funded Capital and Project Costs include funding from current year revenue for approved capital and projects.

A separate revenue requirement shall be established for each component of the GMC by developing the revenue requirement for the CAISO as a whole and then assigning

such costs to the service categories using the allocation factors provided in Appendix F, Schedule 1, Part A.

[Not used]

Schedule 7

Reliability Coordinator Services Charge

The Reliability Coordinator Services Charge shall be based on the RC Funding Requirement. The RC Funding Requirement will consist of the annual costs associated with the CAISO's provision of Reliability Coordinator Services, including the annual costs associated with maintaining shared reliability coordinator tools such as the Western Interchange Tool and the Enhanced Curtailment Calculator. The CAISO will determine the RC Funding Requirement based on the percentage of its overall revenue requirement attributable to the cost of providing RC Services. This percentage, known as the RC Funding Percentage, will initially be determined by assessing the costs associated with providing RC Services, using data from the CAISO's 2016 cost-of-service study modified to reflect the assessed RC Services costs, and based on the expected number of customers that will have committed to take RC Services by the RC Services Dates provided in Section 19.2(b)(6). This percentage will be updated in conjunction with the triennial cost-of-service study conducted by the CAISO as described in Schedule 1, Part A of this Appendix F. The RC Funding Requirement will be calculated, on an annual basis, as the product of this percentage multiplied by the annual revenue requirement for the same year.

The RC Funding Requirement will be developed utilizing the procedures associated with the development of the GMC revenue requirement, as set forth in Schedule 1, Part D of this Appendix F. Entities taking RC Services from the CAISO will have the opportunity to participate in that annual budget process. The RC Funding Percentage will be 8%, which will thereafter be used to calculate the annual RC Funding Requirement. The annual RC Funding Requirement will be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect.

The RC Funding Requirement will be treated as a component of the revenue in the

CAISO Other Costs and Revenues category, for purposes of calculating the costs recovered through the GMC, as set forth in Schedule 1, Part C of this Appendix F.

The annual RC rate per MWh is calculated by taking the annual RC Funding Requirement less the known minimum RC Services Charge for the applicable year divided by the sum of 1) the annual Net Energy for Load MWh for all Balancing Authorities with load and Transmission Operators and 2) the annual Net Generation MWh for all generators connected to generation-only Balancing Authorities and Transmission Operators that the CAISO anticipates will take RC Services for the applicable year. The rates for the RC Services Charge shall be adjusted each year, effective January 1.

The annual RC Services Charge for each RC Customer will be calculated as follows:

- For RC Customers that are, or are located in, generation-only Balancing Authorities, multiplying the annual RC Services Charge rate by the total Net Generation in MWh as determined in accordance with Section 19.6. The RC Services Charge for such RC Customers that are Balancing Authorities shall be calculated by removing any total Net Generation associated with Transmission Operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.
- For RC Customers that are, or are located in, Balancing Authority Areas with load, multiplying the annual RC Services Charge rate by the total Net Energy for Load in MWh as determined in accordance with Section 19.6 of the CAISO Tariff. The RC Services Charge for such RC Customers that are Balancing Authorities shall be calculated by removing any total Net Energy for Load associated with transmission operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.
- For RC Customers that are located in the CAISO's Balancing Authority Area and Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, multiplying the annual RC Services Charge rate by the RC Customer's share of the total NERC/WECC Metered Demand in MWh for the CAISO Balancing Authority Area determined in accordance with Section 11.20.9.
- There will be a minimum annual RC Services Charge of \$5,000. This charge will be applied to RC Customers that either have no Net Energy for Load or Net Generation for a particular period as set forth in Section 19.6 of the CAISO Tariff, as well as RC Customers whose annual RC Services Charge, as calculated in accordance with this Schedule 7, would otherwise be less than \$5,000.
- For RC Customers that take RC Services for less than a full year in either the

initial or final year of participation, the annual RC Services Charge will be pro-rated according to the period that the RC Customer takes service during such year, rounded up to the nearest month.

Any excess or shortfall in the RC Services Charge collected as compared to the RC Funding Requirement for a particular year will be credited or debited, as applicable, to the CAISO Operating Reserve Account.

Attachment B – Marked Tariff

2023 Grid Management Charge – Cost-of-Service Study Update

California Independent System Operator Corporation

September 29, 2023

Appendix A

Definitions

- CRR Services Charge

The Grid Management Charge component described in Section 11.22.2.5. ~~53~~.

- Grid Management Charge (GMC)

The CAISO ~~monthly~~ charge on all Scheduling Coordinators that provides for the recovery of the CAISO's costs listed in Section 11.22.2 through the service charges described in Section 11.22.2.5 calculated in accordance with the formula rate set forth in Appendix F, Schedule 1, Part A. ~~The charges that comprise the Grid Management Charge consist of: 1) the Market Services Charge, 2) the System Operations Charge, 3) the CRR Services Charge, 4) the TOR Charge, 5) the Bid Segment Fee, 6) the CRR Transaction Fee, 7) the Inter-Scheduling Coordinator Trade Transaction Fee and 8) the Scheduling Coordinator ID Charge.~~

- System Operations Balancing Authority Area Services Charge

A component of the Grid Management Charge that represents the costs to support services within the CAISO Balancing Authority Area.

- System Operations Charge

The Grid Management Charge component described in Section 11.22.2.5.2.

- System Operations Real-Time Dispatch Charge

A component of the Grid Management Charge that represents the costs to support real-time dispatch services to the CAISO Balancing Authority Area customers, EIM, and EDAM.

Section 11

11.22.2.5 Allocation of the GMC Among Scheduling Coordinators

The costs will be allocated to the service charges that comprise the Grid Management Charge according to the formula in Appendix F, Schedule 1, Part A. The costs recovered through the Grid Management Charge shall not exceed \$202 million for 2024, \$245 million for 2025, and \$250 million for 2026 and thereafter unless the CAISO submits a tariff amendment increasing this amount pursuant to Section 205 of the FPA and FERC accepts such amendment. The service charges, as described in more detail in Appendix F, Schedule 1, Part A, are as follows:

- (a) Market Services Charge;
- (b) System Operations Charge (for 2024 and 2025); and
- (c) System Operations Real-Time Dispatch Charge (for 2026 and thereafter);
- (d) System Operations Balancing Authority Area Services Charge (for 2026 and thereafter); and

(~~ee~~) CRR Services Charge.

~~As described in the Business Practice Manual, the CAISO assesses these~~ charges shall be levied separately ~~monthly in arrears~~ on all Scheduling Coordinators based on their ~~demand, energy, or ancillary services, as applicable, consistent billing determinants specified below for each charge in accordance with~~ the formulae set out in Appendix F, Schedule 1, Part A.

11.22.2.5.1 Market Services Charge

Subject to Section 11.22.4, the Market Services Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A.

11.22.2.5.2 System Operations Charge

Subject to Section 11.22.4 ~~and the exemption for certain long term contracts set forth in Appendix F, Schedule 1, Part E~~, the System Operations Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A. ~~This charge will expire December 31, 2025, and the charges described in 11.22.2.5.3 and 11.22.2.5.4 will apply thereafter.~~

11.22.2.5.3 System Operations Real-Time Dispatch Charge

Beginning in 2026, the CAISO will calculate the System Operations Real-Time Dispatch Charge for each Scheduling Coordinator according to the formula in Appendix F, Schedule 1, Part A, subject to Section 11.22.4.

11.22.2.5.4 System Operations Balancing Authority Area Services Charge

Beginning in 2026, the CAISO will calculate the System Operations Balancing Authority Area Services Charge for each Scheduling Coordinator according to the formula in Appendix F, Schedule 1, Part A, subject to Section 11.22.4.

11.22.2.5.53 CRR Services Charge

The CRR Services Charge for each Scheduling Coordinator is calculated according to the formula in Appendix F, Schedule 1, Part A.

11.22.4 TOR Charges

The CAISO will exempt TORs from the Market Services Charge and the ~~System Operations Charges~~ system operations charges that are calculated through the formula set forth in Appendix F, Schedule 1, Part A. The TOR Charge will be \$0.~~32548~~/MWh, assessed on the minimum of a Scheduling Coordinator's TOR supply or TOR demand per Settlement Interval. The TOR Charge is subject to adjustment as described in Appendix F, Schedule 1, Part A. The CAISO will credit amounts recovered through the TOR Charges against the revenue requirement for ~~System Operations Charge~~ the system operations' real-time dispatch charges as described in Appendix F, Schedule 1, Part A.

Section 29

29.11 Settlements and Billing for EIM Market Participants.

(i) **EIM Administrative Charge.**

- (1) **In General.** The CAISO will charge EIM Market Participants an EIM Administrative Charge consisting of the real-time portions of the Market Services Charge and the ~~System Operations Charges~~ system operations charges described in Sections 11.22.2.
- (2) **Market Services Charge.** The Market Services Charge shall be the product of the Market Services Charge for each Scheduling Coordinator as calculated according to the formula in Appendix F, Schedule 1, Part A, the real-time market percentage as calculated in the ~~cost-of-service~~ cost-of-service study according to Appendix F, Schedule 1, Part A, and the sum of Gross FMM Instructed Imbalance Energy (excluding FMM Manual Dispatch Energy) and Gross RTD Instructed Imbalance Energy (excluding RTD Manual Dispatch Energy Standard Ramping Deviation, Ramping Energy Deviation, Residual Imbalance Energy, and Operational Adjustments).
- (3) **System Operations Charge.** In 2024 and 2025, ~~The~~ System Operations Charge ~~shall~~ will be the product of the System Operations Charge for each Scheduling Coordinator, as calculated according to the formula in Appendix F, Schedule 1, Part A, the

real-time ~~market dispatch~~ percentage as calculated in the ~~cost-of-service~~cost-of-service study conducted according to Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.

(4) System Operations Real-Time Dispatch Charge. Beginning in 2026, the System Operations Real-Time Dispatch Charge will be the product of the System Operations Real-Time Dispatch Charge for each Scheduling Coordinator, as calculated according to the formula in Appendix F, Schedule 1, Part A, and the absolute difference between metered energy and the EIM Base Schedules.

(45) Minimum EIM Administrative Charge. The CAISO will calculate the minimum EIM Administrative Charge as the product of the sum of the real-time activities associated with ~~M~~market ~~S~~services ~~C~~charge and the real-time activities ~~ch~~art associated with system operations, as well as –

(A) five percent of the total gross absolute value of Supply of all EIM Market Participants; plus

(B) five percent of the total gross absolute value of Demand of all EIM Market Participants.

(56) Withdrawing EIM Entity. If the EIM Entity notifies the CAISO of its intent to terminate participation in the Energy Imbalance Market and requests suspension of the Energy Imbalance Market in its Balancing Authority Area under Section 29.4(b)(4), the CAISO will

charge the EIM Entity the minimum EIM Administrative Charge calculated under Section 29.11(i)(4) during the notice period.

(67) **Application of Revenues.** The CAISO will apply revenues received from the EIM Administrative Charge against the costs to be recovered through the Grid Management Charge as described in Appendix F, Schedule 1, Part A.

29.30 Bid and Self-Schedule Submission for CAISO Markets.

- (a) **In General.** The provisions of Section 30 that are applicable to the Real-Time Market, as supplemented by Section 29.30, shall apply to EIM Market Participants.
- (b) **Start-Up and Minimum Load.** For the determination of Proxy Start-Up Costs and Proxy Minimum Load Costs, the CAISO will utilize the Market Services Charge and ~~System Operations Charges~~system operations charges described in Section 11.22.2 reflected in the EIM Administrative Charge.

29.39 EIM Market Power Mitigation.

- (d) **Default Energy Bids.** The CAISO shall use the methods and standards set forth in Section 39.7 to determine Default Energy Bids for EIM Participating Resources, except that the CAISO will use the Market Services Charge and ~~System Operations Charges~~system operations charges described in Section 11.22.2 reflected in the EIM Administrative

Charge.

Section 33

33.11.6 Administrative Charge

The CAISO will charge each EDAM Market Participant an EDAM Administrative Charge, which consists of the ~~EDAM System Operations~~ Real-Time Dispatch Charge and the ~~Day-Ahead and Real-Time portions of the~~ Market Services Charge, both volumetric charges. The CAISO will no longer collect the EIM Administrative Charge from an EDAM Market Participant. The Systems Operations Real-Time Dispatch Charge and the ~~The~~ Market Services Charge are described in Appendix F, Schedule 1, Part A. ~~The EDAM System Operations Charge will be the product of the Systems Operations Charge, as calculated according to the formula in Appendix F, Schedule 1, Part A, real-time market percentage, as calculated in the cost of service study conducted according to Appendix F, Schedule 1, Part A, applied to metered values in MWh of Supply and Demand represented by the Scheduling Coordinator for the EDAM Market Participant.~~

33.11.6.1 Temporary EDAM Administrative Charge Transitional Load Ramp-in

The EDAM Administrative Charge assessed to Scheduling Coordinators' demand-related charge codes will be assessed on an incremental percentage at the outset of EDAM. Each incremental percentage will apply to the calendar year, January to December, such that the CAISO would assess the incremental percentage to an EDAM

Entity joining after January to the remaining part of the calendar year only. The first year EDAM is available for participation, the CAISO will assess five (5) percent of the MWh of each EDAM Scheduling Coordinator's metered demand to apply the EDAM Administrative Charge. In the second year, the CAISO will assess twenty-five (25) percent. In the third year, the CAISO will assess fifty (50) percent. In the fourth year and thereafter, the CAISO will assess seventy-five (75) percent. In the fifth year and thereafter, the CAISO will assess one-hundred (100) percent. The foregoing does not apply to EDAM Scheduling Coordinators' MWh of Energy or Supply: The CAISO will assess one-hundred (100) percent of the MWh of each EDAM Scheduling Coordinator's Energy to apply the EDAM Administrative Charge at the outset of EDAM and thereafter.

33.30.5 Start-Up and Minimum Load

For the determination of Proxy Start-Up Costs and Proxy Minimum Load Costs, the CAISO will utilize the Market Services Charge and System Operations Real-Time Dispatch Charge reflected in the EDAM Administrative Charge.

Appendix F

Rate Schedules

Schedule 1

Grid Management Charge

Part A – ~~Monthly~~ Calculation of Grid Management Charge (GMC)

The GMC consists of the following separate service charges for 2024 and 2025: (1) the Market Services Charge; (2) the System Operations Charge; and (3) the CRR Services Charge. The GMC revenue requirement, determined in accordance with Part C of this Schedule 1, ~~will~~shall be allocated to the service charges specified in Part A of this Schedule 1 as follows: forty-nine (49) percent to Market Services; forty-nine (49) percent to System Operations; and two (2) percent to CRR Services. Beginning in 2026, the GMC will consist of the following separate service charges: (1) the Market Services Charge; (2) the System Operations Real-Time Dispatch Charge; (3) the System Operations Balancing Authority Area Services Charge; and (4) the CRR Services Charge. The GMC revenue requirement, determined in accordance with Part C of this Schedule 1, will be allocated to the service charges specified in Part A of this Schedule 1 as follows: forty-nine (49) percent to Market Services; twenty-three (23) percent to System Operations Real-Time Dispatch Charge; twenty-six (26) percent to System Operations Balancing Authority Area Services Charge; and two (2) percent to CRR Services.

~~Starting in 2017 and e~~Every three (3) years thereafter, the CAISO will conduct an updated ~~cost of service~~cost-of-service study, in consultation with stakeholders and using costs from the previous year. In conducting each ~~cost of service~~cost-of-service study, the CAISO will recalculate the ~~three~~ service charge percentages and the rates for the fees and charges that constitute the Grid Management Charge as set forth in Section 11.22. In addition, the ~~cost of service~~cost-of-service study results will be used to update the RC Funding Percentage used to calculate the annual RC Funding Requirement, as well as the real-time percentages of the Market Services ~~Charge and System Operations service charges used to calculate the EIM Administrative Charges~~. If, based on the ~~cost of service~~cost-of-service study results, the service category revenue requirement allocation percentages or the level of fees and charges have changed, the CAISO will submit tariff amendments to reflect such changes pursuant to Section 205 of the FPA.

1. The rate for the Market Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category net the projected Bid Segment Fees, Inter-SC Trade Transaction Fees, and the SCID Charge by the forecast annual gross absolute value of MW per hour of Ancillary Services capacity awarded in the Day-Ahead and Real-Time Markets, MWh of Energy cleared in the Day-Ahead market, Virtual Demand Award, Virtual Supply Award, and FMM Instructed Imbalance

Energy and RTD Instructed Imbalance Energy, less the forecast annual gross absolute value of such Energy as may be excluded for a load following MSS pursuant to an MSS agreement, Standard Ramping Energy, Regulation Energy, Ramping Energy Deviation, Residual Imbalance Energy, Exceptional Dispatch Energy and Operational Adjustments for the Day-Ahead and Real-Time.

2. The rate for the System Operations Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category, net the projected TOR Charges by forecast annual gross absolute value of MWh of real-time energy flows on the CAISO Controlled Grid, net of amounts excluded pursuant to Part E of this Schedule.
3. Beginning in 2026, the rate for the System Operations Real-Time Dispatch Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category net the proportional projected TOR Charges by forecast annual gross absolute value of MWh of real-time energy flows of CAISO, EIM, and EDAM Market Participants.
4. Beginning in 2026, the rate for the System Operations Balancing Authority Area Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category by forecast annual gross absolute value of MWh of real-time energy flows on the CAISO Controlled Grid.
53. The rate for the CRR Services Charge will be calculated by dividing the annual GMC revenue requirement allocated to this service category, net the projected CRR Auction Bid Fees, by the forecast annual sum of awarded MW of CRRs per hour.

The rates for the foregoing charges ~~will~~shall be adjusted automatically each year, effective January 1 for the following twelve (12) months, in the manner set forth in Part D of this Schedule.

Part C – Costs Recovered through the GMC

As provided in Section 11.22.2 of the CAISO Tariff, the GMC includes the following costs, as projected in the CAISO's budget for the year to which the GMC applies:

- CAISO Operating Costs;
- CAISO Financing Costs, including debt service on CAISO capital expenditures;
- CAISO Other Costs and Revenues, including penalties, interest earnings

and other revenues;

- CAISO Operating Cost Reserve adjustment; and
- CAISO Cash Funded Capital and Project Costs

Such costs, for the CAISO as a whole, are allocated to the service charges that comprise the GMC: (1) mMarket sServices, (2) sSystem oOperations, and (3) CRR sServices, according to the factors listed in Part A of this Schedule 1, and

adjusted annually for:

- any surplus revenues from the previous year as deposited in the CAISO Operating Reserve Account, or deficiency of revenues, as recorded in a memorandum account;

divided by:

- forecasted annual billing determinant volumes;

adjusted quarterly for:

- a change in the volume estimate used to calculate the individual GMC components, if, on an annual basis, the change is two (2) percent or \$1 million, whichever is greater, from the estimated revenue collections provided in the annual informational filing.

The GMC revenue requirement formula is as follows:

GMC revenue requirement =

CAISO Operating Costs + CAISO Financing Costs + CAISO Other Costs and Revenues + CAISO Operating Cost Reserve adjustment + CAISO Cash Funded Capital and Project Costs,

[The “USoA” reference below is the FERC Uniform System of Accounts, and is intended to include subsequent re-numbering or re-designation of the same accounts or subaccounts.]

Where,

- (1) CAISO Operating Costs include:
 - (a) Transmission expenses (USoA 560-574);
 - (b) Regional market expenses (USoA 575.1-575.8);

- (c) Maintenance accounts (USoA 576-576.5)
 - (d) Customer accounting expenses (USoA 901-905);
 - (e) Customer service and informational expenses (USoA 906-910);
 - (f) Sales expenses (USoA 911-917);
 - (g) Administrative & general expenses (USoA 920-935);
 - (h) Taxes other than income taxes that relate to CAISO operating income (USoA 408.1); and
 - (i) Miscellaneous, non-operating expenses, penalties and other deductions (USoA 426 subaccounts).
- (2) CAISO Financing Costs include:
- (a) For any fiscal year, scheduled principal and interest payments, sinking fund payments related to balloon maturities, repayment of commercial paper notes, net payments required pursuant to a payment obligation, or payments due on any CAISO notes. This amount includes the current year accrued principal and interest payments due in the first one hundred twenty (120) days of the following year.
 - (b) The debt service coverage requirement, which is a percentage of the senior lien debt service, i.e., all debt service that has a first lien on CAISO net operating revenues. The coverage requirement is twenty-five (25) percent, unless otherwise specified by the rate covenants of the official statements for each CAISO bond offering.
- (3) CAISO Other Costs and Revenues include:

- (a) Interest earnings (USoA 419) on funds not restricted by bond or note proceeds specifically designated for capital projects or capitalized interest. Unrealized gains or losses shall be excluded and realized gains and losses shall be included. If it has been determined that a permanent impairment in an investment has occurred, it shall be included.
 - (b) Miscellaneous revenues, which includes fees and fines assessed and collected by the CAISO (USoA 421, 456, 457.1 and 457.2 subaccounts).
 - (c) Other interest expenses (USoA 431) not provided for elsewhere.
- (4) CAISO Operating Cost Reserve adjustment is the sum of:
- (a) The actual excess or shortfall in collections of the prior year's rates compared to the budgeted amounts;
 - (b) The actual excess or shortfall in CAISO Operating Costs, CAISO Other Costs and Revenues and CAISO Financing Costs for the prior year compared to the budgeted amounts except any excess in the prior year budgeted amount for self-insured healthcare costs compared to actual self-insured healthcare costs;
 - (c) The estimate of current year collections and costs compared to budgeted amounts for the current year; and
 - (d) The change in CAISO Operating Cost Reserve consistent with the level of the CAISO Operating Cost Reserve requirement.
- (5) CAISO Cash-Funded Capital and Project Costs include funding from

current year revenue for approved capital and projects.

A separate revenue requirement shall be established for each component of the GMC by developing the revenue requirement for the CAISO as a whole and then assigning such costs to the service categories using the allocation factors provided in Appendix F, Schedule 1, Part A.

[Not used] Part E – System Operations Charge Exemption for Certain Long-Term

Power Supply Contracts

- ~~(1) — The real-time MWh Energy flows from Generating Units with certain existing power supply contracts will be exempt from the System Operations Charge until the first opportunity to renegotiate the contract or the contract expires. To be eligible for this exemption, the generating unit and the power supply contract must meet the following criteria:~~
- ~~(a) — The generator owner must be the Scheduling Coordinator for the generating unit;~~
 - ~~(b) — The power supply contract may not be with another Scheduling Coordinator that has the same parent company as the generator owner;~~
 - ~~(c) — The power supply contract may not be with the same Scheduling Coordinator ID Code as the Generating Unit;~~
 - ~~(d) — The power supply contract precludes the supplier from recovering additional GMC costs incurred as a result of the GMC rate design that became effective on January 1, 2012;~~
 - ~~(e) — The power supply contract must have been executed prior to January 1, 2011;~~

- ~~(f) — The duration of the power supply contract must be such that it is three (3) years or more until the termination of the contract or the first opportunity to renegotiate the terms and conditions of the contract.~~
- ~~(2) — To establish eligibility for exemption from the Systems Operation charge, the generator owner must submit the following information in accordance with the procedures set forth on the ISO website:~~
- ~~(a) — Power supply contract timeline, including the execution date and either termination date or the earliest date upon which the contract may be renegotiated;~~
- ~~(b) — Resource ID;~~
- ~~(c) — SCID; and,~~
- ~~(d) — Effected MW.~~
- ~~(3) — An officer of the generation owner company must provide a signed affidavit attesting to the information that demonstrates the power supply contract eligibility for the exemption.~~

Schedule 7

Reliability Coordinator Services Charge

The Reliability Coordinator Services Charge shall be based on the RC Funding Requirement. The RC Funding Requirement will consist of the annual costs associated with the CAISO's provision of Reliability Coordinator Services, including the annual costs associated with maintaining shared reliability coordinator tools such as the Western Interchange Tool and the Enhanced Curtailment Calculator. The CAISO will determine the RC Funding Requirement based on the percentage of its overall revenue requirement attributable to the cost of providing RC Services. This percentage, known as the RC Funding Percentage, will initially be determined by assessing the costs

associated with providing RC Services, using data from the CAISO's 2016 ~~cost-of-service~~cost-of-service study modified to reflect the assessed RC Services costs, and based on the expected number of customers that will have committed to take RC Services by the RC Services Dates provided in Section 19.2(b)(6). This percentage will be updated in conjunction with the triennial ~~cost-of-service~~cost-of-service study conducted by the CAISO as described in Schedule 1, Part A of this Appendix F. The RC Funding Requirement will be calculated, on an annual basis, as the product of this percentage multiplied by the annual revenue requirement for the same year.

The RC Funding Requirement will be developed utilizing the procedures associated with the development of the GMC revenue requirement, as set forth in Schedule 1, Part D of this Appendix F. Entities taking RC Services from the CAISO will have the opportunity to participate in that annual budget process. The RC Funding Percentage will be 89%, which will thereafter be used to calculate the annual RC Funding Requirement. The annual RC Funding Requirement will be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect.

The RC Funding Requirement will be treated as a component of the revenue in the CAISO Other Costs and Revenues category, for purposes of calculating the costs recovered through the GMC, as set forth in Schedule 1, Part C of this Appendix F.

The annual RC rate per MWh is calculated by taking the annual RC Funding Requirement less the known minimum RC Services Charge for the applicable year divided by the sum of 1) the annual Net Energy for Load MWh for all Balancing Authorities with load and Transmission Operators and 2) the annual Net Generation MWh for all generators connected to generation-only Balancing Authorities and Transmission Operators that the CAISO anticipates will take RC Services for the applicable year. The rates for the RC Services Charge shall be adjusted each year, effective January 1.

The annual RC Services Charge for each RC Customer will be calculated as follows:

- For RC Customers that are, or are located in, generation-only Balancing Authorities, multiplying the annual RC Services Charge rate by the total Net Generation in MWh as determined in accordance with Section 19.6. The RC Services Charge for such RC Customers that are Balancing Authorities shall be calculated by removing any total Net Generation associated with Transmission Operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.
- For RC Customers that are, or are located in, Balancing Authority Areas with load, multiplying the annual RC Services Charge rate by the total Net Energy for Load in MWh as determined in accordance with Section 19.6 of the CAISO Tariff. The RC Services Charge for such RC Customers that are

Balancing Authorities shall be calculated by removing any total Net Energy for Load associated with transmission operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.

- For RC Customers that are located in the CAISO's Balancing Authority Area and Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, multiplying the annual RC Services Charge rate by the RC Customer's share of the total NERC/WECC Metered Demand in MWh for the CAISO Balancing Authority Area determined in accordance with Section 11.20.9.
- There will be a minimum annual RC Services Charge of \$5,000. This charge will be applied to RC Customers that either have no Net Energy for Load or Net Generation for a particular period as set forth in Section 19.6 of the CAISO Tariff, as well as RC Customers whose annual RC Services Charge, as calculated in accordance with this Schedule 7, would otherwise be less than \$5,000.
- For RC Customers that take RC Services for less than a full year in either the initial or final year of participation, the annual RC Services Charge will be pro-rated according to the period that the RC Customer takes service during such year, rounded up to the nearest month.

Any excess or shortfall in the RC Services Charge collected as compared to the RC Funding Requirement for a particular year will be credited or debited, as applicable, to the CAISO Operating Reserve Account.
