



**Note: All Incremental Changes are highlighted in yellow**

**4.2 Dispatch Instruction and ~~Operating Order~~Operating Instruction**

**4.2.1 Comply with Dispatch Instructions and ~~Operating Order~~Operating Instructions**

With respect to this Section 4.2, all Market Participants, including Scheduling Coordinators, Utility Distribution Companies, Participating Transmission Owners, Participating Generators, Participating Loads, Demand Response Providers, Distributed Energy Resource Providers, Balancing Authorities (to the extent the agreement between the Balancing Authority and the CAISO so provides), and MSS Operators within the CAISO Balancing Authority Area and all System Resources shall comply fully and promptly with the Dispatch Instructions and ~~operating order~~Operating Instructions, unless such ~~operation~~ **compliance (1)** would impair public health or safety **(2) or is otherwise exempted pursuant to Section 34.13.1; or (3).** ~~A Market Participant is not required to comply with a CAISO operating order~~Operating Instruction **if** it is physically impossible for the Market Participant to perform in compliance with that ~~operating order~~**Dispatch Instruction or Operating Instruction**. Shedding Load for a System Emergency does not constitute impairment to public health or safety. The Market Participant shall immediately notify the CAISO of its inability to perform in compliance with the ~~operating order~~Operating Instruction.

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**4.6.3.4.3 Operating Requirements for a Net Scheduled Generating Unit**

A Participating Generator that has entered into a Net Scheduled PGA shall abide by CAISO Tariff provisions regarding the CAISO's ability to dispatch or curtail Generation from the Net Scheduled Generating Units listed in its Net Scheduled PGA. The CAISO shall only dispatch or curtail a Net Scheduled Generating Unit of the Participating Generator: (a) to the extent the Participating Generator bids Energy or Ancillary Services from the Net Scheduled Generating Unit into the CAISO Markets or the Energy is otherwise available to the CAISO under Section 40, subject to the restrictions on ~~operating order~~**Dispatch Instructions and Operating Instructions** set forth below; or (b) if the CAISO must dispatch or curtail the Net Scheduled Generating Unit in order to respond to an existing or imminent System Emergency or condition that would compromise CAISO Balancing Authority Area integrity or reliability as

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provided in Sections 7 and 7.6.1.

The CAISO will not knowingly issue a ~~an operating order, Dispatch Instruction or Operating Instruction~~ to a Participating Generator that has entered into a Net Scheduled PGA that: (1) requires a Participating Generator to reduce its Generation below the delineated minimum operating limit, other than in a System Emergency; (2) conflicts with operating ~~instructions-limitations~~ provided to the CAISO by the Participating Generator; or (3) results in damage to the Participating Generator's equipment, provided that any such equipment limitation has been provided to the CAISO and incorporated in the Participating Generator's operating ~~instructions-limitations, provided to the CAISO~~. If the Participating Generator: (1) receives a Schedule which requires operation below the minimum operating limit, and (2) deviates from that Schedule to continue to operate at the minimum operating limit, it will not be subject to any penalties or sanctions as a result of operating at the minimum operating limit. The Participating Generator's consequences for deviating from Schedules in Real-Time will be governed by the CAISO Tariff. The CAISO shall have the authority to coordinate and approve Generation Outage schedules for the Generating Unit(s) listed in a Net Scheduled PGA, in accordance with the provisions of Section 9.

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**4.6.3.5 [Not Used] Participating Generator with a Net Scheduled PGA**

~~A Participating Generator that is eligible for and has entered into a Net Scheduled Participating Generator Agreement shall be subject to the provisions of this Section 4.6.3.5, as reflected in the terms of the Net Scheduled PGA.~~

**4.6.3.5.1 Revenue Metering for a Net Scheduled Generating Unit**

~~In accordance with the terms of the Net Scheduled PGA and Section 10.1.3.3, a Participating Generator that has entered into a Net Scheduled PGA may net the revenue metering value for the Generation produced by each Net Scheduled Generating Unit listed in the Net Scheduled PGA and the revenue metering value for the Demand of the Self-provided Load that is (i) served by the Net Scheduled Generating Unit and (ii) electrically located on the same side of the Point of Demarcation.~~

**4.6.3.5.2 Telemetry for a Net Scheduled Generating Unit**

~~A Participating Generator that has entered into a Net Scheduled PGA may satisfy the provisions of Section 7.6.1(d) for the installation of telemetry by installing telemetry at the Point of Demarcation for the purpose of recording the net impact of the Net Scheduled Generating Unit upon the CAISO Controlled~~



Grid; provided that the installed telemetry satisfies the technical, functional, and performance requirements for telemetry set forth in the CAISO Tariff and the applicable Business Practice Manual.

**4.6.3.5.3 Market and Settlement Processes for a Net Scheduled Generating Unit**

For bidding, scheduling, billing, and Settlement purposes regarding the Net Scheduled Generating Unit Self-provided Load of a Participating Generator that has entered into a Net Scheduled PGA, measurements of Generation or Demand of the Net Scheduled Generating Unit shall be made at the Point of Demarcation. In all other respects, the Generation and Load of the Net Scheduled Generating Unit shall be subject to the applicable provisions of the CAISO Tariff regarding bidding, scheduling, billing, and Settlements.

**4.6.3.5.4 Operating Requirements for a Net Scheduled Generating Unit**

A Participating Generator that has entered into a Net Scheduled PGA shall abide by CAISO Tariff provisions regarding the CAISO's ability to dispatch or curtail Generation from the Net Scheduled Generating Units listed in its Net Scheduled PGA. The CAISO shall only dispatch or curtail a Net Scheduled Generating Unit of the Participating Generator: (a) to the extent the Participating Generator bids Energy or Ancillary Services from the Net Scheduled Generating Unit into the CAISO Markets or the Energy is otherwise available to the CAISO under Section 40, subject to the restrictions on operating orders set forth below; or (b) if the CAISO must dispatch or curtail the Net Scheduled Generating Unit in order to respond to an existing or imminent System Emergency or condition that would compromise CAISO Balancing Authority Area integrity or reliability as provided in Sections 7 and 7.6.1.

The CAISO will not knowingly issue an operating order to a Participating Generator that has entered into a Net Scheduled PGA that: (1) requires a Participating Generator to reduce its Generation below the delineated minimum operating limit, other than in a System Emergency; (2) conflicts with operating instructions provided to the CAISO by the Participating Generator; or (3) results in damage to the Participating Generator's equipment, provided that any such equipment limitation has been provided to the CAISO and incorporated in the Participating Generator's operating instructions provided to the CAISO. If the Participating Generator: (1) receives a Schedule which requires operation below the minimum operating limit, and (2) deviates from that Schedule to continue to operate at the minimum operating limit, it will not be subject to any penalties or sanctions as a result of operating at the minimum



operating limit. The Participating Generator's consequences for deviating from Schedules in Real-Time will be governed by the CAISO Tariff.

The CAISO shall have the authority to coordinate and approve Generation Outage schedules for the Generating Unit(s) listed in a Net Scheduled PGA, in accordance with the provisions of Section 9.

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**6.3.3 Contents of Dispatch Instructions**

Dispatch Instructions shall include, but are not limited to, the following information:

- (a) specific resource being dispatched;
- (b) specific MW value of the resource being dispatched;
- (c) specific type of instruction (action required);
- (d) time the resource is required to being-begin initiating the Dispatch Instruction;
- (e) time the resource is required to achieve the Dispatch Instruction;
- (f) time of notification of the Dispatch Instruction; and
- (g) any other information which the CAISO considers relevant.

**6.4 Communication of Operating OrderOperating Instructions**

The CAISO shall use normal verbal and electronic communication to issue operating-orderOperating Instructions to the Connected Entity.

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**7.7.6 System Operations in the Event of a Market Disruption**

- (a) **Actions in the Event of a Market Disruption, to Prevent a Market Disruption, or to Minimize the Extent of a Market Disruption. The CAISO may take one or more of the following actions in the event of a Market Disruption, to prevent a Market Disruption, or to minimize the extent of a Market Disruption:**
  - (1) postpone the closure of the applicable CAISO Market;



- (2) remove Bids, including Self-Schedules, that have resulted in a Market Disruption previously, pursuant to Section 7.7.7;
  - (3) suspend the applicable CAISO Market and manually copy Bids, including Self-Schedules, from the previous day or other applicable market period;
  - (4) suspend the applicable CAISO Market and use submitted Bids, including Self-Schedules, to the extent possible;
  - (5) suspend the applicable CAISO Market, in which case import/export schedules shall be determined by submittal of E-Tags;
  - (6) suspend the applicable CAISO Market and apply Administrative Prices established pursuant to Section 7.7.9;
  - (7) utilize Exceptional Dispatch and issue ~~operating order~~ Operating Instructions for resources to be committed and dispatched to meet Demand;
  - (8) suspend or limit the ability of all Scheduling Coordinators to submit Virtual Bids on behalf of Convergence Bidding Entities at specific Eligible PNodes or Eligible Aggregated PNodes, or at all Eligible PNodes or Eligible Aggregated PNodes; or
  - (9) postpone the publication of DAM market results.
- (b) **Choices of Action to Prevent a Market Disruption, in the Event of a Market Disruption, or to Minimize the Extent of a Market Disruption.** The CAISO's choice of action in the event of a Market Disruption shall depend on the CAISO Market that is disrupted, the cause of the Market Disruption, the expected time to resolve the Market Disruption, and the status of submitted Bids and Self-Schedules at the time the Market Disruption occurs.
- (c) **Notification. In the event the CAISO may not publish DAM results, it will notify Market Participants as set forth in Section 7.7.9(b)(2).**
- (d) **Reports.** The CAISO shall include reports on actions taken pursuant to this Section 7.7.6 in the Exceptional Dispatch report provided in Section 34.911.4 of the CAISO Tariff and shall include –
- (1) the frequency and types of actions taken by the CAISO pursuant to this Section



7.7.6;

- (2) the nature of the specific Market Disruptions that caused the CAISO to take action and the CAISO rationale for taking such actions, or the Market Disruption that was successfully prevented or minimized by the CAISO as a result of taking action pursuant to its authority under this Section 7.7.6; and
- (3) general information on the Bids removed pursuant to Section 7.7.7, which may include the megawatt quantity, point of interconnection, specification of the Day-Ahead versus Real-Time Bid, and Energy or Ancillary Services Bid, and the CAISO's rationale for removal; except that any Scheduling Coordinator-specific individual Bid information will be submitted on a confidential basis consistent with FERC's rules and regulations governing requests for confidential treatment of commercially sensitive information.

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**8.10.8 Rescission of Payments for Ancillary Service Capacity**

If Ancillary Services capacity that receives an AS Award or Self-Provided Ancillary Services capacity provided from a resource is Undispatchable Capacity, Unavailable Capacity, or Undelivered Capacity during the relevant Settlement Interval, then payments will be rescinded as described in this Section 8.10.8 and settled in accordance with Section 11.10.9. If the CAISO determines that non-compliance of a resource, with an ~~operating order~~[Operating Instruction](#) or Dispatch Instruction from the CAISO, or with any other applicable technical standard under the CAISO Tariff, causes or exacerbates system conditions for which the WECC imposes a penalty on the CAISO, then the Scheduling Coordinator of such resource shall be assigned that portion of the WECC penalty which the CAISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the CAISO Tariff.

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**16.5.1 System Emergency Exceptions**

As set forth in Section 4.2.1, all Market Participants, including Scheduling Coordinators, Utility Distribution Companies, Participating TOs, Participating Generators (which includes Pseudo-Ties of Generating Units to the CAISO Balancing Authority Area), Participating Loads, Demand Response Providers, Distributed Energy Resource Providers, Balancing Authorities (to the extent the agreement between the Balancing Authority and the CAISO so provides), and MSS Operators within the CAISO Balancing Authority Area and all System Resources must comply fully and promptly with CAISO Dispatch Instructions and ~~operating-order~~Operating Instructions, unless such operation would impair public health or safety ~~or is otherwise exempted pursuant to Section 34.13.1~~. The CAISO will honor the terms of Existing Contracts, provided that in a System Emergency and circumstances in which the CAISO considers that a System Emergency is imminent or threatened, holders of Existing Rights must follow CAISO ~~operating order~~Operating Instructions even if those ~~operating-order~~Operating Instructions directly conflict with the terms of Existing Contracts, unless such ~~operating-order~~Operating Instructions are inconsistent with the terms of an agreement between the CAISO and a Balancing Authority. In the event of a conflict between the CAISO Tariff and an agreement between the CAISO and a Balancing Authority, the agreement will govern. For this purpose CAISO ~~operating-order~~Operating Instructions to shed Load shall not be considered as an impairment to public health or safety. This section does not prohibit a Scheduling Coordinator from modifying its Bid or re-purchasing Energy in the Real-Time Market.

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**17.2.1 System Emergency Expectations**

As set forth in Section 4.2.1, all Market Participants, including Scheduling Coordinators, Utility Distribution Companies, Participating TOs, Participating Generators(which includes Pseudo-Ties of Generating Units to the CAISO Balancing Authority Area), Participating Loads, Demand Response Providers, Distributed Energy Resource Providers, Balancing Authorities (to the extent the agreement between the Balancing Authority and the CAISO so provides), and MSS Operators within the CAISO Balancing Authority Area



and all System Resources must comply fully and promptly with the CAISO's Dispatch Instructions and ~~operating-order~~Operating Instructions, unless such operation would impair public health or safety or is otherwise exempted pursuant to Section 34.13.1.

The CAISO will honor the terms of TORs, provided that in a System Emergency and circumstances in which the CAISO considers that a System Emergency is imminent or threatened, to enable the CAISO to exercise its responsibilities as Balancing Authority in accordance with Applicable Reliability Criteria, holders of TORs must follow CAISO ~~operating-order~~Operating Instructions even if those ~~operating order~~Operating Instructions directly conflict with the terms of applicable Existing Contracts or any other contracts pertaining to the TORs, unless such ~~operating-order~~Operating Instructions are inconsistent with the terms of an agreement between the CAISO and a Balancing Authority. In the event of a conflict between the CAISO Tariff and an agreement between the CAISO and a Balancing Authority, the agreement will govern. For this purpose CAISO ~~operating-order~~Dispatch Instructions or Operating Instructions to shed Load shall not be considered as an impairment to public health or safety. This section does not prohibit a Scheduling Coordinator from modifying its Bid or re-purchasing Energy in the RTM.

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**31.5.7 Rescission of Payments for RUC Capacity**

If capacity committed in RUC provided from a Generating Unit, Participating Load, Proxy Demand Resource, System Unit or System Resource is Undispatchable Capacity or Undelivered Capacity during the relevant Settlement Interval, then payments will be rescinded as described in this Section 31.5.7 and settled in accordance with Section 11.2.2.2. If the CAISO determines that non-compliance of a Participating Load, Proxy Demand Resource, Generating Unit, System Unit or System Resource with an ~~operating-order~~Operating Instruction or Dispatch Instruction from the CAISO, or with any other applicable technical standard under the CAISO Tariff, causes or exacerbates system conditions for which the WECC imposes a penalty on the CAISO, then the Scheduling Coordinator of such Participating Load, Proxy Demand Resource, Generating Unit, System Unit or System Resource shall be assigned that portion of





the WECC penalty which the CAISO reasonably determines is attributable to such non-compliance, in addition to any other penalties or sanctions applicable under the CAISO Tariff. The rescission of payments in this Section 31.5.7 shall not apply to a capacity payment for any particular RUC Capacity if the RUC Availability Payment is less than or equal to zero (0).

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### 34.7 General Dispatch Principles

The CAISO shall conduct all Dispatch activities consistent with the following principles:

- (1) The CAISO shall issue AGC instructions electronically as often as every four (4) seconds from its Energy Management System (EMS) to resources providing Regulation and on Automatic Generation Control to meet NERC and WECC performance requirements;
- (2) In each run of the RTED or RTCD the objective will be to meet the projected Energy requirements and Uncertainty Requirements over the applicable forward-looking time period of that run, subject to transmission and resource operational constraints, taking into account the short term CAISO Forecast Of CAISO Demand or forecast of EIM Demand, adjusted as necessary by the CAISO or EIM operator to reflect scheduled changes to Interchange and non-dispatchable resources in subsequent Dispatch Intervals;
- (3) Dispatch Instructions will be based on Energy Bids for those resources that are capable of intra-hour adjustments and will be determined through the use of SCED except when the CAISO must utilize the RTDD and RTMD;
- (4) When dispatching Energy from awarded Ancillary Service capacity the CAISO will not differentiate between Ancillary Services procured by the CAISO and Submissions to Self-Provide an Ancillary Service;
- (5) The Dispatch Instructions of a resource for a subsequent Dispatch Interval shall take as a point of reference the actual output obtained from either the State Estimator solution or the last valid telemetry measurement and the resource's operational ramping capability.



For Multi-Stage Generating Resources the determination of the point of reference is further affected by the MSG Configuration and the information contained in the Transition Matrix;

- (6) In determining the Dispatch Instructions for a target Dispatch Interval while at the same time achieving the objective to minimize Dispatch costs to meet the forecasted conditions of the entire forward-looking time period, the Dispatch for the target Dispatch Interval will be affected by: (a) Dispatch Instructions in prior intervals, (b) actual output of the resource, (c) forecasted conditions in subsequent intervals within the forward-looking time period of the optimization, and (d) operational constraints of the resource, such that a resource may be dispatched in a direction for the immediate target Dispatch Interval that is different than the direction of change in Energy needs from the current Dispatch Interval to the next immediate Dispatch Interval, considering the applicable MSG Configuration;
- (7) Through Start-Up Instructions the CAISO may instruct resources to start up or shut down, or may reduce Load for Participating Loads, Reliability Demand Response Resources, and Proxy Demand Resources, over the forward-looking time period for the RTM based on submitted Bids, Start-Up Costs and Minimum Load Costs, Pumping Costs and Pump Shut-Down Costs, as appropriate for the resource, or for Multi-Stage Generating Resource as appropriate for the applicable MSG Configuration, consistent with operating characteristics of the resources that the SCED is able to enforce. In making Start-Up or Shut-Down decisions in the RTM, the CAISO may factor in limitations on number of run hours or Start-Ups of a resource to avoid exhausting its maximum number of run hours or Start-Ups during periods other than peak loading conditions;
- (8) The CAISO shall only start up resources that can start within the applicable time periods of the various CAISO Markets Processes that comprise the RTM;
- (9) The RTM optimization may result in resources being shut down consistent with their Bids and operating characteristics provided that: (a) the resource does not need to be on-line to provide Energy, (b) the resource is able to start up within the applicable time periods of



the processes that comprise the RTM, (c) the Generating Unit is not providing Regulation or Spinning Reserve, and (d) Generating Units online providing Non-Spinning Reserve may be shut down if they can be brought up within ten (10) minutes as such resources are needed to be online to provide Non-Spinning Reserves;

- (10) For resources that are both providing Regulation and have submitted Energy Bids for the RTM, Dispatch Instructions will be based on the Regulation Ramp Rate of the resource rather than the Operational Ramp Rate if the Dispatch Operating Point-Target remains within the Regulating Range. The Regulating Range will limit the Ramping of Dispatch Instructions issued to resources that are providing Regulation;
- (11) For Multi-Stage Generating Resources the CAISO will issue Dispatch Instructions by Resource ID and Configuration ID;
- (12) The CAISO may issue Transition Instructions to instruct resources to transition from one MSG Configuration to another over the forward-looking time period for the RTM based on submitted Bids, Transition Costs and Minimum Load Costs, as appropriate for the MSG Configurations involved in the MSG Transition, consistent with Transition Matrix and operating characteristics of these MSG Configurations. The RTM optimization will factor in limitations on Minimum Run Time and Minimum Down Time defined for each MSG configuration and Minimum Run Time and Minimum Down Time at the Generating Unit.
- (13) The CAISO may make Reliability Demand Response Resources eligible for Dispatch in accordance with applicable Operating Procedures either: (a) after issuance of a warning notice and immediately prior to a need for the CAISO to attempt to obtain assistance from neighboring Balancing Authorities or imports; (b) during stage 1, stage 2, or stage 3 of a System Emergency; or (c) for a transmission-related System Emergency.

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#### **34.10 Dispatch of Energy from Ancillary Services**

The CAISO may issue Dispatch Instructions to Participating Generators, Participating Loads, Proxy Demand Resources, (via communication with the Scheduling Coordinators of Demand Response Providers) System Units and System Resources contracted to provide Ancillary Services (either procured through the CAISO Markets, Self-Provided by Scheduling Coordinators, or dispatched in accordance with the RMR Contract) for the Supply of Energy. During normal operating conditions, the CAISO may Dispatch those Participating Generators, Participating Loads, Proxy Demand Resources, System Units and System Resources that have contracted to provide Spinning and Non-Spinning Reserve, except for those reserves designated as Contingency Only, in conjunction with the normal Dispatch of Energy. Contingency Only reserves are Operating Reserve capacity that have been designated, either by the Scheduling Coordinator or the CAISO, as available to supply Energy in the Real-Time only in the event of the occurrence of an unplanned Outage, a Contingency or an imminent or actual System Emergency. During normal operating conditions, the CAISO may also elect to designate any reserve not previously identified as Contingency Only by Scheduling Coordinator as Contingency Only reserves. In the event of an unplanned Outage, a Contingency or a threatened or actual System Emergency, the CAISO may dispatch Contingency Only reserves. If Contingency Only reserves are dispatched through the RTCD, which as described in Section 34.5.2 only Dispatches in the event of a Contingency, such Dispatch and pricing will be based on the original Energy Bids. If Contingency Only reserves are dispatched in response to a System Emergency that has occurred because the CAISO has run out of Economic Bids when no Contingency event has occurred, the RTED will Dispatch such Contingency Only reserves using maximum Bid prices as provided in Section 39.6.1 as the Energy Bids for such reserves and will set prices accordingly. If a Participating Generator, Participating Load, System Unit or System Resource that is supplying Operating Reserve is dispatched to provide Energy, the CAISO shall replace the Operating Reserve as necessary to maintain NERC and WECC reliability standards, including any requirements of the NRC. If the CAISO uses Operating Reserve to meet Real-Time Energy requirements, and if the CAISO needs Operating Reserves to satisfy NERC and WECC reliability standards, including any requirements of the NRC, the CAISO shall restore the Operating Reserves to the extent necessary to meet NERC and WECC reliability standards, including any requirements of the NRC through either the



procurement of additional Operating Reserve in the RTM or the Dispatch of other Energy Bids in SCED to allow the resources that were providing Energy from the Operating Reserve to return to their Dispatch Operating ~~Point~~Target. The Energy Bid Curve is not used by the AGC system when Dispatching Energy from Regulation. For Regulation Up capacity, the upper portion of the resource capacity from its Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve. For a resource providing Regulation Up or Operating Reserves the remaining Energy Bid Curve shall be allocated to any RTM AS Awards in the following order from higher to lower capacity where applicable: (a) Spinning Reserve; and (b) Non-Spinning Reserve. For resources providing Regulation Up, the applicable upper Regulation Limit shall be used as the basis of allocation if it is lower than the upper portion of the Energy Bid Curve. The remaining portion of the Energy Bid Curve, if there is any, shall constitute a Bid for RTM Energy. For Regulation Down capacity, the lower portion of the resource capacity from its applicable Regulation Limit is allocated to Regulation regardless of its Energy Bid Curve.

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**34.13.1 Response Required by Resources to Dispatch Instructions**

Resources must:

- (a) unless otherwise stated in the Dispatch Instruction, comply with a Dispatch Instruction immediately upon receipt;
- (b) respond to all Dispatch Instructions in accordance with Good Utility Practice;
- (c) meet voltage criteria in accordance with the provisions in the CAISO Tariff;
- (d) meet any applicable Operational Ramp Rates;
- (e) respond to Dispatch Instructions for Ancillary Services within the required time periods and (in the case of Participating Generators providing Regulation) respond to AGC from the EMS; **and**
- (f) if a time frame is stated in a Dispatch Instruction, respond to a Dispatch Instruction within the stated time frame **and**
- (g) **not intentionally generate below DOT.**

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Notwithstanding the requirement to follow Dispatch Instructions or Operating Instructions, an Eligible Intermittent Resource may produce to its capability, in excess of its Dispatch Operating Target, when its Dispatch Instruction is equal to its forecasted output. An Eligible Intermittent Resource in the process of developing a CAISO forecast pursuant to Section 3.1 of Appendix Q may produce to its capability, in excess of its Dispatch Operating Target, when its Dispatch Instruction is equal to its scheduled output. Notwithstanding the above, the CAISO may issue an Operating Instruction directing the Eligible Intermittent Resource not to follow exceed its Dispatch Operating Target if necessary to maintain system reliability consistent with Section 7.6 or 7.7 of the CAISO tariff. Upon receiving such an Operating Instruction, an Eligible Intermittent Resource must return to its Dispatch Operating Target and not generate in excess of its Dispatch Operating Target until the Operating Instruction expires, except when physically impossible. When such an Operating Instruction is in effect, Eligible Intermittent Resources must should follow a linear ramp between Dispatch Operating Targets, except when physically impossible.

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34.17.1 Resource Constraints

The SCED shall enforce the following resource physical constraints:

- (a) **Minimum and maximum operating resource limits.** Outages and limitations due to transmission clearances shall be reflected in these limits. The more restrictive operating or regulating limit shall be used for resources providing Regulation so that the SCED shall not Dispatch them outside their Regulating Range.
- (b) **Forbidden Operating Regions.** When ramping in the Forbidden Operating Region, the implicit ramp rate will be used as determined based on the time it takes for the resource to cross its Forbidden Operating Region. A resource can only be ramped through a Forbidden Operating Region after being dispatched into a Forbidden Operating Region. The CAISO will not Dispatch a resource within its Forbidden Operating Regions in the Real-Time Market, except that the CAISO may Dispatch the resource through the Forbidden Operating Region in the direction that the resource entered the Forbidden



Operating Region at the maximum applicable Ramp Rate over consecutive Dispatch Intervals. A resource with a Forbidden Operating Region cannot provide Ancillary Services in a particular fifteen (15) minute Dispatch Interval unless that resource can complete its transit through the relevant Forbidden Operating Region within that particular Dispatch Interval.

- (c) **Operational Ramp Rates and Start-Up Times.** The submitted Operational Ramp Rate for resources shall be used as the basis for all Dispatch Instructions, provided that the Dispatch Operating **Point-Target** for resources that are providing Regulation remains within their applicable Regulating Range. The Regulating Range will limit the Ramping of Dispatch Instructions issued to resources that are providing Regulation. The Ramp Rate for Non-Dynamic System Resources cleared in the FMM will not be observed. Rather, the ramp of the Non-Dynamic System Resource will respect inter-Balancing Authority Area Ramping conventions established by WECC. Ramp Rates for Dynamic System Resources will be observed like Participating Generators in the RTD. Each Energy Bid shall be Dispatched only up to the amount of **Imbalance Energy** that can be provided within the Dispatch Interval based on the applicable Operational Ramp Rate. The Dispatch Instruction shall consider the relevant Start-Up Time as, if the resource is off-line, the relevant Operational Ramp Rate function, and any other resource constraints or prior commitments such as Schedule changes across hours and previous Dispatch Instructions. The Start-Up Time shall be determined from the Start-Up Time function and when the resource was last shut down. The Start-Up Time shall not apply if the corresponding resource is on-line or expected to start.
- (d) **Maximum number of daily Start-Ups.** The SCED shall not cause a resource to exceed its daily maximum number of Start-Ups.
- (e) **Minimum Run Time and Down Time.** The SCED shall not start up off-line resources before their Minimum Down Time expires and shall not shut down on-line resources before their Minimum Run Time expires. For Multi-Stage Generating Resources these requirements shall be observed both for the Generating Unit and MSG Configuration.



- (f) **Operating (Spinning and Non-Spinning) Reserve.** The SCED shall Dispatch Spinning and Non-Spinning Reserve subject to the limitations set forth in Section 34.18.3.
- (g) **Non-Dynamic System Resources.** If Dispatched, each Non-Dynamic System Resource flagged for hourly pre-dispatch in the next Trading Hour shall be Dispatched to operate at a constant level over the entire Trading Hour. The HASP shall perform the hourly pre-dispatch for each Trading Hour once prior to the Operating Hour. The hourly pre-dispatch shall not subsequently be revised by the SCED and the resulting HASP Block Intertie Schedules are financially binding and are settled pursuant to Section 11.54.
- (h) Daily Energy use limitation to the extent that Energy limitation is expressed in a resource's Bid. If the Energy Limits are violated for purposes of Exceptional Dispatches for System Reliability, the Bid will be settled as provided in Section 11.5.6.1.

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**37.2 Comply with ~~Operating Order~~Operating Instructions**

**37.2.1 Compliance with Orders Generally**

**37.2.1.1 Expected Conduct**

Market Participants must comply with ~~operating order~~Operating Instructions issued by the CAISO as authorized under the CAISO Tariff. ~~For purposes of enforcement under this Section 37.2, an operating order shall be an order(s) from the CAISO directing a Market Participant to undertake, a single, clearly specified action (e.g., the operation of a specific device, or change in status of a particular Generating Unit) that is intended by the ISO to resolve a specific operating condition.~~ Deviation from an ADS Dispatch Instruction shall not constitute a violation of this Section 37.2.1.1. A Market Participant's failure to obey an ~~operating order~~Operating Instruction containing multiple instructions to address a specific operating condition will result in a single violation of Section 37.2. If some limitation prevents the Market Participant from fulfilling the action requested by the CAISO then the Market Participant must promptly and directly communicate the nature of any such limitation to the CAISO, pursuant to Section 4.2.1.

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Appendix A

Master Definition Supplement

- Dispatch Instruction

An instruction by the CAISO for an action with respect to specific equipment, or to a resource for increasing or decreasing its Energy Supply or Demand from the Day-Ahead Schedule, RUC Schedule, and Day-Ahead AS Award to a specified Dispatch Operating Point-Target pertaining to Real-Time operations.

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- Dispatch Operating Point

The expected trajectory of the resource operating point as it ramps from one Dispatch Operating Target to the next; the ramping across Dispatch Intervals is linear, unless the operational ramp rate of the resource changes during the ramp or achievement of the trajectory is not physically possible. The expected operating point of a resource that has received a Dispatch Instruction. The resource is expected to operate at the Dispatch Operating Point after completing the Dispatch Instruction, taking into account any relevant Ramp Rate and time delays. Energy expected to be produced or consumed above or below the Day-Ahead Schedule in response to a Dispatch Instruction constitutes Instructed Imbalance Energy. For resources that have not received a Dispatch Instruction, the Dispatch Operating Point defaults to the corresponding Day-Ahead Schedule.

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- Dispatch Operating Target

The expected operating point of a resource that has received a Dispatch Instruction. The resource is expected to operate at the Dispatch Operating Target after completing the Dispatch Instruction, taking into account any relevant Ramp Rate and time delays. Energy expected to be produced or consumed above or below the Day-Ahead Schedule in response to a Dispatch Instruction constitutes Instructed Imbalance Energy. For resources that have not received a Dispatch Instruction that have a Day-Ahead Schedule, the Dispatch Operating Target defaults to the corresponding Day-Ahead Schedule.

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**- Operating Instruction**

A command by operating personnel responsible for the Real-time operation of the interconnected Bulk Electric System to change or preserve the state, status, output, or input of an Element of the Bulk Electric System or Facility of the Bulk Electric System **or the facilities of a Participating Generator**. An Operating Instruction will be communicated consistent with **three-part communication the practices described requirements** in NERC Reliability Standard COM-002-4.

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**Appendix B.3 Net Scheduled Participating Generator Agreement**

**ARTICLE IV**

**GENERAL TERMS AND CONDITIONS**

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**4.2.5 Limitations on CAISO Operating Order **Dispatch Instructions and Operating Instructions**.**

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The CAISO will not knowingly issue a **Dispatch Instruction or operating order** **Operating Instruction** that: (1) requires the Participating Generator to reduce its Generation below the delineated minimum operating limit, other than in a System Emergency; (2) conflicts with operating **instructions limitations** provided by the Participating Generator; or (3) results in damage to the Participating Generator's equipment, provided that any such equipment limitation has been provided to the CAISO and incorporated in the Participating Generator's operating **instructions limitations** to the CAISO. If the Participating Generator: (1) receives a Schedule which requires operation below the minimum operating limit, and (2) deviates from that Schedule to continue to operate at the minimum operating limit, it will not be subject to any penalties or sanctions as a result of operating at the minimum operating limit. The Participating Generator's consequences for deviating from Schedules in Real-Time will be governed by the CAISO Tariff.

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Appendix M Dynamic Scheduling Protocol (DSP)

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1.5 Operating and Scheduling Requirements

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1.5.7 Notwithstanding any Dispatches of the System Resource in accordance with the CAISO Tariff, the CAISO shall have the right to issue operating-order Dispatch Instructions or Operating Instructions as defined in Section 37.2.1.1 of the CAISO Tariff to the System Resource either directly or through the Host Balancing Authority Area for emergency or contingency reasons, or to ensure the CAISO's compliance with operating requirements based on WECC or NERC requirements and policies (e.g., WECC's Unscheduled Flow Reduction Procedure). However, such operating-order Dispatch Instructions or Operating Instructions may be issued only within the range of the CAISO-accepted Energy and Ancillary Services, Bids for a given Operating Hour (or the applicable "sub-hour" interval).

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1.5.8 If there is no Dynamic Schedule in the CAISO's Day-Ahead Market or RTM, the dynamic signal must be at "zero" ("0") except when in response to CAISO's Dispatch Instructions associated with accepted Ancillary Services or Energy Bids.

1.5.9 The Scheduling Coordinator for the Dynamic System Resource must have the ability to override the associated Dynamic Schedule in order to respond to the operating-order Dispatch Instructions or Operating Instructions of the CAISO or the Host Balancing Authority.

1.5.10 Unless the Dynamic System Resource (1) is implemented as a directly-telemetered Load following functionality, (2) is base-loaded Regulatory Must-Take Generation, (3) responds to a CAISO intra-hour Dispatch Instruction, or (4) is an Eligible Intermittent Resource, the Dynamic Schedule representing such resource must follow WECC-approved practice of 20-minute ramps centered at the top of the hour. The CAISO does not provide any special Settlements treatment nor offer any CAISO Tariff exemptions for dynamic Load following functionalities.

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2.5 Operating and Scheduling Requirements

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2.5.5 Notwithstanding any Dispatches of the Generating Unit in accordance with the CAISO Tariff, the CAISO shall have the right to issue operating-order Dispatch Instructions or Operating Instructions as defined in Section 37.2.1.1 of the CAISO Tariff to the Generating Unit either directly or through the receiving Balancing Authority Area for emergency or contingency reasons, or to ensure the CAISO's compliance with operating requirements based on WECC or NERC requirements and policies (e.g., WECC's Unscheduled Flow Reduction Procedure). However, such operating order Dispatch Instructions or Operating Instructions may be issued only within the range of the CAISO-accepted Energy Bids for a given Operating Hour (or the applicable "sub-hour" interval).

2.5.6 If there is no Dynamic Schedule in the CAISO's Day-Ahead Market or RTM, the dynamic signal must be at "zero" ("0").

2.5.7 The Scheduling Coordinator for a Dynamic Schedule of an export of Energy from a Generating Unit must have the ability to override the associated Dynamic Schedule in order to respond to the operating-order Dispatch Instructions or Operating Instructions of the CAISO or the Host Balancing Authority.

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Appendix N Pseudo-Tie Protocol

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1.2 CAISO Operating, Technical, and Business Requirements

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1.2.1.3 A Pseudo-Tie Generating Unit shall operate under the terms of the CAISO Tariff applicable to the Generating Units of Participating Generators in the CAISO Balancing Authority Area except as expressly provided, including requirements to promptly follow CAISO Dispatch Instructions, Exceptional Dispatch Instructions, operating-order Operating Instructions as defined in Section 37.2.1.1 of the CAISO Tariff, and other instructions, without limitation, pursuant to Sections 7.6



and 7.7 of the CAISO Tariff and any CAISO Operating Procedure established specifically for the Pseudo-Tie, including in the event of an overload condition at the associated pre-determined CAISO Intertie.

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1.2.2.3 If there is no Scheduled Generation in the DAM or Real-Time markets, a Pseudo-Tie Generating Unit shall not generate except when issued an Exceptional Dispatch or ~~operating-order~~Operating Instruction as defined in ~~Section 37.2.1.1 of~~ the CAISO Tariff from the CAISO.

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2.2.1.10 The output of a Pseudo-Tie generating unit may be subject to real-time curtailments and ~~operating-instruction~~Operating Instructions as defined in ~~Section 37.2.1.1 of~~ the CAISO Tariff as directed by the CAISO in accordance with Good Utility Practices.

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Appendix V

Large Generator Interconnection Agreement

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ARTICLE 13. EMERGENCIES

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13.5 CAISO and Participating TO Authority.

13.5.1 General. The CAISO and Participating TO may take whatever actions or inactions, including issuance of dispatch instructions, with regard to the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System they deem necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System, and (iii) limit or prevent damage, and (iv) expedite restoration of service.

The Participating TO and the CAISO shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or the Interconnection Customer's



Interconnection Facilities. The Participating TO or the CAISO may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing the Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with black start (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall comply with all of the CAISO's Dispatch Instructions and Operating Instructions and Participating TO's dispatch instructions of operating instructionOperating Instructions concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

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**Appendix Z**

**LGIA For Interconnection Requests Process Under the GIP**

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**ARTICLE 13. EMERGENCIES**

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**13.5 CAISO and Participating TO Authority.**

**13.5.1 General.** The CAISO and Participating TO may take whatever actions or inactions, including issuance of dispatch instructions, with regard to the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System they deem necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System, and (iii)



limit or prevent damage, and (iv) expedite restoration of service.

The Participating TO and the CAISO shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or the Interconnection Customer's Interconnection Facilities. The Participating TO or the CAISO may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing the Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with black start (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall comply with all of the CAISO's Dispatch Instructions and Operating Instructions and Participating TO's dispatch instructions of operating instructionOperating Instructions concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

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**Appendix BB**

**Standard Large Generator Interconnection Agreement**

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**ARTICLE 13. EMERGENCIES**

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**13.5 CAISO and Participating TO Authority.**

**13.5.1 General.** The CAISO and Participating TO may take whatever actions or inactions, including issuance of dispatch instructions, with regard to the CAISO Controlled Grid or the Participating



TO's Interconnection Facilities or Distribution System they deem necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System, and (iii) limit or prevent damage, and (iv) expedite restoration of service.

The Participating TO and the CAISO shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or the Interconnection Customer's Interconnection Facilities. The Participating TO or the CAISO may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing the Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with black start (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall comply with all of the CAISO's **Dispatch Instructions and Operating Instructions** and Participating TO's **dispatch instructions or operating instruction** ~~Operating Instruction~~ concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

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**CAISO TARIFF APPENDIX CC**

**Large Generator Interconnection Agreement**

**for Interconnection Requests in a Queue Cluster Window**

**13.5 CAISO and Participating TO Authority.**

**13.5.1 General.** The CAISO and Participating TO may take whatever actions or inactions,





including issuance of dispatch instructions, with regard to the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System they deem necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System, and (iii) The Participating TO and the CAISO shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or the Interconnection Customer's Interconnection Facilities. The Participating TO or the CAISO may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing the Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with black start (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and the Interconnection Customer's Interconnection Facilities. Interconnection Customer shall comply with all of the CAISO's **Dispatch instructions and Operating Instructions** and Participating TO's **dispatch instructions or operating instruction** ~~Operating Instruction~~ concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

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Appendix EE

Large Generator Interconnection Agreement

for Interconnection Requests Processed under the Generator Interconnection and Deliverability

Allocation Procedures

13.5 CAISO and Participating TO Authority.

13.5.1 General. The CAISO and Participating TO may take whatever actions or inactions, including issuance of dispatch instructions, with regard to the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System they deem necessary during an Emergency Condition in order to (i) preserve public health and safety, (ii) preserve the reliability of the CAISO Controlled Grid or the Participating TO's Interconnection Facilities or Distribution System, and (iii) limit or prevent damage, and (iv) expedite restoration of service.

The Participating TO and the CAISO shall use Reasonable Efforts to minimize the effect of such actions or inactions on the Large Generating Facility or the Interconnection Customer's Interconnection Facilities. The Participating TO or the CAISO may, on the basis of technical considerations, require the Large Generating Facility to mitigate an Emergency Condition by taking actions necessary and limited in scope to remedy the Emergency Condition, including, but not limited to, directing the Interconnection Customer to shut-down, start-up, increase or decrease the real or reactive power output of the Large Generating Facility; implementing a reduction or disconnection pursuant to Article 13.5.2; directing the Interconnection Customer to assist with black start (if available) or restoration efforts; or altering the outage schedules of the Large Generating Facility and the Interconnection Customer's Interconnection Facilities.

Interconnection Customer shall comply with all of the CAISO's Dispatch Instructions and Operating Instructions and Participating TO's dispatch instructions or operating instructionOperating Instructions concerning Large Generating Facility real power and reactive power output within the manufacturer's design limitations of the Large Generating Facility's equipment that is in service and physically available for operation at the time, in compliance with Applicable Laws and Regulations.

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