



California ISO
Your Link to Power

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Exceptional Dispatch

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Technical Bulletin 2009-05-01 Exceptional Dispatch

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Acronyms

| | |
|------|--|
| ADS | Automated Dispatch System |
| DEB | Default Energy Bid |
| EDE | Exceptional Dispatch Energy |
| ELS | Extremely Long Start |
| ETC | Existing Transmission Contract |
| FERC | Federal Energy Regulatory Commission |
| FNM | Full Network Model |
| HASP | Hour-Ahead Scheduling Procedure |
| ICPM | Interim Capacity Procurement Mechanism |
| LMP | Locational Marginal Price (Resource Specific Settlement Interval LMP) |
| NQC | Net Qualifying Capacity |
| PMin | Minimum operating level of a generator |
| PMax | Maximum operating level of a generator |
| RA | Resource Adequacy |
| SC | Scheduling Coordinator |
| SLIC | Scheduling and Logging for ISO of California; web-interface for submission of outage information |
| TOR | Transmission Ownership Right |

Exceptional Dispatch

1. Introduction

Exceptional Dispatch is defined in CAISO Tariff sections 34.9. Additional references can be found throughout the tariff and most are summarized in Table 2 in the Appendix below. Exceptional Dispatch refers generally to a subset of manual commitment or dispatch instructions that are not determined as a result of the market software in the IFM, RUC or RTM. ISO grid operators can issue Exceptional Dispatches (and instructions that may not be Exceptional Dispatches) through the ISO's Automated Dispatch System (ADS) or direct communication with the Scheduling Coordinator (SC) and, at times, direct communication with the resource operator.

There are several categories of Exceptional Dispatch, all of which are reviewed in this paper. The most frequent use of Exceptional Dispatch is likely to be to address transmission and generation unit operating constraints not included in the Full Network Model (FNM) for the initial market run. For example, some voltage and some nomogram constraints are not currently represented in the market model, and the grid operators may have to commit or alter the market dispatch of certain generators to ensure that those constraints are honored. Exceptional Dispatch may be used generally to prevent or manage System Emergencies and Market Disruptions and to address other modeling and software limitations.¹

In a February 20, 2009 Order (henceforth "February 20 Order"), FERC established revised tariff rules for the pricing and settlement of Exceptional Dispatches. Specifically, the order provides:

- (a) rules under which the Bids of resources subject to Exceptional Dispatch can be mitigated; and
- (b) rules for supplemental compensation to resources with capacity not incorporated in Resource Adequacy (RA) or Reliability Must-Run (RMR) contracts, or Interim Capacity Procurement Mechanism (ICPM) designations, henceforth called "non-RA resources."²

The intention behind the supplemental compensation is to provide non-RA resources with a contribution to their long-term fixed costs, given that the ISO could be utilizing their non-RA capacity for reliability reasons. The Exceptional Dispatch Bid mitigation and supplemental compensation rules have a sunset date, along with the ICPM tariff rules, of March 31, 2011.

¹ A Market Disruption is defined as an action or event that causes a failure of a CAISO Market, related to system operation issues or System Emergencies. See ISO Tariff Sections 7.6 and 7.7, respectively.

² As implied in this sentence, the term "non-RA resources" includes those that are considered "partial" RA as well as those with no capacity contract at all.

In addition to following ISO Exceptional Dispatch instructions, market participants have a few other actions to take regarding Exceptional Dispatch. Prior to the start of each calendar month, non-RA resources must elect whether to receive supplemental compensation that they may be eligible for through either (a) Bid-based energy payments (\$/MWh) that are subject to less stringent mitigation than other units under Exceptional Dispatch (or those dispatched through the ISO markets), but with a cap on the supplemental revenues, as defined below, or (b) ICPM designations and resulting capacity payments (\$/MW) provided on an “incremental” or “as-used” basis. Resources eligible for ICPM designations either accept the CAISO Tariff rate for ICPM of \$41/kW-year or make a higher offer based on going forward costs, subject to approval by FERC.³ These two optional methods for supplemental compensation impose different obligations on the resource and have different pricing and revenue properties, which will be explained below.

While it recognizes the ISO’s need to rely on Exceptional Dispatch in the early months of the ISO’s new market design, FERC has required the ISO to reduce its reliance on Exceptional Dispatch over time. This is to allow for more accurate locational marginal prices (LMPs) calculated through the market software and also possibly to provide market-based payments for some types of commitments that currently require Exceptional Dispatch. The ISO is thus required to file a report, which is proposed to be filed every 30 days,⁴ that details the frequency, volume, costs, causes, and degree of mitigation of Exceptional Dispatches.

Due to the variety of categories of Exceptional Dispatch and associated pricing rules, this bulletin explains in some detail the categories of Exceptional Dispatches, types of Exceptional Dispatch in each category, Bid mitigation rules, the supplemental compensation rules, settlements rules, criteria for selecting units if there are multiple units available, and the reporting procedures. The Appendix includes:

- Table 2, which lists key tariff sections relevant to Exceptional Dispatch;
- Table 3, which summarizes the properties of the two supplemental compensation approaches;
- the calculation for Bid-based supplemental revenues; and
- Table 4, which maps Exceptional Dispatch types to the category of Exceptional Dispatch or other manual dispatch, and indicates (a) whether it is eligible for supplemental compensation, (b) whether it is subject to mitigation, and (c) the relevant tariff provisions for settlements.

³ See ISO tariff Section 43; also Reliability Requirements BPM section 7.3.5.2.

⁴ The ISO has proposed, in its April 28, 2009 answer to comments and protests filed in response to the March 23, 2009 compliance filing, to revert to a 30 day, rather than 60 day reporting requirement with reports to be filed on the fifteen of every month. FERC has not yet ruled on the March 23, 2009 compliance filing.

2. Exceptional Dispatch Rules and Procedures

Categories and Applications of Exceptional Dispatch

There are several categories of Exceptional Dispatch, and under some of these categories there are several different types of instructions. Some types of Exceptional Dispatch will happen only in particular system or market operational time-frames while others will occur due to events on the grid.⁵ Table 1 below lists the general categories and market timeframes for Exceptional Dispatch:

Table 1 – Categories and Applications of Exceptional Dispatch

| Category of Exceptional Dispatch | Types of Applications | System or Market Operational Time-frame |
|---|---|--|
| Prevent or minimize System Emergency or threat to System Reliability (section 34.9.1)(and to mitigate for over-gen (section 34.9.2 (4) to mitigate or prevent a Market Disruption (section 34.9.2(9), Energy for voltage support, and instructions to reverse the operating mode of pumped storage hydro (section 34.9.2); Reversal of non-optimal commitments in IFM (Section 34.9.2) | This category includes transmission outages that were not modeled in the market; over-generation events; and Extremely Long Start commitments outside of the manual commitment process. | Day-Ahead Commitments typically made after the Day Ahead Market runs; Real-Time operations; decommitments and decremental dispatches made after the Day-Ahead schedule and awards are published; or in Real-time |
| Transmission-Related Modeling Limitations not associated with a particular TO or more than one TO (Section 34.9.3) | This category includes transmission related modeling limitations that cannot be attributed to a Participating Transmission Owner | Day-Ahead Commitments typically made after the Day Ahead Market runs |

⁵ Exceptional Dispatch Operating Procedure M-402 offers additional information on operational decision timeframes and is found at <http://www.caiso.com/docs/1998/12/02/1998120218202714536.pdf>

| Type of Exceptional Dispatch | Types of Applications | System or Market Operational Time-frame |
|--|--|---|
| Transmission-Related Modeling Limitations for which the transmission owner is responsible (Section 34.9.3) | This category includes transmission modeling limitations that arise from transmission maintenance, lack of Voltage Support at proper transmission levels and lack of or incomplete information for which the Participating Transmission Owner is responsible | Day-Ahead Commitments typically made after the Day Ahead Market runs |
| Non-Transmission related modeling or software limitation(Section 34.9.3) | This category includes non-transmission events such as environmental constraints, such as Delta Dispatch; resource specific constraints; and to manage Forbidden Operating Regions | Day-Ahead Commitments typically made after the Day Ahead Market runs Real-Time operations |
| Adjustment of other market schedules to accommodate TOR or ETC Self-Schedule changes (Section 34.9.2) | This category includes all TOR and some ETC that have rights to change their self-schedule after the HASP market close | After Market Close of HASP including after the Real-time Market runs, if applicable. |
| Provision of Non-Market Ancillary Services (Section 34.9.2) | This category includes voltage support instructions; and black start commitment and instruction however Energy needed for voltage support is issued pursuant to System Emergency authority | Voltage support instructions beginning after the Day-Ahead Market or in Real-Time; black start in the Operating Day |
| Testing of Generator Operating Parameters (Section 34.9.2) | Ancillary Service testing; pre-commercial operation testing for Generating Units; Pmax testing | In Real-time |
| RMR Condition 2 (Sections 34.9.1 and 41.9) | RMR Condition 2 units are available for non contract use when necessary | When warranted per tariff |
| Tie Emergency (Section 42) | To buy or sell energy or other services to neighboring Balancing Authority Areas or System Resource that has not offered a Bid in the market but is required for reliability | As agreed |

The typical procedure is for ISO grid operators to evaluate whether the IFM or RUC commitment and dispatch results satisfy the system constraints and reliability requirements, and then to only use Exceptional Dispatch if needed to ensure that the constraints are resolved and reliability requirements are met. The Exceptional Dispatch decisions are guided by Operating Procedures reflecting reliability requirements, power flow analysis and analysis of all other market conditions.

These types of transmission constraints include non-linear nomogram constraints that are difficult to represent appropriately in linear equations. Another constraint that is not explicitly modeled is the loss of the Pacific DC Intertie. This contingency creates the need for capacity to be available in a 30-minute time-frame south of Path 26, a transmission path within the ISO that historically has often experienced congestion. Another example is the outage of Imperial Valley – North Gila 500 kV transmission line limits the import capability into San Diego consistent with the south of SONGS path rating.

Generators may also need to be dispatched in a sequence or combination over the day that is a function of constraints not modeled in the market software. For example, the so-called “Delta Dispatch” is an environmental restriction that affects the operation of specific Generating Units in the Sacramento Delta area during a limited period in the Spring and Summer. This restriction limits the usage of resources and requires different combinations of resources to be utilized in certain circumstances.⁶

Exceptional Dispatch may also be used to prevent generators with forbidden regions from being dispatched within their forbidden region and instead allows the unit to transit through those regions, based on an assessment of the subsequent dispatch of those generators. Grid operators may either move a resource to a point above or below any forbidden operating region. Currently, forbidden regions are not modeled, but the ISO has initiated a stakeholder process that will provide this capability through improved modeling of multi-stage generators.⁷

When transmission outages take place, whether planned or unplanned, there are procedures for updating the network topology to ensure that market results and approved schedules reflect those outages. Exceptional Dispatch may be used in periods prior to the updating of the topology or if an outage is established after the market has been published or whenever it is not practicable to update the network topology (e.g. very short outages or outages that cannot be adequately modeled).

⁶ For more information on the sequencing aspect of Delta Dispatch, see Answer of the California Independent System Operator Corporation to the Motion to Supplement Motion for Clarification of the Williams Company, Inc., Docket No. EL05-146-004 (Nov. 15, 2007) at 6-7 (discussing Delta Dispatch).

⁷ Documentation of the stakeholder process on multi-stage generating unit modeling can be found at <http://www.caiso.com/2078/2078908392d0.html>.

In some circumstances, including overgeneration conditions and, more generally, over-scheduling of supply in the IFM, the ISO may need to decrement the output of particular generators or decommit them. The RUC process will help identify some of these conditions, but is not able to issue decommitment instructions. Hence, Exceptional Dispatch may be used after the RUC for purposes of decommitment.

The ISO's monthly reporting on Exceptional Dispatch will be a venue for further discussion of Exceptional Dispatches. The report is published and filed with FERC on the 15th of each month.⁸

Exceptional vs. Other Manual Dispatches

True tariff-based Exceptional Dispatches are a subset of a somewhat larger set of manually-issued dispatches or instructions. A common manual dispatch that is not an Exceptional Dispatch is a manual RMR dispatch. Another manual dispatch that is not an Exceptional Dispatch is the manual Extremely Long Start (ELS) Commitment process pursuant to CAISO Tariff section 31.7. ISO grid operators evaluate bids from ELS resources as well as resource adequacy ELS resources with an energy offer obligation, and select which resources should be committed for the next day's Day-Ahead Market. Once the grid operator had decided to commit any such ELS resource, the operator issues a verbal commitment to the resource's Scheduling Coordinator. When that occurs, the Scheduling Coordinator is required to start the resource and to submit the same Bid in the next day's Day-Ahead Market. Commitments of ELS resources outside of this manual commitment process described above are, however true Exceptional Dispatches.

Another example of a manual dispatch that is not a true tariff Exceptional Dispatch results from changes concerning the availability of the resource. For example, if a resource suddenly derates its availability after ISO commitments are issued — whether through a market dispatch or Exceptional Dispatch, the market software can recognize the derate if a SLIC ticket is submitted by either the Scheduling Coordinator or the ISO grid operator. Another example would be if the Master File PMax for the resource is 200 MW and the Day-Ahead schedule is 200 MW, but then the resource derated itself to 50 MW. In this case, the ISO grid operator could enter the new minimum availability utilizing SLIC and the resource would be compensated for Derate Energy pursuant to section 11.5.1.

True tariff-based Exceptional Dispatches stem primarily from the ISO's authority set forth in section 34.9. Under Section 34.9, the ISO has the authority to issue Exceptional Dispatches to resources that have an obligation to comply with the tariff whether or not the resource has submitted a Bid. There is one exception. For System Resources, Section 34.9.1 also allows the ISO to accept HASP Bids. These System Resources and

⁸ If the 15th falls on a Saturday or Sunday, the filing will be made on the following Monday.

exports would receive an Energy settlement in accordance with the CAISO Tariff but would not be eligible for any supplemental compensation.⁹

The ISO also considers any transaction settled in accordance with Section 11.5.6 to be Exceptional Dispatches even if the authority is not expressly provided in Section 34.9. In this latter category are agreed upon transaction between the ISO and any entity that is not obligated under the CAISO Tariff to respond to an ISO instruction, such as a neighboring Balancing Authority Area or a System Resource that has not offered a Bid in the relevant market but the ISO needs Energy or other services for reliability of the ISO grid. These entities and resources are not bound to comply with the CAISO Tariff. These entities agree to provide service at a negotiated price pursuant to Section 42 of the CAISO Tariff and are fully compensated at the agreed upon price.

Finally, with regard to settlement of decremental Exceptional Dispatches at the Interties, such Exceptional Dispatches, including export energy, will be paid the lower of the resource specific LMP, the Energy Bid price (subject to the minimum energy bid requirements in Section 39.6.1.4), the DEB, if applicable, or the negotiated price, as applicable.¹⁰

Bid Mitigation Rules

Under the February 20 Order, the Bids of units subject to Exceptional Dispatch are subject to market power mitigation rules largely analogous to the rules that apply to Bids within the market software, but with some differences. The Order allows for mitigation of most Exceptional Dispatches that are otherwise eligible to be paid as bid for the first four months of market implementation (April 1 – August 1, 2009), but, as discussed below, only Exceptional Dispatches under Delta Dispatch or for non-competitive constraints are mitigated after that period and until the sunset date for the Exceptional Dispatch pricing rules in 2011.

In the market software, all Bids in both the IFM and RTM are processed through the Market Power Mitigation and Reliability Requirement Determination (MPM-RRD) process that identifies whether the supplier offering the Bid is being dispatched up to relieve congestion on a non-competitive transmission constraint.¹¹ If it is, then a Default Energy Bid (DEB) is substituted for the market Bid and passed to the IFM or RTM as

⁹ In this regard, supplemental compensation — ICPM capacity payments or supplemental revenues — is only available to resources located within the CAISO Balancing Authority Area for Exceptional Dispatch commitments and incremental Exceptional Dispatches. Supplemental compensation is not available for any decremental Exceptional Dispatches or for any incremental or decremental Exceptional Dispatches of imports or exports.

¹⁰ See CAISO Tariff Sections 11.5.6.1 and 11.5.6.2.

¹¹ The MPM-RRD compares two runs of the market model—one run utilizing market bids with competitive constraints modeled and a second run utilizing DEBs with all constraints modeled. Resources that have a higher dispatch level in the second run will have their market Bids mitigated to their DEBs in the IFM and RTM for any incremental capacity cleared in the second run that did not clear in the first run.

applicable.¹² As applicable, Bids of resources subject to Exceptional Dispatches will be subject to similar Bid mitigation rules for non-competitive transmission constraints, but with special rules for non-RA resources discussed below. This mitigation rule will extend until the sunset date. Resources with Bids subject to mitigation, whether dispatched through the market process or Exceptional Dispatch, are settled financially at the higher of LMP or the DEB.

The Order also approved additional market power mitigation rules for Exceptional Dispatch that were intended to address opportunities for increasing Bids when generation unit operating constraints, in some cases coupled with transmission constraints, could result in predictable Exceptional Dispatches prior to, or during the operating day. As noted above, while the February 20 Order allows for mitigation of most Exceptional Dispatches in this category for the first four months of market implementation, only Exceptional Dispatches under Delta Dispatch were approved for Bid mitigation until the sunset date.

Note that resources *not* subject to mitigation which are Exceptionally Dispatched will be settled at the higher of LMP or their submitted Bids into the ISO markets. However, resources that are not subject to mitigation but have not submitted Bids will be settled at the higher of LMP or their DEB.

In some circumstances, there are special rules for mitigation of non-RA resources, due to the method that they elect for receiving supplemental compensation. If they elect the Bid-based supplemental revenues, then they will be subject to the general mitigation rules described above only when the supplemental revenue cap is reached (within the 30 day period beginning with the first Exceptional Dispatch), and will be eligible to be paid as Bid until the revenue cap is reached. If they elect ICPM designations, then the Bid for that ICPM capacity is subject from the start to the general mitigation rules described above. In short, resources that elect supplemental revenues get a partial waiver of Bid mitigation; those that elect ICPM do not. These rules and their implications are discussed in the next section.

General Rules for Supplemental Compensation for non-RA units

This section discusses general rules to obtain supplemental compensation for non-RA resources responding to Exceptional Dispatch.

First, SCs for eligible resources – that is, resources with non-RA capacity – are required to elect a method for Exceptional Dispatch supplemental compensation seven days in advance of the first day of each calendar month: either Supplemental Revenues or ICPM designations, both of which are described in more detail below. If no election is made, the resource will be treated by default as having selected the ICPM designation method.

¹² The rules and options for DEBs are in Tariff section 39.7.

Regardless of the day of the month on which it occurs, and the compensation method chosen, an Exceptional Dispatch triggers a 30-day compensation period for non-RA units. That is, if the Exceptional Dispatch takes place in Hour Ending (HE)11 on June 15, the compensation period lasts until HE10 on July 15. If the SC has elected different compensation methods for two months within the 30 day period, the method elected for the first month, when the first Exceptional Dispatch takes place, will remain in effect until the end of the 30-day period. For example, if the SC has elected supplemental revenues, all subsequent Exceptional Dispatches in the 30-day period will be under the supplemental revenues method. The exception to this rule is if the ISO declares a Significant Event and offers a resource that had elected supplemental revenues and ICPM designation; in this case, the ICPM designation can be accepted and the “double payment” rule discussed below will ensure that there are no excess payments.

An Exceptional Dispatch triggers supplemental compensation (under either payment method, with one exception) in the following circumstances:

- When a fully non-RA unit is committed through Exceptional Dispatch (to Pmin), but not higher;¹³
- When a fully non-RA unit is both committed and dispatched through Exceptional Dispatch for incremental energy to a level above Pmin;
- When a full or partial non-RA unit that has been self-scheduled or committed through the market is Exceptionally Dispatched to a point that is beyond its Self-Schedule amount or market-based commitment or dispatch level and beyond its RA, ICPM, or RMR capacity amount;
- When the RA or ICPM contracts established prior to the Exceptional Dispatch change over the 30-day period, requiring a recalculation of the appropriate supplemental compensation.

The following types of Exceptional Dispatches would *not* make a unit eligible for an ICPM designation or supplemental revenue payments: (a) an Exceptional Dispatch for decommitment or decremental energy; and (b) an Exceptional Dispatch issued in circumstances where the resource has to be moved for reasons unrelated to the ISO’s needs (*e.g.*, testing of unit operating parameters).

¹³ There is no supplemental compensation in this example for resources that elect Bid-based supplemental revenues, as there is no incremental energy above the minimum load level to settle financially at the Bid price. However, units are eligible to recover start-up and minimum load costs.

Rules for incremental ICPM designations

As noted above, there are two approaches to providing supplemental compensation: through the Bid submitted by the SC for the resource; or through a capacity-based payment. This section provides further rules for the second approach. The ISO has a tariff-based formula rate for procuring ICPM, or “backstop,” capacity. An ICPM designation pays the higher of \$41/kW-year (which is \$3.14/kW-month) or an alternative rate based on the unit’s going forward costs and offered to the ISO subject to the outcome of a FERC proceeding.¹⁴ The \$41/kW-year price will apply at the time of the ICPM designation for the duration of the designation, unless the alternative going forward cost offer has been communicated to the ISO. An ICPM designation creates obligations on the resource similar to an RA contract – most notably a must-offer obligation for the capacity under the designation (for both Energy and Ancillary Services) and the requirement to offer capacity into the RUC and a zero RUC bid – and can also be no less than the unit’s Pmin.¹⁵

Under Exceptional Dispatch, the ISO will provide ICPM designations on an “incremental” basis corresponding to the highest MW level committed or dispatched. As noted above, an Exceptional Dispatch to Pmin will result in an ICPM designation to Pmin. If the unit is exceptionally dispatched multiple times during the 30-day period, the incremental Exceptional Dispatch ICPM designation will be for the largest quantity (MW) for which the resource was subject to an eligible Exceptional Dispatch in each calendar month in the 30-day period.¹⁶ This is shown in Figure 1, below.

For example, a resource is committed on Day 1 of the 30-day period and dispatched to its minimum operating level (Pmin) of 50 MWh. It is then eligible for an ICPM designation to Pmin. On Day 2, that same resource is committed again and given an Exceptional Dispatch instruction to increase its output by 100 MWh of incremental energy. It is now eligible for an ICPM designation of 150 MW.¹⁷

If an eligible Exceptional Dispatch for incremental energy moves a non-RA resource beyond its market-based or self-scheduled commitment or dispatch level, and the incremental energy Exceptional Dispatch amount is below the resource’s PMin, the resource would be eligible for a designation to its PMin.

¹⁴ The ICPM monthly payment per MW is thus $\$41/\text{kW-year} \times 1/12 \text{ months per year} \times 1000 \text{ kW/MW} = \$3,417/\text{MW}$.

¹⁵ See tariff section 43.

¹⁶ This rule is in a request for clarification before FERC.

¹⁷ Subsequent Exceptional Dispatches of the resource within the ICPM designated MW within the 30-day period do not make it eligible for additional ICPM designations. That is, the Exceptional Dispatch of this same unit on Day 3 again to 150 MWh for HE11 would not require additional ICPM designations.

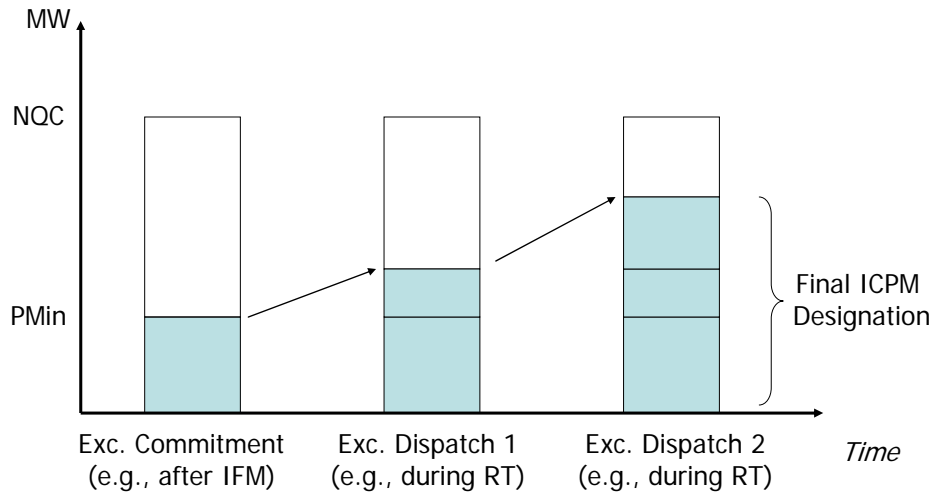


Figure 1 – Incremental ICPM Designation

Exceptional Dispatch ICPM designations will be adjusted to be consistent with any partial RA designation and bidding or scheduling obligations therein, that a resource has entered into, both before the ICPM designation and in the 30-day period following an Exceptional Dispatch. The Exceptional Dispatch rules for ICPM designations also establish some situations in which eligibility for such designations will be limited.

- 1) If a resource has entered into a contract to provide RA capacity less than its PMin, that resource has an obligation to make that RA capacity available to the ISO and, therefore, must offer its PMin to the ISO. Such a unit is not eligible for ICPM designation for the difference between PMin and its contracted RA capacity less than PMin.
- 2) If a resource's RA capacity falls within a forbidden region, the ISO will not offer an ICPM designation for Exceptional Dispatches that require the resource to transit to the upper bound of that forbidden region.¹⁸
- 3) If an RA resource requires start-up of another non-RA resource, then the Scheduling Coordinator for those resources has the obligation to make that resource adequacy capacity available to the ISO even if that means it must self-schedule the other resource. Exceptional Dispatch of such a unit will not make it eligible for an ICPM designation.

¹⁸ This rule is in a rehearing request before FERC.

- 4) In order to prevent ICPM designations below PMin, the ISO may need to adjust the ICPM designation quantity assigned to a resource with an existing partial RA or partial ICPM that is offered an (additional) ICPM designation for part of the unit's capacity in response to an Exceptional Dispatch, and whose prior ICPM or RA capacity terminated within the 30-day period.¹⁹
- 5) If a resource obtains a partial ICPM designation due to an Exceptional Dispatch and then during the 30-day period obtains a partial RA designation, the ICPM designation will be adjusted to ensure that the ISO is not over-procuring capacity.²⁰

Rules for Bid-based Supplemental Revenues

Unlike the capacity-based payments under the ICPM designation method, supplemental revenues are calculated entirely on the basis of submitted Bids into the ISO markets. The concept of using Bids to obtain supplemental revenues is that when a non-RA resource is subject to mitigation, ISO will nevertheless allow the resource to be paid "as-Bid" if the Bid is higher than the LMP for a number of hours to obtain compensation above short-term variable costs (as represented by the DEB) towards fixed costs (similarly to the Frequently Mitigated Unit (FMU) Bid Adder available through the markets).²¹ However, since in principle, such Bids could be up to the offer cap (\$500/MWh in the first year of market implementation), the ISO also has implemented a cap on the supplemental revenues, as discussed below. When the revenue cap is reached, Bids are then subject to the same mitigation rules as RA or ICPM resources for the remainder of the 30 day period.

For each hour that a resource is exceptionally dispatched, the supplemental revenues are defined as the difference between the higher of its Bid or LMP and its DEB. This calculation is described further in the Appendix.

Because supplemental revenues depend on the Bid prices that SCs offer into the markets, they may thus vary from hour to hour (unlike the ICPM payment, which is a fixed

¹⁹ For example, consider a unit that is partial RA for 130 MW and has a PMin of 50 MW; assume further that the unit then receives a further ICPM designation of 30 MW. If the resource's RA contract expired during the 30-day period, the CAISO would have to adjust its ICPM designation from 30 MW to 50 MW in order to prevent an ICPM designation below PMin.

²⁰ For example, consider a unit that obtains a partial ICPM designation of 100 MW on June 15 and then submits to the CAISO a partial RA Contract designation of 200 MW for the month of July. In this instance, the CAISO will "terminate" the partial ICPM designation for the period July 1 – July 15, because the partial RA exceeds the ICPM designation and making payments for both would result in the double procurement of capacity. If that same resource instead obtained a partial RA contract designation of 75 MW for the month of July, then the CAISO would reduce its ICPM designation by 75 MW, for a total capacity coverage of 75 MW under RA and 25 MW under ICPM.

²¹ See Tariff section 39.8.

monthly rate). On the other hand, this method of compensation does not have a must offer obligation nor restrict the non-RA resource from offering its exceptionally dispatched capacity into the RUC and the revenue cap is calculated based on a resource's entire capacity, whereas ICPM payments are based on the highest level of Exceptional Dispatches.

Another aspect of this Bid-based approach is that ISO will not allow submission of Bids after the fact (ex post): if there is no Bid for the market interval during the Exceptional Dispatch, ISO will substitute the unit's DEB. Hence, if a resource is exceptionally dispatched prior to the close of RTM for first hour (HE1) of the RTM, then to earn supplemental revenues, it must submit a Bid into the RTM for that hour and each subsequent hour of Exceptional Dispatch. If an SC has not submitted a Bid into an ISO market and the resource is receives an Exceptional Dispatch during the Operating Day, then for the first hour of the RTM that the Exceptional Dispatch occurs, the higher of LMP or DEB will be used for compensation. The SC must then submit a Bid into the HASP for the next Operating Hour to obtain supplemental revenues.

The ISO will track the amount of supplemental revenues for the 30-day period that starts with the first Exceptional Dispatch of the resource. Within each such 30-day period, a mitigated resource will be eligible to receive Exceptional Dispatch supplemental revenues up to the monthly ICPM revenues for which the resource would be eligible if it had its total eligible non-RA capacity been designated as ICPM Capacity.²² This is the supplemental revenue cap.

Once the level of the cap has been reached, the mitigated resource ceases to be eligible to receive Exceptional Dispatch supplemental revenues for the rest of that 30-day period and any Exceptional Dispatches that it receives during the remainder of this period that are subject to mitigation will be settled pursuant to the general rule as set forth above, i.e., the higher of (a) the DEB price or (b) the LMP.

Resources can calculate how many hours are needed to reach the cap assuming different Bids or LMPs and given the unit's DEB. As noted above, the ICPM monthly payment at the stated tariff rate is \$3,417/MW. For each 1 MW of eligible capacity, a unit could thus hit the revenue cap after approximately 7-10 hours of Exceptional Dispatch if that 1 MW was dispatched with a Bid at \$500/MWh and depending on the contribution of its DEB. For example, if the DEB was \$100/MWh, this unit would reach its revenue cap per MW in about 8.5 hours. Additional description of this calculation is given in the appendix.

Since Exceptional Dispatch is settled financially outside of the market software systems, calculation of the cap and mitigation of Bids is largely a settlement function. However, there may be situations when knowing when a resource has reached its cap during the 30 day period would assist ISO grid operators in their goal of least-cost Exceptional

²² The primary difference between this calculation and the proposed calculation of the monthly payment to a resource designated as ICPM Capacity is that the latter calculation will be adjusted based on the actual availability of the ICPM resource, whereas the Exceptional Dispatch supplemental revenue cap calculation will not include such an adjustment.

Dispatch (see discussion below). Hence, the ISO will track supplemental revenues and estimate when the cap is reached during the 30 day period.

Other Supplemental Compensation Rules

In order to prevent any “double payment” to resources during a 30-day period, and consistent with the principle set forth in the February 20 Order, in any 30-day period, a resource committed through Exceptional Dispatch would not be permitted to earn, through the sum of ICPM capacity payments and supplemental revenues, payments greater than the applicable monthly ICPM payment (which will be based on the higher of \$41/kW-year or a resource’s Commission-approved ICPM rate above \$41/kW-year, whichever is applicable).

If the resource accepts a Significant Event ICPM designation during any 30-day period triggered by an Exceptional Dispatch the following further requirements would apply. If a resource had elected an ICPM designation for a 30-day period, and if the resource subsequently accepts an ICPM Significant Event designation during the 30-day period, the Significant Event designation would trigger a new 30-day period for the designated capacity. If the capacity designated under the Exceptional Dispatch ICPM designation exceeded the ICPM capacity designated to cover the Significant Event, the resource would be eligible for the Exceptional Dispatch ICPM compensation for the balance of the original 30-day period.

If the resource had elected supplemental revenues and if the resource subsequently accepts an ICPM Significant Event designation during the 30-day period, the Significant Event designation would trigger a new 30-day period for the designated capacity and terminate the payment of supplemental revenues. Moreover, as per the double payment rule described above, the ICPM payment may have to be adjusted also to ensure that the sum of supplemental revenues and ICPM revenues for the 30-day period do not exceed an ICPM payment.

Least Cost Basis for Exceptional Dispatch

Under the tariff, the ISO has the goal of least-cost Exceptional Dispatch. CAISO anticipates that many Exceptional Dispatches will require the selection of a specific unit for local reliability reasons or due to unit operating constraints. However, there will be instances when more than one unit could fulfill the need for the Exceptional Dispatch. When there is a choice, grid operators can take into account each unit’s start-up and minimum load costs, Bid price, whether exceptionally dispatching it will trigger supplemental compensation, and their judgment about subsequent dispatches of the unit over the operating day. The ISO has developed decision tools to assist the grid operators when possible to make least cost decisions that consider all these factors.

Exceptional Dispatch Reporting Requirements

Under Section 34.9 of the CAISO Tariff, the ISO is required to record the circumstances that have led to Exceptional Dispatch. In its recent compliance filing with the February 20 Order, and answer to comments in that proceeding, the ISO has proposed a 30 day reporting requirement filed the 15th of every month starting on May 15, 2009, and to identify the following:

- The frequency of Exceptional Dispatches (*i.e.*, the ISO will count the number of resources issued Exceptional Dispatches for each date on which any occurred);
- Incremental and decremental MWs, the type of Exceptional Dispatch and the reason for the Exceptional Dispatch;
- The estimated cost of the Exceptional Dispatch, which would include Exceptional Dispatch Energy, Excess Cost Payments for Exceptional Dispatches, Exceptional Dispatch ICPM payments, and supplemental revenues;²³
- The degree of mitigation achieved by the Exceptional Dispatch, *i.e.* whether any Exceptional Dispatch Bids are mitigated;
- The location of the exceptionally dispatched resources at the level of Local Reliability Area if relevant and applicable and to the extent such information is readily determinable; and
- The market in which the Exceptional Dispatch occurred.

Certain Exceptional Dispatches may relieve multiple grid issues at once. However, in order to avoid double-counting, each Exceptional Dispatch will be categorized in no more than one instruction type and reason category.

Other ISO Obligations to address Exceptional Dispatch

Under FERC orders, the ISO is required to take a number of steps to reduce the frequency of Exceptional Dispatch over time.

The February 20 Order requires the ISO to file a report with FERC by June 20, 2009, that details the status of its discussions with stakeholders on the development of a market

²³ The ISO notes that, until payment acceleration, settlement quality data for the Exceptional Dispatches discussed in the report will not be available in time to include it in the report. When settlement quality data is available, the ISO will include the details in the next available report. Once payment acceleration is in place, the cost data for the Exceptional Dispatches—based on estimated meter data—should be available in time to include it in the same report.

mechanism for Path 26 (through a supplemental operating reserve procurement), the outcome of the voltage support stakeholder process, and the status of Exceptional Dispatch procedures for participating load.

The ISO has already initiated a stakeholder initiative on 30 minute ancillary services, including an Issue Paper with initial findings.²⁴

As noted above, the ISO has begun other processes that will affect the frequency of Exceptional Dispatch, including the improved modeling of multi-stage generation.²⁵ As further steps are taken outside of FERC requirements, the ISO will note the potential impact on Exceptional Dispatch.

References

The FERC technical conference materials, stakeholder comments, and final order (February 20, 2009) on Exceptional Dispatch are in FERC Docket Nos. ER08-1178 and EL08-88:

<http://elibrary.ferc.gov/idmws/search/fercgensearch.asp>

Exceptional Dispatch is discussed on pgs. 201-203 of the Business Practice Manual on Market Operations:

<https://bpm.caiso.com/bpm/bpm/version/000000000000005>

Operating Procedure M-402 for Exceptional Dispatch:

<http://www.caiso.com/docs/1998/12/02/1998120218202714536.pdf>

Exceptional Dispatch ICPM designation is discussed in section 7.3.5.2 of the Business Practice Manual on Reliability Requirements:

<https://bpm.caiso.com/bpm/bpm/version/000000000000011>

The ISO stakeholder process in 2008 on Exceptional Dispatch:

<http://www.caiso.com/1c89/1c89d76950e00.html>

The stakeholder process on ICPM and the FERC order approving ICPM:

<http://www.caiso.com/1bc5/1bc5db284cc80.html>

²⁴ The ISO initiative on 30 minute ancillary services can be found at <http://www.caiso.com/2078/2078be2d3790.html>.

²⁵ The ISO initiative on multi-stage generating unit modeling can be found at <http://www.caiso.com/2078/2078908392d0.html>.

3. Appendix

Key Sections of the CAISO Tariff that address Exceptional Dispatch

Table 2 – Key Sections of the CAISO Tariff that address Exceptional Dispatch

| Tariff Section | Exceptional Dispatch Rules |
|---|--|
| 7.7.15.1 Actions in the Event of a Market Disruption, to Prevent a Market Disruption or to minimize the Extent of a Market Disruption | Identifies Exceptional Dispatch as an Action to prevent or manage Market Disruption |
| 11.5.6 Settlement Amounts for IIE from Exceptional Dispatch | Determination of Settlement Amounts for IIE from various types of Exceptional Dispatch; Allocation of Excess Cost Payments; Pricing of Exceptional Dispatch of RMR units |
| 11.8.2.1.1 IFM Start-Up Cost 11.8.3.1.1 RUC Start-Up Cost 11.8.4.1.1 RTM Start-Up Cost | Impact of Exceptional Dispatch de-commitment on recovery of IFM, RUC and RTM start-up costs |
| 11.23 Penalties for Uninstructed Imbalance Energy | Rules for application of penalties for UIE to Exceptional Dispatches |
| 27.5.2 Metered Subsystems 31.3.3 Metered Subsystems | Use of Exceptional Dispatch to resolve congestion caused by MSS and allocation of costs to MSS |
| 31.5.1.4 Eligibility to Set the RUC Price | Resources are not eligible to set RUC prices if CAISO enforces a resource-specific constraint due to an Exceptional Dispatch |
| 31.5.5 Selection and Commitment of RUC Capacity | Exceptional Dispatch is used to decommit units scheduled in IFM and evaluated in RUC |
| 33.8.1 Eligibility to Set the HASP Intertie LMP | Resources are not eligible to set HASP intertie prices if CAISO enforces a resource-specific constraint due to an Exceptional Dispatch |
| 34.9 Exceptional Dispatch | Describes types of Exceptional Dispatches, including System Reliability Exceptional Dispatches (34.9.1), Other Exceptional Dispatch (34.9.2), Transmission-Related Modeling Limitations (34.9.3) and Reporting Requirements (34.9.4) |
| 34.15.6 Intra-Hour Exceptional Dispatches | Real-Time dispatch rules for the special case where an Exceptional Dispatch begins in the new hour |
| 34.19.2.3 Eligibility to Set the Real-Time LMP | Resources are not eligible to set Real-Time LMPs if CAISO enforces a resource-specific constraint due to an Exceptional Dispatch |
| 39.10 Mitigation of Exceptional Dispatches of Resources | Rules for mitigation of Exceptional Dispatches, including Supplemental Revenues |

| Tariff Section | Exceptional Dispatch Rules |
|---|---|
| 41.9 Exceptional Dispatch of Condition 2 RMR Units | Rules for Exceptional Dispatch of Condition 2 RMR units outside the terms of their contracts |
| 43.1.5 Exceptional Dispatch ICPM | Rules for eligibility and assignment of incremental ICPM designations under Exceptional Dispatch |
| 43.6.1 Monthly ICPM Capacity Payment | Calculation of Exceptional Dispatch ICPM payments |
| 43.6.2.1 Failure to Submit Going Forward Cost Offer Price | Rules for designation of Exceptional Dispatch ICPM when SCs have not identified the going forward cost offer price for the resource |
| 43.6.2.3 Resource-Specific Monthly ICPM Capacity Payment | Payments for Exceptional Dispatch ICPM designations are not subject to a shaping formula |
| 43.7.6 Allocation of Exceptional Dispatch ICPMs | Cost allocation for Exceptional Dispatch ICPM designations |

Comparison of Exceptional Dispatch Supplemental Compensation Options

Table 3 below compares properties of the two methods for supplemental compensation. The table highlights key differences in compensation and obligations on resources between each method.

Table 3 – Comparison of Supplemental Compensation Methods

| Rules and Properties | ICPM Designation | Bid-based Supplemental Revenues |
|---|---|--|
| <i>Source of Exceptional Dispatch Compensation</i> | ICPM revenues only | EDE revenues only (from the higher of LMPs, Bids or DEBs until supplemental revenue cap reached) |
| <i>Compensation for Commitment to PMin</i> | ICPM designation to PMin | None, because no EDE revenues |
| <i>Compensation for Incremental Energy above PMin</i> | ICPM designation for the higher of PMin or the incremental EDE MW | Higher of LMP or Bid-based payments for EDE before Supp. Revenue Cap subject to exceptions noted below; higher of LMP or DEB after Supp. Revenue Cap |
| <i>Compensation for Incremental Energy above Self-scheduled or Market-dispatch schedule</i> | ICPM designation for the higher of PMin or the incremental EDE MW | Higher of LMP or Bid-based payments for Energy Output before Supp. Revenue Cap subject to exceptions noted below; higher of LMP or DEB after Supp. Revenue Cap |
| <i>Compensation for Decremental Energy</i> | None | None |
| <i>Compensation for De-Commitment</i> | None | None |
| <i>A/S, pre-commercial operations and PMax testing</i> | None | None |
| <i>Bid requirements for Supplemental Compensation</i> | No requirement to submit Bids into the ISO markets | Bids required to be submitted into the ISO markets for Supplemental Revenues; otherwise, compensation is based on the higher of LMP or DEB |
| <i>Application of Bid Mitigation and Energy Revenues</i> | Mitigation, when applicable, to all Energy Bids submitted for capacity designation under ICPM; Energy Revenues are higher of LMP or DEB | Bid Mitigation suspended subject to exceptions noted above until Bid-based revenues reach Supp. Revenue Cap |

| Rules and Properties | ICPM Designation | Bid-based Supplemental Revenues |
|--|--|--|
| <i>Offer obligation for Energy and Ancillary Services</i> | Offer obligation applied to all MW under ICPM designation as per ICPM tariff rules | No offer obligation |
| <i>Eligibility to submit non-zero Availability Bids into Reliability Unit Commitment (RUC)</i> | Not eligible to submit non-zero Availability Bids in RUC for all MW under ICPM designation | No restrictions on submitting Availability Bids into RUC for eligible capacity |
| <i>Minimum Level of Exceptional Dispatch Compensation</i> | ICPM monthly rate per MW times designated MW (minimum of PMin MW for fully non-RA resources or resources with partial RA less than PMin) | No guaranteed minimum level of Exceptional Dispatch Compensation (revenues depend on Bid price offers) |
| <i>Supplemental Revenue Cap/Double Payment Rule</i> | Not applicable to resources that nominate ICPM designations | Calculated based on total non-RA capacity of Resource. |

Calculation of Bid-based Supplemental Revenues

As noted above, for resources that elect Bid-based supplemental revenues, the ISO will track the supplemental revenues for purposes of not exceeding a defined supplemental revenue cap.

The settlement rule for each resource can be stated formally as follows:

Supplemental revenues per MWh for each 30 day period beginning with a first Exceptional Dispatch =

Max [Market Bid, LMP] for every Exceptional Dispatch settlement period that is in the set t_A (i.e., prior to hitting the revenue cap)
+

Max [DEB, LMP] for every Exceptional Dispatch settlement period that is in the set t_B (i.e., subsequent to hitting the revenue cap),

where

$t_A + t_B$ consist of all Exceptional Dispatch settlement periods in a 30 day period,

t_A is the set of settlement periods prior to the unit accruing supplemental revenues equal to or greater than the revenue cap (equal to the ICPM monthly rate for the mitigated resource);

t_B is defined as the set of settlement periods beginning with the period when the sum of supplemental revenues in the prior periods, t_A , is greater than or equal to the revenue cap.

For our purposes, supplemental revenues for a resource are defined as revenues above short-term variable cost:

$(\text{Max} [\text{Market Bid}, \text{LMP}] - \text{DEB}) \times \text{MWh}$, for all hours under Exceptional Dispatch,

and Bid mitigation begins when

supplemental revenues \geq ICPM Monthly Rate of the resource.

Finally, if a resource submits a Bid lower than its DEB, and the LMP is lower than both Bid and DEB, it will be settled at its Bid rather than the DEB. This is similar to the analogous settlement rule for market power mitigation in the CAISO Tariff.²⁶ However, in the period where a resource's supplemental revenue is being calculated, t_A , and an

²⁶ See Tariff sections 31.2.2.2 and 33.4. Specifically, the payment when a resource is subject to mitigation would be: $\text{Max}[\text{Min}[\text{Market Bid}, \text{DEB}], \text{LMP}]$.

eligible resource submits a Bid lower than its DEB, the ISO will nevertheless continue to calculate the supplemental revenue as the difference between LMP and the DEB, if the LMP is higher than both DEB and Bid.

Figure 1 below diagrams how Bid-based Supplemental Revenues are calculated. In case (a) the unit's Bid is higher than both the LMP and the DEB. In this case, the Supplemental Revenues are calculated as the difference between the Bid and the DEB. In case (b), the LMP is higher than both the unit's Bid and its DEB. In this case the Supplemental Revenues are calculated as the difference between the LMP and the DEB.

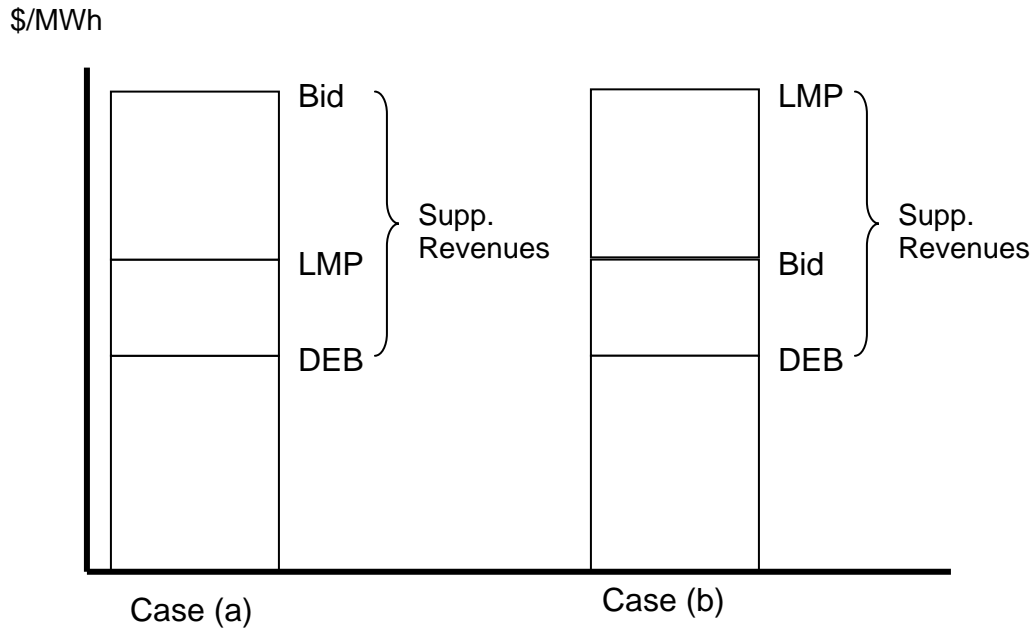


Figure 2 – Calculation of Supplemental Revenue

Exceptional Dispatch Mapping Table

Table 4 below maps the Exceptional Dispatch code types and indicates (a) whether Bid mitigation applies, (b) whether an Exceptional Dispatch is eligible for ICPM or supplemental revenues, and (c) the relevant settlements provisions. This table includes existing and new Exceptional Dispatch codes. This table also reflects the tariff rules for Bid mitigation that will be in effect as of August 1, 2009 (as discussed in Section 2 above). As discussed, eligibility for ICPM or supplemental revenues is limited to Exceptional Dispatch commitments and incremental Exceptional Dispatches of resources within the CAISO Balancing Authority Area.

| Table 4 – Exceptional Dispatch (ED) Mapping Table for Implementation as of August 1, 2009 | | | | | | | |
|--|--|-------------------------------------|-------------------------|----------------------------------|---|-----------------------------------|--|
| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
| SYSEMR | Competitive Path ED for System Emergency (section 34.9.1); to mitigate for over-gen (section 34.9.2 (4); Market Disruption (section 34.9.2(9); Energy for voltage support; reverse commitment instruction (Section 34.9.2(8)) reverse operating mode of Pumped Storage unit (Section 34.9.2(10) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.1 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.2 |
| | | Yes | Non-RA | No | Yes | | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|--|---|
| SYSEMR1 | Non-competitive Path ED for System Emergency (section 34.9.1); to mitigate for over-gen (section 34.9.2 (4); Market Disruption (section 34.9.2(9); Energy for voltage support; reverse commitment instruction (Section 34.9.2(8)) reverse operating mode of Pumped Storage unit (Section | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.2 |
| | | Yes | Non-RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |
| TMODEL | Competitive Path ED to Resolve Transmission related modeling Limitation not associated with a particular TO or more than one TO (Section 34.9.3) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | | Non RA | No | Yes | | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|-------------------------------|--|
| TMODEL1 | Competitive Path ED to resolve Transmission related modeling Limitation due to PG&E not providing complete and accurate information (Section 34.9.3) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | | Non RA | No | Yes | | |
| TMODEL2 | Competitive Path ED to resolve Transmission related modeling Limitation due to SCE not providing complete and accurate information (Section 34.9.3) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | | Non RA | No | Yes | | |
| TMODEL3 | Competitive Path ED to resolve Transmission related modeling limitation due to SDG&E not providing complete and accurate information (Section 34.9.3) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | | Non RA | No | Yes | | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|--|--|
| TMODEL4 | Non-Competitive Path ED to resolve Transmission related modeling limitation not associated with a particular TO or more than one TO (Section 34.9.3) | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | | Non RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|--|------------------------------|------------------|---------------------------|--|--|---|
| TMODEL5 | Non-Competitive Path ED to resolve Transmission related modeling limitation due to PG&E not providing complete and accurate information (Section 34.9.3) | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.51 |
| | | Yes | Non-RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|--|------------------------------|------------------|---------------------------|--|--|--|
| TMODEL6 | Non-Competitive Path ED to resolve Transmission related modeling limitation due to SCE not providing complete and accurate information | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | Yes | Non RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|--|--|
| TMODEL7 | Non-Competitive Path ED to resolve Transmission related modeling limitation due to SDG&E not providing complete and accurate information (Section 34.9.3) | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | Two allocation paths: 1) Up to LMP as part of IIE Settlement per 11.5.1.1 and 2) Cost in excess of LMP per 11.5.6.2.5.1 |
| | | Yes | Non-RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|--|--|
| NONTMOD | ED to address software and modeling limitations that are not due to a Transmission related modeling limitations (Section 34.9.3) including environmental and resource constraints such as ramping limitations | Yes | RA/RMR/ICPM | No generally | No | According to Section 11.5.6.2.4 | All costs allocated as part of IIE Settlement per 11.5.1.1 |
| | | | | Yes for Delta Dispatch | | According to Section 11.5.6.7.1 | |
| | | | Non RA | No Generally | Yes | According to Section 11.5.6.2.4 | |
| | | | | Yes for Delta Dispatch | | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------|---------------------------|--|--|--|
| TORETC | Competitive Path ED for TOR or ETC Schedule Changes after HASP (Section 34.9.2(7)) | Yes | RA/RMR/ICPM | No | No | According to Section 11.5.6.6 | All costs allocated as part of IIE Settlement per 11.5.1.1 |
| | | | Non RA | No | Yes | | |
| TORETC1 | Non-Competitive Path ED for TOR or ETC Schedule Changes after HASP (Section 34.9.2(7)) | Yes | RA/RMR/ICPM | Yes | No | According to Section 11.5.6.7.2 | All costs allocated as part of IIE Settlement per 11.5.1.1 |
| | | | Non RA | Yes | Yes | According to Section 11.5.6.7.1 for resources selecting supplemental revenues According to Section 11.5.6.7.2 for resources selecting ICPM compensation | |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|-----------------------------|---|------------------------------|------------------------------|---------------------------|--|--|--|
| BS | Black Start (Section 34.9.2(5)) | Yes | Black Start Agreement | No | No | According to Interim Black Start Agreement | All costs are allocated per Section 11.10.8 |
| | | | RA/RMR/ICPM | | No | According to 11.5.6.1 | |
| | | | Non RA | | Yes | According to 11.5.6.1 | |
| VS | Voltage Support (other than for Energy needed for Voltage Support) (Sections 11.10.1.4 and 34.9.2(6)) | Yes | Voltage Support contract | No | No | According to contract | All costs are allocated per Section 11.10.7 |
| | | | Resource without VS contract | | No | According to Section 11.10.1.4 | |
| ASTEST | Ancillary Service Testing (Section 34.9.2(1)) | Yes | No Distinction | No Bids | No | According to Section 11.5.6.4 | All costs allocated as part of IIE Settlement per 11.5.1.1 |
| PRETEST | Pre-commercial operations or PMax testing for generators (Section 34.9.2(2) and (3)) | Yes | No Distinction | No Bids | No | According to Section 11.5.6.4 | All costs allocated as part of IIE Settlement per 11.5.1.1 |
| TEMR | Tie Emergency (emergency energy transaction with other control areas per Section 42) | Yes | No Distinction | No | No | According to Section 11.5.6.1 | All costs allocated as part of IIE Settlement per 11.5.1.1 |

| Instruction Type (EDE Code) | Instruction Description | Type of Exceptional Dispatch | Type of Resource | Subject To Bid Mitigation | Eligible for ICPM or Supplemental Revenues | Energy Payment to Resource | Allocation of Energy Costs |
|------------------------------------|---|-------------------------------------|---------------------------------|----------------------------------|---|-----------------------------------|-----------------------------------|
| RMRRC2 | RMR Energy Condition 2 (Sections 34.9.1 and 41.9) | Yes | Applies to RMR Condition 2 only | No | No | According to Section 11.5.6.3.1 | According to Section 11.5.4.2 |