

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (c) If the resource is committed to provide local and/or system RA capacity and Flexible RA Capacity in a month, but does not provide both for the full month, the CAISO prorates the number of days that local and/or system Resource Adequacy Capacity and Flexible RA Capacity was provided against the total number of days in the month.

40.9.5 Availability Standard

- (a) **Percentage.** The Availability Standard shall be 96.5 percent each month.
- (b) **Availability Range.** The CAISO shall apply the Availability Standard with a bandwidth of plus and minus two percent, which produces a range with a lower bound of 94.5 percent and an upper bound of 98.5 percent.

[Petition for Limited Tariff Waiver to Process out-of-time requests for Scheduling Coordinators to Recertify Units as Acquired Resources is pending with FERC in Docket No. ER18-857.]

40.9.6 Non-Availability Charges and Availability Incentive Payments

- (a) **Non-Availability Charges.** A resource providing local and/or system Resource Adequacy Capacity, Flexible RA Capacity, or CPM Capacity that is subject to the availability assessment in accordance with Section 40.9.3 and whose monthly availability calculation under Section 40.9.4 is below the lower bound of the monthly Availability Standard of 94.5 percent will be subject to a Non-Availability Charge for the month.
- (b) **Availability Incentive Payments.** A resource providing local and/or system Resource Adequacy Capacity, Flexible RA Capacity, or CPM Capacity that is subject to the availability assessment under Section 40.9.3 and whose availability calculation under Section 40.9.4 is above the upper bound of the monthly Availability Standard of 98.5 percent will be eligible for an Availability Incentive Payment for the month.
- (c) **No Payment or Charge.** A resource providing local and/or system Resource Adequacy Capacity, Flexible RA Capacity, or CPM Capacity that is subject to the availability assessment under Section 40.9.3 and whose monthly availability calculation under Section 40.9.4 is equal to or between the lower bound of 94.5 percent and the upper bound of 98.5 percent of the Availability Standard will not be assessed a Non-Availability Charge nor paid an Availability Incentive Payment.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (d) **Advisory Period.** During the advisory period of March 1, 2016 through April 30, 2016, the CAISO will show the Non-Availability Charges and Availability Incentive Payments on Settlement Statements but will not include those Non-Availability Charges and Availability Incentive Payments on Invoices for financial settlement.

40.9.6.1 Determination of Non-Availability Charge

(a) **Calculation**

- (1) **RA Capacity.** The Non-Availability Charge for a Resource Adequacy Resource providing local, system, or Flexible RA Capacity shall be determined by the resource's average monthly RA and Flexible RA MWs multiplied by the difference between the lower bound of the monthly Availability Standard of 94.5 percent and the resource's monthly availability percentage, and multiplying the product by the RAAIM price.
- (2) **CPM Capacity.** The Non-Availability Charge for a Resource Adequacy Resource providing CPM Capacity shall be determined by the resource's average monthly CPM MWs multiplied by the difference between the lower bound of the monthly Availability Standard of 94.5 percent and the resource's monthly availability percentage, and multiplying the product by the maximum of the resource's CPM price and the RAAIM price.
- (b) **RAAIM Price.** The RAAIM price shall be 60 percent of the CPM Soft-Cap Price in Section 43.4.1.1.

40.9.6.2 Determination of Availability Incentive Payment

- (a) **Self-Funding.** The Availability Incentive Payment will be funded entirely through the monthly Non-Availability Charges assessed.
- (b) **Eligible Capacity.** The capacity of a Resource Adequacy Resource providing local, system or Flexible RA Capacity that is eligible to receive an Availability Incentive Payment shall be the resource's average monthly MWs of capacity that exceed the upper bound of the Availability Standard.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

(c) **Calculation.**

- (1) The monthly Availability Incentive Payment rate will equal the total Non-Availability Charges assessed for the month plus any unpaid funds under Section 40.9.6.2(d), divided by the total Resource Adequacy Capacity eligible to receive the Availability Incentive Payment that month.
- (2) The Availability Incentive Payment rate shall not exceed three times the Non-Availability Charge rate.
- (3) The Availability Incentive Payment the CAISO shall pay to each eligible resource shall equal the product of its eligible capacity and the Availability Incentive Payment rate.

- (d) **Unpaid Funds.** Any Non-Availability Charge funds that are not distributed to Resource Adequacy Resources eligible to receive Availability Incentive Payments in a month will be added to the funds available for Availability Incentive Payments in the next month and will continue to roll over to the successive month until paid out or December 31, at which time the funds will be distributed to Load Serving Entities based on their load ratio share for the year.

40.9.7 Reporting

By July 1 of each year, the CAISO will provide an informational report that will be posted on the CAISO Website and include information on the average actual availability each month of Resource Adequacy Resources, the total amount of Non-Availability Charges assessed and the total amount of Availability Incentive Payments made.

40.10 Flexible RA Capacity

40.10.1 Flexible Capacity Needs Assessment

The CAISO shall annually conduct a study to determine the Flexible Capacity Need of the CAISO Balancing Authority Area for each month of the next calendar year and provide the results of the study in the Flexible Capacity Needs Assessment.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

40.10.1.1 Process

- (a) **Schedule.** The CAISO shall conduct the study pursuant to the schedule set forth in the Business Practice Manual, which shall include a process for stakeholders to review and provide input on the study methodology and assumptions and on the draft study results.
- (b) **Completion and Distribution.** The CAISO shall provide the final results of the Flexible Capacity Needs Assessment to each Local Regulatory Authority in the CAISO Balancing Authority Area and post the Flexible Capacity Needs Assessment on the CAISO Website no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be submitted under Section 40.

40.10.1.2 Required Information from LSEs

- (a) **Submission Requirement.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required by this Section, no later than January 15 each year, for use in the CAISO's study to generate minute-by-minute net-load data that will be used to determine the Maximum Three-Hour Net-Load Ramp for each month.
- (b) **Required Information.** The Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area must submit information that –
 - (1) covers the calendar year in which the information is submitted and each year in the next five-year period;
 - (2) identifies each wind and solar resource connected to the CAISO Controlled Grid, and distributed wind and solar resources, that is owned, in whole or in part, by the Load Serving Entity, or under contractual commitment to the Load Serving Entity or the Load-following MSS Load Serving Entity, for all or a portion of its capacity;
 - (3) indicates the status of the resource as either in service or in development with its expected commercial operation date;
 - (4) for each wind and solar resource, specifies the MWs of installed capacity, renewable energy area location, MWs of flexible capacity owned by or

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

contractually committed to the Load Serving Entity, and other information required by the Business Practice Manual;

- (5) describes the balancing services, if any, provided by another balancing authority area for a wind or solar resource that is located outside of the CAISO Balancing Authority Area and that is owned by or contractually committed to the Load Serving Entity; and
- (6) forecasts the MW of installed, behind-the-meter solar capacity in the Load Serving Entity's service area or part of its forecast served load.

- (c) **Confidential Treatment.** The CAISO will treat the resource-specific information provided under Section 40.10.1.2(b) as confidential under Section 20.
- (d) **Aggregated Information.** In addition to the required resource-specific information, the Scheduling Coordinator for each Load Serving Entity in the CAISO Balancing Authority Area shall submit the information required in Section 40.10.1.2(b) on an aggregated basis, as described in the Business Practice Manual, for inclusion in the Flexible Capacity Needs Assessment that will be posted on the CAISO Website.

40.10.1.2.1 Incomplete or Inaccurate Information.

- (a) **Rerun of Study.** If the CAISO finds that a Load Serving Entity submitted incomplete or inaccurate information under Section 40.10.1.2(b), which was used in the calculation of the Flexible Capacity Need for the next calendar year, the CAISO may rerun its study using corrected information to recalculate Flexible Capacity Need for the entire year.
- (b) **Criteria for Rerun.** The CAISO will not rerun its study to recalculate the Flexible Capacity Need unless:
 - (1) the incomplete or inaccurate information represents a net error in excess of either (i) 200 MW; or (ii) one percent of the total MWs of wind and solar capacity submitted under Section 40.10.1.2(b) for any month; and
 - (2) the CAISO has sufficient time to obtain corrected information and complete rerunning the study for the next calendar year by May 1.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (c) **Revised Flexible Capacity Need.** If the CAISO determines that the requirements in Sections 40.10.1.2.1(a) and (b) are met, the CAISO will recalculate the Flexible Capacity Need for the next calendar year and will no later than May 1 post a revised Flexible Capacity Needs Assessment on the CAISO Website.

40.10.1.3 Flexible Capacity Need Methodology

The CAISO shall conduct the study to determine the Flexible Capacity Need for the system for each month of the next calendar year as follows:

- (1) forecast the minute-to-minute system load and net-load using actual load data, as adjusted for monthly peak load growth, and generation profiles for wind and solar resources that are in-service or expected to be in-service during the study period;
- (2) calculate the Maximum Three-Hour Net-Load Ramp for each month using the forecasted minute-to-minute system net-load;
- (3) determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each month;
- (4) may include a forecast adjustment, as described in Section 40.10.1.4; and
- (5) compute the resultant Flexible Capacity Need for each month based on the sum of the Maximum Three-Hour Net-Load Ramp, and the higher of the most severe single contingency or 3.5 percent of the forecasted monthly peak load.

40.10.1.4 Flexible Capacity Need Forecast Adjustment

- (a) The Flexible Capacity Need determination may include a positive or negative forecast adjustment to capture a systemic difference between the value determined in Section 40.10.1.3(3) and the historic amount of Operating Reserves met by Flexible Capacity;
- (b) The CAISO will determine the need for a forecast adjustment in consultation with the CPUC and other Local Regulatory Authorities, and as part of the stakeholder process under Section 40.10.1.1; and
- (c) The amount of the forecast adjustment calculated for each month shall not exceed the forecasted monthly peak Operating Reserves multiplied by the difference between (i) the historic percentage of Operating Reserves met by Flexible RA Capacity and (ii) the

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

percentage calculation that results from dividing the quantity determined in Section 40.10.1.3(3) by the forecasted monthly peak Operating Reserves.

40.10.1.5 Flexible Capacity Category Need

(a) The CAISO shall calculate the total system amount of Flexible Capacity needed in each Flexible Capacity Category, for each month of the next calendar year to ensure that forecast system operational needs will be met, as follows:

- (1) The minimum quantity of Flexible Capacity needed in the Flexible Capacity Category for base ramping resources for each month will be calculated on a seasonal basis based on the system ramping characteristics identified in the Flexible Capacity Needs Assessment and the changes in MWs of the Maximum Secondary Three-Hour Net-Load Ramps for each month within a season, and will be specified in MW and as the percentage of total Flexible Capacity Needs.
- (2) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for peak ramping resources will be calculated for each month as the difference between the minimum quantity needed in the Flexible Capacity Category for base ramping resources and the total Flexible Capacity Need, and will be specified in MW and as the percentage of total Flexible Capacity Needs.
- (3) The maximum quantity of Flexible Capacity in the Flexible Capacity Category for super-peak ramping resources will be five percent of the total Flexible Capacity Need.

(b) The CAISO shall provide the results of the Flexible Capacity Category need determination with the Flexible Capacity Needs Assessment.

40.10.2 Allocation of Flexible Capacity Needs

The CAISO will calculate each Local Regulatory Authority's allocable share of the total system Flexible Capacity Need, and the contribution of each of the Local Regulatory Authority's jurisdictional Load Serving Entities to the Maximum Three-Hour Net-Load Ramp used to calculate its share of the total system Flexible Capacity Need. The CAISO shall provide these calculations to each Local Regulatory Authority no later than 120 days prior to the date that the annual Flexible RA Capacity Plans must be

submitted under Section 40. Nothing in this Section 40 obligates any individual Load Serving Entity to demonstrate that it has procured Flexible Capacity Resources to satisfy a minimum or maximum quantity needed, as applicable, within each Flexible Capacity Category.

40.10.2.1 Calculation of LRA Allocations

- (a) **Allocation of Maximum Three-Hour Net-Load Ramp.** The CAISO will calculate the Local Regulatory Authority's allocable share of the Flexible Capacity Need as the average of the sum of its jurisdictional Load Serving Entities' change in load, minus the change in wind output, minus the change in solar PV output, minus the change in solar thermal output during the five highest three-hour net-load changes in the month.
- (b) **Allocation of MSSC or Forecasted Peak Load.** The CAISO will determine the higher of the most severe single contingency or 3.5 percent of forecasted peak load for each Load Serving Entity based on the respective Load Serving Entity's peak load ratio share, and calculate each Local Regulatory Authority's allocable share based on the sum of its jurisdictional Load Serving Entities' shares.
- (c) **Allocation of Forecast Adjustment.** If the CAISO includes a forecast adjustment in its draft study results, it will allocate the forecast adjustment using the same methodology set forth in Section 40.10.2.1(b).

40.10.2.2 Allocation to Load-Following MSS

- (a) The CAISO will calculate the allocable share of the Flexible Capacity Need for each Load-following MSS as –
 - (1) the Local Regulatory Authority's average percent contribution to the change in wind output, minus the change in solar PV output, minus the change in solar thermal output, during the five highest three-hour net-load changes in the month, for resources not included in the Load-following MSS Load Serving Entity's resource portfolio; and
 - (2) plus the lesser of the MSS contribution calculated under Section 40.10.2.2(a)(1) or 3.5 percent of its forecasted peak load.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (3) plus the Load-following MSS Load Serving Entity's allocable share of any forecast adjustment under Section 40.10.1.4.
- (b) The CAISO will deduct the Flexible Capacity Need allocated to each Load-following MSS from the calculation to determine whether a cumulative deficiency in Flexible RA Capacity exists under Section 43.2.7.
- (c) If the Load-following MSS Load Serving Entity's contribution to the three-hour net-load ramp calculated under Section 40.10.2.2(a)(1) is less than its contribution to the 3.5 percent of expected peak load, the CAISO will not reallocate that difference to other Local Regulatory Authorities to determine whether a cumulative deficiency in Flexible RA Capacity exists under Section 43.2.7.

40.10.3 Flexible Capacity Categories

40.10.3.1 Flexible Capacity Category Calculation

A resource qualifies to provide Flexible RA Capacity in each Flexible Capacity Category for which it meets the qualifications set forth in this Section 40.10.3.

40.10.3.2 Flexible Capacity Category – Base Ramping Resources

- (a) **Resource Criteria.** Base ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.2(b) and (c) –
 - (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, submitted daily for the 17-hour period from 5:00 a.m. through 10:00 p.m.;
 - (2) The resource must be capable of providing Energy for a minimum of six hours up to its full Effective Flexible Capacity value including PMin;
 - (3) The resource must be capable of being available seven days a week;
 - (4) The resource must be able to provide the minimum of (i) two Start-Ups per day for every day of the month or sixty Start-Ups per month, or (ii) the number of Start-Ups allowed by its operational limits, including minimum up and minimum

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

down time; and

- (5) The resource must not have annual or monthly limitations on the number of Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.2(a)(1) through (4).

(b) **Use-Limited Resource**

- (1) A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.2(a), except that use-limited resources providing Flexible RA Capacity are not required to submit bids for Ancillary Services in the Day-Ahead Market or the Real-Time Market.
- (2) A Load Serving Entity may include in this category a combined resource consisting of two Use-Limited Resources that do not individually meet the minimum operational and availability requirements but in combination meet the criteria in Section 40.10.3.2(a).
- (3) The Flexible RA Capacity amount for the combined resource will be less than or equal to the lowest Effective Flexible Capacity value shown on the Resource Flexible RA Capacity Plan for a resource in the combination.
- (4) The combined resource shall be subject to the must-offer obligation in Section 40.10.6.1(e)(2) for the Flexible RA Capacity amount shown on the monthly Resource Flexible RA Capacity Plan for the combination.

- (c) **Non-Generator Resource.** A Non-Generator Resource that elects to provide Flexible RA Capacity may be included in this category if it meets the criteria in Section 40.10.3.2(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.

40.10.3.3 Flexible Capacity Category – Peak Ramping Resources

- (a) **Resource Criteria.** Peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.3(b) and (c) --

- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

Services that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted daily for a five-hour period to be determined by the CAISO on a seasonal basis;

- (2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;
- (3) The resource must be capable of being available seven days a week.
- (4) The resource must be capable of at least one Start-Up per day; and
- (5) The resource must not have annual or monthly limitations on the number of unit Start-Ups or the amount of energy produced that, on a daily basis, are lower than the requirements in Section 40.10.3.3(a)(1) through (4).

(b) **Use-Limited Resource.**

- (1) A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.3(a), except that use-limited resources providing Flexible RA Capacity are not required to submit bids for Ancillary Services in the Day-Ahead Market or the Real-Time Market.
- (2) A Load Serving Entity may include in this category a combined resource consisting of two Use-Limited Resources that do not individually meet the minimum operational and availability requirements but in combination meet the criteria in Section 40.10.3.3(a).
- (3) The Flexible RA Capacity amount for the combined resource will be less than or equal to the lowest Effective Flexible Capacity value shown on the Resource Flexible RA Capacity Plan for a resource in the combination.
- (4) The combined resource shall be subject to the must-offer obligation in Section 40.10.6.1(e)(2) for the Flexible RA Capacity amount shown on the monthly Resource Flexible RA Capacity Plan for the combination.

(c) **Non-Generator Resource.** A Non-Generator Resource that elects to provide Flexible RA Capacity may be included in this category if it meets the criteria in Section

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

40.10.3.3(a). A Non-Generator Resource that elects to provide Flexible RA Capacity and Regulation Energy Management is not eligible to be included in this category.

- (d) **Base Ramping Resource.** A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources also qualifies to be included in this category as a peak ramping resource; however, a resource that meets only the qualifications of a peak ramping resource does not qualify as a base ramping resource.

40.10.3.4 Flexible Capacity Category – Super-Peak Ramping Resources.

- (a) **Resource Criteria.** Super-peak ramping resources must meet all of the following criteria, except as provided in Sections 40.10.3.4(b), (c) and (d) --
- (1) The resource must be capable of providing Flexible RA Capacity to the CAISO Markets through Economic Bids for Energy and Economic Bids for Ancillary Services Bids that are not flagged as Contingency Only in the Day-Ahead Market, if and to the extent the resource is certified to provide Ancillary Services, which must be submitted each weekday that is not holiday, for a five-hour period to be determined by the CAISO on a seasonal basis;
 - (2) The resource must be capable of providing Energy for a minimum of three continuous hours up to its full Effective Flexible Capacity value including PMin;
 - (3) The resource must be capable of being available on weekdays that are not holidays, as defined in the Business Practice Manual;
 - (4) The resource must be capable of at least one Start-Up per day; and
 - (5) The resource must be capable of responding to at least five CAISO dispatches per month, during the five-hour period of the must offer obligation, for the resource to Start-Up.
- (b) **Use-Limited Resource.**
- (1) A Use-Limited Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a), except that use-limited resources providing Flexible RA Capacity are not required to submit bids for Ancillary Services in the Day-Ahead Market or the Real-Time Market.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (2) A Load Serving Entity may include in this category a combined resource consisting of two Use-Limited Resources that do not individually meet the minimum operational and availability requirements but in combination meet the criteria in Section 40.10.3.4(a).
 - (3) The Flexible RA Capacity amount for the combined resource will be less than or equal to the lowest Effective Flexible Capacity value shown on the Resource Flexible RA Capacity Plan for a resource in the combination.
 - (4) The combined resource shall be subject to the must-offer obligation in Section 40.10.6.1(e)(2) for the Flexible RA Capacity amount shown on the monthly Resource Flexible RA Capacity Plan for the combination.
- (c) **Non-Generator Resource.** A Non-Generator Resource may be included in this category if it meets the criteria in Section 40.10.3.4(a) and is not registered in the CAISO's Master File as a Regulation Energy Management resource.
- (d) **Non-Generator Resource, Regulation Energy Management.** A Non-Generator Resource that is a Regulation Energy Management resource may be included in this category if it meets the following criteria –
- (1) The resource must be capable of providing Regulation Energy Management to the CAISO Markets through Economic Bids for Regulation Up and Regulation Down submitted daily for a 17-hour period from 5:00 a.m. through 10:00 p.m.;
 - (2) The resource shall not submit bids to provide Energy;
 - (3) The resource must be capable of being available seven days a week;
 - (4) The resource must be capable of unlimited Start-Ups per day; and
 - (5) The resource must be registered as a Non-Generator Resource providing Regulation Energy Management in the CAISO's Master File.
- (e) **Base Ramping and Peak Ramping Resources.** A resource that meets the qualifications of the Flexible Capacity Category for base ramping resources or peak ramping resources also qualifies to be included in this category as a super-peak ramping resource; however, a resource that meets only the qualifications of a super-peak ramping

resource does not qualify as a base ramping resource or a peak ramping resource.

40.10.3.5 Flexible Capacity Category by Resource

The CAISO will provide to the Scheduling Coordinator of each resource a non-binding determination of the Flexible Capacity Category with the highest qualifications for which the resource qualifies to provide Flexible Capacity, as provided in Section 40.10.4.

40.10.3.6 Non-Eligible Resources

Intertie resources and imports, other than Pseudo-Ties and Dynamic Scheduled resources, are not eligible to provide Flexible RA Capacity.

40.10.4 Effective Flexible Capacity

The CAISO shall calculate the Effective Flexible Capacity value for each resource. The CAISO shall publish the draft and final lists of the Effective Flexible Capacity values for such resources and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity on the CAISO Website each year in accordance with the schedule for publishing the Net Qualifying Capacity values, as set forth in the BPM, for use in the next calendar year.

40.10.4.1 Effective Flexible Capacity Calculation

(a) **Flexible Resources.** The CAISO will calculate the Effective Flexible Capacity value of a resource, for use (i) if a Local Regulatory Authority has not established criteria for calculating the Effective Flexible Capacity value for eligible resource types, and (ii) for determining if a cumulative deficiency exists under Sections 43.2.7(a) and (b), as follows, except as provided in Sections 40.10.4.1 (b) through (f) –

- (1) If the Start-Up Time of the resource is greater than 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from PMin to Net Qualifying Capacity multiplied by 180 minutes. The Effective Flexible Capacity shall not exceed the difference between the PMin and PMax of the resource.
- (2) If the Start-Up Time of the resource is less than or equal to 90 minutes, the Effective Flexible Capacity value shall be the weighted average ramp rate of the resource calculated from zero to Net Qualifying Capacity multiplied by 180

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

minutes. The Effective Flexible Capacity shall not exceed the Net Qualifying Capacity of the resource.

- (b) **Hydroelectric Generating Unit.** The Effective Flexible Capacity of a hydroelectric generating unit will be the amount of capacity from which the resource can produce Energy consistently for 6 hours based upon the resource's physical storage capacity, which shall not exceed its Net Qualifying Capacity.
- (c) **Proxy Demand Resource.** The Effective Flexible Capacity of a Proxy Demand Resource will be based on the resource's actual MWs of load modification in response to a dispatch by the CAISO during a test event. In determining the Effective Flexible Capacity of a Proxy Demand Resource, the CAISO will –
- (1) conduct the test at a random time during the flexible capacity must-offer obligation period for the resource;
 - (2) use the applicable baseline load data, as described in the CAISO Tariff or Business Practice Manual, to measure the load modification of the Proxy Demand Resource being tested; and
 - (3) pay the resource's bid price for the testing period.
- (d) **Energy Storage Resource.** The Effective Flexible Capacity value for an energy storage resource will be determined as follows –
- (1) for an energy storage resource that provides Flexible RA Capacity but not Regulation Energy Management, the Effective Flexible Capacity value will be the MW output range the resource can provide over three hours of charge/discharge while constantly ramping.
 - (2) for an energy storage resource that provides Flexible RA Capacity and Regulation Energy Management, the Effective Flexible Capacity value will be the resource's 15-minute energy output capability.
- (e) **Multi-Stage Generating Resource.** The Effective Flexible Capacity value for a Multi-Stage Generating Resource will be calculated using the longest Start-Up Time of the resource's configuration that has the lowest PMin.

- (f) **Combined Heat and Power Resource.** The Effective Flexible Capacity value of a Combined Heat and Power Resource will be the lesser of (i) the resource's Net Qualifying Capacity, or (ii) the MW difference between the CHP resource's maximum output and its minimum operating level, such quantity not to exceed the quantity of generating capacity capable of being delivered over a three-hour period.

40.10.4.2 EFC Omission or Correction

- (a) **Draft List.** The posted draft list of Effective Flexible Capacity values may be modified only as follows –
 - (1) If the Scheduling Coordinator for a resource that was not included on the draft list of Effective Flexible Capacity values seeks to have the resource included on the list, it must no later than September 1 submit a request to the CAISO either showing that the resource meets the criteria in Section in 40.10.4.1 or is capable of meeting the criteria, and provide documentation to enable the CAISO to determine the resource's Effective Flexible Capacity pursuant to the criteria in Section 40.10.4.1.
 - (2) If the Scheduling Coordinator for a resource that was included on the draft list of Effective Flexible Capacity values seeks to change the value for that resource, it must submit documentation no later than September 1 that supports such a change.
 - (3) The CAISO will review the information submitted and notify the Scheduling Coordinator whether the change was accepted at least 15 days prior to posting the final list of Effective Flexible Capacity values on the CAISO Website.
- (b) **Final List.** The CAISO will post on the CAISO Website the final list of Effective Flexible Capacity values for resources that are in service and the Flexible Capacity Categories for which each resource qualifies to provide Flexible Capacity. The final list shall be used for the next calendar year and shall not be changed during that year, except as follows –
 - (1) If the Net Qualifying Capacity or PMax of a resource included on the final list increases or decreases during the year, and that value is changed in the Master

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

File, the Scheduling Coordinator for the resource may request that the Effective Flexible Capacity value be recalculated to account for the change; or

- (2) If a new resource, achieves commercial operation during the year, the Scheduling Coordinator for the resource may request that the CAISO calculate and add its Effective Flexible Capacity value and the Flexible Capacity Categories for which the resource qualifies to provide Flexible Capacity to the final list as an in-service resource.

- (c) **Disputes.** Any disputes as to the CAISO's determination regarding Effective Flexible Capacity shall be subject to the CAISO ADR Procedure.

40.10.5 Flexible RA Capacity Plans

40.10.5.1 LSE Flexible RA Capacity Plans

- (a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly LSE Flexible RA Capacity Plans for each Load Serving Entity it represents; except that an annual plan for 2015 is not required. A Load-Following MSS is not required to submit annual or monthly LSE Flexible RA Capacity Plans.
- (b) **Annual Plan.** Each annual LSE Flexible RA Capacity Plan must –
 - (1) demonstrate that the Load Serving Entity has procured for each month at least 90 percent of the annual Flexible RA Capacity requirement determined by the CAISO; or the amount of Flexible RA Capacity required by the Load Serving Entity's Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;
 - (2) identify the resources the Load Serving Entity intends to rely on to provide the Flexible RA Capacity, but need not identify the flexible resource adequacy categories; and
 - (3) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (c) **Monthly Plan.** The monthly LSE Flexible RA Capacity Plan must –
- (1) demonstrate that the Load Serving Entity procured 100 percent of the total monthly Flexible RA Capacity requirement determined by the CAISO; or the monthly amount of Flexible RA Capacity required by the Local Regulatory Authority, if the Local Regulatory Authority has set such requirement;
 - (2) include information for purposes of the validation under Section 40.10.5.3(a) and the evaluation for cumulative deficiency under Section 40.10.5.3(c) that shows the MW of Flexible RA Capacity the Load Serving Entity designates based on the total monthly requirement determined by the CAISO within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category; or only if the Local Regulatory Authority has established its own flexible capacity requirement, shows the MW of Flexible RA Capacity the Load Serving Entity designates based on the total monthly requirement determined by the Local Regulatory Authority within the minimum or maximum quantity for each Flexible Capacity Category required by the Local Regulatory Authority, if applicable;
 - (3) identify all resources the Load Serving Entity will rely on to provide the Flexible RA Capacity and for each resource specify the Flexible Capacity Category in which the Flexible RA Capacity will be provided; and
 - (4) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (d) **Correction to Monthly Plan.** The Scheduling Coordinator for the Load Serving Entity may submit at any time from 45 days through 11 days in advance of the first day of the month covered by the plan, a revision to its monthly LSE Flexible RA Capacity Plan to correct an error in the plan. The CAISO will not accept any revisions to a monthly LSE Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Load Serving Entity demonstrates good cause for the change and explains why it was not possible to submit

the change earlier.

40.10.5.2 Resource Flexible RA Capacity Plans

- (a) **Submission Requirement.** A Scheduling Coordinator must submit annual and monthly Resource Flexible RA Capacity Plans for each resource it represents that provides Flexible RA Capacity; except that an annual plan is not required for 2015.
- (b) **Annual Plan.** The annual Resource Flexible RA Capacity Plan shall --
 - (1) verify the resource's agreement to provide Flexible RA Capacity during the next Resource Adequacy Compliance Year; and
 - (2) include all information and be submitted no later than the last Business Day in October, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (c) **Monthly Plan.** The monthly Resource Flexible RA Capacity Plan shall --
 - (1) verify the resource's agreement to provide Flexible RA Capacity during the month;
 - (2) include an affirmative representation by the Scheduling Coordinator submitting the plan that the CAISO is entitled to rely on the accuracy of the information provided in the plan to perform those functions set forth in this Section 40; and
 - (3) include all information and be submitted to the CAISO at least 45 days in advance of the first day of the month covered by the plan, in accordance with the reporting requirements and schedule set forth in the Business Practice Manual.
- (d) **Correction to Monthly Plan.** The Scheduling Coordinator for the resource may correct an error in the plan by submitting a revision to its monthly Resource Flexible RA Capacity Plan at any time from 45 days through 11 days in advance of the first day of the month covered by the plan. The CAISO will not accept any revisions to a monthly Resource Flexible RA Capacity Plan from 10 days in advance of the relevant month through the end of the month, unless the Scheduling Coordinator for the Resource demonstrates good cause for the change and explains why it was not possible to submit the change earlier.

40.10.5.3 Review of Flexible RA Capacity Plans

(a) **Validation for Deficiency in an Individual LSE Plan.**

- (1) If the Local Regulatory Authority has not established its own flexible capacity procurement requirements, the CAISO will validate the annual and monthly LSE Flexible RA Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities, and will use the Effective Flexible Capacity value for each resource calculated under Section 40.10.4. The CAISO will determine whether each Load Serving Entity met its annual or monthly total Flexible RA Capacity Requirement, and for the monthly LSE Flexible RA Capacity Plan, whether it met the total monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category.
- (2) If the Local Regulatory Authority has established its own flexible capacity procurement requirements, the CAISO will not validate the individual LSE Flexible Capacity Plans for that Local Regulatory Authority's jurisdictional Load Serving Entities.

(b) **Identification of Discrepancy.** The CAISO will compare all LSE Flexible RA Capacity Plans and Resource Flexible RA Capacity Plans to identify any discrepancy in the Resource Adequacy Resources listed or the amount of the Resource Adequacy Capacity committed.

(c) **Evaluation for Cumulative Deficiency.**

- (1) The CAISO will evaluate the annual LSE Flexible RA Capacity Plans of all Load Serving Entities on a cumulative basis to determine whether the total amount of Flexible RA Capacity shown in the plans meets 90 percent of the annual Flexible Capacity Need determined by the CAISO pursuant to Section 40.10.1 or whether a cumulative deficiency may exist under Section 43.2.7(a).
- (2) The CAISO will evaluate the monthly Flexible RA Capacity Plans of all Load Serving Entities to determine whether (i) the total amount of Flexible RA Capacity shown in the plans, limited to the maximum monthly requirement for each

covered by the plans.

- (c) **Unresolved Discrepancy.** If the CAISO issues a notice of discrepancy under Section 40.10.5.5(a) and is not advised that the discrepancy is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.5.6 LRA Deficiency

- (a) **Finding and Notification.** If the CAISO's evaluation under Section 40.10.5.3(c) finds a cumulative deficiency in Flexible RA Capacity, the CAISO will –
- (1) identify each Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need using the cumulative amount of Flexible RA Capacity that the Local Regulatory Authority's jurisdictional Load Serving Entities included in their annual and monthly Flexible RA Capacity Plans in total and, for the monthly Flexible RA Capacity Plans, in each Flexible Capacity Category;
 - (2) identify each Load Serving Entity that (i) is subject to the jurisdiction of a Local Regulatory Authority that did not meet its allocable share of the Flexible Capacity Need under Section 40.10.5.6, and (ii) did not include sufficient Flexible RA Capacity in an annual or monthly plan to meet its allocated Flexible RA Capacity Requirement or did not meet the monthly requirement within the minimum or maximum quantity, as applicable, for each Flexible Capacity Category, based on the allocation methodology of the Local Regulatory Authority if it has established its own methodology for allocating the Flexible Capacity Need to its jurisdictional Load Serving Entities;
 - (3) notify each Local Regulatory Authority identified under Section 40.10.5.6(a)(1) and the Scheduling Coordinator for each Load Serving Entity identified under Section 40.10.5.6(a)(2) of the cumulative deficiency in an attempt to resolve any deficiency in accordance with the procedures set forth in the Business Practice Manual; and

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (4) provide the notice at least 25 days in advance of the first day of the month covered by the plan and include the reasons the CAISO believes a cumulative deficiency exists.
- (b) **Resolved Deficiency.** If the CAISO provides a notice of cumulative deficiency under Section 40.10.5.6(a), and the deficiency is resolved, the Scheduling Coordinator for the Load Serving Entity shall demonstrate, no less than 11 days prior to the first day of the month covered by the LSE Flexible RA Capacity Plan, that the identified deficiency is cured by submitting a revised LSE Flexible RA Capacity Plan.
- (c) **Unresolved Deficiency.** If the CAISO provides a notice of deficiency under Section 40.10.5.6(a) and is not advised that the deficiency is resolved, the CAISO will use the information contained in the Resource Flexible RA Capacity Plan to set the obligations of resources under Section 40.10 and/or to assign any costs incurred under this Section 40 and Section 43.

40.10.6 Flexible RA Capacity Must-Offer Obligation

40.10.6.1 Day-Ahead and Real-Time Availability

- (a) **Must-Offer Obligation.** The Scheduling Coordinator for a resource supplying Flexible RA Capacity must submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services that are not flagged as Contingency Only in the Day-Ahead Market for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the applicable Trading Hours that is capable of being economically dispatched as follows, except as provided in Section 40.10.6.1(e) through(h) –
 - (1) Flexible Capacity Category for base ramping resources - the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week;
 - (2) Flexible Capacity Category for peak ramping resources - the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, seven days a week; and

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (3) Flexible Capacity Category for super-peak ramping resources – the five-hour period determined for each season by the CAISO's Flexible Capacity Needs Assessment, weekdays, except holidays and as provided in Section 40.10.6.1(h), until the resource receives during the five-hour period of the must offer obligation and responds to five CAISO dispatches for Start-Up during the month, after which the resource will not be subject to a must-offer obligation as a super-peak ramping resource for the remainder of that month; however, any other must-offer obligations for Resource Adequacy Capacity will still apply.
- (b) **Availability Requirement.** During the period of the applicable must-offer obligation, a Flexible RA Capacity Resource must be operationally available except for limitations specified in the Master File, legal or regulatory prohibitions or as otherwise required by this CAISO Tariff or by Good Utility Practice.
- (c) **Co-optimization.** Through the IFM co-optimization process, the CAISO will utilize available Flexible RA Capacity to provide Energy or Ancillary Services in the most efficient manner to clear the Energy market, manage congestion and procure required Ancillary Services.
- (d) **Participation in RUC.** A Flexible RA Capacity Resource must participate in the RUC to the extent that the resource has available Flexible RA Capacity that is not reflected in an IFM Schedule. Resource Adequacy Capacity participating in RUC will be optimized using a zero dollar (\$0/MW-hour) RUC Availability Bid. Flexible RA Capacity selected in RUC will not be eligible to receive a RUC Availability Payment.
- (e) **Use-Limited Resources.**
- (1) A Use-Limited Resource providing Flexible RA Capacity must be capable of responding to Dispatch Instructions and, consistent with its use-limitations, must submit Economic Bids for Energy for the full amount of its Flexible RA Capacity in the Day-Ahead Market and the Real-Time Market for the Trading Hours applicable to the resource's Flexible Capacity Category for that month for the Trading Hours that it is capable of being economically dispatched.

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

- (2) The Scheduling Coordinator for the Use-Limited Resources designated as a combined resource under Section 40.10.3.2(b), 40.10.3.3(b) or 40.10.3.4(b) must submit Economic Bids for Energy for either resource for the full amount of the Flexible RA Capacity required by the applicable must-offer obligation; however, Economic Bids for Energy must be submitted for only one resource in the combination per Trade Day.
- (f) **Short, Medium or Long Start Units.**
- (1) Short Start Units or Medium Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.3 that apply to Short Start Units providing RA Capacity.
 - (2) Long Start Units providing Flexible RA Capacity that do not have an IFM Schedule or a RUC Schedule for any of their Resource Adequacy Capacity for a given Trading Hour are required to participate in the Real-Time Market consistent with the provisions in Section 40.6.7 that apply to Long Start Units providing RA Capacity.
 - (3) If availability is required under Section 40.6.3 or 40.6.7, the Scheduling Coordinator for the resource must submit to the RTM for that Trading hour for which the resource is capable of responding to Dispatch Instructions: (i) Energy Bids for the full amount of the available Flexible RA Capacity, including capacity for which it has submitted Ancillary Services Bids; and (ii) Ancillary Services Bids for the full amount of its Flexible RA Capacity that is certified to provide Ancillary Services, and for each Ancillary Service for which the resource is certified, including capacity for which it has submitted Energy Bids.
- (g) **Extremely Long-Start Resources.** Flexible RA Capacity Resources that are Extremely Long-Start Resources must be available to the CAISO by complying with the Extremely Long-Start Commitment Process under Section 31.7 or otherwise committing the

California Independent System Operator Corporation
Fifth Replacement Electronic Tariff

resource upon instruction from the CAISO, if physically capable. Once an Extremely Long-Start Resource is committed by the CAISO, it is subject to the provisions of Section 40.10.6 regarding Day-Ahead Availability and Real-Time Availability for the Trading Days for which it was committed.

- (h) **Non-Generator Resources, Regulation Energy Management.** Non-Generator Resources providing Flexible RA Capacity and Regulation Energy Management must submit Bids for Regulation Up and Regulation Down for Trading Hours in the 17-hour period from 5:00 a.m. to 10:00 p.m., seven days a week and shall not submit Bids for Energy or other Ancillary Services.

40.10.6.2 Failure to Bid

If the Scheduling Coordinator for a resource supplying Flexible RA Capacity does not submit Economic Bids for Energy for the full amount of the resource's Flexible RA Capacity, and Economic Bids for Ancillary Services for the full amount of the resource's Flexible RA Capacity that is certified to provide Ancillary Services, in the Day-Ahead Market and the Real-Time Market for the Trading Hours during the period of the applicable must-offer obligation –

- (1) the CAISO will not insert Generated Bids for any Flexible RA Capacity for which the resource did not submit bids; and
- (2) An Exceptional Dispatch instruction issued to the resource for all or a portion of its Flexible RA Capacity shall not be an Exceptional Dispatch CPM designation under Section 43.2.5.