

## Generating Unit Forced Outage Reporting Compliance

This document summarizes the CAISO Generating Unit Forced Outage reporting requirements, which include reporting Generating Unit Availability within 60 minutes of an Operator discovering an applicable reduction and providing Forced Outage Reports, as applicable, within two working days.

Please bear in mind that this document is not an authoritative interpretation of the CAISO Tariff. Exclusive authority to interpret the Tariff rests with the FERC. Although the descriptions in this document are intended to be consistent with the Tariff, in the event of any difference Market Participants are obligated to comply with the requirements of the Tariff as interpreted by the FERC.

This document reflects Generating Unit Outage reporting requirements established by the FERC's December 28, 2006 order on the Outage Reporting Amendment (<http://www1.caiso.com/1b70/1b70ee5c41690.pdf>), as well as by a subsequent FERC July 3, 2007 order (<http://www1.caiso.com/1c10/1c10aef34c4b0.doc>). Pursuant to FERC's July 3 order, sanctions related to Outage reporting, as specified in CAISO Tariff 37.4.1 and CAISO Tariff 37.4.2, went into effect beginning July 1, 2007. The reporting timeline for availability reductions was modified from 30 minutes to 60 minutes through a subsequent tariff amendment (<http://www1.caiso.com/1fd7/1fd7e11c40bc0.html>).

This document describes the Outage reporting obligations of Generating Unit Operators, as specified in the CAISO Tariff. Operators are responsible to designate a single point of contact with the CAISO for Outage-related communications, which may be a separate Scheduling Coordinator that represents an Operator (see CAISO Tariff 9.3.10.1). In this case, Outage reporting obligations of an "Operator" may be fulfilled by a separate Scheduling Coordinator serving as the Operator's single point of contact for Outage-related communications.

Capitalized terms and acronyms used in this document are defined in item 9., below.

Other documents referenced in this document are as follows:

- "ISO Web Client - Instructions For Using Web Client" posted at <http://www1.caiso.com/docs/2004/01/28/2004012807111918934.pdf>
- "Generating Unit Forced Outage Reporting Using RTAM" posted at <http://www.caiso.com/docs/2001/02/01/2001020108211325518.html>

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1. **Summary:** The following table provides a high-level summary of the requirements for Operators to report Forced Outages of Generating Units to the CAISO:

What	When	Applicable To
Report a Generating Unit's Availability after it is reduced (from the value registered in SLIC) by at least 10 MW or 5 percent of the Generating Unit's PMax, whichever is greater, for at least 15 minutes. See CAISO Tariff 9.3.10.2.1, 40.6A.3.	If prior notice cannot be given, an Operator must report a Generating Unit's Availability within 60 minutes of discovering an applicable reduction in the Generating Unit's Availability.	<ul style="list-style-type: none"> <li>• Generating Units for which a Participating Generation Agreement (PGA) has been entered into with the CAISO; or,</li> <li>• Generating Units that are Resource Adequacy Resources that are not Qualifying Facilities.</li> </ul>
Provide a Forced Outage Report for any Forced Outage of a Generating Unit that last for at least 15 minutes and that results in a reduction in a Generating Unit's Availability by at least the greater of the following: <ul style="list-style-type: none"> <li>• 40 MW</li> <li>• 10 percent of the Generating Unit's PMax;</li> </ul> See CAISO Tariff 9.3.10.5.	An Operator must provide a Forced Outage Report within two Business Days of the Operator reporting a reduction in availability.	<ul style="list-style-type: none"> <li>• Generating Units for which a Participating Generation Agreement (PGA) has been entered into with the CAISO</li> </ul>

2. **Penalties:** Failure to report unit Availability within 60 minutes of discovery of applicable Forced Outages and failures to make applicable Forced Outage Reports within two working days of reporting applicable Forced Outages are subject to Sanctions under CAISO Tariff 37.4.1 and CAISO Tariff 37.4.2, respectively. Depending on the number of violations, these Sanctions can include significant financial penalties ranging up to \$5,000 for a failing to timely submit a required report about unit Availability and \$500 per day for not submitting a Forced Outage Report.
3. **Availability Reporting Required Within 60 Minutes:** If an Operator has not provided prior notice of an Outage to the CAISO by scheduling an Outage or reporting an imminent Forced Outage, then the Operator must report an applicable reduction in Generating Unit Availability to the CAISO within 60 minutes of the Operator discovering the Outage. The reporting requirement extends to Outages classified in SLIC as "Forced Outages" or "Ambient Outages " (see "ISO Web Client - Instructions For Using Web Client" for a description of the methodology used by SLIC to classify Outages).

There is no grace period applicable to the 60 minute requirement, although a single late report in a calendar month is not considered a violation. Any applicable reduction in Availability reported more than 60 minutes after its discovery by the Operator is potentially subject to the Sanctions described in CAISO Tariff 37.4.1.

Any reduction in Availability must be reported that is at least 10 MW or 5 percent of the Generating Unit's PMax, whichever is greater, below the current Availability registered in SLIC, and that lasts for at least 15 minutes. For example:

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- A Generating Unit with a 100 MW PMax has a 20 MW derate reduces its Availability to 80 MW for 4 hours. This reduction in Availability must be reported within 60 minutes as it is at least 10 MW below the Availability registered in SLIC (i.e., PMax), and lasts for more than 15 minutes.

After the initial 20 MW derate has been reported, if this Generating Unit has an additional 10 MW derate, reducing its Availability to 70 MW, this reduction in Availability must be reported within 60 minutes as it is at least 10 MW below the 80 MW Availability value that would then be registered in SLIC. Conversely, a subsequent 5 MW derate, reducing the unit's Availability to 75 MW, would not have to be reported as it is less than 10 MW below the 80 MW Availability value that would be registered in SLIC.

- A Generating Unit with a 500 MW PMax has a 20 MW derate that reduces its Availability to 480 MW for 4 hours. This reduction in Availability is not required to be reported as it is less than 5 percent of the Generating Unit's PMax, or 25 MW.

If instead, this Generating Unit had a 25 MW derate, reducing its Availability to 475 MW, then this reduction in Availability must be reported as it is at least 5 percent of the Generating Unit's PMax below the Availability registered in SLIC (i.e. PMax), and lasts for more than 15 minutes. After the initial report, if this Generating Unit has another 25 MW derate, reducing its Availability to 450 MW, this reduction in Availability must be reported within 60 minutes as it is at least 5 percent of the Generating Unit's PMax, or 25 MW, below the 475 MW Availability value that would be registered in SLIC. Conversely, a subsequent 20 MW derate, reducing the unit's Availability to 455 MW, would not have to be reported as it is less than 5 percent of the Generating Unit's PMax, or 25 MW, below the 475 MW Availability value that would be registered in SLIC.

- A Generating Unit with a 100 MW PMax trips offline while starting-up, but restarts within 10 minutes. This reduction in Availability reduction is not required to be reported as it lasted for less than 15 minutes.
- A Generating Unit with a 9 MW PMax goes completely offline. This reduction in Availability is not required to be reported within 60 minutes as it is less than 10 MW.

There is no requirement to report reductions in Generating Unit Availability to the CAISO in the following circumstances:

- A temporary limitation in the output of a Generating Unit occurs due to its designed operation, as reported to the CAISO through using a SLIC "Normal Card." Operators may make such reports to avoid differences between a unit's dispatched operating point and its actual output that may result in imbalance energy charges.
- Other deviations from a unit's dispatch operating point that are not due to reductions in unit Availability.
- Normal variations in output due to weather conditions of an intermittent resource, such as a wind unit, or normal variations in output of a Qualifying Facility due to fluctuations in a process separate from the production of electricity. Aside from these normal variations in output, participants are required to report reductions in the maximum output capability of these units if a Participating Generation Agreement (PGA) for the unit has been entered into with the CAISO (or if the unit is a Resource Adequacy Resource) and the reduction meets the reporting threshold. Changes to the

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Availability of a Participating Intermittent Resource that are not related to weather conditions are subject to the Outage reporting requirements.

- 4. Availability Reporting Method:** Operators must report reporting applicable reductions in Generating Unit Availability through SLIC or, if SLIC is not available, to the CAISO Control Center by telephone. Operators may make these reports through SLIC using one of several methods: (1) the SLIC Interim User Interface, (2) the SLIC Web Client, or (3) the SLIC API (see "Generating Unit Forced Outage Reporting Using RTAM," and "ISO Web Client - Instructions For Using Web Client").

The CAISO informs Market Participants of planned SLIC outages through Market Notices, which Market Participants can elect to receive through the "Communications Self-Selection" page located at <https://www.caiso.com/mpc/index.html> by selecting to be added to the "System Status/Technical Update" list. The CAISO informs Market Participants of unplanned SLIC outages through the SI messaging system. Market Participants can also receive information on the status of the SLIC system at all times by contacting the CAISO Help Desk.

If SLIC is not available and an Operator notified the CAISO Control Center of an Outage by telephone, an Operator can validate that the Control Center timely entered the Outage into SLIC by reviewing the record of the Outage in SLIC after SLIC becomes available. Through the SLIC Web Client, Operators can view all "Outage Cards" applicable to its Generating Units, and their classification, by using the search capabilities of the SLIC Web Client, summarized on page 64 of "Instructions for Using Web Client." In addition, the CAISO maintains recordings of all telephone calls to the CAISO Control Center that would confirm the time that an Operator reported an Outage over the telephone.

- 5. Outages Requiring a Forced Outage Report:** Operators must provide a Forced Outage Report within two working days after reporting any Forced Outage of a Generating Unit that last for at least 15 minutes and that results in a reduction in the Generating Unit's Availability below its PMax by at least the greater of 40 MW or 10 percent of the Generating Unit's PMax. Forced Outage Reports are not required for Generating Units with a capacity of less than 40 MW.

The SLIC RTAM functionality includes the capability for an Operator to view a list of SLIC "Outage IDs," applicable to the Operator's Generating Units, for which a Forced Outage Report is required but has not yet been provided (see "Generating Unit Forced Outage Reporting Using RTAM"). In addition, Operators can view a list of "Outage IDs" for each of the Operator's Generating Units, and the classification of these Outages (i.e. Forced, Planned, etc.), by using the search capabilities of the SLIC Web Client, summarized on page 64 of "ISO Web Client - Instructions for Using Web Client," or by using the appropriate SLIC API function call.

There is no requirement to provide a separate Forced Outage Report if an "Outage Request" has been completed in SLIC that includes one of the NERC GADS "cause codes" listed on page 31 of 64 of "ISO Web Client - Instructions for Using Web Client," that will cause an Outage to be classified as an Ambient Outage in SLIC.

Although some Planned Outages for which the duration is extended will be classified by the CAISO as Forced Outages, Operator are not required to submit a Forced Outage Report in these instances. In the case that a Planned Outage is extended for a reason other than the cause of the original Outage, the Operator should create a separate "Outage Card" in SLIC, which may be classified as a Forced Outage and require the Operator to submit a Forced Outage Report.

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The CAISO may designate an Outage as a Forced Outage if the Outage is scheduled less than three working days in advance. A market participant may request that the CAISO classify an Outage scheduled less than three working days in advanced as a Planned Outage, for which a Force Outage Report is not required. The CAISO will classify such an Outage as a Planned Outage as long as the Outage does not have a reliability impact to the system and the SC made a good faith effort to schedule the work through the CAISO. Otherwise, the Outage is considered a Forced Outage, for which a separate Forced Outage Report is required.

If multiple SLIC "Outage IDs" or "Outage Cards" (each Outage Card has a separate Outage ID) are in effect for the time period of a reduction in Availability that requires a Forced Outage Report, Operators must submit a Forced Outage Report (as described in item 6., below) for each SLIC "Outage ID" that is in effect during the duration of the reduction in Availability. In other words, if an Availability reduction that requires a Forced Outage Report occurs between the "Start Time" and "End Time" listed on a SLIC "Outage Card" for the Generating Unit, then the Operator must submit a Forced Outage Report for the "Outage Card."

Each report of an Availability reduction that an Operator makes through the SLIC RTAM Interim UI results in creation of a SLIC "Outage ID," for which a Forced Outage Report may be required. As the SLIC RTAM functionality limits the duration of Availability reports to four hours, Operators are cautioned that if an Availability reduction lasts for longer than four hours, multiple Availability reports made through the RTAM Interim UI will create multiple "Outage IDs," and a Forced Outage Report would be required for each Outage ID (if the Availability reduction meets the Forced Outage Report threshold). The CAISO recommends that, instead of creating a new Availability report, Operators extend the duration of an Availability report, or make other changes to an existing Availability report, by modifying an existing Outage Card in SLIC through the SLIC Web Client or through a Market Participant application using the SLIC API. This will avoid creating multiple Outage IDs and the accompanying requirement to submit multiple Forced Outage Reports.

Examples of the requirement to provide Forced Outage Reports are as follows:

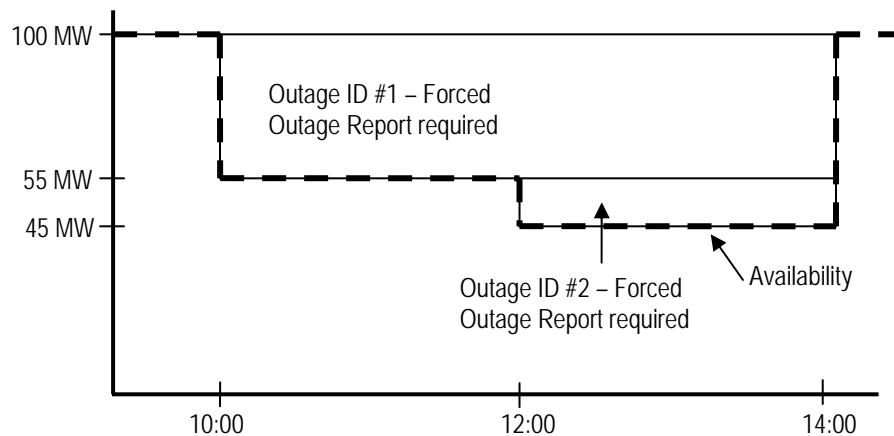
- A Generating Unit with a 100 MW PMax has a 40 MW derate, reducing its Availability to 60 MW, that lasts for 4 hours. A Forced Outage Report must be submitted as the Outage reduced the Availability of the Generating Unit at least 40 MW below its PMax for at least 15 minutes.
- A Generating Unit with a 500 MW PMax has a 45 MW derate, reducing its Availability to 455 MW, that lasts for 4 hours. A Forced Outage Report is not required as the 45 MW reduction in Availability was less than 10 percent of the Generating Unit's PMax, or 50 MW.
- A Generating Unit with a 100 MW PMax trips offline while starting-up, but restarts within 10 minutes. A Forced Outage Report is not required as the reduction in availability lasted for less than 15 minutes.
- A Generating Unit with a 35 MW PMax goes from full output to completely offline for one day. Although an availability report will be required, a Forced Outage Report is not required as the reduction in availability was less than 40 MW.

Each report of an Availability reduction that an Operator makes through the SLIC RTAM Interim UI results in creation of a SLIC "Outage ID," for which a Forced Outage Report may be required, as illustrated by the following examples:

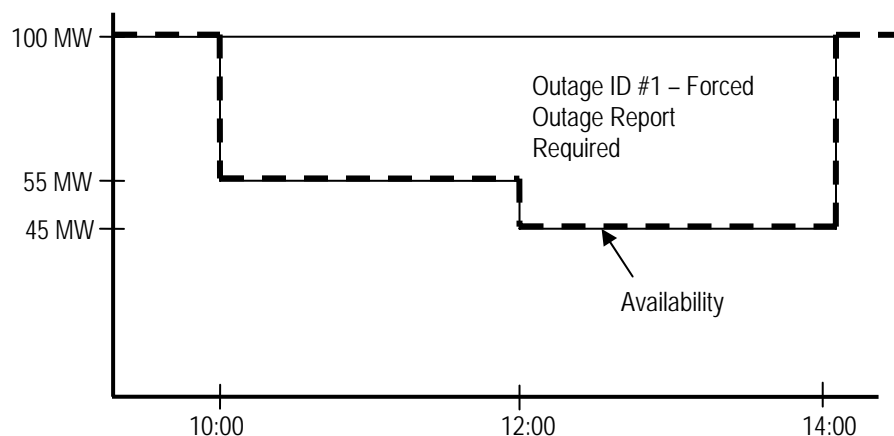
- A Generating Unit with a 100 MW PMax has an existing 45 MW derate, classified as a Forced Outage, that reduced the Generating Unit's Availability to 55 MW. Two hours after this derate

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began, a separate 10 MW derate, meeting the criteria for a Forced Outage, reduced the unit's Availability to 45 MW. The second 10 MW derate was also reported by the Operator through the SLIC RTAM Interim UI, which was recorded in SLIC under a different "Outage ID" than the 45 MW derate. The Operator must submit a separate Forced Outage Report for both the "Outage ID" associated with the 45 MW derate and the "Outage ID" associated with the second 10 MW derate as both of these derates resulted in the unit's Availability being reduced below its PMax by at least 40 MW. (Note that the requirement would be the same if the 10 MW derate occurred before the 45 MW derate). This situation is illustrated below:



- Alternatively, if the Operator reported the second 10 MW derate under the same "Outage ID" as the initial 45 MW derate, then the Operator needs to only submit a single Forced Outage Report for this Outage ID. This can be accomplished by modifying an existing Outage Card in SLIC through the SLIC Web Client or through a Market Participant application using the SLIC API. This situation is illustrated below:



6. **Forced Outage Reporting Method:** Operators must provide a Forced Outage Report for an applicable reduction in Availability by following the procedure described in "ISO Web Client – Instructions for Using Web Client" Appendix C: "Submitting A Forced Outage Report (F.O.R.). This involves making an "Add

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Information" "event request" to the appropriate "Outage Card" in SLIC using the "Forced Outage Report" "reason code" (see "Instructions For Using Web Client").

In the case that the CAISO's requests additional information related to a Forced Outage Report submitted by an Operator, CAISO Tariff 37.4.3 provides that an Operator "...must promptly provide information requested by the ISO to enable the ISO to review the explanation submitted..." The fact that the CAISO may have follow-up questions would not by itself mean that the initial report was out of compliance.

7. **Discovery Time:** As described this document, the requirement to report Availability reductions within 60 minutes is based on the time an Operator discovers an Outage. An Operator can report the time it discovered an Outage through a SLIC "Add Information Request" (see procedure in "Generating Unit Outage Reporting using RTAM," Appendix B.

It is important that an Operator report in the SLIC "Start Time" field the time when an Outage physically begins, as opposed to the time of discovery. Information on the actual physical start time of Outages, collected through the SLIC "Start Time" field, is important in calculating settlements based on unit Availability and for collecting data on the historical Availability of Generating Units.

Operators only need to report a separate discovery time as necessary to demonstrate that they complied with the Forced Outage reporting requirements. This would generally be in the following circumstances:

- The time the Operator discovered the reduction in availability is different from the time it actually physically began.
- The Operator did not report the reduction in availability within 60-minutes of the time it actually began, or did not submit a Forced Outage Report, if required, within two working days of the time the reduction in availability actually began.

When an Outage of one hydroelectric Generating Unit has an effect on the Availability of other inter-related hydroelectric Generating Units, an Operator will not be considered to have discovered the resultant reductions in Availability of the other inter-related Generating Units until they have been calculated by the Operator. In administering the tariff, DMM will assume that an Outage is "discover[ed]" as soon as the Operator determines the change in the unit's maximum output capability. The Operator is bound to the knowledge of its personnel who have primary responsibility for control of the Generating Unit.

8. **Multiple Units Under a Single Resource ID:** SLIC accepts reports at the Resource ID level, which typically corresponds to a "Generating Unit" -- which is the reporting level specified by the tariff. Note that the CAISO tariff defines a "Generating Unit" as "an individual electric generator and its associated plant and apparatus whose electrical output is capable of being separately identified and metered or a Physical Scheduling Plant." If multiple units are aggregated into a Physical Scheduling Plant (i.e. a single Resource ID), then the aggregate MW impact at the Resource ID level of any reduction in the availability of the individual units would determine if the reporting requirements apply.
9. **Definitions and Acronyms:** Capitalized terms used in this document are as defined in the Master Definitions Supplement to the CAISO tariff. For convenience, these terms are summarized below. Terms that are capitalized in this document, but not defined in the CAISO Tariff, are as defined below and identified with an asterisk. In addition, acronyms used in this document are summarized below:

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API*	Application programming interface
Ambient Outage*	A reduction in Generating Unit Availability caused by conditions external to the Generating Unit outside the Operator's control. Examples include decreased Availability of hydroelectric units due to water conditions, decreased Availability of a co-generation unit due to changes in the primary process providing power for the unit, and decreased Availability of thermal units due to air temperature.
Availability*	The maximum output capability of a Generating Unit.
Business Day	Monday through Friday, excluding federal holidays and the day after Thanksgiving Day.
Control Center	The Control Center established pursuant to Section 7.1.1 of the ISO Tariff.
FERC	Federal Energy Regulatory Commission
Forced Outage	An Outage for which sufficient notice cannot be given to allow the Outage to be factored into the Day-Ahead Market or Hour-Ahead Market scheduling processes. [In addition, Tariff section 9.3.8.2 states "...Failure to submit a request for an Outage by the proper time (e.g. 11:30 am three days prior) may ... cause that Outage to be designated as a Forced Outage based on the nearness of the request to the requested Outage date."]
Forced Outage Report*	An explanation of a Forced Outage submitted to the CAISO by an Operator that includes a description of the equipment failure or other cause, a description of all remedial actions taken by the Operator, and the estimated return time.
Generating Unit	An individual electric generator and its associated plant and apparatus whose electrical output is capable of being separately identified and metered or a Physical Scheduling Plant that, in either case, is:  (a) located within the ISO Control Area;  (b) connected to the ISO Controlled Grid, either directly or via interconnected transmission, or distribution facilities; and  (c) that is capable of producing and delivering net Energy (Energy in excess of a generating station's internal power requirements).
ISO Controlled Grid	The system of transmission lines and associated facilities of the Participating TOs that have been placed under the ISO's

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	Operational Control.
Operator	The operator of facilities that comprise the ISO Controlled Grid or a Participating Generator.
Market Participant	An entity, including a Scheduling Coordinator, who participates in the Energy marketplace through the buying, selling, transmission, or distribution of Energy or Ancillary Services into, out of, or through the ISO Controlled Grid.
Outage	Disconnection, separation or reduction in capacity, planned or forced, of one or more elements of an electric system [i.e. reductions in Availability (i.e. derates), as well as complete outages].
Participating Generator	A Generator... of Energy or Ancillary Services through a Scheduling Coordinator over the ISO Controlled Grid from a Generating Unit with a rated capacity of 1 MW or greater, or from a Generating Unit providing Ancillary Services and/or submitting Supplemental Energy bids through an aggregation arrangement approved by the ISO, which has undertaken to be bound by the terms of the ISO Tariff, in the case of a Generator through a Participating Generator Agreement.
Participating Intermittent Resource	One or more Eligible Intermittent Resources that meets the requirements of the technical standards for Participating Intermittent Resources adopted by the ISO and published on the ISO Home Page.
Physical Scheduling Plant	A group of two or more related Generating Units, each of which is individually capable of producing Energy, but which either by physical necessity or operational design must be operated as if they were a single Generating Unit and any Generating Unit or Units containing related multiple generating components which meet one or more of the following criteria: i) multiple generating components are related by a common flow of fuel which cannot be interrupted without a substantial loss of efficiency of the combined output of all components; ii) the Energy production from one component necessarily causes Energy production from other components; iii) the operational arrangement of related multiple generating components determines the overall physical efficiency of the combined output of all components; iv) the level of coordination required to schedule individual generating components would cause the ISO to incur scheduling costs far in excess of the benefits of having scheduled such individual components separately; or v) metered output is available only for the combined output of related multiple generating components and separate

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	generating component metering is either impractical or economically inefficient.
Planned Outage	Outages requested within time requirements as per the CAISO Tariff and CAISO Operating Procedure T-113. Outages requested less than the specified time limits may be determined by the CAISO as appropriate to schedule as a Planned Outage.
PMax*	The maximum output capability of a Generating Unit as recorded in the CAISO's Master File.
Qualifying Facility	A qualifying co-generation or small power production facility recognized by FERC.
Resource Adequacy Resource	A resource that is required to offer Resource Adequacy Capacity [i.e. a Generating Unit listed on a Resource Adequacy Plan and a Supply Plan in order to satisfy the requirements of Section 40 of the CAISO tariff].
Sanction	A consequence specified in Section 37 for the violation of a Rule of Conduct, which may include a) a warning letter notifying the Market Participant of the violation and future consequences specified under Section 37 if the behavior is not corrected, or b) financial penalties. Neither referral to FERC nor rescission of payment for service not provided shall constitute a Sanction.
Scheduling Coordinator	An entity certified by the ISO for the purposes of undertaking the functions specified in Section 4.5.3 of the ISO Tariff.
SLIC*	The CAISO computer system that is used by Market Participants for reporting Outages to the CAISO and communicating their status.
SLIC Interim User Interface	A graphical user interface provided by the CAISO that Market Participants can use to report availability changes to SLIC, as described in "Generating Unit Forced Outage Reporting Using RTAM."
RTAM*	Real-Time Availability Management application, a component of SLIC
RTAM Data Entry Application	A visual interface application provided by the CAISO to Market Participants, that is a component of RTAM. Same as SLIC Interim User Interface
Working Day	Same as Business Day

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\* Terms not defined in the CAISO tariff