CALIFORNIA ISO

July 8, 2003

The Honorable Magalie Roman Salas
Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: **California Independent System Operator Corporation,**
        Docket No. ER02-____-000
        Amendment No. 54

Dear Secretary Salas:

        Pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d,
and Sections 35.11 and 35.13 of the Federal Energy Regulatory
Commission's ("Commission") regulations, 18 C.F.R. §§ 35.11, 35.13, the
California Independent System Operator Corporation ("ISO")[1] respectfully
submits for filing an original and six copies of an amendment ("Amendment
No. 54") to the ISO Tariff. The proposed Tariff changes and clarifications
further the Real Time Imbalance Energy Market design elements in Phase 1
of the ISO's Comprehensive Market Design 2002 ("MD02") initiative and
complement the market design changes that were implemented on
October 30, 2002 as part of MD02 Phase 1A.[2] Upon implementation of these
proposed Phase 1B Tariff modifications, all of the Commission-approved
MD02 Phase 1 elements will be fully implemented. Amendment No. 54
enhances the way the ISO dispatches resources in real time, calculates
market clearing prices, settles transactions in ISO markets, implements

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[1]   Capitalized terms not otherwise defined herein are defined in the Master Definitions
Supplement, ISO Tariff Appendix A, as filed August 15, 1997, and subsequently revised.

[2]   The market design elements that were implemented as part of MD02 Phase 1A
included Automatic Mitigation Procedures, a new Damage Control Bid Cap, a negative
$30/MWh cap on Decremental energy bids and local market power mitigation measures.

Uninstructed Deviation Penalties, and provides for real time communication with Market Participants.

I.   EXECUTIVE SUMMARY

In its July 17, 2002 order[3] addressing the MD02 Phase 1 elements, the Commission approved, among other things, real-time economic dispatch and penalties for uninstructed deviations. The Commission specifically conditioned implementation of penalties for excessive uninstructed deviation upon the successful implementation of software improvements that would: (1) allow for consideration of multiple ramp rates for Generating Units in the ISO's software and (2) permit Scheduling Coordinators ("SCs") to send directly to the ISO communications on outages, de-rates and operating problems in real time to be incorporated in real time Dispatch Instructions. The ISO divided Phase 1 of MD02 into two sub-phases, Phase 1A and Phase 1B, to reflect the staged implementation of the market design elements, as necessitated by the Commission's conditional acceptance of the ISO's proposal regarding Uninstructed Deviation Penalties.

The ISO now proposes Tariff modifications necessary to implement real-time economic Dispatch and Uninstructed Deviation Penalties. The ISO also is proposing several additional modifications and clarifications that are necessary to facilitate implementation of the design elements previously approved for MD02 Phase 1A. Specifically, the ISO proposes improving ISO Dispatch Instructions through enhanced modeling of generating unit performance criteria and constraints. The ISO also proposes to further improve Dispatch Instructions by providing Market Participants the option of including the transmission losses associated with Final Hour-Ahead Schedules into such instructions. In addition, the ISO clarifies how the single Energy Bid curve will function by detailing how the relevant operating ramp rate will determine the deliverability of Ancillary Services.

As a part of the real-time economic dispatch mechanism to be implemented in Phase 1B, the ISO proposes to clarify the eligibility criteria for setting the Market Clearing Price ("MCP") and how the ISO will establish ten-minute market clearing prices for use in the existing ten-minute settlement intervals from MCPs that are determined by real-time economic Dispatch Instructions every five minutes.

To implement real-time economic dispatch and penalties for excessive uninstructed deviations, the ISO proposes certain changes to the settlement

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[3]   *California Independent System Operator Corporation*, 100 FERC ¶ 61,060 (2002) ("July 17 Order").

of Imbalance Energy, including bid cost recovery for extra-marginal Energy.[4] The ISO also clarifies the exemptions from Uninstructed Deviation Penalties for System Resources, Participating Loads, and for generating units providing Regulation Energy. Finally, the ISO proposes a means by which generating units may aggregate resources to net uninstructed deviations from so as to reduce exposure to Uninstructed Deviation Penalties.

II. BACKGROUND

A. Procedural History

On May 1, 2002, the ISO filed its Comprehensive Market Design proposal ("May 1 MD02 Filing") with the Commission. The market design changes proposed in the May 1 MD02 Filing addressed deficiencies in the ISO's existing market design and were intended to assist the ISO to perform its core function of effective provision of open access, reliable, and non-discriminatory transmission service. The May 1 MD02 Filing contained, *inter alia*, proposed Tariff language for a set of "Phase I" elements set to take effect when the price mitigation established in 2001 expired, including: (1) a west-wide bid cap of $108/MWh; (2) a decremental bid cap of negative $30/MWh; (3) penalties for uninstructed deviations; (4) use of a real-time economic dispatch system; (5) Automated Mitigation Procedures ("AMP") to monitor for and mitigate for market power; (6) a 12-month Market Competitiveness Index ("MCI") intended to establish a quantitative means to determine if prices are just and reasonable; and (7) an interim Residual Unit Commitment ("RUC") process.

In its July 17 Order, the Commission accepted, rejected, and modified in part the ISO's May 1 MD02 Filing. The Commission: (1) approved a west-wide "soft" bid cap of $250/MWh and the extension of the west-wide Must-Offer obligation; (2) modified the ISO's AMP proposal by adopting a price screen and approving less stringent conduct and market impact thresholds; (3) approved the ISO's proposed negative decremental bid cap of negative $30/MWh while making that cap a "soft" cap; (4) rejected use of the proposed 12-month Market Competitive Index for mitigation purposes, but directed the ISO to file the information produced by this index weekly with the Commission's Office of Market Oversight and Investigation; (5) rejected the ISO's proposed local market power mitigation measures and, instead, directed the ISO to apply modified AMP procedures to test for and mitigate the exercise of local market power; and (6) conditioned approval of proposed penalties for excessive uninstructed deviation upon the successful

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[4] Extra-marginal Energy is Energy that is not instructed by the ISO but must be produced to comply with an ISO Dispatch Instruction.

implementation of software improvements that: (i) allow for consideration of multiple ramp rates into operating orders and (ii) permit the ISO to receive and incorporate communications on outages, de-rates and operating problems in real time. The July 17 Order also directed the ISO to implement an integrated Day-Ahead Market, Ancillary Services Market reforms and proposed reforms to the Hour-Ahead and Real Time Markets by January 1, 2003.

On August 16, 2002 and August 21, 2002, the ISO submitted Tariff changes to comply with the July 17 Order.[5] The ISO submitted a request for rehearing of various aspects of the July 17 Order on August 16, 2002. Specifically, the ISO sought rehearing on: (1) the level of the AMP conduct and impact thresholds established by the Commission; (2) the $91.87/MWh AMP price screen; (3) local market power mitigation through the AMP; (4) the Commission's rejection of the ISO's interim RUC process; (5) the Commission's directive to implement the Day-Ahead Market and other reforms by January 1, 2003; and (6) the Commission's decision authorizing the ISO to clear the Price Overlap in the Real-Time Market before Uninstructed Deviation Penalties are put into effect.

On October 11, 2002, the Commission issued an order[6] addressing the ISO's August 16, 2002 compliance filing and requests for rehearing of the July 17 Order. Among other things, the October 11 Order: (1) directed the ISO to implement a Day-Ahead Energy-only market (the so-called "Phase II Lite" proposal); and (2) clarified that imports into the ISO Control Area must bid $0/MWh. On November 8, 2002, the ISO filed for rehearing of these elements of the October 11 Order.

On October 25, 2002, the Commission issued an order[7] addressing proposed Tariff revisions the ISO submitted on September 20, 2002 and the ISO's August 16, 2002 and August 21, 2002 compliance filings to the July 17 Order. This order approved the ISO's proposal to: (1) move the deadline for submitting Supplemental Energy bids from 45 minutes before the hour to 60 minutes before the hour to accommodate the AMP; (2) extend the provisions of Amendment No. 43 to pay system resources the instructed price in all intervals; and (3) limit the liability of the entity calculating reference prices,

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[5]   The ISO filed black-lined Tariff sheet on August 16, 2002, and revised black-lined sheets and revised clean Tariff sheets on August 21, 2002.

[6]   *California Independent System Operator Corporation*, 101 FERC ¶ 61, 061 (2002) ("October 11 Order").

[7]   *California Independent System Operator Corporation,* 101 FERC ¶ 61, 084 (2002) ("October 25 Order").

subject to further determination in the Commission's rulemaking on Standard Market Design. The Commission also directed the ISO to change the deadline for submitting schedules to the Hour-Ahead market from 120 minutes before the hour to 135 minutes before the hour. The ISO filed Tariff language complying with this directive on November 25, 2002.

On June 24, 2003, the Commission approved Amendment No. 52 to allow System Resources to submit bids above $0/MWh in the ISO's Real Time Markets. This amendment was designed to facilitate participation of these resources during the critical summer peak season.

b. The Phase 1B Tariff Revisions

The underlying concepts supporting the modifications to the ISO Tariff proposed herein have been approved by Motion of the ISO Board of Governors.

The concepts underpinning these modifications have been discussed by ISO stakeholders through a series of three stakeholder meetings, iterative dialogues based upon publicly posted ISO white papers and twice-monthly conference calls beginning in Fall 2002. Appendix D sets forth the Phase 1B stakeholder process, including a link to the ISO web site containing discussion papers and a list of all stakeholder meetings held to develop and discuss the proposed Tariff changes.

III.   PROPOSED TARIFF MODIFICATIONS

A.   Real Time Security Constrained Economic Dispatch

In accordance with the July 17Order, the ISO will implement software for real-time security-constrained economic dispatch in Phase 1B. The Real-Time Dispatch ("RTD") Software will replace the existing Balancing Energy Ex Post Price ("BEEP") software currently used to issue Dispatch Instructions. The RTD Software will receive SCs' bids to provide real time Energy, calculate the ISO Imbalance Energy requirement for the next Dispatch Interval and then create an economically optimized set of Dispatch Instructions to meet that Imbalance Energy requirement at least cost subject to resource and transmission grid constraints. The RTD Software will select resources for economic dispatch while honoring resource operating constraints, including ramp rates and Forbidden Operating Regions;[8] and

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[8]   Forbidden Operating Regions are those operating ranges in which a resource may not operate for an extended period, but must ramp through as quickly as possible. A unit therefore may not provide regulation service within a Forbidden Operating Region, because

inter-zonal transmission constraints.[9] The RTD Software will clear overlapping buy/sell Energy bids (i.e., effect economic trades in each Dispatch Interval) and will calculate expected Energy prices for settlement.

Specifically, the RTD Software will, over up to a 120-minute time horizon,[10] compare the Load forecast, current and expected telemetry of resources in the ISO Control Area, current and expected telemetry of transmission links to other control areas, and the current status of resources on Automatic Generation Control ("AGC"). From this information, the RTD Software will set generation levels for resources participating in the ISO Real Time Market using an optimization that achieves least-cost dispatch while respecting generation and inter-zonal transmission constraints.

The RTD Software also will calculate the available Ancillary Service capacity for relevant resources in each Dispatch Interval using the applicable ramp rate, telemetry and the Dispatch Operating Point. A new "No Pay" mechanism, set forth in Tariff Sections 2.5.26.2 *et seq.* and 2.5.26.3, will rescind Ancillary Services payments for Ancillary Services capacity that was awarded or self-provided according to a greater ramp rate than the ramp rate at which the resource could actually deliver the Energy from such capacity. The new No Pay mechanism will now also rescind Regulation Up and Regulation Down payments for regulating capacity that spans Forbidden Operating Regions. Resources cannot provide Regulation service across those regions because they may not operate within those regions for extended periods.

The ISO proposes to make the order that Ancillary Services payments are rescinded consistent with the new way Ancillary Services capacity is allocated to the Single Energy Bid Curve from lowest quality service to highest quality service to preserve the highest quality service.

A complementary software application, Security Constrained Unit Commitment ("SCUC"), will determine the optimum short-term (*i.e.*, one to two hours, the time from the current interval through the end of the next hour

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that could require the unit to operate in that Forbidden Operating Region for some unknown period of time.

[9]   The RTD Software will only consider inter-zonal constraints, not intra-zonal constraints, until the Full Network Model and Locational Marginal Pricing is implemented in Phase 3 and the distinction between intra- and inter-zonal congestion is removed. Until then, the RTD Software can account for intra-zonal transmission constraints by applying resource limits manually entered by an ISO operator.

[10]   The RTD Software evaluates Imbalance Energy Requirements for the rest of the current operating hour plus the next operating hour.

based on the current and next hour's bids) unit commitment of resources used in the RTD Software. The SCUC software will commit off-line resources with shorter start-up times[11] into the Real Time Market for the RTD Software to Dispatch, or, conversely, SCUC software will de-commit resources as required to prevent over-generation in real time. The SCUC program will run prior to the beginning of the operating hour and will perform an optimal hourly pre-dispatch for the next hour to meet the forecast Imbalance Energy requirements while minimizing the procurement cost over the entire hour. The SCUC software also pre-dispatches (i.e., dispatches prior to the operating hour) hourly System Resource bids.[12] The SCUC program will provide for optimal commitment of quick-start resources as a complement to the RTD Software economic dispatch optimization in real time.

To implement the RTD and SCUC software, the ISO is proposing modifications to the following: (1) Sections 2.5.18, 2.5.22.2, 2.5.22.3.1, 2.5.22.3.2, 2.5.22.4.1, 2.5.22.4.2, 2.5.22.5, 2.5.22.6, 2.5.22.6.2, 2.5.22.6.3, 2.5.22.6.4, 2.5.22.9, 2.5.22.10, and 2.5.22.23.1 of the ISO Tariff; (2) Dispatch Protocol Sections 4.4 and 8.6.2; and (3) Scheduling and Bidding Protocol Section 6.1. These Tariff revisions are set forth in Attachments A and B.

B. Incorporation of Additional Operating Constraints into Dispatch Instructions

The Commission, in its July 17 Order, conditioned the ISO's implementation of Uninstructed Deviation Penalties ("UDP") upon incorporation of multiple ramp rates, reflecting different operational levels, into ISO Dispatch Instructions. *See* July 17 Order, 100 FERC at PP 140-41. While the Commission expressly directed the ISO only to account for multiple ramp rates when issuing Dispatch Instructions, other related operational constraints must be considered as well so that the ISO Dispatch Instructions accurately account for units' operating capabilities.

The ISO now proposes to expand the set of operating constraints that Dispatch Instructions will consider. These modifications complement other Dispatch Instruction changes implemented on October 31, 2002 in Phase 1A. The Phase 1A changes the ISO initiated were, among other things, use of a Single Energy Bid Curve and single operational ramp rate for Dispatch of both

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[11]   These are start up times of less than approximately two hours - shorter than those resources that must be committed in the forward market in order to be available for full time operation.

[12]   These are bids from resources that cannot change output on a Dispatch Interval basis.

Supplemental Energy and Energy associated with awarded capacity for Ancillary Services. The additional modifications proposed herein will further tailor Dispatch Instructions to accommodate operating constraints.

Through the stakeholder process, the ISO reached general consensus that all operational constraints (such as ramp rates, Forbidden Operating Regions, etc.) must be physically based and not reflect commercial strategies. Moreover, the ISO must have the ability to require validation and testing, as needed, of all such operational constraints, including ramp rates.

To incorporate multiple ramp rates into Dispatch Instructions, and to account for additional operational constraints as well, the ISO issued a Data Request to Market Participants on March 14, 2003, seeking information on ramp rates and other operating constraints. This information, which is subject to validation, documentation and testing, will be included in the ISO Master File. The newly submitted information will be used for Phase 1B and also for other ISO operating and compliance activities. As part of Phase 1B, the ISO is also implementing an improvement to the Master File that will store this operating data, including constraints, for use by the RTD and SCUC software. This information will also be used to determine compliance with Dispatch Instructions.

1.   Multiple Ramp Rates

Currently, when issuing Dispatch Instructions, the ISO considers only a single ramp rate per Ancillary Service (Spin, Non-Spin, and Supplemental Energy), regardless of the unit's operating output level at the time of Dispatch. Through the stakeholder process, the ISO and Market Participants have generally agreed to use a function of up to ten different ramp rates over the unit's operating range. Most Stakeholders agreed with the ISO that the ramp rate for a given operating level should be the same for the generating unit as it ramps up to and down from any given output level.[13]

Currently, generators are expected to ramp from one hourly Schedule to the next hourly Schedule using the 20-minute ramp schedule specified in the ISO Tariff. The 20-minute ramp occurs from 10 minutes before the start of the operating hour to 10 minutes into the operating hour, and the corresponding ramp trajectory is used as a reference to measure uninstructed deviation regardless of the performance capability of the resource. Thus, slow ramping units may incur uninstructed deviations. With Phase 1B

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[13]   The ISO requires that ramp rates up and down must be equal to address concerns over opportunities for withholding of capacity through use of a relatively fast ramp rate when increasing output compared to a slow ramp rate when ramping down and reducing output.

implementation, the ISO instead proposes to Dispatch generating units to ramp from one hour's Schedule to the next hour's Schedule consistent with their operational ramp rate that considers its physical performance constraints and operating level, but no faster than a 20-minute ramp. ISO will "deem delivered" the difference between the expected ramping performance of the generating resource taking longer to ramp than the 20-minute standard ramp based on its operational ramp rate and the 20-minute scheduled ramp specified in the ISO Tariff as a component of Instructed Energy (the "Ramping Energy Deviation") and settle the Ramping Energy Deviation at the MCP. The ISO proposes, however, that Ramping Energy Deviations that fall outside the Tolerance Band of the greater of 3% of the unit's maximum output level ("Pmax") or 5 MW will be subject to Uninstructed Deviation Penalties.

The ISO proposes that if a resource that must ramp from one hour's Schedule to the next hour's Schedule has not submitted Energy Bids, the ISO shall issue Dispatch Instructions to ramp the unit from one hour to the next based on the lesser of the operational ramp rate or the ramp rate needed to accomplish the standard 20-minute ramp. The ramp will begin at ten minutes prior to the hour and must end no later than 50 minutes past the hour. As described immediately infra, the ISO will settle any Energy deviation from the 20-minute ramp at the MCP.

If a resource ramping from one hour's Schedule to the next hour's Schedule has submitted Energy Bids to the ISO's real time market, the ISO will determine an optimum set of Dispatch Instructions to ramp the unit from one hour to the next. Any Energy the unit produces or consumes because it is Dispatched to an Dispatch Operating Point in one hour from which it cannot return to its Final Hour-Ahead Schedule by the beginning of the next hour will be settled as extra-marginal Instructed Energy that may not be able to set the MCP but is eligible for bid cost recovery. Similarly, any Energy the unit produces or consumes above its Final Hour-Ahead Schedule in an hour because it is Dispatched to an Dispatch Operating Point in the next hour may not be able to set the MCP but will be settled as Instructed Energy and is eligible for bid cost recovery.

The ISO will include in the Master File both a high and low (*i.e.*, a fast and slow) ramp rate limit. The high and low ramp rate limit will be used to validate submitted ramp rates. During the Day-Ahead Market, SCs may specify an ramp rate function of up to ten operating ranges and associated ramp rates that will be used for the entire Trade Day. Any ramp rate modification after the daily ramp rate declaration has been submitted in the Day-Ahead Market must be provided to the ISO though the ISO's scheduling

and logging system ("SLIC[14]") and must strictly be the result of changes to the unit's physical operating characteristics, not due to economic reasons. If no ramp rate is submitted for a resource subject to the Must Offer Obligation, the ISO will use the high ramp rate limit specified in the Master File as the default ramp rate for the relevant Trade Day.

Proposed Tariff modifications to Section 2.5.22.6 implementing these modifications are set forth in Attachments A and B.

2. Other Operating Constraints

As discussed above additional operational constraints besides ramp rates must be considered so that the ISO Dispatch Instructions accurately account for units' operating capabilities. Operating constraints can either be static or dynamic. The principal static constraints include: Time-Delay to Start; Time-Delay to Respond; Minimum Run Time; Minimum Down Time; Forbidden Operating Regions; Hold-Levels,[15] and Regulation Ranges. Many of these static constraints are included in the ISO Master File database. Dynamic constraints include Flash-Tank[16] Operating Levels; Physical Scheduling Plant constraints; Ambient Condition Limitations; and Maintenance Condition. Some dynamic constraints, such as ramp rates, must be expressly modeled for the unit, while others may be accounted for through de-rates of operating capacity, changes in ramp rates or through bidding strategies. For example, Hold-Levels may be acknowledged through modifications to the minimum generating output level ("Pmin"), and Flash-Tank Operating Levels may be accounted for through use of a slow ramp rate when the unit is on Flash-Tank operation. The new software used to implement Phase 1B will modify the Dispatch algorithm to ensure that a unit is continuously and completely Dispatched through Forbidden Operating Regions.

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[14]   "Scheduling and Logging for the ISO of California" ("SLIC") is the computer-based logging program the ISO uses for recording all operations data.

[15]   A Hold Level is an operating point where the resource must operate for some minimum time, typically to allow other equipment to be put in or taken out of service, before it can proceed to a new operating point.

[16]   Flash-Tank operations include operation of a steam generating unit at such a low level that just enough fuel is input into the system to permit the unit to stay online but not at a high enough operating level to be dispatched to a higher generating output level. A secondary minimum load above the Flash-Tank level is a level that the resource has enough steam pressure to be capable of dispatch to a higher output level.

Proposed Tariff modifications to Sections 2.5.22.6.1 and 5.13.1 implementing this requirement are set forth in Attachments A and B.

3.   Ancillary Service Ramp Rate

Prior to implementation of MD02 Phase 1A on October 31, 2002, the ISO employed separate ramp rates for each Ancillary Service product. The individual ramp rates were used both to limit the amount of Ancillary Service that a resource would be awarded as well as for real-time Dispatch of the Energy associated with that capacity. Similarly, the ISO used a separate ramp rate for real-time Dispatch of Supplemental Energy Bids. With the implementation of MD02 Phase 1A, the ISO began to use the individual ramp rates bid in connection with individual Ancillary Services for capacity procurement purposes only, and used the single operational ramp rate submitted with the single Energy Bid curve to Dispatch both Supplemental Energy and Energy associated with the awarded capacity for Ancillary Services. The ISO's intent to use the same ramp rate for Dispatch of both Supplemental Energy and Energy associated with Ancillary Services capacity was discussed in Stakeholder training sessions held in September 2002 in advance of implementation of MD02 Phase 1A. As described *supra*, market participants may submit a ramp rate function that indicates the resource's ramp rate at a given level of output. The ISO now proposes to modify the tariff to make it clear that, beginning with Phase 1B, Real Time Dispatch Instructions will use the operating level-specific ramp rate function that is submitted with the single Energy Bid Curve to Dispatch both Supplemental Energy bids and Energy related to awarded capacity for Ancillary Services. The ISO is making additional modifications to several other Tariff sections, which refer to Ancillary Services to incorporate the terms and conditions for implementation of RTD Software as well.

Proposed Tariff modifications implementing these changes are reflected in Sections 2.5.14, 2.5.15, 2.5.16, 2.5.17, 2.5.22.6.1, and 5.13.1 and Scheduling and Bidding Protocol Section 6.5. The proposed Tariff revisions are set forth in Attachments A and B.

4.   Reliability Must Run Ramp Rate

Reliability Must-Run ("RMR") Contracts also specify operating level-specific ramp rates that are used when issuing Dispatch Instructions under those agreements. These static RMR Contract ramp rates may not be the same ramp rates submitted in the market and used to Dispatch the unit in the markets, further complicating real-time dispatch and settlements. There is no

reason for any unit to have different ramp rates associated with the same operating level.

To provide for consistency, the ISO proposes to extend to all RMR Generating Units an opportunity to amend Schedule A to the RMR Contract to use the ramp rate function submitted in the Day-Ahead market for use in ISO Dispatch Instructions similar to that proposed for non-RMR Participating Generating Units, as discussed above. Should the owners of RMR Generating Units decline to so elect, such units will be Dispatched by the ISO using only the ramp rate(s) presently set forth in the applicable RMR Contract for both market and RMR purposes. If RMR Generating Unit owners elect to specify multiple ramp rates, such ramp rates must be incorporated into the applicable RMR Contract through the process set forth for modification of Schedule A to the RMR Contract. Upon Commission approval for such modifications to the RMR Contract, the high and low operational ramp rates will be recorded in the ISO Master File and the ramp rate segments, if any, will be used for all ISO Dispatch Instructions. Failure to change the ramp rate(s) from that presently set forth in the applicable RMR Contract or failure to timely specify other ramp rates in time for implementation of Phase 1B will result in the use of the existing RMR Contract ramp rate(s) for all Dispatch Instructions until such time as different operational ramp rate(s) are accepted as modifications to the RMR Contract, recorded in the ISO Master File and entered into the ISO Dispatch software. Thus, the ramp rates in the RMR Contract, whatever they are, will be the ramp rates for the RMR Units to be included in the Master File.

Proposed Tariff modifications to Sections 2.5.22.6.1 and Scheduling and Bidding Protocol Section 6.5 implement these changes.

C. Transmission Losses

The ISO currently quantifies transmission losses through calculation of Generator Meter Multipliers ("GMMs").[17] GMM multiplied by metered output reflects transmission losses on Energy delivered to a "load center"; for example, if a generating resource has a GMM of 0.95, Energy actually delivered to a load center would be 0.95 times the metered output and it would need to generate 105 MW to deliver a Schedule of 100 MW to that load center (100/0.95 = 105).

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[17]   The ISO quantifies transmission losses on schedules at intertie points using an analogous factor – Tie Meter Multipliers. Because intertie schedules are usually "locked in" for an entire hour based on control area checkout procedures, intertie schedules cannot self-provide losses.

SCs currently have the ability to "self-provide" their losses by generating in excess of their Schedule to accommodate their GMM. However, when UDP are implemented, penalties will be applied to Energy generated outside of the Tolerance Band of the greater of 3% of Pmax or 5 MW. If the ISO maintained its current treatment of losses, generators could be penalized for self-providing losses if doing so took the resource outside of the Tolerance Band around its expected operating point.

The ISO proposes to make the generator's meter the reference point for all Dispatch Instructions and final Hour-Ahead Schedules, but still to allow SCs to self-provide losses for their Final Hour-Ahead Schedule. Any SC that elects to self-provide losses for their Final Hour-Ahead Schedule will be required to: (1) first notify the ISO that it is self-providing losses through the use of a flag, and (2) generate enough Energy to account for the Generator Meter Multipliers to avoid the application of Uninstructed Deviation Penalties. For example, if an SC that is voluntarily self-providing for such transmission losses has a Schedule of 100 MW and a GMM of 0.95, the reference point for determining UDP will be 105 MW. The ISO's Dispatch Instruction will include a component for transmission losses due to the Final Hour-Ahead Schedule or not depending on the status of the self-provided losses flag. SCs may not self-provide losses associated with real-time Dispatch Instructions. Instead, the ISO will Dispatch additional Imbalance Energy to cover such losses and allocate the charges for those losses to the market. For Metered Subsystems, losses will be calculated in accordance with the MSS Agreement.

Proposed Tariff revisions reflecting the above-discussed modifications are set forth in Tariff Sections 7.4.1, 7.4.1.1 and 11.2.4.5.1 and Settlements and Billing Protocol Appendix D Section 2.7.

D.   Five-Minute Dispatch Intervals

The current ISO Dispatch interval is ten minutes. However, in the ISO's experience, Dispatching resources only once per ten-minute interval is often insufficient to respond to changes in system conditions. Indeed, the ISO issues at least two sets of Dispatch Instructions in approximately 16 percent of all ten-minute intervals.

When the ISO replaces the current real time Dispatch algorithm with the Phase 1B real time economic Dispatch algorithm, the current BEEP software will become obsolete and must be replaced. The Dispatch Interval

is a key design element for the new real time economic Dispatch software[18].
The standard software commercially available and used by other independent
system operators (e.g., PJM, New York ISO and ISO New England) uses five-
minute Dispatch intervals. The 5-minute Dispatch Interval more closely
represents the need of the system for real-time Control Area balancing,
which, to meet industry-standard control are performance criteria, occurs on a
ten-minute basis. The 5-minute Dispatch Interval also provides SCs with
more consistent operations, because they know to look for Dispatch
Instructions every 5 minutes instead of receiving them at irregular intervals.

After discussion with stakeholders, the ISO now proposes to adopt the
standard five-minute Dispatch interval, so that the ISO will issue Dispatch
Instructions at regular five-minute intervals. The ISO will retain the flexibility
to issue intra-interval Dispatch Instructions as needed in special
circumstances to ensure reliability and avoid a System Emergency. As
discussed below, however, the ISO proposes to retain its current tem-minute
settlement interval.

Because the ISO's BEEP software will be replaced, the ISO proposes
to replace the term "BEEP[19] Interval" with the term "Dispatch Interval", and to
replace the term "BEEP Interval Ex Post Price" with the term "Dispatch
Interval Ex Post Price".[20]

Per its existing authority, the ISO may set the length of the Dispatch
Interval to between five (5) and thirty (30) minutes. The Dispatch Interval,
proposed to be effective upon implementation of Phase 1B following
Commission approval, shall be set at five (5) minutes

E. Real Time Interactive Communication of Changes in Resource Operating Constraints (SLIC)

The Commission, in its July 17 Order, also conditioned ISO's
implementation of UDP upon the ability of ISO Market Participants to report
changed operational capability, forced outages and de-rating of generating

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[18] In fact, the CAISO's current real-time dispatch function (BEEP) was designed and
developed based on five-minute dispatch. Due to communication limitations between the ISO
and the SCs (in the absence of automatic dispatch software, ADS), and the resulting so-
called "BEEP run up" problem, the dispatch interval was changed to ten minutes in late
March 1998,just before start-up.

[19] BEEP stands for Balancing Energy Ex Post Pricing.

[20] The Dispatch Interval is the period over which the RTD Software measures
deviations in Generation and Demand and selects Ancillary Services and Supplemental
Energy resources to provide balancing Energy in response to such deviations.

units to the ISO in real time so that the ISO may consider such information when issuing Dispatch Instructions. See July 17 Order, 100 FERC at PP 140-41. The ISO will use the upgraded SLIC program to provide SCs with the ability to inform the ISO in real time of changes in availability of their generating resources via an on-line computer logging interface. The ISO has completed internal portions of the SLIC redesign and will begin training SCs and Participating Generators in its use. Consistent with the Commission's order, this notification feature will be implemented prior to implementing Phase 1B. Moreover, consistent with the compliance filing concerning the May MD02 Filing, the ISO will not levy Uninstructed Deviation Penalties if the SC notifies the ISO through SLIC of a de-rate event that prevents the generating unit from performing to a previously-issued Dispatch Instruction either before the ISO issues a Dispatch Instruction or within 30 minutes of the de-rate event.

The ISO will not issue Dispatch Instructions for capacity reported as unavailable through SLIC. If a SC reports capacity as unavailable through SLIC, the ISO will issue a Dispatch Instruction to implement the limitation and will settle that instruction as instructed Imbalance Energy. However, such dispatch instruction will not set the price. This will prevent the deviation as being settled as uninstructed Imbalance Energy. As an example – if a unit operating at 100 MW reports a de-rate to 70 MW, the ISO will issue a Dispatch Instruction for the unit to decrease by 30 MW. This instruction will be settled at the market clearing price but is not eligible for bid cost recovery. The unit is then protected from UDP. The ISO will, however, continue to permit SCs to indicate through a reply to the Automatic Dispatch System ("ADS") their intent to accept or deny Dispatch Instructions. Any such declined Dispatch Instructions will not exempt an SC from UDP. The information about intent to comply with Dispatch Instructions gathered through ADS replies will help ISO operations take other actions that may be needed, such as dispatching other resources, to account for units that fail to comply with Dispatch Instructions. The obligation to report physical changes in resource capability in SLIC will ensure that one central software program in the ISO houses the formal records relevant to imposition of the UDP.

Therefore, the ISO will add the necessary functionality to SLIC to permit SC to declare physical conditions that affect the unit's ramp-rate(s) or minimum operating level. The ISO will use the start-time of the outage as is reported to SLIC by the SC, as opposed to the time the ISO accepts the outage declaration, as the benchmark time for ensuring changes in operational capability are reported with 30 minutes of the event and thereby exempt from UDP.

The ISO proposes Tariff revisions to Section 2.5.22.11 implementing the ISO's authority to require Market Participants to use the SLIC software program for notification of generating resource changes in operational capability.

F.   Uninstructed Deviation Penalties

As discussed above, the Commission conditioned imposition of UDP upon incorporation of multiple ramp rates and real time computer interaction for logging of changes in resource operating capability. Through the instant filing, the ISO now proposes to implement these two conditions. Moreover, as a result of stakeholder input, the ISO proposes several modifications to the previously-filed UDP Tariff provisions, to further clarify how resources will be permitted to aggregate for purposes of calculation of the UDP, specify which resources are exempted from UDP, clarify how the ISO will charge the UDP and detail how the ISO will allocate revenues received from the UDP.

1.   Aggregation

In its July 17 Order, the Commission approved the ISO's proposal, to permit a Market Participant to aggregate and net generation deviations from Schedules and Dispatch Instructions amongst generating resources that connect to the ISO grid through the same grid interconnection point and voltage level for purposes of the UDP. The Commission also approved the ISO's proposal that generating resources that do not interconnect to the ISO grid at the same interconnection point and voltage level also may be aggregated subject to an advance ISO determination that any such proposed aggregation would not create an operational concern. *See* July 17 Order,100 FERC ¶144-46. For example, the ISO will not allow such an aggregation where grid facilities located between aggregated resources could become congested. The ISO must approve all aggregation requests before they are implemented. The proposed aggregation criteria are included for information as Attachment E.

Through stakeholder processes, the ISO has developed a detailed plan for netting deviations from the Dispatch Operating Point for such aggregated resources. Specifically, the ISO proposes that, for determining UDP, Energy deviations from aggregated resources be netted without regard to whether such deviations by individual units were within or outside the Tolerance Band used to define deviations for purposes of the UDP. This proposal, which will help generating resources avoid UDP by netting deviations among several resources rather than assessing UDP on a resource-by-resource basis, is generally endorsed by stakeholders.

The ISO proposes modifications to Tariff Section 11.2.4.1.2 and Settlements and Billing Protocol Appendix D Section 2.6.1 for use of the Tolerance Band.

2.   Exemptions from UDP

The ISO proposed in the May 1 MD02 Filing that UDP would not apply to regulating resources unless such resources were operating outside of their regulating range. The ISO now proposes to clarify the application of UDP to resources providing Regulation Energy, as follows:

1.   The ISO will not grant a blanket exemption from UDP for regulating resources, but only will apply UDP to a regulating resource when it is deviating (as a result of its own voluntary or involuntary actions, but not as a result of ISO Dispatch Instructions) from its Schedule by more than the awarded amount of regulation, plus the Tolerance Band of the greater of 5 MW or 3% of the units maximum operating level.

2.   The ISO will model the expected regulation range based on the expected Dispatch Operating Point consistent with the unit's physical operational capability. In other words, the ISO will adjust the Dispatch Operating Point and regulation range to ensure the range is consistent with a unit's operational ramp rates.

3.   The ISO will not levy UDP upon a resource where it provides Regulation Energy in one hour but not in the following hour and, at the end of the first hour, is above or below its preferred operating point as a result of providing Regulation Energy. In such an event, although the unit appears to be deviating from its Schedule, the ISO instead will expect the unit to follow a trajectory from its actual operating point to its next hour Schedule consistent with its ramp rates as filed with the ISO;

4.   The ISO will recognize when a unit is temporarily taken off regulation to move to a new regulation range and will not impose UDP in such events.

5.   As described *supra*, if Ancillary Services capacity is awarded in the ISO forward markets, but such Ancillary Services capacity cannot be delivered in real time the ISO will take back capacity and Energy payments for the capacity that subsequently was not available. This is similar to the current No Pay assessment. For example, if Energy cannot be delivered from Ancillary Services capacity in real time because the operating ramp rate

prevents such delivery, the ISO will take back the payments for such services.

6. Curtailable Demand is exempt from UDP. All Load, including Participating Load, is exempt from UDP. Participating Load only "participates" when it provides bids to the ISO; the ISO did not want to discourage Participating Loads from providing bids to the ISO by levying UDP. Moreover, where non-Participating Load is aggregated with Participating Load, it is impractical for the ISO to distinguish what deviation is due to Participating Load and what is due to non-Participating Load.

In acknowledgement of the different time lines for Energy markets, inter-Control Area scheduling, and the procurement of transmission capacity in other control areas, the ISO proposes to partially exempt System Resources from Uninstructed Deviation Penalties. In cooperation with certain System Resources, the ISO has developed a proposal, described *supra*, that provides for penalties if a System Resource declines to deliver Energy from bids that the ISO accepts and pre-Dispatches any time prior to forty minutes before the operating hour. The following items describe how the ISO will apply UDP.

1. All System Resource bids that the ISO pre-Dispatches at least forty minutes before the operating hour are subject to Uninstructed Deviation Penalties if Energy from those bids is not subsequently delivered.

2. The ISO may pre-Dispatch System Resources after forty minutes before the operating hour, but such bids neither are required to be held for the ISO nor are subject to penalties if the bids are no longer available.

3. UDP will not apply to Generating Units that produce positive Uninstructed Deviations during an ISO declared System Emergency; however, negative Uninstructed Deviations will be subject to UDP at any time, except when the market-clearing price is negative.

4. UDP will not apply when the market clearing price is negative. A negative imbalance energy price, which usually occurs during over-generation conditions, serves as a *de facto* penalty – *i.e.*, a supplier that is providing more energy than that instructed will have to pay to provide that energy, while a supplier that is providing less Energy than instructed (and therefore helping to reduce the over-generation) will be paid for not delivering the Energy.

5. Adjustments to any Final Day-Ahead Schedule made pursuant to an Existing Contract will not be subject to UDP.

Proposed Tariff modifications to Section 11.2.4.1.2 relating to the exemptions and implementation details for UDP are set forth in Attachments A and B.

3.   Calculation of UDP

Consistent with the May 1 MD02 Filing and the subsequent July 17 Order adopting UDP, the ISO proposes to modify Tariff Section 11.2.4.1.2 and Settlements and Billing Protocol Section 2.8 to clarify how UDP will be charged for negative and positive Uninstructed Imbalance Energy. Further, the proposed Tariff language will clarify how UDP will be charged to:

- **Pre-dispatched Supplemental Energy bids from System Resources.** System Resources that have been identified for Hourly dispatch will be pre-dispatched prior to the beginning of the operating hour. As a result of discussions with Market Participants, the ISO is revising the method by which UDP is applied to Pre-Dispatched bids that have been declined from System Resources. If the ISO issues its pre-dispatch instruction greater than 40 minutes prior to the beginning of the applicable operating hour and the instruction is declined, the supplier will be subject to UDP. However, for any pre-dispatch instruction issued less than 40 minutes prior to the operating hour that is declined, no UDP will be charged. This approach is a fair balance of the need for the ISO to have confidence that a bid into its Real-Time market can be acted upon and the needs of the Market Participant who have opportunities to market their energy near Real-Time knowing their bid was not accepted by the ISO.

- **Constrained resources.** Tariff Section 11.2.4.1.2 (d) in the May 1 MD02 Filing did not apply a penalty for a constrained resource for the duration of its relevant startup/shutdown and minimum up and down times. The ISO has deleted this blanket exemption because these constraints are being expressly considered in the Dispatch Instructions the ISO issues.

- **RMR Units.** RMR Condition 2 units are precluded by contract from voluntarily participating in the market. Additionally, they are often have limited number of run-time hours or production. RMR Condition 2 units are therefore excluded from being able to participate in either a standard or custom aggregation in which they would or could deviate

to offset another unit's deviation.

- **Participating Intermittent Resources.** The eligibility for Participating Intermittent Resources is established in a protocol. As a result, the language in section 11.2.4.1.2 (e) has been modified to refer that protocol.

- **System Units.** The language exempting Metered Subsystems from UDP in Section 11.2.4.1.2 has been revised to more appropriately refer to Scheduling Coordinators that are scheduling for an MSS that has elected to follow load to the MSS rather than to the MSS itself. The modification further clarifies that for those Scheduling Coordinators for an MSS that has not elected to follow its load will be still be subject to UDP provision established in the 11.2.4.1.2.

- **Generating Units and System Resources providing Regulation.** Generating Units and System Resources providing Regulation are not subject to UDP resulting from the resource actually providing the regulation service that it was awarded. Therefore regulating resources will be deemed to have zero deviations when operating within their awarded regulation ranges. However, to the extent, a resource was awarded regulation but was not actually regulating or was incapable of providing regulation, UDP will apply. If a regulating unit is part of an UDP aggregation, only deviations outside of that unit's regulating range can be used to offset other units' deviation within that aggregation.

Modified Tariff Section 11.2.4.1.2 is set forth in Attachments A and B.

4.   Allocation of UDP Revenue

As proposed in the May 1 MD02 Filing and modified in the ISO's August 16, 2002 compliance filing, ISO Tariff Section 11.2.4.1.2 provides that amounts collected as UDP shall: (1) first be assigned to reduce the portion of above MCP costs which would otherwise be assigned *pro rata* to all SCs in the Settlement Interval pursuant to Tariff Section 11.2.4.2.2 and (2) any remaining amounts shall then be treated in accordance with Settlement and Billing Protocol ("SABP") Section 6.5.2 (first used to offset ISO expenses, losses or costs, with the balance deposited into the ISO Surplus Account).

Accordingly, the ISO resubmits its proposed Tariff Section 11.2.4.1.2 that was included in the August 16 filing. This Tariff language is consistent with the Commission's July 17 Order.

G. Congestion and Use of Adjustment Bids in Real Time

The ISO proposes to modify certain Tariff sections relating to Inter-Zonal and Intra-Zonal Congestion to reflect the planned implementation of RTD software. Specifically, the ISO proposes to procure and Dispatch Imbalance Energy zonally when Inter-Zonal Congestion is present in real-time consistent with Tariff Section 2.5.22.6, Real Time Dispatch. The ISO has modified Tariff Sections 2.5.22.7 and 7.2.1.5 to reflect this change. Moreover, the ISO proposes modifications to Tariff Section 7.2.4.1.4 to provide that the ISO will use the RTD Software as detailed in Section 2.5.22.6 for Dispatch of Energy Bids for resolution of Intra-Zonal Congestion occurring in real-time. Modifications to Tariff Sections 2.5.22.7, 7.2.1.5 and 7.2.4.1.4 are contained in Attachments A and B.

The ISO also proposes to eliminate the use of Adjustment Bids for managing Inter-Zonal and Intra-Zonal congestion in real-time. The ISO will continue to use Adjustment Bids in the forward markets to manage Inter-Zonal Congestion. SCs currently submit Adjustment Bids to the ISO in incremental/decremental pairs on opposite sides of an Inter-Zonal interface. The amount an SC is willing to pay to transmit Energy across the Congested interface is determined by the difference between the incremental and decremental bids, not by the absolute value of the bids. Consequently, SCs often refuse to perform when the ISO Dispatches "one side" of an Adjustment Bid as if it was an Energy bid. Furthermore, Adjustment Bids are submitted to and used by the ISO's Congestion Management System and are not automatically transferred to the ISO's real-time BEEP system. Finally, Adjustment Bids and Supplemental Energy Bids may overlap the same capacity, creating two prices for the same capacity and negating the purpose of the Single Energy Bid Curve. Consistent with the Commission's May 30, 2003 order on proposed Tariff Amendment No. 50,[21] the ISO will continue to Dispatch Supplemental Energy bids when the ISO needs to increase a resource's output to manage Intra-Zonal Congestion in real-time, and will Dispatch a resource using the decremental reference price determined by the entity calculating AMP reference prices when the ISO needs to decrease a resource's output to manage Intra-Zonal Congestion. The ISO will only Dispatch Supplemental Energy bids to manage Inter-Zonal Congestion in real-time. Since resources must already bid their available capacity to the ISO to comply with the Must-Offer Obligation, eliminating the use of Adjustment Bids in real time will not deprive the ISO of capacity that can be used to manage Congestion.

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[21] *California Independent System Operator Corporation*, 103 FERC ¶ 61, 265 (2003).

The ISO proposes to modify Tariff Sections 2.2.15, 7.2.4.1.4, 7.2.6.2, Dispatch Protocol Sections 8.2 and 8.4, Schedules and Bids Protocol Section 2.1.1 and 4 and Settlements and Billing Protocol Appendix B Sections 2.1, 2.1.1, 2.2, 2.2.1, 3.1, 3.2, 3.3, 3.5, 3.6 and 3.7 to eliminate using Adjustment Bids to manage real-time Inter- and Intra-Zonal Congestion.

H.   Market Clearing Price

As discussed below, the ISO proposes to modify the Tariff to clarify which units may be eligible to set the MCP and to provide for a specific performance requirements as a condition for setting the MCP.

1.   Constrained Output Resources

Constrained-Output Resources are "block-loaded" or "inflexible" generating resources, such as some Combustion Turbines, that typically are either off or operating at one optimal load level, usually at full load, for their unit-specific Minimum Run Time. If the ISO needs some but not all of the output of these units, the ISO may have to reduce the operating level of another generating resource to accommodate the inflexible output of such constrained-output resources. The ISO proposes that such resources, when Dispatched and constrained as detailed above, be eligible to set the MCP for such Dispatch intervals only when it is necessary for the ISO to Dispatch such a resource to serve Load. In other words, such resources would be allowed to set the MCP if by not dispatching them the ISO would have to call on a more expensive bid. Moreover, a resource that cannot be Dispatched down due to minimum run time, but whose output is no longer required to serve Load, would not be allowed to set the MCP. This is a change from the current process that permits constrained-output resources to set the MCP for a full hour, even if Dispatched only for part of that hour (*i.e.,* the "stuck price" problem). By treating constrained-output resources in the same manner as "flexible" resources, the ISO will resolve the stuck price problem that results in a higher MCP than would otherwise be realized if the ISO were able to calculate MCP strictly based on the marginal eligible resource performing under Dispatch Instructions without regard to Minimum Run Times or other constraints.

The following example illustrates the problem: Assume the ISO needs 30 MW of Imbalance Energy in the next Dispatch Interval. The next bid, in merit order, is $60/MW, from a 50 MW constrained-output[22] resource. The

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[22]   This special pricing rule only applies to the operating constraint that requires a resource to operate at no less then a minimum level. In this example the resource cannot operate between 0 MW and 50 MW output. The special pricing rule is not intended to ensure

ISO will Dispatch the constrained-output resource at 50 MW and reduce the next most expensive resource, at $40/MW, by 20 MW to assure that only the needed 30 MW are provided to the grid. Now, if the constrained-output resource sets the MCP, all resources Dispatched in that Dispatch Interval would be settled at MCP and thus paid above their actual bids. In this case, the $40 resource that is DEC'ed below its hour-ahead schedule, would be charged $60/MWh rather than its DEC bid of $40/MWh. It would thus have to be paid an uplift. In the alternative, if the ISO were the ISO to set MCP at $40/MW, reflecting the unit whose output was reduced to accommodate the constrained-output resource, the constrained-output resource would not be paid its bid. In this event, the question arises as to how to settle the constrained-output resource. The general solution adopted by eastern independent system operators is to permit flexible resources to set the MCP and pay constrained-output resources an uplift to assure such resources are paid their bid when they are not needed to serve load and the MCP is below their bid price. Other revenues in excess of the bid price are subtracted from the uplift payment over a 24-hour period.

After considering Market Participants' suggestions and comments, the ISO proposes that constrained-output resources be eligible to set the MCP during those Dispatch intervals that any portion of such a unit's output is needed by the ISO to meet real-time load.[23] For all Dispatch Intervals in which no portion of such output is needed, as evidenced by decremental Dispatch Instructions to another unit, but the unit is still providing Energy as a result of Minimum Run Time or a ramp rate constraint, the unit's bid price will not set the MCP but the unit will be settled at the relevant MCP and receive an uplift as necessary to ensure it is paid its bid. The uplift payment will be calculated over a 24-hour period; all net market revenues received within that period will be subtracted from the market shortfalls. This treatment is consistent with the way the New York ISO treats such resources. To the extent the market shortfalls exceed the market revenues for the 24-hour period an uplift payment will be made for each Settlement interval for which the resource performed within its applicable Tolerance Band of the greater of five MW or 3% of its maximum operating capability, Pmax.

To ensure the ISO pays uplifts for operationally constrained resources only, the ISO will require, as appropriate, all such units claiming operational

MCP is at least equal to the bid for other types of operating constraints such a minimum up time or ramp rate.

[23]   Determination of the need of a resource as being necessary to meet real-time load will be determined by performing a dispatch iteration assuming constrained-output resources are flexible.

constraints, as opposed to business or economic preferences, to verify the physical operating parameters creating the constraint.

Attachments A and B contain the proposed Tariff modifications to Section 2.5.23.2.1.2 implementing the treatment of constrained-output generating resources.

2.   Performance Requirement

As the ISO implements Phase 1B of MD02 and initiates use of a single price for Real Time Imbalance Energy, it is essential that the ISO have clear rules establishing the eligibility to set the Market Clearing Price ("MCP") and how the MCP will be calculated. Presently, ISO Tariff Section 2.5.22.11 and Dispatch Protocol Section 9.5 provide that the BEEP Interval Ex Post price or Dispatch price, (*i.e.,* the MCP) shall be set by the marginal resource that performs in response to an ISO Dispatch Instruction. On the other hand, ISO Tariff Sections 2.5.23.1 and 2.5.23.2.1 provide that the marginal Generating Unit accepted by the ISO for Dispatch shall set the MCP. The Commission has observed that the ISO sets the MCP in accordance with ISO Tariff Section 2.5.23.[24]

The ISO now proposes to reconcile these several Tariff provisions by adding a performance threshold such that an otherwise eligible unit may set the MCP only if the unit's output is within ten percent (10%) of its Dispatch Operating Point. Accordingly, the ISO proposes new Tariff provisions that direct that only Dispatched Generating Units whose output is between 90% and 110% of the Dispatch Operating Point at the end of the Dispatch Interval are eligible to set the MCP. This performance requirement is consistent with the performance criteria established by PJM. The ISO will relax the performance criteria in intervals in which the ISO must issue emergency Dispatch Instructions or in which the unavoidable loss of telemetry prevents the ISO from assessing the resource's performance.

The ISO strongly believes that using *ex post* pricing that uses performance criteria and penalties for uninstructed deviations together is appropriate. Otherwise, an SC with more than one resource in their portfolio could profit by causing one unit in their portfolio to fail to perform, forcing the ISO to Dispatch additional Energy (at a higher price) to compensate. The SC's other resources would then reap the benefits of the higher price. Furthermore, a unit should set the market clearing price only if the unit actually performed to the instruction.

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[24]   *Pacific Gas and Electric Company, et. al.,* 81 FERC ¶ 61,122 at 61,491 (1997).

Proposed modifications to Tariff Sections 2.5.23.1 and 2.5.23.2 are set forth in Attachments A and B.

I.   Financial Settlements

The ISO proposes modifications to the settlement process designed to (1) adapt the MCPs resulting from two five-minute Dispatch Intervals into a single ten-minute Settlement Interval, (2) assure full recovery of bid prices under certain circumstances, (3) guarantee full payment of Minimum Load Costs when performing under ISO Dispatch Instructions, and (4) provide payments for ramping Energy[25], residual Energy[26] and extra-marginal Energy that is not otherwise eligible to set the MCP.

1.   Five-Minute Dispatch Instructions and Ten-Minute Settlement Intervals

Adopting a five-minute standard Dispatch Interval does not require, nor does the ISO propose, a change in the current ten-minute Settlement Interval.[27] While changing to a five-minute settlement interval may be simpler for the ISO, it involves other changes impacting SCs, such as quantity of data. Also some participants were uncomfortable making the shift to five-minute settlement with the UDPs proposed as part of Phase 1B. Experience with Phase 1B implementation including UDP and the five-minute dispatch/ten-minute settlement scheme may lead to a recommendation to go to five-minute settlements during a later phase of MD02.

To conform the two five-minute Dispatch Interval prices within a ten-minute Settlement Interval, the ISO proposes to calculate the following four Ex Post Prices: (1) Dispatch Interval Ex Post Price, (2) Hourly Ex Post Price, (3) Resource Specific Settlement Interval Ex Post Price and (4) Zonal Settlement Interval Ex Post Price. These prices are described below.

(a) The Dispatch Interval Ex Post Price is the price of the marginal resource Dispatched during the Dispatch Interval that performs to

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[25]   Ramping Energy is the Energy produced when ramping from one operating level to another.

[26]   Residual Energy is Instructed Imbalance Energy produced or consumed due to un-dispatch instructions or dispatch instructions for a future Dispatch Interval while the resource ramps to its new Dispatch Operating Target.

[27]   "Settlement Interval" is a proposed new Tariff term defined as that time period equal to or a multiple of the Dispatch Interval, over which the ISO settles deviations in Generation and Demand from Final Hour Ahead Schedules.

within 90% and 110% of the Dispatch Operating Point. Dispatch Interval Ex Post Prices are used to derive the other three Ex Post Prices used for settlements as follows.

(b) The Hourly Ex Post Price is the Energy-weighted average of the Dispatch Interval Ex Post Prices in each Zone during each Settlement Period, where the weights are the total amount of Instructed Imbalance Energy (the sum of the absolute value of both incremental and decremental Energy), except Regulation Energy, for each Dispatch Interval. The Hourly Ex Post Prices will vary between Zones when Congestion is present. This price is used in the Regulation Energy Payment Adjustment and in settling Energy Dispatched under the RMR Contract.

(c) The new defined term "Resource Specific Settlement Interval Ex Post Price" will be calculated for each resource under ISO Dispatch. The Resource Specific Settlement Interval Ex Post Price is equal to the Energy-weighted average of the applicable Dispatch Interval Ex Post Prices for each Settlement Interval taking into account each resource's Instructed Imbalance Energy, except Regulation Energy. Regulation Energy is excluded because Regulating resources are under the control of the ISO's Automatic Generation Control system and Dispatch Instructions issued to them are not issued in merit order nor explicitly recorded. This Resource-Specific Ex Post Price shall apply to those resources capable of responding to ISO Dispatch Instructions.

(d) The new defined term Zonal Settlement Interval Ex Post Price is the price within a Settlement Interval in each Zone equal to the absolute-value Energy-weighted average of the Dispatch Interval Ex Post Prices in each Zone, where the weights are the system total Instructed Imbalance Energy, except Regulation Energy, for the Dispatch Interval. This price will be used to settle Imbalance Energy from non-participating Load and Uninstructed Imbalance Energy from participating resources.

There are three steps to settling Imbalance Energy.

- First, the ISO pays the instructed amount regardless of performance.

- Second, the ISO pays or charges for any deviation from the total expected instructed Energy (including the resource's Final Hour-Ahead Schedule). This settlement has two tiers: Tier 1 represents under-performance to the Dispatch Instruction, and Tier 2

represents deviation outside the Dispatch Instruction, either above the instructed amount, or below the resource's Final Hour-Ahead Schedule. Tier 1 Energy is settled at the Resource-Specific Settlement Interval Ex Post Price. Tier 2 Energy is settled at the Zonal Settlement Interval Ex Post Price.

- Third, the ISO charges UDP for those deviations outside the Tolerance Band.

The ISO settles Imbalance Energy this way to 1) ensure resources earn their bid price when they are instructed and eligible to set the market clearing price; 2) prevent a resource from earning money for non-performance; 3) reflect the complexities of settling at ten-minute intervals while Dispatching resources at five-minute intervals.

Tariff Sections 2.5.23.2.1.1, 2.5.23.2.2, 11.2.4.1 and 11.2.4.1.1 set forth the settlement of Uninstructed and Instructed Imbalance Energy, respectively, using the *ex post* prices defined *supra.*

2. Exemptions and Allocation of Above-Market Clearing Price Costs

The Commission, in its "Order Accepting in Part and Rejecting in Part Tariff Amendment No. 42 and Dismissing Complaint,"[28] approved Tariff Section 11.2.4.2.2 which modifies how SCs are charged for above-MCP costs.[29] Specifically, as approved by the Commission, above-MCP costs incurred by the ISO as a result of Instructed Imbalance Energy and Dispatch Instructions for reasons other than a transmission facility outage or a location-specific requirement are charged to SCs through a two-step process. First, each SC is charged the lesser of (1) the *pro-rata* share of above MCP costs based upon the ratio of each SC's Net Negative Uninstructed Deviations to the total System Net Negative Uninstructed Deviations, or (2) the amount obtained by multiplying the SC's Net Negative Uninstructed Deviation for each Dispatch Interval and a weighted average price. The weighted average price is equal to the total above-MCP costs divided by the MWh delivered as a result of ISO Dispatch Instructions with a cost component above the MCP.

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[28] *California Independent System Operator Corporation,* 98 FERC ¶ 61,327 (2002).

[29] At the time of the Commission approval of Section 11.2.4.2.2, the relevant price limit in place was the Non-Emergency Clearing Price Limit ("NECPL"), which was the maximum MCP in non-emergency periods. The NECPL expired at the termination of the California and West-wide price mitigation programs October 30, 2002 and was replaced with the maximum MCP of $250/MWh. The ISO filed proposed Tariff Section 11.2.4.2.2 on October 29, 2002 reflecting the change from NECPL to the maximum bid level as sets forth in Section 28.1.2 (*i.e.,* the MCP).

The second step requires the ISO to allocate any remaining above MCP costs on a *pro rata* basis to all SCs in that Dispatch Interval based upon their Metered Demand plus exports.

In its July 17 Order, the Commission approved the proposed exemption from such cost allocation for SCs with sufficient incremental Energy bids from physically available resources in the Imbalance Energy Market to cover their respective Uninstructed Deviation in a given Dispatch Interval if the prices of such Energy bids do not exceed the soft cap.

In some situations, Generating Units produce Energy that is not eligible to set the MCP. This occurs when: (1) the ISO has Dispatched a Generating Unit's Supplemental Energy bid in one hour and moved the Generating Unit to an operating point where it cannot return to its next hour's Schedule by the beginning of the next operating hour, or (2) due to physical constraints, an inflexible Generating Unit must remain operating at a level at which it previously was Dispatched even though the ISO no longer needs the Generating Unit at that level. The ISO defines Energy delivered in these circumstances as "extra-marginal" Energy.

Subject to eligibility criteria set forth *infra*, the ISO proposes to provide bid cost recovery for all such extra-marginal Energy, although, such a bid price is not eligible to set the MCP. The ISO's proposed settlement calculation is consistent both with the "bid cost recovery" approach adopted by other independent system operators and the Commission's proposal in the Standard Market Design Notice of Proposed Rulemaking in Docket No. RM01-12-000 ("SMD NOPR").[30] As proposed in the SMD NOPR, resources would be paid at least their bid price for Energy they produce when Dispatched over a 24-hour period, while uplift payments are all or partially offset by net market revenues.

Specifically, under the proposed settlement process, extra-marginal Energy is ensured recovery of its bid costs net of the expected market revenues earned through participation in the Real Time Markets during the Trade Day. The ISO will calculate an "unrecovered bid cost payment" for each resource for the Trade Day based on the sum of market revenue surpluses and market revenue deficits over all Settlement Intervals in which the resource was Dispatched in the Real Time Markets. Market revenue deficiencies are included in the summation only when the resource operated within its relevant Tolerance Band. Each resource's market revenue surplus (*i.e.,* payments in excess of bid costs) or deficiency (*i.e.,* unrecovered bid costs) is determined as the difference between expected revenues earned in

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[30]   SMD NOPR at ¶ 280.

the Settlement Interval at the relevant Resource Specific Settlement Interval
Ex Post Price and the resource's bid cost. The deficiency or "unrecovered bid
cost payment" determined for the Trade Day is then evenly divided among all
relevant Settlement Intervals. The ISO will provide an uplift payment to the
resource for each Settlement Interval in which the resource performed within
a Tolerance Band around its Dispatch Operating Point, thereby ensuring bid
cost recovery.

The ISO proposes to change the allocation of costs associated with bid
cost recovery from that allocation for other above-market clearing price costs.
The ISO proposes that such bid recovery costs shall not be included in the
amounts allocated to SCs' Net Negative Uninstructed Deviations or Metered
Demand, as is currently detailed in Section 11.2.4.2.2. The ISO instead
proposes that the allocation of costs for bid cost recovery for extra-marginal
Energy be allocated to all SC *pro rata* based upon Metered Load plus
exports.[31] This allocation is appropriate because an economic dispatch
scheme that provides bid cost recovery benefits the entire market. In
addition, the bid cost recovery costs incurred are a function of revenues and
surpluses over a 24-hour period and thus cannot be attributed to a specific
deviations in a given Settlement Interval or Settlement Period. Two new
charge types are proposed for the allocation of costs associated with such
extra-marginal Energy.

The proposed netting and settlement process will be used for both
flexible and constrained-output resources, thereby resulting in uniform
treatment of resources in terms of eligibility to set MCP and assured recovery
of bids when Dispatched by the ISO.

Modifications to Tariff Sections 11.2.4.1.1.1 and 11.2.4.1.1.2 and
Settlements And Billing Protocol Appendix D Sections 2.6, 2.6.2, 2.6.4 and
2.6.5 – which implement the bid cost recovery settlement process detailed
supra -- are contained in Attachments A and B.

Proposed modifications to Tariff Sections 11.2.4.2, 11.2.4.2.2.1 and
11.2.4.2.2.2 allocating costs above the MCP are set forth in Attachments A
and B.

3.   Ramping Energy

As described *supra*, Under the RTD Software, the ISO will issue Real
Time Dispatch Instructions for each Dispatch Interval as needed to prescribe

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[31]   If an MSS elects to follow its own Load, it will be assessed bid cost recovery charges
on a net metered Demand basis, while If an MSS does not elect to follow its own Load, it will
be assessed bid cost recovery charges on a gross metered Demand basis.

the ramp between a resource's Final Hour Ahead Schedule in one hour to its Final Hour Ahead Schedule in the immediately succeeding operating hour. The Dispatch Instructions for ramping of Generating Units without Real Time Energy Bids in both operating hours will be determined in accordance with proposed Tariff Section 2.5.22.6.3 and Scheduling and Bidding Protocol Section 6.5. The resultant Dispatch Instructions shall require a ramp which will begin at ten minutes prior to the start of each operating hour and end no sooner than ten minutes after the start of each operating hour, *i.e.,* a Standard Ramp. Energy resulting from a Standard Ramp is deemed Standard Ramping Energy, and will be settled in accordance with proposed Settlements and Billing Protocol ("SABP") Appendix D-1 Section 2.1.2. Energy resulting from any ramp extending beyond the Standard Ramp will be deemed Ramping Energy Deviation and also will be settled pursuant to SABP Appendix D-1 Section 2.1.2.

Real Time Dispatch Instructions associated with the ramp between a resource's Final Hour Ahead Schedule in one hour to it's Final Hour Ahead Schedule in the immediately succeeding operating hour will be determined optimally by the RTD Software if the ISO has bids for either or both relevant operating hours. *See* Tariff Section 2.5.22.6.4. Moreover, any resulting Standard Ramping Energy and Ramping Energy Deviation will be settled in accordance with SABP Appendix D-1 Section 2.1.2.

J. Minimum Load Cost Compensation

The proposed netting process detailed above does not consider those Settlement Intervals in hours in which a resource is eligible for Minimum Load Cost Compensation ("MLCC") for costs incurred running at the minimum operating level ("Pmin") in compliance with the Must Offer Obligation. The ISO will continue to pay all Minimum Load Costs incurred for each hour that an otherwise eligible resources runs at Pmin in compliance with the Must Offer Obligation. Moreover, the ISO will continue to pay MLCC for all eligible hours in which an eligible resource was denied a Waiver and generated above its Pmin in response to an ISO Dispatch Instruction. The ISO will pay Minimum Load Cost Compensation either based on the unit's minimum stable operating level, Pmin, or the minimum load from which the unit can respond to Dispatch Instruction (the unit's "dispatchable minimum load"), depending on where the ISO requires the unit to operate.

A unit's minimum stable operating level or dispatchable minimum load may increase if the unit suffers an outage of some equipment. The ISO expects that the unit's SC will notify the ISO of such a change through the SLIC interface as described *infra*. While the ISO will continue to pay minimum load costs for such a unit, the ISO expects the unit's owner to repair

the unit as quickly as practical to return the unit to its previous Pmin or dispatchable minimum load. Should the owner fail to do so, the ISO may report to the Commission the names and owners of units that it believes are altering the unit's minimum load characteristics to game the market or take additional action as appropriate.

Consistent with the Commission's May 15, 2002 Order,[32] the ISO will revoke payment for MLCC when a resource is supposed to remain at Pmin but does not do so within the Tolerance Band. The ISO proposes to monitor a resource's compliance and revoke MLCC payment not on an hourly basis, but on a Settlement Interval (e.g., 10 minute) basis.

The ISO will continue to pay MLCC to Metered Subsystems based on the MSS Agreement.

K.   System Resources

In the May 1 MD02 Filing, the ISO proposed that System Resources pre-Dispatched on an hourly basis for the ISO Imbalance Energy Market be settled at the higher of the resource's bid or the simple average of the Settlement Interval MCPs for the Settlement Period.[33] Given that the Commission has directed that System Resources not be subject to AMP, the ISO currently does not, and does not propose herein to apply AMP to System Resources, including those importers that are power marketers.

In this instant filing, the ISO proposes to settle System Resources such that they are ensured bid cost recovery within the Settlement Period. System Resources will be allowed to bid amounts other than $0/MWh, remain price-takers, remain ineligible to set the MCP and are not subject to AMP.

Accordingly, the ISO re-files proposed Tariff modifications to Sections 2.5.23.3.8, 11.2.4.1.1.2, Dispatch Protocol Section 8.6.3 and Settlements and Billing Protocol Appendix D Section 2.6.3 to effect the above-detailed modifications.

L.   New Defined Terms

Consistent with the foregoing discussion, the following new or modified terms are proposed for inclusion in the Master Definitions Supplement, ISO

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[32] Order Approving in Part and Rejecting in Part Compliance Filing, 99 FERC ¶ 61,0158 (2002) at Page 10.
[33] While the Commission conditionally approved Uninstructed Deviation Penalties and Real-Time Economic Dispatch, the Commission did not expressly address this proposal in its July 17 Order.

Tariff Appendix A: Automatic Mitigation Procedure (AMP): Dispatch Interval, Dispatch Interval Ex Post Prices, Real-Time Dispatch ("RTD") Software, Ex Post Price, Forbidden Operating Region, Hourly Ex Post Price, Hourly Pre-Dispatch, Net Negative Uninstructed Deviation, Price Overlap, Resource Specific Settlement Interval Ex Post Price, Settlement Interval, Scheduling and Logging system for the ISO of California (SLIC), Standard Ramp, Tolerance Band, and Zonal Settlement Interval Ex Post Price. In addition, the ISO proposed to delete the defined term "Effective Price" as it is mooted by the proposed modifications in the instant filing.

M. Correction to the ISO's April 11, 2003 Compliance Filing

On March 27, 2003, the Commission accepted in part and rejected in part ISO Tariff Amendment No. 42 in Docket No. ER02-922-000. The Commission accepted, *inter alia,* the Tariff modifications proposed for Intermittent Resources as set forth in Tariff Section 2.5.23.2.3, effective April 1, 2002. Subsequently, however, Section 2.5.23.2.3 was inadvertently omitted from the ISO's compliance filing of April 11, 2003. In order to correct this omission, the ISO now includes the previously-approved Section 2.5.23.2.3 in the instant filing.

IV. EFFECTIVE DATE

Because the software necessary to implement these amendments is not yet fully developed and is not expected to complete all required testing, including market testing, until early 2004, the ISO respectfully requests that the Commission make the proposed ISO Tariff revisions effective on the later of sixty days after the instant filing or ten days after notice to the Commission and Market Participants that the software is ready to be implemented.

V. COMMUNICATIONS

Communications regarding this filing should be addressed to the following individuals, whose names should be placed on the official service list established by the Secretary with respect to this submittal:

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VI. SERVICE

The ISO has served copies of this letter, and all attachments, on the California Public Utilities Commission, the California Energy Commission, the California Electricity Oversight Board, on all entities with effective SC Service Agreements under the ISO Tariff, and all parties in FERC Docket No. ER02-1656-000 . In addition, the ISO is posting this transmittal letter and all attachments on the ISO's Home Page.

VII. ATTACHMENTS

The following documents, in addition to this letter, support this filing:

Attachment A	Revised Tariff Sheets;
Attachment B	Black-lined Tariff provisions;
Attachment C	Table identifying which tariff sections are being modified for each of the Phase 1B elements;
Attachment D	List of all stakeholder meetings related to these proposed Tariff amendments;
Attachment E	Proposed rules for aggregating resources to net deviations; and
Attachment F	Notice of this filing, suitable for publication in the Federal Register (also provided in electronic format).

Two extra copies of this filing are also enclosed. Please stamp these copies with the date and time filed and return them to the messenger. Please feel free to contact the undersigned if you have any questions concerning this matter.

Respectfully submitted,

Charles F. Robinson
Anthony J. Ivancovich
Counsel for The California Independent
System Operator Corporation

Enclosures