California Independent System Operator Corporation

Fifth Replacement FERC Electric Tariff

(Open Access Transmission Tariff)

Effective as of February 20, 2020
Table of Contents

1. Definitions and Interpretation
   1.1 General Provisions of Article I Applicable To CAISO Tariff
   1.2 Definitions
   1.3 Rules of Interpretation
      1.3.1 “Includes” Means “Including Without Limitation”
      1.3.2 Specific Rules of Interpretation Subject to Context

2. Access to the CAISO Controlled Grid
   2.1 Open Access
   2.2 Customer Eligibility for Direct Access or Wholesale Sales

3. Local Furnishing, Other Tax Exempt Bond Facility Financing

4. Roles and Responsibilities
   4.1 [Not Used]
   4.2 Market Participant Responsibilities
      4.2.1 Comply with Dispatch Instructions and Operating Instructions
      4.2.2 Implementation of Instructions
   4.3 Relationship between CAISO and Participating TOs
      4.3.1 Nature of Relationship
   4.4 Relationship Between CAISO and UDCs
      4.4.1 General Nature of Relationship Between CAISO and UDCs
      4.4.2 UDC Responsibilities
      4.4.3 System Emergency Reports: UDC Obligations
      4.4.4 Coordination of Expansion or Modifications to UDC Facilities
      4.4.5 Information Sharing
      4.4.6 Installation of and Rights of Access to UDC Facilities
      4.4.7 Provision of Information for CRRs to Reflect Load Migration
      4.4.8 UDC Facilities Under CAISO Control
   4.5 Responsibilities of a Scheduling Coordinator
      4.5.1 Scheduling Coordinator Certification
      4.5.2 Eligible Customers and Convergence Bidding Entities
      4.5.3 Responsibilities of a Scheduling Coordinator
      4.5.4 Operations of a Scheduling Coordinator
   4.6 Relationship Between CAISO and Generators
      4.6.1 General Responsibilities
      4.6.2 [Not Used]
      4.6.3 Requirements for Certain Participating Generators
      4.6.4 Identification of Generating Units
      4.6.5 NERC and WECC Requirements
      4.6.6 Forced Outages
      4.6.7 Recordkeeping; Information Sharing
      4.6.8 Sharing Information on Reliability of CAISO Controlled Grid
      4.6.9 Access Right
      4.6.10 RMTMax for CHP Resources
      4.6.11 Storage Operating Characteristics
   4.7 Relationship Between CAISO and Participating Loads
   4.8 Relationships Between CAISO and Intermittent Resources
      4.8.1 Bidding and Settlement
      4.8.2 Forecasting
      4.8.3 [Not Used]
   4.9 Metered Subsystems
      4.9.1 General Nature of Relationship Between CAISO and MSS
      4.9.2 Coordination of Operations
Table of Contents

4.9.3 Coordinating Maintenance Outages of MSS Facilities
4.9.4 MSS Operator Responsibilities
4.9.5 Scheduling by or on Behalf of a MSS Operator
4.9.6 System Emergencies
4.9.7 Coordination of Expansion or Modification to MSS Facilities
4.9.8 Ancillary Services Obligations for MSS
4.9.9 [Not Used]
4.9.10 Information Sharing
4.9.11 Installation of and Rights of Access to MSS Facilities
4.9.12 MSS System Unit
4.9.13 MSS Elections and Participation in CAISO Markets

4.10 Candidate CRR Holder and CRR Holder Registration
4.10.1 Procedure to Become a Candidate CRR Holder
4.10.2 Ongoing Obligations after Registration and Qualifications
4.10.3 Termination of a CRR Entity Agreement

4.11 Relationship Between CAISO and SUDCs
4.11.1 General Nature of Relationship Between CAISO and SUDCs
4.11.2 Coordinating Maintenance Outages of SUDC Facilities
4.11.3 SUDC Responsibilities
4.11.4 System Emergencies
4.11.5 Load Reduction
4.11.6 System Emergency Reports: SUDC Obligations
4.11.7 Coordinating Expansion or Modifications to SUDC Facilities
4.11.8 Information Sharing
4.11.9 Equipment Installation and Access Rights to SUDC Facilities

4.12 Relationship of CAISO and Resource-Specific System Resources
4.12.1 General Responsibilities
4.12.2 Identification of Resource-Specific System Resources
4.12.3 Telemetry Data to Demonstrate Compliance
4.12.4 Recordkeeping
4.12.5 Access Rights

4.13 DRPs, RDRRs, and PDRs
4.13.1 Relationship Between CAISO and DRPs
4.13.2 Applicable Requirements for RDRRs, PDRs and DRPs
4.13.3 Identification of RDRRs and PDRs
4.13.4 Performance Evaluation Methodologies for PDRs and RDRRs
4.13.5 Characteristics of PDRs and PDRRs

4.14 Relationship Between the CAISO and CBES
4.14.1 Procedure to Become a Convergence Bidding Entity
4.14.2 Convergence Bidding Entity's Ongoing Obligations
4.14.3 Termination of a Convergence Bidding Entity Agreement

4.15 Relationships Between CAISO and Pseudo-Ties to CAISO

4.16 Relationships Between CAISO and Pseudo-Ties Out

4.17 Distributed Energy Resource Aggregations
4.17.1 CAISO Relationship with Distributed Energy Resource Providers
4.17.2 Responsibilities of Distributed Energy Resource Providers
4.17.3 Requirements for Distributed Energy Resource Aggregations
4.17.4 Identification of Distributed Energy Resources
4.17.5 Characteristics of Distributed Energy Resource Aggregations
4.17.6 Operating Requirements

5. Black Start and System Restoration
5.1 Black Start Capability
5.2 Black Start Units
5.3 Black Start Services

February 20, 2020
Table of Contents
6. **Communications**

6.1 Methods of Communication
   - 6.1.1 Full-Time Communications Facility Requirements
   - 6.1.2 Information Transfer from Scheduling Coordinator to CAISO
   - 6.1.3 Submitting Information to the Secure Communication System
   - 6.1.4 Information Transfer from CAISO to Scheduling Coordinator
   - 6.1.5 Information to be Provided by Connected Entities to CAISO

6.2 CAISO's Secure Communication System
   - 6.2.1 Scheduling Coordinators
   - 6.2.2 Public Market Information

6.3 Communication of Dispatch Instruction
   - 6.3.1 SC Responsibility for Communications to Generator or Load
   - 6.3.2 Recording of Dispatch Instructions
   - 6.3.3 Contents of Dispatch Instructions

6.4 Communication of Operating Instructions

6.5 CAISO Communications
   - 6.5.1 Communication with Market and CRR Participants and Public
   - 6.5.2 Communications Prior to the Day-Ahead Market
   - 6.5.3 Day-Ahead Market Communications
   - 6.5.4 RTM Communications Before the Trading Hour
   - 6.5.5 Real-Time Market Communications During the Trading Hour
   - 6.5.6 Market Bid Information
   - 6.5.7 Monthly Report on Conforming Transmission Constraints
   - 6.5.8 Virtual Award Information
   - 6.5.9 Transmission Flowgate Constraint Information
   - 6.5.10 Protected Communications with Market Participants
   - 6.5.11 Aggregate Generation Outage Data
   - 6.5.12 Wind and Solar Forecast and Output
   - 6.5.13 Suspension of Publication
   - 6.5.14 Order No. 844 Zonal Uplift Report
   - 6.5.15 Order No. 844 Resource-Specific Uplift Report
   - 6.5.16 Order No. 844 Operator-Initiated Commitment Report

7. **System Operations Under Normal and Emergency Conditions**

7.1 CAISO Control Center Operations
   - 7.1.1 Maintain CAISO Control Center
   - 7.1.2 Maintain Back-Up Control Facility
   - 7.1.3 CAISO Control Center Authorities

7.2 Operating Reliability Criteria

7.3 Transmission Planning Authority
   - 7.3.1 Criteria for CAISO's Operational Control
   - 7.3.2 Planning Guidelines; Revision of Local Reliability Criteria
   - 7.3.3 NAESB Standards

7.4 General Standard of Care

7.5 Routine Operation of the CAISO Controlled Grid
   - 7.5.1 CAISO Controlled Facilities
   - 7.5.2 Clearing Equipment for Work
   - 7.5.3 Equipment De-Energized for Work
   - 7.5.4 Hot-Line Work
   - 7.5.5 Intertie Switching
   - 7.5.6 Operating Voltage Control Equipment

7.6 Normal System Operations
   - 7.6.1 Actions for Maintaining Reliability of CAISO Controlled Grid

7.7 Management of Abnormal System Conditions
   - 7.7.1 CAISO Actions in Imminent or Actual System Emergency

February 20, 2020
Table of Contents
7.7.2 Market Participant Responsibilities in System Emergencies.
7.7.3 Suspension of CAISO Markets and Application of Administrative Price.
7.7.4 Preparatory Actions for a System Emergency
7.7.5 Actions Subsequent to a System Emergency
7.7.6 System Operations in the Event of a Market Disruption
7.7.7 Removal of Bids in the Event of a Market Disruption, to Prevent a Market Disruption, or to Minimize the Extent of a Market Disruption
7.7.8 Under Frequency Load Shedding (UFLS).
7.7.9 Application of Administration Prices and Use of Prior Market Results
7.7.10 CAISO Facility and Equipment Outage
7.7.11 [Not Used]
7.7.12 [Not Used]
7.7.13 [Not Used]
7.7.14 [Not Used]
7.7.15 [Not Used]

7.8 Management of Overgeneration Conditions
7.8.1 Dispatch Instructions to Reduce Generation and Imports
7.8.2 Notification of Projected Overgeneration to be Mitigated
7.8.3 Energy Offered for Sale to Adjacent Balancing Authorities
7.8.4 Instructions to SCs to Reduce Generation or Imports
7.8.5 Mandatory Dispatch Instructions for Specific Reductions
7.8.6 CAISO Costs to be Reimbursed Proportionately by SCs

7.9 Suspension or Limitation of Virtual Bidding
7.9.1 Suspension or Limitation Generally
7.9.2 Reasons for Suspension or Limitation
7.9.3 Procedures Regarding Suspension or Limitation

8. Ancillary Services
8.1 Scope
8.2 Ancillary Services Standards
8.2.1 Determination of Ancillary Service Standards
8.2.2 Time-Frame for Revising Ancillary Service Standards
8.2.3 Quantities of Ancillary Services Required; Use of AS Regions
8.3 Procurement; Certification and Testing; Contracting Period
8.3.1 Procurement of Ancillary Services
8.3.2 Procurement from Internal and External Resources
8.3.3 Ancillary Service Regions and Regional Limits
8.3.4 Certification and Testing Requirements
8.3.5 Daily and Hourly Procurement
8.3.7 AS Bidding Requirements
8.3.8 Procurement of Voltage Support
8.4 Technical Requirements for Providing Ancillary Services
8.4.1 Operating Characteristics Required to Provide AS
8.4.2 Ancillary Service Control Standards
8.4.3 Ancillary Service Capability Standards
8.4.4 Ancillary Service Availability Standards
8.4.5 Communication Equipment
8.4.6 Metering Infrastructure
8.5 Time Frame to Submit and Evaluate Ancillary Service Bids
8.6 Obligations for and Self-Provision of Ancillary Services
8.6.1 Ancillary Service Obligations
8.6.2 Right to Self-Provide
8.6.3 Services which may be Self-Provided
8.6.4 Time Frame for Informing CAISO of Self-Provision
8.7 Ancillary Service Awards
8.8 [Not Used]
8.9 Verification, Compliance Testing, and Auditing
   8.9.1 Compliance Testing for Spinning Reserve
   8.9.2 Compliance Testing for Regulation
   8.9.3 Compliance Testing for Non-Spinning Reserve
   8.9.4 Compliance Testing for Voltage Support
   8.9.5 [Not Used]
   8.9.6 [Not Used]
   8.9.7 Consequences of Failure to Pass Compliance Testing
   8.9.8 Performance Audits for Standard Compliance
   8.9.9 Performance Audit for Regulation
   8.9.10 Performance Audit for Spinning Reserve
   8.9.11 Performance Audit for Non-Spinning Reserve
   8.9.12 [Not Used]
   8.9.13 [Not Used]
   8.9.14 [Not Used]
   8.9.15 Consequences of Failure to Pass Performance Audit
   8.9.16 Sanctions for Poor Performance

8.10 Periodic Testing of Units
   8.10.1 Regulation Up and Regulation Down Reserves
   8.10.2 Spinning Reserve
   8.10.3 Non-Spinning Reserve
   8.10.4 Voltage Support
   8.10.5 [Not Used]
   8.10.6 [Not Used]
   8.10.7 Penalties for Failure to Pass Tests
   8.10.8 Rescission of Payments for Ancillary Service Capacity

8.11 Temporary Changes to Ancillary Service Penalties
   8.11.1 Application and Termination
   8.11.2 Exemption for Penalties Due to CAISO Software Limitations

9. Outages
   9.1 Coordination and Approval for Outage
   9.2 Responsibility for Authorized Work on Facilities
   9.3 Coordination of Outages and Maintenance
      9.3.1 CAISO Outage Coordination Functions
      9.3.2 Requirement for Approval
      9.3.3 Request Submission and Information
      9.3.4 Single Point of Contact
      9.3.5 Method of Communication
      9.3.6 Maintenance Outage Planning
      9.3.7 Maintenance Outage Requests by the CAISO
      9.3.8 CAISO Notice Required Re Maintenance Outages
      9.3.9 Final Approval, Delay and Withholding
      9.3.10 Forced Outages
   9.4 Outage Coordination for New Facilities
      9.4.1 Coordination by CAISO
      9.4.2 Types of Work Requiring Coordination
      9.4.3 Uncomplicated Work
      9.4.4 Special Procedures for More Complex Work
   9.5 Information About Outages
      9.5.1 Approved Maintenance Outages
      9.5.2 Publication to Website
   9.6 Facility Power
   9.7 Multi-Stage Generating Resources Outages
10. **Metering**

10.1 General Provisions

10.1.1 Role of the CAISO
10.1.2 Meter Data Retention by the CAISO
10.1.3 Netting
10.1.4 Meter Service Agreements
10.1.5 Access to Meter Data
10.1.6 Failure of CAISO Facilities or System
10.1.7 Provision of Statistically Derived Meter Data

10.2 Metering for CAISO Metered Entities

10.2.1 Responsibilities of CAISO Metered Entities
10.2.2 Duty to Install and Maintain Meters
10.2.3 Metering Standards
10.2.4 Certification of Meters
10.2.5 CAISO Authorized Inspectors
10.2.6 Metering Communications
10.2.7 Format of Meter Data
10.2.8 Security and Meter Data Validation Procedures
10.2.9 Validation, Estimation and Editing of Meter Data
10.2.10 Low Voltage Side Metering
10.2.11 Audit, Testing Inspection and Certification Requirements
10.2.12 Exemptions
10.2.13 Maintenance of Metering Facilities
10.2.14 Installation of Additional Metering Facilities

10.3 Metering For Scheduling Coordinator Metered Entities

10.3.1 Applicability
10.3.2 Responsibilities of Scheduling Coordinators and the CAISO
10.3.3 Loss Factors
10.3.4 Load Profile Authorization
10.3.5 Communication of Meter Data
10.3.6 Settlement Quality Meter Data Submission
10.3.7 Meter Standards
10.3.8 Access to Meter Data
10.3.9 Certification of Meters
10.3.10 Requirement for Audit and Testing
10.3.11 Scheduling Coordinator to Ensure Certification
10.3.12 [Not Used]
10.3.13 [Not Used]
10.3.14 Approval by LRA of Security and Validation Procedures
10.3.15 [Not Used]
10.3.16 [Not Used]
10.3.17 Meter Identification

10.4 Exemptions

10.4.1 Authority to Grant Exemptions
10.4.2 Guidelines for Granting Exemptions
10.4.3 Procedure for Applying for Exemptions
10.4.4 Permitted Exemptions

11. **CAISO Settlements and Billing**

11.1 Settlement Principles

11.1.1 [Not Used]
11.1.2 Settlement Charges and Payments
11.1.3 Financial Transaction Conventions and Currency
11.1.4 CAISO Estimates for Initial Settlement Statement T+3B
11.1.5 SQMD for Recalculation Settlement State T+12B
11.2 Settlement of Day-Ahead Market Transactions
11.2.1 IFM Settlements
11.2.2 Calculation of Hourly RUC Compensation
11.2.3 IFM Energy Charges and Payments for Metered Subsystems
11.2.4 CRR Settlements
11.2.5 Payment by OBAALSE for CRRs Through CRR Allocation Process
11.3 Settlement of Virtual Awards
11.3.1 Virtual Supply Awards
11.3.2 Virtual Demand Awards
11.4 Black Start Settlements
11.4.1 Black Start Energy
11.4.2 Black Start Capability
11.5 Real-Time Market Settlements
11.5.1 Imbalance Energy Settlements
11.5.2 Uninstructed Imbalance Energy
11.5.3 Unaccounted For Energy
11.5.4 Imbalance Energy Pricing; Non-Zero Offset Amount Allocation
11.5.5 Settlement Amount for Residual Imbalance Energy
11.5.6 Settlement Amounts for RTD Instructed Imbalance Energy from Exceptional Dispatch
11.5.7 Congestion Credit and Marginal Credit of Losses Credit
11.5.8 Settlement for Emergency Assistance
11.5.9 Flexible Ramping Product
11.6 PDRs, RDRRs, Distributed Energy Resource Aggregations, Non-Generator Resources
11.6.1 Settlement of Energy Transactions Involving PDRs or RDRRs Using Customer Load Baseline Methodology
11.6.2 Settlement of Energy Transactions Using Metering Generator Output Methodology
11.6.3 Settlement of Energy Transactions Involving PDRs or RDRRs Using Customer Load Baseline and Metering Generator Output Methodologies
11.6.4 Settlements of Proxy Demand Resources in the Real-Time Market
11.6.5 Settlement of Distributed Energy Resource Aggregations
11.6.6 Settlements of Non-Generator Resources
11.7 Additional MSS Settlements Requirements
11.7.1 MSS Load Following Deviation Penalty
11.7.2 Neutrality Adjustments and Charges Assessed on MSS SC
11.7.3 Available MSS Operator Exemption for Certain Program Charges
11.7.4 Emission Cost Responsibility of an SC for an MSS
11.8 Bid Cost Recovery
11.8.1 CAISO Determination of Self-Commitment Periods
11.8.2 IFM Bid Cost Recovery Amount
11.8.3 RUC Bid Cost Recovery Amount
11.8.4 RTM Bid Cost Recovery Amount
11.8.5 Unrecovered Bid Cost Uplift Payment
11.8.6 System-Wide IFM, RUC and RTM Bid Cost Uplift Allocation
11.9 Inter-SC Trades
11.9.1 Physical Trades
11.9.2 Inter-SC Trades at Aggregated Pricing Nodes
11.10 Settlements for Ancillary Services
11.10.1 Settlements for Contracted Ancillary Services
11.10.2 Settlement for User Charges for Ancillary Services
11.10.3 Spinning Reserves
11.10.4 Non-Spinning Reserves
11.10.5 Negative Operating Reserve Obligation Adjustment
11.10.6 Upward Ancillary Services Neutrality Adjustment
11.10.7 Voltage Support

February 20, 2020
Table of Contents
11.10.8 [Not Used]
11.10.9 Settlements of Rescission of Payments for AS Capacity

11.11 RACs and Wheeling Transactions
11.11.1 Regional Access Charge
11.11.2 Wheeling Through and Wheeling Out Transactions

11.12 Participating Intermittent Resources
11.12.1 [Not Used]
11.12.2 [Not Used]
11.12.3 Payment of Participating Intermittent Resource Fees
11.12.4 [Not Used]

11.13 Settlements of RMR Charges and Payments
11.13.1 Daily RMR Settlement
11.13.2 Daily RMR Capacity Payment
11.13.3 Daily Variable Cost Payment
11.13.4 Daily Additional Cost Settlement
11.13.5 Daily RMR Excess Revenues
11.13.6 Daily RMR Exceptional Dispatch Excess Revenues
11.13.7 Daily RMR Cost Allocation
11.13.8 [Not Used]
11.13.9 [Not Used]
11.13.10 [Not Used]

11.14 Neutrality

11.15 Payments Under Section 42.1 Contracts

11.16 Additional AS and RUC Payment Rescission Requirements
11.16.1 Resources with More Than One Capacity Obligation
11.16.2 Load-Following MSSs with an AS or RUC Capacity Obligation

11.17 Application of the Persistent Deviation Metric
11.17.1 Persistent Deviation Threshold and Mitigation
11.17.2 Shut-Down Adjustment
11.17.3 Application of Persistent Deviation Metric to Eligible Intermittent Resources’ Residual Imbalance Energy

11.18 Emissions Costs
11.18.1 Obligation to Pay Emissions Costs Charges
11.18.2 CAISO Emissions Costs Trust Account
11.18.3 Rate for the Emission Cost Trust Account
11.18.4 Adjustment of the Rate for the Emissions Cost Charge
11.18.5 Credits and Debits of Emissions Cost Charges from SCs
11.18.6 Submission of Cost Invoices by RMR Owner
11.18.7 Payment of Emissions Cost Invoices

11.19 FERC Annual Charges
11.19.1 FERC Annual Charge Recovery Rate
11.19.2 FERC Annual Charge Trust Account
11.19.3 Determination of the FERC Annual Charge Recovery Rate
11.19.4 Credits and Debits of FERC Annual Charges from SCs

11.20 NERC/WECC Charges
11.20.1 Responsibility for NERC/WECC Charges
11.20.2 [Not Used]
11.20.3 [Not Used]
11.20.4 Process for Invoicing NERC/WECC Charges
11.20.5 Timely Payments
11.20.6 NERC/WECC Charge Trust Account
11.20.7 Preliminary and Final NERC/WECC Charge Invoices
11.20.8 Provision of Payments and Information to the WECC
11.20.9 Reliability Coordinator Services Charge

11.21 Make Whole Payments for Price Corrections
11.21.1 CAISO Demand and Exports

February 20, 2020
Table of Contents
11.21.2 Price Correction for Settlement of Virtual Awards

11.22 Grid Management Charge
11.22.1 CAISO’s Obligation
11.22.2 Costs Recovered Through the Grid Management Charge
11.22.3 [Not Used]
11.22.4 TOR Charges
11.22.5 Bid Segment Fee
11.22.6 CRR Transaction Fee
11.22.7 Inter-Scheduling Coordinator Trade Transaction Fee
11.22.8 Scheduling Coordinator ID Charge

11.23 Penalties for Uninstructed Imbalance Energy

11.24 [Not Used]
11.24.1 [Not Used]
11.24.2 [Not Used]
11.24.3 [Not Used]
11.24.4 [Not Used]

11.25 Settlement of Flexible Ramping Product
11.25.1 Settlement of Forecasted Movement
11.25.2 Settlement of Uncertainty Requirement
11.25.3 Rescission
11.25.4 [Not Used]
11.25.5 [Not Used]

11.26 [Not Used]

11.27 Voltage Support Charges

11.28 Calculating, Charging and Disbursing Default Interest

11.29 CAISO as Counterparty; Billing and Payment
11.29.1 Billing and Payment Process Based on Settlement Statement
11.29.2 Time-Frame for Payments or Charges
11.29.3 Prepayments
11.29.4 System Failure
11.29.5 General Principles for Production of Settlement Statements
11.29.6 Balancing of Market Accounts in Absence of Meter Data
11.29.7 Settlements Cycle
11.29.8 Confirmation and Validation
11.29.9 Payment Procedures
11.29.10 Billing and Payment
11.29.11 Instructions for Payment
11.29.12 CAISO’s Responsibilities
11.29.13 Non-Payment by a Scheduling Coordinator or CRR Holder
11.29.14 Enforcement Actions for Late Payments
11.29.15 [Not Used]
11.29.16 Prohibition on Transfers
11.29.17 Alternative Payment Procedures
11.29.18 [Not Used]
11.29.19 Payment Errors
11.29.20 Defaults
11.29.21 [Not Used]
11.29.22 Data Gathering and Storage
11.29.23 Communications
11.29.24 CAISO Payments Calendar

11.30 Auditing

11.31 Intertie Schedules Decline Charges
11.31.1 Decline Monthly Charge – Imports
11.31.2 Decline Monthly Charge – Imports
11.31.3 Allocation of Import/Export Decline Monthly Charges

11.32 Measures to Address Intertie Scheduling Practices
Table of Contents

11.33 Setting Revenue
11.34 Invoice Charges for Transferred Frequency Response
   11.34.1 Charge Allocation Basis 201
   11.34.2 Calculation and Assessment
   11.34.3 Responsibility to Pay Charges
   11.34.4 Validation
   11.34.5 Disputes and Corrections
   11.34.6 Payment Default
   11.34.7 Modification to Schedule

12. Creditworthiness
   12.1 Credit and Minimum Participation Requirements
      12.1.1 Unsecured Credit Limit
      12.1.2 Financial Security and Financial Security Amount
      12.1.3 Estimated Aggregate Liability
   12.2 Review of Creditworthiness
   12.3 Posting and Releases of Financial Security
      12.3.1 Self-Supply of UDC Demand
   12.4 Calculation of Ongoing Financial Security Requirements
      12.4.1 Resolution of a CAISO Request for Additional Security Amount
      12.4.2 Dispute Process for a Request for Additional Security Amount
   12.5 CAISO Enforcement Actions
      12.5.1 Under-Secured and Non-Compliance Market Participants
      12.5.2 Late Posting of Financial Security
   12.6 Late Posting of Financial Security
      12.6.1 Credit Requirements for CRR Allocations
      12.6.2 Credit Requirements for CRR Auctions
      12.6.3 Credit Requirements for the Holdings of CRRs
      12.6.4 Credit Requirements for Sales of Allocated CRRs
   12.7 [Not Used]
   12.8 Credit Requirements Applicable to Virtual Bids
      12.8.1 Credit Check in the Day-Ahead Market
      12.8.2 Virtual Bid Reference Prices
      12.8.3 Adjustment of EAL After Close of the DAM
      12.8.4 Adjustment of EAL After the Close of the RTM

13. Dispute Resolution
   13.1 Applicability
      13.1.1 General Applicability
      13.1.2 Disputes Involving Government Agencies
      13.1.3 Injunctive and Declaratory Relief
      13.1.4 Disputes Arising Under Section 11
   13.2 Negotiation and Mediation
      13.2.1 Negotiation
      13.2.2 Statement of Claim
      13.2.3 Selection of Mediator
      13.2.4 Mediation
      13.2.5 Demand for Arbitration
   13.3 Arbitration
      13.3.1 Selection of Arbitrator
      13.3.2 Disclosures Required of Arbitrators
      13.3.3 Arbitration Procedures
      13.3.4 Modification of Arbitration Procedures
      13.3.5 Remedies
      13.3.6 Summary Disposition
      13.3.7 Discovery Procedures

February 20, 2020
Table of Contents
Table of Contents

13.3.8 Evidentiary Hearing
13.3.9 Confidentiality
13.3.10 Timetable
13.3.11 Decision
13.3.12 Compliance
13.3.13 Enforcement
13.3.14 Costs

13.4 Appeal of Award
13.4.1 Basis for Appeal
13.4.2 Appellate Record
13.4.3 Procedures for Appeals
13.4.4 Award Implementation
13.4.5 Judicial Review of FERC Orders

13.5 Allocation of Awards Payable by or to the CAISO
13.5.1 Allocation of an Award
13.5.2 Timing of Adjustments
13.5.3 Method of Allocation

14. Uncontrollable Force, Indemnity, Liabilities, and Penalties
14.1 Uncontrollable Forces
14.2 Responsibilities of Affected Entity
14.3 Strikes, Lockouts or Labor Disputes
14.4 Market Participant’s Indemnity
14.5 Limitation on Liability
   14.5.1 Limitation on Damages
   14.5.2 Exclusion of Certain Types of Loss
14.6 Potomac Economics, Ltd. Limitation of Liability
14.7 Allocation of Reliability-Related Penalty Costs
   14.7.1 Overview of Process
   14.7.2 Direct Allocation of Reliability Standards Penalties
   14.7.3 Indirect Allocation of Penalty Costs

15. Regulatory Filings

16. Existing Contracts
16.1 Continuation of Existing Contracts for Non-Participating TOs
   16.1.1 Participating TO Obligation
   16.1.2 Right to Use and Ownership of Facilities
   16.1.3 Existing Contract Dispute Resolution
   16.1.4 Conversion of PTO’s Rights Under Existing Contracts
16.2 [Not Used]
16.3 Curtailment Under Emergency and Non-Emergency Conditions
   16.3.1 Emergency Conditions
   16.3.2 Non-Emergency Conditions
16.4 TRTC Instructions
   16.4.1 Responsibility to Create TRTC Instructions
   16.4.2 Responsible PTO Re Multiple PTO Parties to Existing Contracts
   16.4.3 Scheduling Coordinator Responsibilities
   16.4.4 Submission of TRTC Instructions
   16.4.5 TRTC Instructions Content
   16.4.6 Changes and Updates to TRTC Instructions
   16.4.7 Treatment of TRTC Instructions
   16.4.8 CAISO Role in Existing Contracts
   16.4.9 Implementation of TRTC Instructions
16.5 Treatment of Existing Contracts for Transmission Service
   16.5.1 System Emergency Exceptions

February 20, 2020
Table of Contents
16.6 Valid ETC Self-Schedules
   16.6.1 Validation of ETC Self-Schedules
   16.6.2 Treatment of Invalid ETC Self-Schedules
   16.6.3 Treatment of Valid ETC Self-Schedules
   16.6.4 Notification to SCs of CAISO Determination
16.7 [Not Used]
16.8 [Not Used]
16.9 The HASP
   16.9.1 Scheduling Deadlines
16.10 The CAISO’s Real-Time Process
16.11 Inter-Balancing Authority Area ETC Self-Schedule Bid Changes
16.12 Intra-Balancing Authority Area ETC Self-Schedules Changes

17. Transmission Ownership Rights (TORs)
17.1 TRTC Instructions
   17.1.1 Responsibility to Create TRTC Instructions
   17.1.2 TOR Scheduling Coordinator Responsibilities
   17.1.3 Submission of TRTC Instructions
   17.1.4 TRTC Instructions Content
   17.1.5 Changes and Updates to TRTC Instructions
   17.1.6 CAISO Role in Accepting TRTC Instructions
   17.1.7 Implementation of TRTC Instructions
17.2 Treatment of TORs
   17.2.1 System Emergency Expectations
17.3 Valid TOR Self-Schedule
   17.3.1 Validation of TOR Self-Schedules
   17.3.2 Treatment of Invalid TOR Self-Schedules
   17.3.3 Settlement Treatment of Valid TOR Self-Schedules
   17.3.4 Notification to SCs of CAISO Determination
17.4 The HASP
   17.4.1 Scheduling Deadlines
17.5 The CAISO’s Real-Time Process
17.6 Inter-Balancing Authority Area TOR Self-Schedule Bid Changes
17.7 Intra-Balancing Authority Area TOR Self-Schedule Changes
17.8 Existing Contracts Re TORs for Non-Participating TOs
   17.8.1 Participating TO Obligation
   17.8.2 Right to Use and Ownership of TORs
   17.8.3 Dispute Resolution for Existing Contracts Applicable to TORs
17.9 Conversion of PTOs’ Rights Under Existing Contracts Re TORs
17.10 TOR Operations Obligations

18. [Not Used]

19. Reliability Coordinator
19.1 General Provisions
19.2 Access to RC Services
19.3 Supplemental Services – Hosted Advanced Network Applications (HANA)
19.4 Supplemental Services – Physical Security Review
19.5 Roles and Responsibilities
19.6 Provision of Settlement Data by RC Customers
19.7 Settlements and Billing for RC Customers
19.8 Supplemental Services – HANA Services Charge
19.9 Supplemental Services – Physical Security Review Charge
19.10 Dispute Resolution Procedures
19.11 Reliability Coordinator Oversight
19.12 Uncontrollable Forces

February 20, 2020
Table of Contents
<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.13</td>
<td>Liability</td>
</tr>
<tr>
<td>19.14</td>
<td>Penalties</td>
</tr>
<tr>
<td>19.15</td>
<td>Confidentiality</td>
</tr>
<tr>
<td>19.16</td>
<td>Miscellaneous Provisions in Addition to Section 22</td>
</tr>
<tr>
<td>20.</td>
<td>Confidentiality</td>
</tr>
<tr>
<td>20.1</td>
<td>CAISO</td>
</tr>
<tr>
<td>20.2</td>
<td>Confidential Information</td>
</tr>
<tr>
<td>20.3</td>
<td>Other Parties</td>
</tr>
<tr>
<td>20.4</td>
<td>Disclosure</td>
</tr>
<tr>
<td>20.5</td>
<td>Confidentiality</td>
</tr>
<tr>
<td>21.</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>22.</td>
<td>Miscellaneous</td>
</tr>
<tr>
<td>22.1</td>
<td>Audits</td>
</tr>
<tr>
<td>22.1.1</td>
<td>Materials Subject to Audit</td>
</tr>
<tr>
<td>22.1.2</td>
<td>CAISO Audit Committee</td>
</tr>
<tr>
<td>22.1.3</td>
<td>Audit Results</td>
</tr>
<tr>
<td>22.1.4</td>
<td>Availability of Records</td>
</tr>
<tr>
<td>22.1.5</td>
<td>Confidentiality of Information</td>
</tr>
<tr>
<td>22.1.6</td>
<td>Payments</td>
</tr>
<tr>
<td>22.2</td>
<td>Assignment</td>
</tr>
<tr>
<td>22.3</td>
<td>Term and Termination</td>
</tr>
<tr>
<td>22.3.1</td>
<td>Effective Date of CAISO Tariff</td>
</tr>
<tr>
<td>22.3.2</td>
<td>Termination of CAISO Tariff with Board and FERC Approval</td>
</tr>
<tr>
<td>22.4</td>
<td>Notice</td>
</tr>
<tr>
<td>22.4.1</td>
<td>Effectiveness</td>
</tr>
<tr>
<td>22.4.2</td>
<td>Addresses</td>
</tr>
<tr>
<td>22.4.3</td>
<td>Notice of Changes in Operating Procedures and BPMs</td>
</tr>
<tr>
<td>22.5</td>
<td>Waiver</td>
</tr>
<tr>
<td>22.6</td>
<td>Staffing and Training to Meet Obligations</td>
</tr>
<tr>
<td>22.7</td>
<td>Accounts and Reports</td>
</tr>
<tr>
<td>22.8</td>
<td>Applicable Law and Forum</td>
</tr>
<tr>
<td>22.9</td>
<td>Consistency with Federal Laws and Regulations</td>
</tr>
<tr>
<td>22.10</td>
<td>Administrative Fees</td>
</tr>
<tr>
<td>22.11</td>
<td>Operating Procedures and BPM Development and Amendment</td>
</tr>
<tr>
<td>22.11.1</td>
<td>Process for Revisions of Business Practice Manuals</td>
</tr>
<tr>
<td>22.11.2</td>
<td>Changes to BPM for BPM Change Management</td>
</tr>
<tr>
<td>22.11.3</td>
<td>Requests for and Access to Nonpublic Operating Procedures</td>
</tr>
<tr>
<td>22.12</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>22.13</td>
<td>Scheduling Responsibilities and Obligations</td>
</tr>
<tr>
<td>23.</td>
<td>Categories of Transmission Capacity</td>
</tr>
<tr>
<td>24.</td>
<td>Comprehensive Transmission Planning Process</td>
</tr>
<tr>
<td>24.1</td>
<td>Overview</td>
</tr>
<tr>
<td>24.1.1</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.1.2</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.1.3</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.1.4</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.2</td>
<td>Nature of the Transmission Planning Process</td>
</tr>
<tr>
<td>24.2.1</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.2.2</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.2.3</td>
<td>[Not Used]</td>
</tr>
<tr>
<td>24.2.4</td>
<td>[Not Used]</td>
</tr>
</tbody>
</table>
24.3 Transmission Planning Process Phase 1
24.3.1 Inputs to the Unified Planning Assumptions and Study Plan
24.3.2 Content of the Unified Planning Assumptions and Study Plan
24.3.3 Stakeholder Input – Unified Planning Assumptions/Study Plan
24.3.4 Economic Planning Studies
24.3.5 [Not Used]

24.4 Transmission Planning Process Phase 2
24.4.1 Conducting Technical Studies
24.4.2 Proposed Reliability Driven Transmission Solutions
24.4.3 Phase 2 Request Window
24.4.4 [Not Used]
24.4.5 Determination of Needed Transmission Solutions
24.4.6 Categories of Transmission Solutions
24.4.7 Description of Transmission Solutions
24.4.8 Additional Contents of Comprehensive Transmission Plan
24.4.9 Phase 2 Stakeholder Process
24.4.10 Transmission Plan Approval Process

24.5 Transmission Planning Process Phase 3
24.5.1 Competitive Solicitation Process
24.5.2 Project Sponsor Application and Information Requirements
24.5.3 Project Sponsor and Proposal Qualifications
24.5.4 Project Sponsor Selection Factors and Comparative Analysis
24.5.5 Notice to Project Sponsors
24.5.6 Competitive Solicitation Project Proposal Fee

24.6 Obligation to Construct Transmission Solutions
24.6.1 Approved Project Sponsor Reporting Requirements
24.6.2 Delay in the Transmission Solution In-Service Date
24.6.3 Development and Submittal of Mitigation Plans
24.6.4 Inability to Complete the Transmission Solution

24.7 Documentation of Compliance with NERC Reliability Standards

24.8 Additional Planning Information
24.8.1 Information Provided by Participating TOs
24.8.2 Limitation on Regional Activities
24.8.3 Information Requested from Load Serving Entities
24.8.4 Information from BAAs and Regulators
24.8.5 Obligation to Provide Updated Information

24.9 Participating TO Study Obligation

24.10 Operational Review and Impact Analysis
24.10.1 [Not Used]
24.10.2 [Not Used]
24.10.3 [Not Used]
24.10.4 [Not Used]

24.11 [Not Used]
24.11.1 [Not Used]
24.11.2 [Not Used]
24.11.3 [Not Used]

24.12 WECC and Interregional Coordination

24.13 Interregional Transmission Proposals in the Regional Process
24.13.1 [Not Used]
24.13.2 [Not Used]

24.14 Cost Responsibility for Transmission Additions or Upgrades
24.14.1 Project Sponsor Commitment to Pay Full Cost
24.14.2 Cost of Needed Addition or Upgrade to be Borne by PTO
24.14.3 CRR Entitlement for Project Sponsors Not Recovering Costs
24.14.4 RAC Treatment of New Regional Transmission Facilities Costs
24.15  Ownership of and Charges for Expansion Facilities
        24.15.1 Transmission Additions and Upgrades under TCA
        24.15.2 Access and Charges for Transmission Additions and Upgrades
24.16  Expansion by Local Furnishing Participating TOs
24.17  Evaluation of Interregional Transmission Projects
        24.17.1 Submission of Interregional Transmission Projects
        24.17.2 Interregional Transmission Project Assessment
        24.17.3 Selection in the Comprehensive Transmission Plan
        24.17.4 Interregional Transmission Project Cost Recovery
        24.17.5 Monitoring the Status of Interregional Transmission Projects
        24.17.6 Delay in Interregional Transmission Project In-Service Date
24.18  Order 1000 Common Interregional Tariff
        24.18.1 Annual Interregional Information Exchange
        24.18.2 Annual Interregional Coordination Meeting
        24.18.3 Interregional Transmission Project Joint Evaluation Process
        24.18.4 Interregional Cost Allocation Process
        24.18.5 Application of Regional Cost Allocation Methodology

25.  Interconnection of Generating Units and Facilities
    25.1  Applicability
    25.1.1 Interconnection Request and Generating Unit Requirements
    25.1.2 Affidavit Requirements
    25.2  Interconnection to the Distribution System
    25.3  Maintenance of Encumbrances
    25.4  Asynchronous Generating Facilities
    25.4.1 Asynchronous Generating Facilities-Reactive Power
    25.5  Modifications to Generating Facilities
    25.5.1 No Header
    25.5.2 No Header
    25.5.3 No Header

26.  Transmission Rates and Charges
    26.1  Access Charge
    26.1.1 Publicly Owned Electric Utilities Access Charge
    26.1.2 Regional Access Charge Settlement
    26.1.3 Distribution of RAC Revenues
    26.1.4 Wheeling
    26.1.5 Unbundled Retail Transmission Rates
    26.2  [Not Used]
    26.3  Addition of New Facilities After CAISO Implementation
    26.4  Effect on Tax-Exempt Status
    26.5  [Not Used]
    26.6  Location Constrained Resource Interconnection Facilities
    26.6.1 LCRIFs that Become Network Facilities

27.  CAISO Markets and Processes
    27.1  LMPs and Ancillary Services Marginal Prices
    27.1.1 Locational Marginal Prices for Energy
    27.1.2 Ancillary Service Prices
    27.1.3 Regulation Mileage Clearing Price
    27.2  Load Aggregation Points (LAP)
    27.2.1 Metered Subsystems
    27.2.2 Determination of LAP Prices
    27.3  Trading Hubs
    27.4  Optimization in the CAISO Market Processes
    27.4.1 Security Constrained Unit Commitment
California Independent System Operator Corporation  
Fifth Replacement Electronic Tariff

27.4.2 Security Constrained Economic Dispatch  
27.4.3 CAISO Markets Scheduling and Pricing Parameters  
27.5 Full Network Model  
27.5.1 Network Models used in CAISO Markets  
27.5.2 Metered Subsystems  
27.5.3 Integrated Balancing Authority Areas  
27.5.4 Accounting for Changes in Topology in IFM  
27.5.5 Load Distribution Factor  
27.5.6 Management & Enforcement of Constraints in the CAISO Markets  
27.6 State Estimator  
27.7 Constrained Output Generation  
27.7.1 Election of Constrained Output Generator Status  
27.7.2 Election to Waive COG Status  
27.7.3 Constrained Output Generators in the IFM  
27.7.4 Constrained Output Generators in RUC  
27.7.5 Constrained Output Generators in the Real-Time Market  
27.8 Multi-Stage Generating Resources  
27.8.1 Registration and Qualification  
27.8.2 Information Requirements  
27.8.3 Changes in Status and Configurations of Resource  
27.9 Non-Generator Resources and Pumped-Storage Hydro Unit Constraints  
27.10 Election to Use Non-Generator Resource Generic Modeling Functionality  
27.11 Natural Gas Constraint  
27.12 Operator Imbalance Conformance  
27.12.1 Operator Conformance in the Real-Time Market  
27.12.2 Conformance Limiter in the Real-Time Market  

28. Inter-SC Trades  
28.1 Inter-SC Trades of Energy  
28.1.1 Purpose  
28.1.2 Availability of Inter-SC Trades of Energy  
28.1.3 Submission of Inter-SC Trades of Energy  
28.1.4 Information Requirements  
28.1.5 General Validation Rules for Inter-SC Trades  
28.1.6 Validation Procedures for Physical Trades  
28.2 Inter-SC Trades of Ancillary Services  
28.2.1 Information Requirements  
28.2.2 Validation  
28.2.3 Submission of Inter-SC Trades of Ancillary Services  
28.3 Inter-SC Trades of IFM Load Uplift Obligation  
28.3.1 Information Requirements  
28.3.2 Validation  
28.3.3 Submission of Inter-SC Trades of IFM Load Uplift Obligation  

29. Energy Imbalance Market  
29.1 General Provisions.  
29.2 EIM Entity Access to the Real-Time Market  
29.3 [Not Used]  
29.4 Roles and Responsibilities  
29.5 [Not Used]  
29.6 Communications  
29.7 EIM Operations Under Normal and Emergency Conditions.  
29.8 [Not Used]  
29.9 Outages and Critical Contingencies.  
29.10 Metering and Settlement Data.  
29.11 Settlements and Billing for EIM Market Participants.
California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

29.12 Creditworthiness
29.13 Dispute Resolution
29.14 Uncontrollable Forces, Indemnity, Liabilities, and Penalties
29.15 [Not Used]
29.16 [Not Used]
29.17 EIM Transmission System
29.18 [Not Used]
29.19 [Not Used]
29.20 Confidentiality
29.21 [Not Used]
29.22 Miscellaneous Provisions in Addition to Section 22.
29.23 [Not Used]
29.24 [Not Used]
29.25 [Not Used]
29.26 Transmission Rates and Charges.
29.27 CAISO Markets and Processes.
29.28 Inter-SC Trades
29.29 [Not Used]
29.30 Bid and Self-Schedule Submission for CAISO Markets.
29.31 Day-Ahead.
29.32 Greenhouse Gas Regulation and EIM Bid Adders.
29.33 [Not Used]
29.34 EIM Operations
29.35 Market Validation and Price Correction
29.36 [Not Used]
29.37 Rules of Conduct
29.38 Market Monitoring
29.39 EIM Market Power Mitigation.
29.40 [Not Used]
29.41 [Not Used]
29.42 [Not Used]
29.43 [Not Used]
29.44 Flexible Ramping Product

30. Bid and Self-Schedule Submission for all CAISO Markets
30.1 Bids, Including Self-Schedules
30.1.1 Day-Ahead Market
30.1.2 Real-Time Market
30.2 Bid Types
30.3 [Not Used]
30.4 Proxy Cost and Registered Cost Methodologies
30.4.1 Start-Up and Minimum Load Costs
30.5 Bidding Rules
30.5.1 General Bidding Rules
30.5.2 Supply Bids
30.5.3 Demand Bids
30.5.4 Wheeling Through Transactions
30.5.5 Scheduling Sourcing/Sinking in Same Balancing Authority Area
30.5.6 Non-Generator Resource Bids
30.5.7 E-Tag Rules and Treatment of Intertie Schedules
30.6 Bidding and Scheduling of PDRs and RDRRs
30.6.1 Bidding and Scheduling of PDRs
30.6.2 Bidding and Scheduling of RDRRs
30.6.3 Net Benefits Test for PDRs or PDRRs
30.7 Bid Validation
30.7.1 Scheduling Coordinator Access

February 20, 2020
Table of Contents
30.7.2 Timing of CAISO Validation
30.7.3 DAM Validation
30.7.4 RTM Validation
30.7.5 Validation of ETC Self-Schedules
30.7.6 Validation and Treatment of Ancillary Services Bids
30.7.7 Format and Validation of Operational Ramp Rates
30.7.8 Format and Validation of Start-Up and Shut-Down Times
30.7.9 Format and Validation of Start-Up Costs and Shut-Down Costs
30.7.10 Format and Validation of Minimum Load Costs
30.8 Bids on Out-of-Service Paths at Scheduling Points Prohibited
30.9 Virtual Bids
30.9.1 Virtual Bid Components
30.10 Use of AC Solution and Nodal MW Constraints
30.11 Filings to Recover Commitment-Related Fuel Costs
30.12 [Not Used]
  30.12.1 [Not Used]
  30.12.2 [Not Used]
  30.12.3 [Not Used]
  30.12.4 [Not Used]

31. Day-Ahead Market
31.1 Bid Submission and Validation in the Day-Ahead Market
31.2 Day-Ahead MPM Process
  31.2.1 The Market Power Mitigation Process
  31.2.2 [Not Used]
  31.2.3 Bid Mitigation
31.3 Integrated Forward Market
  31.3.1 Market Clearing and Price Determination
  31.3.2 Congestion and Transmission Losses Cost Determination
  31.3.3 Metered Subsystems
31.4 CAISO Market Adjustments to Non-Priced Quantities in the IFM
31.5 Residual Unit Commitment
  31.5.1 RUC Participation
  31.5.2 Metered Subsystem RUC Obligation
  31.5.3 RUC Procurement Target
  31.5.4 RUC Procurement Constraints
  31.5.5 Selection and Commitment of RUC Capacity
  31.5.6 Eligibility for RUC Compensation
  31.5.7 Rescission of Payments for RUC Capacity
31.6 Timing of Day-Ahead Scheduling
  31.6.1 Criteria for Temporary Waiver of Timing Requirements
  31.6.2 Information to be Published on Secure Communication System
  31.6.3 Conditions Permitting CAISO toAbort Day-Ahead Market
  31.6.4 [Not Used]
31.7 Extremely Long-Start Commitment Process
31.8 Constraints Enforced at Interties
  31.8.1 Scheduling Constraints
  31.8.2 Physical Flow Constraints

32. [Not Used]

33. [Not Used]
  33.1 [Not Used]
  33.2 [Not Used]
  33.3 [Not Used]
  33.4 [Not Used]
33.5 [Not Used]
33.6 [Not Used]
33.7 [Not Used]
33.8 [Not Used]
33.8.1 [Not Used]
33.9 [Not Used]

34. **Real-Time Market**
34.1 Inputs to the Real-Time Market
   34.1.1 Day-Ahead Market Results as Inputs to the Real-Time Market
   34.1.2 Market Model and System Information
   34.1.3 Bids in the Real-Time Market
   34.1.4 Real-Time Validation of Schedules and Bids
   34.1.5 Mitigating Bids in the RTM
   34.1.6 Eligible Intermittent Resources Forecast
34.2 The Hour-Ahead Scheduling Process
   34.2.1 The HASP Optimization
   34.2.2 Treatment of Self-Schedules in HASP
   34.2.3 Ancillary Services in the HASP and FMM
   34.2.4 HASP Results
   34.2.5 Cessation of the HASP
34.3 Real-Time Unit Commitment
   34.3.1 RTUC Optimization
   34.3.2 Commitment of Fast Start and Short Start Units
   34.3.3 [Not Used]
34.4 Fifteen Minute Market
   34.4.1 Real-Time Ancillary Services Procurement
34.5 Real-Time Dispatch
   34.5.1. Real-Time Economic Dispatch
   34.5.2 Real-Time Contingency Dispatch
   34.5.3 Real-Time Manual Dispatch
34.6 Short-Term Unit Commitment
34.7 General Dispatch Principles
34.8 Dispatch Instructions to Units, Participating Loads, PDRs, and RDRRs
34.9 Utilization of the Energy Bids
   34.9.1 [Not Used]
   34.9.2 [Not Used]
   34.9.3 [Not Used]
   34.9.4 [Not Used]
34.10 Dispatch of Energy from Ancillary Services
   34.10.1 [Not Used]
   34.10.2 [Not Used]
34.11 Exceptional Dispatch
   34.11.1 System Reliability Exceptional Dispatches
   34.11.2 Other Exceptional Dispatches
   34.11.3 Transmission-Related Modeling Limitations
   34.11.4 Reporting Requirements
34.12 CAISO Market Adjustment to Non-Priced Quantities in the RTM
   34.12.1 Increasing Supply
   34.12.2 Decreasing Supply
34.13 Means of Dispatch Communication
   34.13.1 Response Required by Resources to Dispatch Instructions
   34.13.2 Failure to Conform to Dispatch Instructions
34.14 Metered Subsystems
   34.14.1 [Not Used]
34.15 Treatment of Resource Adequacy Capacity in the RTM
34.15.1 [Not Used]
34.15.2 [Not Used]
34.15.3 [Not Used]
34.15.4 [Not Used]
34.15.5 [Not Used]
34.15.6 [Not Used]
34.16 Real-Time Activities in the Hour Prior to Settlement Period
34.16.1 Confirm Interchange Transaction Schedules (ITSs)
34.16.2 [Not Used]
34.16.3 [Not Used]
34.17 Rules for Real-Time Dispatch of Imbalance Energy Resources
34.17.1 Resource Constraints
34.17.2 Calculation of Dispatch Operating Points After Instructions
34.17.3 [Not Used]
34.17.4 Inter-Hour Dispatch of Resources with Real-Time Energy Bids
34.17.5 Inter-Hour Resources Dispatch without Real-Time Energy Bids
34.17.6 Intra-Hour Exceptional Dispatches
34.18 Ancillary Services in the Real-Time Market
34.18.1 Dispatch of Self-Provided Ancillary Services
34.18.2 Ancillary Services Requirements for RTM Dispatch
34.19 Dispatch Information and Instructions
34.19.1 Dispatch Information to be Supplied by the CAISO
34.19.2 Dispatch Information to be Supplied by SC
34.19.3 Dispatch Information to be Supplied by UDCs
34.19.4 Dispatch Information to be Supplied by PTOS
34.19.5 Dispatch Information to be Supplied by Balancing Authorities
34.20 Pricing Imbalance Energy
34.20.1 General Principles
34.20.2 Determining Real-Time LMPs
34.21 Temporary Waiver of Timing Requirements for the RTM
34.21.1 Criteria for Temporary Waiver
34.21.2 Information to be Published on Secure Communication System
34.22 Real-Time Dispatch of RDRRs
34.22.1 Testing of RDRRs

35. Market Validation and Price Correction
35.1 Market Validation
35.2 Timing of Price Correction Process
35.3 Finality of Prices Subject to the Price Correction Process
35.3.1 Price Corrections and Changes Pursuant to FERC Orders
35.3.2 Processing and Publication Issues
35.4 Scope of Price Corrections
35.5 Price Correction Methodology
35.6 Weekly Price Correction Report

36. Congestion Revenue Rights
36.1 Overview of CRRs and Procurement of CRRs
36.2 Types of CRR Instruments
36.2.1 CRR Obligations
36.2.2 CRR Options
36.2.3 Point-To-Point CRRs
36.2.4 [Not Used]
36.2.5 Monthly CRRs
36.2.6 Seasonal CRRs
36.2.7 Long Term CRRs
36.2.8 Limitations on Funding of CRRs
36.3 CRR Specifications
36.3.1 Quantity
36.3.2 Term
36.3.3 On-Peak and Off-Peak Specifications

36.4 FNM for CRR Allocation and CRR Auction
36.4.1 Adjustments to the FNM in Preparing the CRR FNM
36.4.2 Simultaneous Feasibility
36.4.3 Outages that may Affect CRR Revenue; Scheduling Requirements

36.5 Candidate CRR Holder and CRR Holder Requirements
36.5.1 Creditworthiness Requirements
36.5.2 Required Training

36.6 [Not Used]

36.7 Bilateral CRR Transactions
36.7.1 Transfer of CRRs
36.7.2 Responsibility of the CAISO
36.7.3 CRR Holder Reporting Requirement

36.8 CRR Allocation
36.8.1 Structure of the CRR Allocation Process
36.8.2 Load Eligible for CRRs and Eligible CRR Sinks
36.8.3 Eligible Sources for CRR Allocation
36.8.4 Load Migration Between LSEs
36.8.5 Load Forecasts Used to Calculate CRR MW Eligibility
36.8.6 Reconfiguration of CRRs

36.9 CRR Allocation to OBAALSEs
36.9.1 Showing of Legitimate Need
36.9.2 Prepayment of Wheeling Access Charge
36.9.3 CRR Eligible Quantities
36.9.4 Eligible CRR Sources and Sinks
36.9.5 Priority Nomination Process

36.10 CRR Allocation to Merchant Transmission Subsystems
36.11 CRR Allocation to Merchant Transmission Facilities
36.11.1 Eligibility for Merchant Transmission CRRs
36.11.2 Procedure for Allocating Merchant Transmission CRRs
36.11.3 CRRs Allocated to a Transmission Facility Project Sponsor

36.12 [Not Used]

36.13 CRR Auction
36.13.1 Scope of the CRR Auctions
36.13.2 Responsibilities of the CAISO Prior to Each CRR Auction
36.13.3 CRR Holder Creditworthiness
36.13.4 Bids in the CRR
36.13.5 Eligible Sources and Sinks for CRR Auction
36.13.6 Clearing of the CRR Auction
36.13.7 Announcement of CRR Auction Results

36.14 CRR Implications of new IBAAs or Modifying Existing IBAAs
36.14.1 Coordination of IBAA Changes with Release of CRRs
36.14.2 Modification to CRR Settlement to Reflect IBAA Changes
36.14.3 IBAA Change Impact on Adequacy of Previously-Released CRRs

36.15 [Not Used]

37. Rules of Conduct
37.1 Objectives, Definitions, and Scope
37.1.1 Purpose
37.1.2 Objectives
37.1.3 Application of Other Remedies
37.1.4 [Not Used]
37.1.5 Administration
37.2 Comply with Operating Instructions
   37.2.1 Compliance with Orders Generally
   37.2.2 [Not Used]
   37.2.3 Operations and Maintenance Practices
   37.2.4 Resource Adequacy Availability
   37.2.5 [Not Used]
   37.2.6 [Not Used]

37.3 Submit Feasible Bids and Submissions to Self-Provide
   37.3.1 Bidding Generally
   37.3.2 Exceptions

37.4 Comply with Available Reporting Requirements
   37.4.1 Reporting Availability
   37.4.2 Scheduling and Final Approval of Outages
   37.4.3 [Not Used]
   37.4.4 Enhancements and Exceptions

37.5 Provide Factually Accurate Information
   37.5.1 [Not Used]
   37.5.2 Inaccurate or Late Actual SQMD

37.6 Provide Information Required by CAISO Tariff
   37.6.1 Required Information Generally
   37.6.2 Investigation Information
   37.6.3 Audit Materials
   37.6.4 Review by FERC

37.7 [Not Used]

37.8 Process for Investigation and Enforcement
   37.8.1 Purpose; Scope
   37.8.2 Referrals to FERC
   37.8.3 Investigation
   37.8.4 Notice
   37.8.5 Opportunity to Present Evidence
   37.8.6 Results of Investigation
   37.8.7 Statement of Findings and Conclusions
   37.8.8 Officer Representative
   37.8.9 Record of Investigation
   37.8.10 Review of Determination

37.9 Administration of Sanctions
   37.9.1 Assessment, Waivers and Adjustments
   37.9.2 [Not Used]
   37.9.3 Settlement
   37.9.4 Disposition of Proceeds

37.10 Miscellaneous
   37.10.1 Time Limitation
   37.10.2 No Limitation on other Rights

37.11 Method for Calculating Penalties
   37.11.1 Inaccurate or Late Actual SQMD Penalty
   37.11.2 Inaccurate or Actual SQMD Penalty without Recalculation Settlement Statement

38. Market Monitoring

39. Market Power Mitigation Procedures
   39.1 Intent of CAISO Mitigation Measures; Additional FERC Filings
   39.2 Conditions for the Imposition of Mitigation Measures
      39.2.1 Conduct Inconsistent with Competitive Conduct
   39.3 Categories of Conduct that May Warrant Mitigation
      39.3.1 Conduct Regarding Bidding, Scheduling or Facility Operation
      39.3.2 Market Effects of Rules, Standards, Procedures, Other Items
39.3.3 Using Different Prices in Other Markets as Appropriate
39.3.4 Foregoing Category List Subject to Amendment as Appropriate
39.4 Sanctions for Physical Withholding
39.5 FERC-Ordered Measures
39.6 Rules Limiting Certain Energy, AS, and RUC Bids
39.6.1 Maximum Bid Prices
39.7 Local Market Power Mitigation for Energy Bids
39.7.1 Calculation of Default Energy Bids
39.7.2 Competitive Path Designation
39.7.3 Default Competitive Path Designations
39.8 Eligibility for Bid Adder
39.8.1 Bid Adder Eligibility Criteria
39.8.2 New Generating Units
39.8.3 Bid Adder Values
39.9 CRR Monitoring and Affiliate Disclosure Requirements
39.10 Mitigation of Exceptional Dispatches of Resources
39.10.1 Measures for Resources Eligible for Supplemental Revenues
39.10.2 Resources Not Eligible for Supplemental Revenues
39.10.3 Eligibility for Supplemental Revenues
39.10.4 Limitation on Supplemental Revenues
39.10.5 Calculation of Exceptional Dispatch Supplemental Revenues
39.11 Market Power Mitigation Applicable to Virtual Bidding
39.11.1 Affiliate Disclosure Requirements
39.11.2 Monitoring of Virtual Bidding Activity

40. Resource Adequacy Demonstration for all SCs in the CAISO BAA
40.1 Applicability
40.1.1 [Not Used]
40.2 Information Requirements for Resource Adequacy Programs
40.2.1 Requirements for CPUC Load Serving Entities
40.2.2 Non-CPUC Load Serving Entities
40.2.3 [Not Used]
40.2.4 Load-Following MSS
40.3 Local Capacity Area Resource Requirements for SCs for LSEs
40.3.1 Local Capacity Technical Study
40.3.2 Allocation of Local Capacity
40.3.3 Procurement of Local Capacity Area Resources by LSEs
40.3.4 [Not Used]
40.4 General Requirements on Resource Adequacy Resources
40.4.1 Eligible Resources and Determination of Qualifying Capacity
40.4.2 Net Qualifying Capacity Report
40.4.3 General Qualifications for Supplying Net Qualifying Capacity
40.4.4 Reductions for Testing
40.4.5 Reductions for Performance Criteria
40.4.6 Reductions for Deliverability
40.4.7 Submission of Supply Plans
40.5 [Not Used]
40.5.1 [Not Used]
40.5.2 [Not Used]
40.5.3 [Not Used]
40.5.4 [Not Used]
40.5.5 [Not Used]
40.6 Requirements for SCs and Resources for LSEs
40.6.1 Day-Ahead Availability
40.6.2 Real-Time Availability
40.6.3 [Not Used]
40.6.4 Availability Requirements for Resources with Operational Limitations that are not Qualified Use-Limits
40.6.5 Additional Availability Requirements for System Resources
40.6.6 Requirement for Partial Resource Adequacy Resources
40.6.7 [Not Used]
40.6.8 Use of Generated Bids
40.6.9 Firm Liquidated Damages Contracts Requirements
40.6.10 Exports of Energy from Resource Adequacy Capacity
40.6.11 Curtailment of Exports in Emergency Situations
40.6.12 Participating Load, PDRs, and RDRRs

40.7 Compliance
40.7.1 Other Compliance Issues
40.7.2 Penalties for Non-Compliance

40.8 CAISO Default Qualifying Capacity Criteria
40.8.1 Applicability

40.9 Resource Adequacy Availability Incentive Mechanism
40.9.1 Introduction to RAAIM
40.9.2 Exemptions
40.9.3 Availability Assessment
40.9.4 Additional Rules on Calculating Monthly and Daily Average Availability
40.9.5 Availability Standard
40.9.6 Non-Availability Charges and Availability Incentive Payments
40.9.7 Reporting

40.10 Flexible RA Capacity
40.10.1 Flexible Capacity Needs Assessment
40.10.2 Allocation of Flexible Capacity Needs
40.10.3 Flexible Capacity Categories
40.10.4 Effective Flexible Capacity
40.10.5 Flexible RA Capacity Plans
40.10.6 Flexible RA Capacity Must-Offer Obligation

41. Procurement of RMR Resources
41.1 Procurement of Reliability Must-Run Resources by the CAISO
41.2 Designation of Resources as Reliability Must-Run Resources
41.2.1 Formal Withdrawal Notice Applicable to Generating Units
41.2.2 Processing Retirement/Mothball Notices
41.3 Reliability Studies and Determination of RMR Status
41.4 Not Used
41.5 RMR Dispatch
41.5.1 Day-Ahead and RTM RMR Dispatch
41.5.2 RMR Payments
41.5.3 Provisions of Ancillary Services and other Reliability Services
41.6 [Not Used]
41.6.1 [Not Used]
41.6.2 [Not Used]
41.6.3 [Not Used]
41.6.4 [Not Used]
41.6.5 [Not Used]
41.6.6 [Not Used]

41.7 Non-Availability Charges and Availability Incentive Payments
41.8 Allocating Resource Adequacy Credits for RMR Designations
41.9 Allocation of Reliability Must-Run Contract Costs
41.9.1 [Not Used]

42. Adequacy of Facilities to Meet Applicable Reliability Criteria
42.1 Generation Planning Reserve Criteria
42.1.1 No Header
42.1.2 Applicable Reliability Criteria Met in Peak Demand
42.1.3 Applicable Reliability Criteria Not Met in Peak Demand
42.1.4 Lowest Cost Bids Satisfying Applicable Reliability Criteria
42.1.5 CAISO to Take Necessary Steps to Ensure Criteria Compliance
42.1.6 Long Term Forecast for Information Purposes
42.1.7 Reliance on Market Forces to Maximize Possible Extent
42.1.8 Allocation of Costs Incurred by CAISO in Trading Hour to SCs
42.1.9 Costs for Difference in Schedules and Real-Time Deviations

42.2 Transferred Frequency Response
42.2.1 Procurement of Transferred Frequency Response
42.2.2 Allocation of Transferred Frequency Response Costs Incurred

43. [Not Used]

43A. Capacity Procurement Mechanism
43A.1 Applicability
43A.2 Capacity Procurement Mechanism Designation
  43A.2.1 SC Failure to Show Sufficient Local Capacity Area Resources
  43A.2.2 Collective Deficiency in Local Capacity Area Resources
  43A.2.3 SC Failure to Show Sufficient Resource Adequacy Resources
  43A.2.4 CPM Significant Events
  43A.2.5 Exceptional Dispatch CPM
  43A.2.6 [Not Used]
  43A.2.7 Cumulative Deficiency in Flexible RA Capacity
43A.3 Terms of CPM Designation
  43A.3.1 SC Annual Plan Failure to Show Local Capacity Area Resources
  43A.3.2 SC Month Plan Failure to Show Local Capacity Area Resources
  43A.3.3 Annual Plan Collective LCA Resources Insufficient
  43A.3.4 SC Failure to Show Sufficient Resource Adequacy Resources
  43A.3.5 Term – CPM Significant Event
  43A.3.6 Term – Exceptional Dispatch CPM
  43A.3.7 [Not Used]
  43A.3.8 Term – Flexible Capacity CPM Designation
43A.4 Selection of Eligible Capacity Under the CPM through Competitive Solicitation Processes (CSP) and General Eligibility Rules
  43A.4.1 Offer Rules to the CSPs
  43A.4.2 Administering the CSPs
  43A.4.3 Designation Amount.
43A.5 Obligations of a Resource Designated Under the CPM
  43A.5.1 Availability Obligations.
  43A.5.2 Obligation to Provide Capacity and Termination
  43A.5.3 Availability Obligations for Simultaneous Designations.
  43A.5.4 Individualized Non-Availability Charges and Availability Incentive Payments
43A.6 Reports
  43A.6.1 CPM Designation Market Notice
  43A.6.2 Designation of a Resource Under the CPM
  43A.6.3 Non-Market and Repeated Market Commitment of Non-RA Capacity
  43A.6.4 Publication of Offers Submitted to the Competitive Solicitation Process
43A.7 Payments to Capacity Designated Under the CPM
  43A.7.1 Calculation of Monthly CPM Capacity Payment
  43A.7.2 Payments for Overlapping CPM Designations to the Same Resource
  43A.7.3 Market Payments
43A.8 Allocation of CPM Capacity Payment Costs
  43A.8.1 LSE Shortage of Local Capacity Area Resources in Annual Plan
43A.8.2 LSE Shortage of Local Capacity Area Resources in Month Plan
43A.8.3 Collective Deficiency in Local Capacity Area Resources
43A.8.4 LSE Shortage of Demand or Reserve Margin Requirement in Plan
43A.8.5 Allocation of CPM Significant Event Costs
43A.8.6 Allocation of Exceptional Dispatch CPMs
43A.8.7 [Not Used]
43A.8.8 Allocation of Flexible Capacity CPM Costs
43A.9 Crediting of CPM Capacity
43A.10 [Not Used]

44. Flexible Ramping Product
44.1 In General.
44.2 Uncertainty Awards
44.2.1 Optimization.
44.2.2 Variable Energy Resources.
44.2.3 Eligibility for Uncertainty Award.
44.2.4 Determination of Uncertainty Requirement.
44.3 Forecasted Movement
44.3.1 Generally.
44.3.2 RTD Forecasted Movement.
44.3.3 FMM Forecasted Movement.

Appendix A Master Definition Supplement

Appendix B Pro Forma Agreements
Appendix B.1 Scheduling Coordinator Agreement
Appendix B.2 Participating Generator Agreement
Appendix B.3 Net Schedule Participating Generator Agreement
Appendix B.4 Participating Load Agreement
Appendix B.5 Dynamic Scheduling Agreement for Scheduling Coordinators
Appendix B.6 MSA for Metered Entities (MSA CAISOME)
Appendix B.7 Meter Service Agreement for Scheduling Coordinators
Appendix B.8 Utility Distribution Company Operating Agreement (UDCOA)
Appendix B.9 Dynamic Scheduling Host Balancing Authority Operating Agreement (DHBBAOA)
Appendix B.10 Small Utility Distribution Company Operating Agreement (SUDCOA)
Appendix B.11 Congestion Revenue Rights (CRR) Entity Agreement
Appendix B.12 Metered Subsystem (MSS) Entity Agent Agreement
Appendix B.13 Resource-Specific System Resource Agreement
Appendix B.14 Demand Response Provider Agreement (DRPA)
Appendix B.15 Convergence Bidding Entity Agreement (CEBA)
Appendix B.16 Pseudo-Tie Participating Generator Agreement (PPGA)
Appendix B.17 Energy Imbalance Market Entity Agreement (EIMIA)
Appendix B.18 Energy Imbalance Market Scheduling Coordinator Agreement (EIMSCA)
Appendix B.19 Energy Imbalance Market Participating Resource Agreement (EIMPRA)
Appendix B.20 Energy Imbalance Market Participating Resource Scheduling Coordinator Agreement (EIMPRSCA)
Appendix B.21 Distributed Energy Resource Provider Agreement (DERPA)
Appendix B.22 Reliability Coordinator Services Agreement (RCSA)

Appendix C Locational Marginal Price
Appendix D Black Start Generating Units
Appendix E Submitted Ancillary Services Data Verification

February 20, 2020
Table of Contents
Appendix F  Rate Schedules
Appendix G  Pro Forma Reliability Must-Run Contract
Appendix I  Station Power Protocol
Appendix K  Ancillary Service Requirements Protocol (ASRP)
Appendix L  Method to Assess Available Transfer Capability
Appendix M  Dynamic Scheduling Protocol (DSP)
Appendix N  Pseudo-Tie Protocols
Appendix O  CAISO Market Surveillance Committee
Appendix P  CAISO Department of Market Monitoring
Appendix Q  Eligible Intermittent Resource Protocol (EIRP)
Appendix R  Uninstructed Deviation Penalty (UDP) Aggregation Protocol
Appendix S  Small Generator Interconnection Procedures (SGIP)
Appendix T  Small Generator Interconnection Agreement (SGIA) pro forma
Appendix U  Large Generator Interconnection Procedures (LGIP)
Appendix V  Large Generator Interconnection Agreement (LGIA) pro forma
Appendix W  Amendment No. 39 Interconnection Procedures
Appendix X  Approved Project Sponsor Agreement (APSA) pro forma
Appendix Y  Generator Interconnection Procedures (GIP) for Interconnection Requests
Appendix Z  Large Generator Interconnection Agreement for Interconnection Requests Process Under the Generator Interconnection Procedures
Appendix AA  Grandfathered Resource Adequacy Provisions for February 2018 to March 2018
Appendix BB  Standard Large Generator Interconnection Agreement (LGIA) for Interconnection Requests in a Serial Study Group pro forma
Appendix CC  Large Generator Interconnection Agreement (LGIA) for Interconnection Requests in a Queue Cluster Window pro forma
Appendix DD  Generator Interconnection and Deliverability Allocation Procedures (GIDAP)
Appendix EE  Large Generator Interconnection Agreement (LGIA) for Interconnection Requests Processed Under the Generator Interconnection and Deliverability Allocation Procedures (GIDAP) pro forma
Appendix FF  Small Generator Interconnection Agreement (SGIA) for Interconnection Requests Processed Under the Generator Interconnection and Deliverability Allocation Procedures (GIDAP) pro forma
Appendix GG  One-Time Interconnecting Generator Downsizing Opportunity
Appendix HH  Generator Interconnection Agreement Amendment Regarding Downsizing
Appendix II  Market-Based Rate Authority Suspension