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March 23, 2005

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

Re: California Independent System Operator Corporation
Amendment No. 66 to the CAISO Tariff,
Docket No. ER05-___- 000
Request for Expedited Consideration and Shortened Comment Period

Dear Secretary Salas:

Pursuant to Section 205 of the Federal Power Act ("FPA"), 16 U.S.C. § 824d, and Sections 35.11 and 35.13 of the regulations of the Federal Energy Regulatory Commission ("Commission"), 18 C.F.R. §§ 35.11, 35.13, the California Independent System Operator Corporation ("CAISO") respectfully submits for filing an original and five copies of an amendment ("Amendment No. 66") to the CAISO Tariff.[1] Amendment No. 66 revises the CAISO Tariff to implement an interim solution[2] to the problem of excessive costs incurred as a result of the manner in which import and export bids from System Resources are cleared and settled under Phase 1B of the CAISO's Market Redesign and Technology Upgrade ("MRTU").

Because of the magnitude of the problem, as described in detail below, the CAISO respectfully requests that the Commission waive the 60-day notice

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

[2] In the near future, the CAISO plans to file a further tariff amendment implementing a longer-term solution that the CAISO believes is superior to the interim solution from a market design standpoint but would require several months to implement.

requirement prescribed by Section 205(d) of the FPA and approve an effective date of March 24, 2005. In addition, the CAISO requests that the Commission act on this Amendment in an expedited fashion. Specifically, the CAISO requests that the Commission shorten the time for interventions and protests to ten days, or to April, 4 2005, and issue an order accepting Amendment No. 66 within 45 days, or by May 9, 2005, so that the settlement methodology proposed in Amendment No. 66 can apply to transactions occurring as of the March 24 Trade Day consistent with the timing of the CAISO's settlement process.

I. BACKGROUND

On October 1, 2004, the CAISO implemented Phase 1B of its MRTU. One of the central features of Phase 1B is the establishment of market clearing prices using a real-time economic dispatch algorithm, which continuously clears overlapping real-time Energy bids in order to create a single price during each five-minute operational interval. Under the economic dispatch system, the CAISO issues dispatch Instructions to all overlapping bidders, thus requiring bidders to buy energy (*i.e.*, reduce generation, or decrement) or sell energy (*i.e.*, increase generation, or increment) at the applicable interval price. The major reason that the CAISO implemented, and the Commission approved,[3] this feature, was in order to eliminate the phenomenon of "Price Overlap," which occurred when Scheduling Coordinators participating in the CAISO's Imbalance Energy Market who were willing to buy real-time Energy or reduce their generator output (by submitting decremental bids) at prices higher than the prices at which other Scheduling Coordinators were willing to sell real-time energy or increase their generator output (by submitting incremental bids). The structure of the CAISO's Real-Time Market prior to the implementation of Phase 1B and the economic dispatch system prevented these Scheduling Coordinators from making mutually beneficial trades and thus eliminating the Price Overlap.

With respect to import/export bids from System Resources (*i.e.* resources located outside of the CAISO's Control Area that have to be dispatched prior to and separate from the real-time Imbalance Energy Market that runs every five minutes)[4], under Phase 1B, the CAISO's Real-Time Market Application ("RTMA")

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[3] *See California Independent System Operator Corporation*, 100 FERC ¶ 61,060 (2002) (approving the CAISO's proposal to implement the economic dispatch system).

[4] Because the CAISO has limited visibility of and no direct control over System Resources, and except for a few limited cases, there are no WECC provisions to allow for intra-hour adjustments to intertie schedules, the CAISO cannot dispatch these resources on a five-minute basis. Therefore, the CAISO dispatches System Resources prior to the operating hour to operate at a constant level over that hour. *See* CAISO Tariff Section 2.5.22.6.1(g). In the limited cases that a System Resource can adjust its schedule within the hour, the Scheduling Coordinator bidding the System Resource can identify that System Resource as such. In such cases the CAISO will not pre-dispatch the identified System Resource but rather dispatch the System

software not only accepts import/export bids that it anticipates needing to meet Imbalance Energy needs in real-time, but also "clears the market" by pre-dispatching, at least forty minutes prior to the operating hour, all incremental and decremental import/export bids that "overlap" in terms of bid price (while respecting inter-zonal transmission constraints).[5] Thus, the RTMA software interprets the decremental energy bid curve for System Resources, representing offers to buy energy out of the CAISO Control Area, as a demand curve which is combined with any Imbalance Energy needs forecasted by the CAISO.

The RTMA software clears the market by optimizing how the total demand for Energy, including offers to buy Energy out of the CAISO Control Area and forecasted CAISO Imbalance Energy, can be served using all available offers, including offers to sell at the interties and resources internal to the CAISO. With respect to bids from System Resources that are designated as having to be dispatched for the entire hour, the RTMA pre-dispatch run ensures that any System Resource bids that are pre-dispatched will be dispatched at the same level for the entire hour. The price at which these bids clear is effectively the intersection point of the supply and demand curves. As a result, the RTMA software pre-dispatches all decremental energy bids from System Resources priced above this supply/demand curve intersection, along with all incremental bids from System Resources priced below this supply/demand curve intersection.

The CAISO does not, however, settle pre-dispatched bids from System Resources at the price that it uses to clear those bids (that being effectively the intersection of the supply/demand curve). In order to ensure that System Resources receive bid cost recovery within each Settlement Period, the CAISO, under Phase 1B, settles import/export transactions using a "bid or better" settlement rule.[6] Pursuant to this rule, import/export bids that are pre-dispatched are settled at the CAISO's real-time Market Clearing Price ("MCP"), as set by resources within the CAISO Control Area that are dispatched every five minutes during the actual operating hour, and, in addition, receive an "uplift" payment as necessary to guarantee that each bid is paid the higher/lower of the MCP or its

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Resource during the operating hour.

[5] See CAISO Tariff, Dispatch Protocol 8.6.3.

[6] See California Independent System Operator Corporation, 105 FERC ¶ 61,091 (2003) at PP 122-123 (approving the CAISO's proposal to pay System Resources the higher of their bid price or the applicable MCP). Prior to the implementation of Phase 1B, bids from System Resources were not guaranteed bid cost recovery, but simply paid the real-time MCP, which they were not permitted to set. As a result, the CAISO noticed that the quantity of bids received from System Resources decreased significantly. In order to encourage participation by System Resources in the CAISO's markets, the CAISO proposed, as part of the Phase 1B modifications, to provide bid cost recovery for System Resources, without reversing the rule that bids from System Resources should not set the MCP because of concerns with Megawatt laundering.

bid price. For example, assume that during a particular interval, the intersection of the supply/demand curve for pre-dispatched bids from System Resources is $35/MWh. If an incremental bid from a System Resource at $30 is pre-dispatched but the real-time MCP is $25, that bid is then paid the $25 real-time price plus an uplift of $5 ($30 bid - $25 MCP = $5 uplift). In that same hour, all pre-dispatched decremental bids that would have otherwise been charged the intersection price of $35, are charged the MCP of $25. Similarly, if a decremental bid from a System Resource at $40 is pre-dispatched, and the real-time MCP turns out to be $50, that bid is charged $50, and receives an uplift of $10 ($50 MCP - $40 bid = $10 uplift). In that same hour, all pre-dispatched incremental bids that would have otherwise been paid the intersection price of $35 are paid $50.

II. NEED FOR TARIFF AMENDMENT

In recent months, the CAISO has observed that the combination of the pre-dispatching of import/export bids and the "bid or better" settlement rule, along with variations between the real-time MCP and the projected price used to clear import/export bids, has created an incentive for Scheduling Coordinators to bid in a manner that increases the uplift costs incurred by the CAISO, despite the fact that during many intervals the CAISO has no need for additional energy from System Resources in real-time in order to meet load in the CAISO Control Area. This occurs because, as described above, the CAISO pre-dispatches import/export bids at least forty minutes prior to real-time based on the intersection of the incremental and decremental price/quantity curve. However, when the real-time MCP diverges from the price at which import/export bids are pre-dispatched, the difference is reflected as additional uplift costs that the CAISO must allocate to Market Participants.[7] Recently, the lack of price convergence has been largely due to changes in expected loading and resource deviation conditions between the time that pre-dispatch occurs forty minutes prior to the operating hour and the time that dispatch of resources occurs in real-time. The CAISO is currently taking steps to improve the forecasted deviation conditions in an attempt to improve the dispatch and pricing convergence between pre-dispatch and real-time dispatch. Nevertheless, it is impossible to ensure perfect harmony between the price of pre-dispatched resources and the MCP set in real-time.

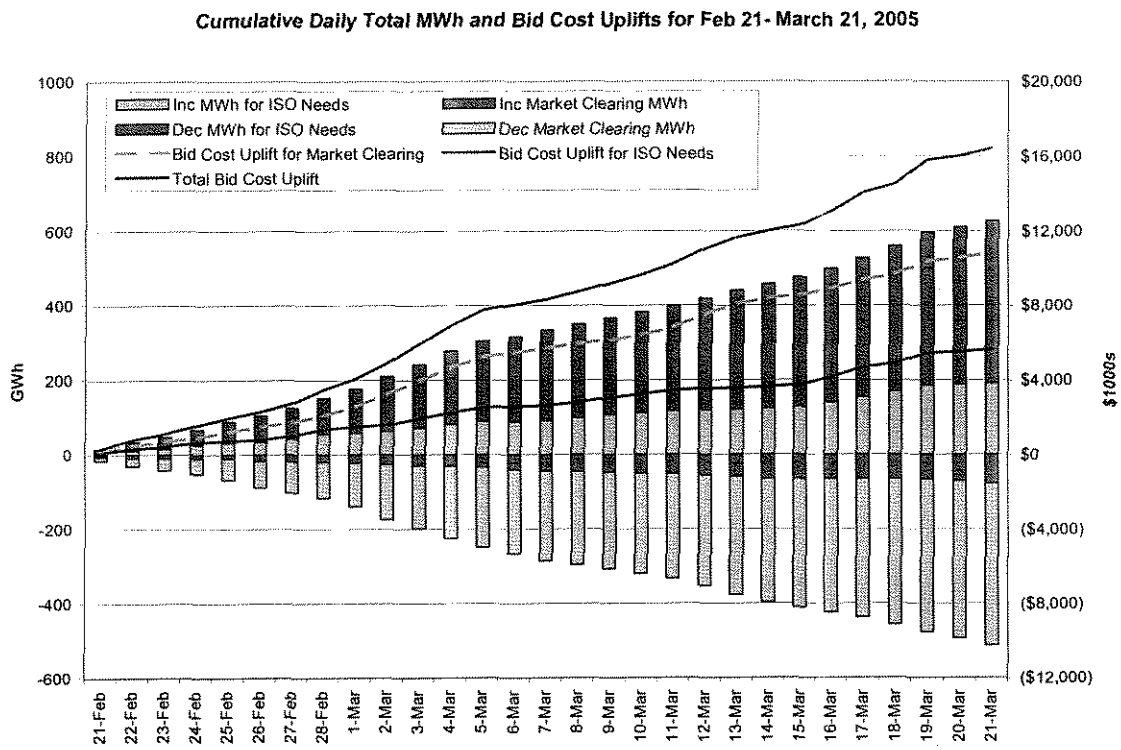
Exacerbating this problem is the manner in which these uplift costs are allocated. Under the CAISO Tariff, uplift charges are allocated first to Scheduling Coordinators based on their net negative deviations and then to all metered demand (excluding pre-dispatched export transactions). Thus, Scheduling Coordinators submitting import/export bids are not responsible for the uplift costs

[7] Attachment A to this filing contains a more detailed discussion of the manner in which these uplift costs are created, and includes graphical examples illustrating this phenomenon.

created when those bids are cleared, as described above.

The combination of the pre-dispatch of import/export bids, the "bid or better" settlement rule, and the variance between the Zonal Settlement Interval Ex Post Price (the real-time MCP) and the predicted price for pre-dispatched bids, along with the fact that System Resources do not incur any cost consequences as a result of uplift costs, has created an incentive for Scheduling Coordinators representing System Resources to bid in large quantities of offsetting incremental and decremental energy, which has led to a substantial increase in the magnitude of uplift costs incurred by the CAISO, even when the CAISO had no need for energy from resources outside the CAISO Control Area to meet load within the CAISO Control Area. Thus, load within the CAISO Control Area is being unfairly saddled with increasing unnecessary costs as a result of the interplay of these various factors.

Between the implementation of Phase 1B and March 22, 2005, the CAISO estimates that about $33.6 million in uplift costs have been incurred, approximately $18.5 million of which is attributable to the "overlapping" incremental and decremental bids that are cleared, but are netted out so that no net energy is provided or received from the CAISO System. In the last month alone, the uplift associated with overlapping incremental and decremental bids for market clearing has reached approximately $10.5 million, averaging nearly $400,000 per day. The magnitude of these costs is demonstrated in the figure below, which shows daily average uplift payments for each week since the Phase1B changes went into effect, disaggregated into two components: the portion of uplift payments associated with the net Imbalance Energy demand of the CAISO system (that is, payments for Energy actually needed by the CAISO in real-time), and the portion of uplift payments associated with the clearing of overlapping import/export bids that net out.



III. PROPOSED INTERIM SOLUTION

A. Summary of Proposed Interim Solution

Because of the magnitude of the uplift costs recently incurred by the CAISO, and the marked increase in the rate of accumulation of these costs in the past several weeks, the CAISO believes that it is critical to implement a workable solution to this problem as quickly as possible. To that end, the CAISO has identified an interim solution that can be implemented in a very short time that will reduce the high uplift charges associated with the clearing of overlapping incremental and decremental bids for pre-dispatched System Resources. Under this interim option, pre-dispatched import/export bids from System Resources would be paid (and charged) on an "as bid" basis, meaning that if dispatched, these resources will be paid their original bid price, rather than "bid or better." Although not the CAISO's preferred solution, it can be quickly implemented, because it will not require any changes to the CAISO's RTMA software. Although implementing this solution will require modifications to the CAISO's settlement system, CAISO staff believes that the settlement changes necessary to adopt the "pay-as-bid" approach could be made within 45 days, so that transactions occurring as of March 24, 2005 can be settled on a "pay as bid" basis without delaying the CAISO's normal settlement processes, and avoiding the need to perform any reruns of the CAISO's settlement system to implement

this modification. This will require that the CAISO begin immediately to work on the necessary changes to its settlement system. This solution also preserves the fundamental operation of the CAISO's economic dispatch methodology, which, as described above, is one of the cornerstones of the MRTU process, and not itself the cause of the high uplift costs.

Nevertheless, the CAISO recognizes that as a long-term solution to the problem of high uplift costs, the "pay as bid" approach may not be ideal. One concern that the CAISO has identified with any "pay as bid" approach is that import/export bids would reflect expectations of prices rather than marginal costs, which could lead to market inefficiencies. For this reason, the CAISO has already begun the process of exploring several alternative long-term solutions, and is committed to working with Market Participants to craft and implement the most appropriate solution going forward. The longer-term solutions that the CAISO believes are preferable would involve paying System Resources a market-clearing price based on bids submitted by these resources and changing the cost-allocation consistent with cost causation principles. Nevertheless, on balance, the CAISO submits that adopting a "pay as bid" approach for import/export transactions is necessary, at least on an interim basis, in order to decrease the magnitude of uplift payments and remove the incentive for Scheduling Coordinators to bid in a manner that maximizes these costs. Without such an interim measure, the CAISO is concerned that uplift costs will only continue to increase, resulting in even greater unnecessary and unwarranted costs to CAISO Market Participants.

B. Stakeholder Process

Because of the need for expedited Commission action on this matter, the CAISO has already begun a process to inform its Market Participants of the nature of the problem, and to solicit feedback concerning proposed solutions, both interim and long-term. As part of this process, the CAISO has taken the following steps:

March 11, 2005	Conference call with Market Participants to alert them to the problem of increased uplift costs associated with bids from System Resources, and to discuss interim solution.
March 16, 2005	Publication of white paper explaining the problem and potential solutions.
March 18, 2005	Second conference call with Market Participants to discuss interim solution.
March 22, 2005	Special Board of Governors meeting. Board of Governors authorizes ISO Management to make the present Section

205 filing to implement the interim solution.[8]

There are also several upcoming milestones in this process:

March 31, 2005	Board of Governors meeting to discuss options for a long-term solution to the problem.
Early April, 2005	Stakeholder meeting or call to solicit additional options and input on currently identified potential long-term solutions.
Mid April, 2005	Solicit Market Surveillance Committee opinion on long-term solution options.
April 28, 2005	Recommend long-term solution to Board of Governors.

C. Specific Tariff Modifications

In order to implement the "pay as bid" interim solution, the CAISO proposes the following modifications to its Tariff and Protocols:

First, the CAISO proposes to modify Section 11.2.4.1.1.2, which sets forth the bid cost recovery methodology for System Resources. The CAISO proposes to revise this section to specify that the CAISO will settle pre-dispatched Energy from System Resources based on each resource's Energy Bid costs, rather than the "bid or better" settlement currently in effect. The Energy bid costs shall be calculated as set forth in Sections 2.1.2 and 2.6.3 of Appendix D of the Settlements and Billing Protocol.

The CAISO proposes to modify Section 2.1.2 of Appendix D of the Settlements and Billing Protocol to specify that Hourly Predispatched energy from System Resources is an explicit component of Instructed Imbalance Energy for each resource, and will be settled as set forth in Tariff Section 11.2.4.1.1, based on each System Resource's Energy bid costs or the resource-specific price.

The CAISO proposes to modify Section 2.6.3 of Appendix D of the Settlements and Billing Protocol to provide that System Resources that deliver hourly pre-dispatched incremental or decremental Instructed Imbalance Energy will be paid their Energy bid costs for each Settlement Interval. In addition, an uplift payment will be made for each Settlement Interval when settlement as set forth in Section 2.1.2 of Appendix D is insufficient for recovery of a System Resource's bid costs. That uplift payment will be determined based on the

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[8] A copy of the memo presented to the Board of Governors by ISO Management addressing this issue is included with this filing as Attachment B.

minimum of zero or the difference between the resource-specific settlement amount and the bid cost settlement amount, pursuant to the equation contained in this section.

Finally, the CAISO also proposes to make minor conforming changes to Sections 2.5.23.1 (Pricing Imbalance Energy – General Principles) and 2.5.22.6.1 (Resource Constraints), in order to reflect the "pay as bid" solution.

IV. REQUESTED EFFECTIVE DATE AND REQUEST FOR EXPEDITED CONSIDERATION

The CAISO respectfully requests, pursuant to Section 35.11 of the Commission's regulations, 18 C.F.R. § 35.11, that the Commission accept Amendment No. 66 for filing effective as of March 24, 2005. For the reasons described above, the CAISO believes that it is necessary and that good cause exists to waive the 60-day notice requirement in order to end, as quickly as possible, bidding incentives that exacerbate the magnitude of uplift charges allocated to CAISO Market Participants. Without such waiver, it is likely that these uplift costs will continue to increase, to the detriment of CAISO Market Participants. Accordingly, the CAISO is requesting an effective date of March 24, 2005.

The CAISO also requests expedited consideration[9] and specifically requests that the Commission issue an order on or before May 9, 2005 (45-days from the date of this filing) accepting Amendment No. 66 in order to avoid any delays or complications in the timing of CAISO settlements process.[10] To this end, the CAISO is also requesting a shortened comment period, so that interventions and protests would be due on or before April 4, 2005.

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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[9] *See, e.g., Wisconsin Power and Light Company*, 16 FERC ¶ 61,104 (1981) (granting, for good cause, Wisconsin's request to expedite Commission consideration of its motion to amend its original rate schedule, and waiver of the notice requirement of 18 C.F.R . § 35.3).

[10] Section 11.6.1.1 provides that the CAISO will issue Preliminary Settlement Statements within thirty-eight (38) Business Days of the relevant Trading Day. A Commission decision within forty-five (45) calendar days will allow the CAISO to issue Preliminary Settlement Statements based on the proposed interim "pay as bid" solution described herein.

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VI. SERVICE

The CAISO has served copies of this transmittal letter, and all attachments, on the California Public Utilities Commission, the California Energy Commission, the California Electricity Oversight Board, all parties with effective Scheduling Coordinator Service Agreements under the CAISO Tariff. In addition, the CAISO is posting this transmittal letter and all attachments on the CAISO Home Page.

VII. ATTACHMENTS

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

Attachment A	Technical Paper on California CAISO Proposals for Improving Phase 1B Intertie Bid Settlement
Attachment B	Board of Governors Memo
Attachment C	Revised CAISO Tariff sheets
Attachment D	Black-lined CAISO Tariff provisions
Attachment E	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,

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ATTACHMENT A

Technical Paper on California ISO Proposals for

Improving Phase 1b Intertie Bid Settlement

March 18, 2005

Statement of the Issue:

The manner in which the CAISO settles the intertie hourly pre-dispatched system resource bids since it implemented of Phase 1B on October 1, 2004, in conjunction with how it allocates the pre-dispatch costs leads to two problems:

1. High uplift charges allocated to CAISO load.
2. Potential incentives to bid large quantities of real-time imports and exports (intertie Supplemental INC and DEC bids) in a manner that ultimately exacerbates the problem of high uplift charges.

The ISO has observed a sharp increase in the severity of these problems in recent weeks. The problem is caused by a combination of two factors:

a) *Economic Dispatch of Overlapping Inc/Dec Bids.* Under Phase 1B, prior to each operating hour, the CAISO not only accepts import/export bids that it anticipates needing to meet imbalance energy needs, but it also "clears the market" by pre-dispatching all INC and DEC bids on interties (by all participants) that "overlap" in terms of bid price (while respecting inter-zonal transmission constraints). This is an inherent property of economic dispatch[1]. Thus as part of the real time market application ("RTMA"), the software converts the decremental energy bid curve for exports, representing offers to buy (or buyback) energy from the ISO at interties, to a demand curve which is combined with any imbalance energy needs (underscheduled load plus AGC deviations above hour-ahead schedules of regulating units). The software then clears the combination with the incremental bid curve that represents offers to sell (or sell back) energy to the CAISO at interties. The CAISO "clears the market" by dispatching all decremental energy bids priced above this price/quantity intersection, along with all incremental bids priced below or above this price/quantity intersection. Figures 1 and 2 illustrate this process using a simplified case in which the CAISO does not need any net real time imbalance energy from the interties, but still clears the market by dispatching all incremental and decremental bids at the interties[2].

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[1] The economic dispatch objective function in fact maximizes the total producer plus consumer surplus and will continue clearing overlapping INC and DEC bids (subject to inter-zonal transmission constraints) even after meeting CAISO's imbalance energy needs since by doing so it keeps increasing the surplus. It is possible to devise an objective function that minimizes a combination of bid cost and schedule shift. We considered such a design before the start of the CAISO market for day-ahead intra-zonal congestion management, but never implemented it. We identified some gaming issues due to the combination of bid prices and shift factors.

2 For example, assume that there are just enough inexpensive internal resource supplemental energy bids at the right locations that can be used to meet the difference between the load forecast and final hour-ahead load schedule. We make this assumption only for simplicity of the presentation. Even when there is

Figure 1. Incremental and Decremental Energy Bids on Interties

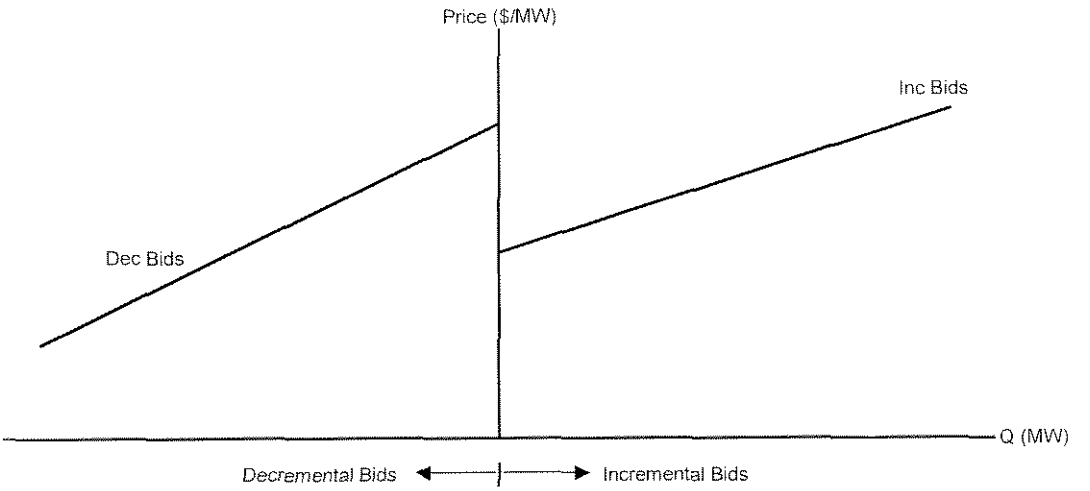
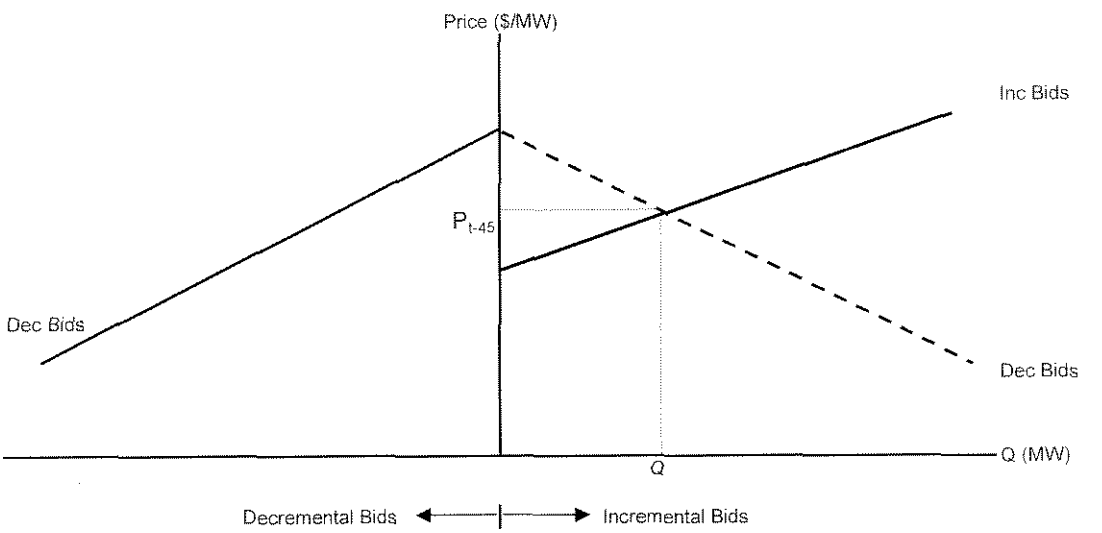


Figure 2. Clearing of Overlapping Decremental and Incremental Bids



imbalance energy (at the pre-dispatch time frame) that can be met more economically from import bids than the internal resource bids, the fundamental problems stated in this paper persist.

b) *Settlement Rules for Pre-Dispatched bids.* Rather than settling these incremental and decremental dispatches at the price of the intersection of these pre-dispatched import/exports bids, the CAISO settles them based on a "bid or better" settlement rule. The rule combines (a) the CAISO's real time price, set by resources within its system that are dispatched every 5-minutes during the actual operating hour, and (b) any "uplift" payment needed to guarantee that each pre-dispatched INC/DEC bid is settled at the higher/lower of the ex-post MCP or its bid price[3]. For instance, if a intertie INC bid at $30 is pre-dispatched (e.g., as a result of $35 intersection of import/export bids that are pre-dispatched), but the real-time price is $25, the INC bid is paid the $25 real-time price plus an uplift of $5 ($30 bid - $25 MCP = $5 uplift). In the same hour, all pre-dispatched DEC bids that would have otherwise been charged the intersection price of $35, are charged the ex-post MCP of $25. Similarly, if during an hour a DEC bid at $40 was pre-dispatched (e.g. as a result of $35 intersection of import/export bids that were pre-dispatched), but the ex post price turns out to be $50, the DEC bid is charged $50. It then receives an uplift of $10 ($50 MCP - $40 dec bid = $10 uplift). In the same hour, all pre-dispatched INC bids that would have otherwise been paid the intersection price of $35 are paid $50.

The combination of these two new market rules or procedures has resulted in the CAISO incurring significant costs as a result of a high volume of incremental and decremental energy bids being dispatched at the interties to clear the market and periodically high uplift payments due to variations in the actual ex post real time energy prices compared to the projected prices used to clear interties bids. In addition, under these rules the CAISO guarantees as bid or better for the import/export bids, submitting large volumes of slightly overlapping incremental and decremental intertie bids by the same SC turns out to be a lucrative bidding behavior for the bidder at the cost of CAISO ratepayers.

Figures 3 through 5 illustrate the manner in which current dispatch and settlement procedures can result in excessive uplift payments. This happens even when little or no imbalance energy is actually needed to meet CAISO system loads Figures 3 through 5 are based on a simplified example in which the RTMA software does not project needing any net real-time energy from the interties, but still clears the market by dispatching all incremental and decremental bids at the interties.

Figures 3 and 4 show how net costs are incurred in an hour (t1) when the actual ex post real time price ends up being *lower* than the price at which decremental and incremental bids for export/import were cleared (P_{t-45}) As shown in Figure 3, revenues received by the CAISO equal the quantity of dispatched INC and DEC energy (Q) multiplied by the MCP (see green area in Figure 3). However, as shown in Figure 4, payment by the CAISO equals the quantity of dispatched INC and DEC energy (Q) multiplied by the MCP (see yellow area in Figure 4), plus the uplift paid for all dispatched incremental energy bids that were submitted at prices in excess of the actual ex post MCP (represented by the blue are of Figure 4). Thus, as a comparison of these two figures show, the uplift payments are

[3] Imports cannot set prices in the CAISO's real-time market. This is warranted if the same price is to be used for settlement with internal resources because otherwise the imports would "stick" the real-time prices. Under 5 minute dispatch, an hourly resources such as an hourly tie would not e eligible to set the marginal price because it has not flexibility to deliver any additional energy.

a net cost to the CAISO in excess of revenues received, and is paid despite the fact that no net energy was needed or received to meet CAISO system needs.

Figure 3. Revenues From Decremental Energy When Actual MCP is Lower than Projected Price Used in RTMA Dispatch

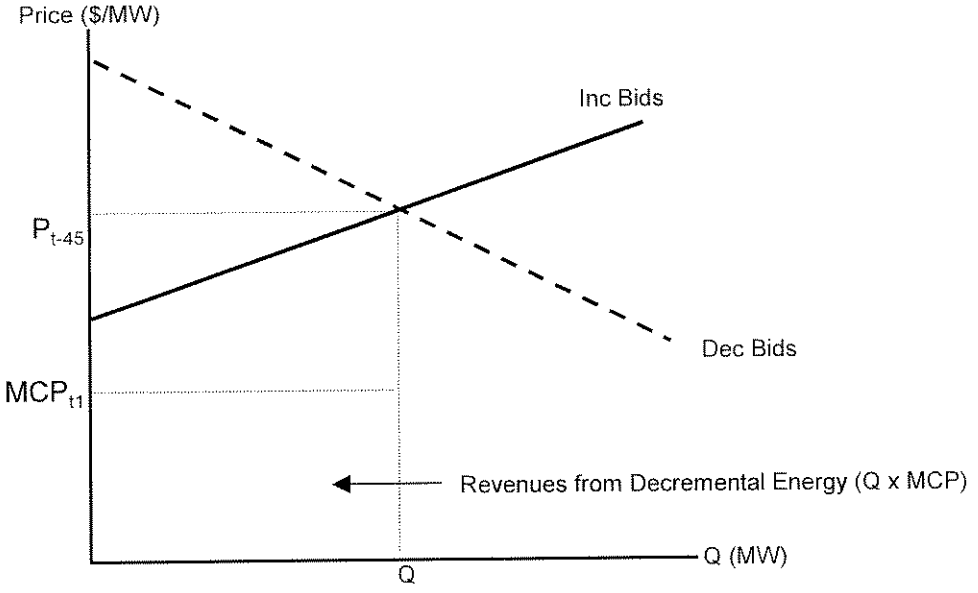
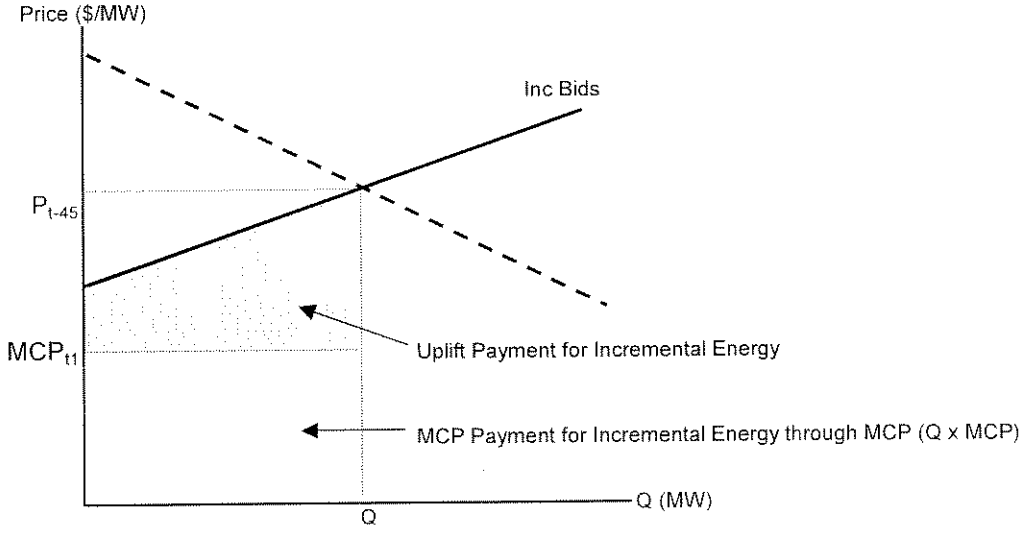


Figure 4. Payments for Incremental Energy When Actual MCP is Lower than Projected Price Used in RTMA Dispatch



Figures 5 and 6 show how net costs are incurred in an hour (t2) when the actual ex post real-time price ends up being *higher* than the price at which decremental and incremental bids for export/import were cleared (P_{t-45}) Figure 5 shows net revenues received by the CAISO equal the quantity of dispatched INC and DEC energy (Q) multiplied by the MCP, less the uplift paid for decremental energy bids dispatched with bid prices below the ex post MCP (see green and yellow areas in Figure 5). Figure 6 shows net payments by the CAISO equal the quantity of dispatched INC and DEC energy (Q) multiplied by the MCP (see yellow area in Figure 6), plus the uplift paid for all dispatched incremental energy bids that were submitted at prices in excess of the actual ex post MCP (represented by the blue area of figure 4). Thus, a comparison of these two figures again shows that the uplift payments represent a net cost to the CAISO in excess of revenues received, which is paid despite the fact that no net energy was needed or received to meet CAISO system needs.

In practice, the only hours in which the CAISO would pay no unnecessary revenues occur only if the actual ex-post MCP is precisely equal to the price at which decremental and incremental bids for export/import were cleared (P_{t-45}).

Moreover, these problems have been exacerbated recently by a lack of convergence of the hourly pre-dispatch prices (P_{t-45} in Figures 3 through 6) and ex post real-time prices (MCP_{t1} and MCP_{t2} in Figures 3 through 6). This lack of convergence is largely due to changes in expected loading and resource deviation conditions from the pre-dispatch run that occurs approximately 50 minutes prior to the operating hour and the real-time 5 minute dispatch runs. The CAISO is currently taking steps to improve the forecasted deviation conditions in an attempt to improve the dispatch and pricing convergence between the pre-dispatch and real-time dispatch runs.

Finally, the way the pre-dispatch uplift costs are allocated further exacerbates the cost impact on some market participants. Under current settlement rules, uplift payments to incremental or decremental energy are allocated in two tiers. First, to each SC based on each SC's net negative deviations up to a capped rate limited to a per/MWH cost of the procured energy needing uplift. Secondly, the remaining uplift costs are allocated to metered demand (internal load plus exports). Thus, in cases where the CAISO pre-dispatches significant quantities of incremental and decremental bids (above levels needed to meet system imbalance needs), and then pays significant energy uplift charges (due to divergences between pre-dispatch prices and the ex post MCP), SC's with even small negative deviations may be allocated significant uplift charges (on a $/MWh basis).[4]

[4] Charges on net negative deviations can be significant, especially in cases when the ex post MCP falls to very low levels.

Figure 5. Revenues From Decremental Energy When Actual MCP is Higher than Projected Price Used in RTMA Dispatch

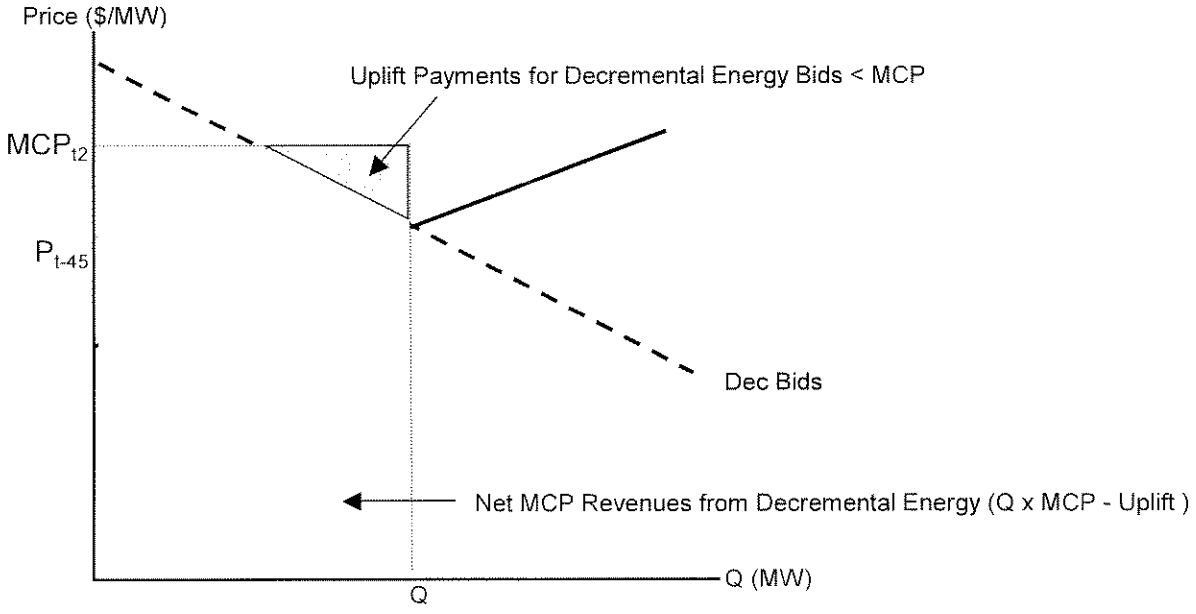
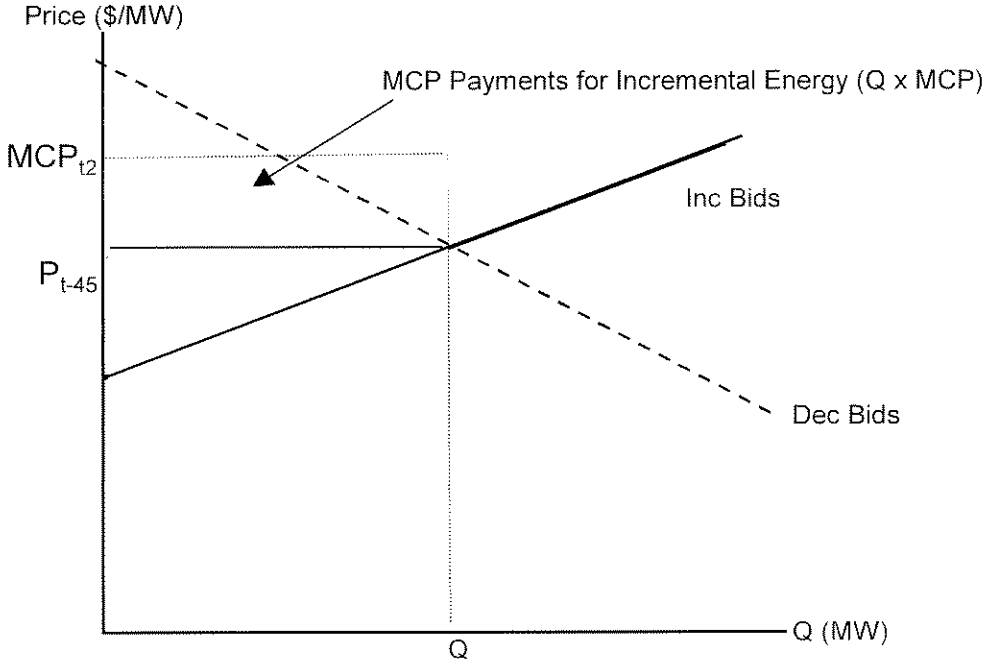


Figure 6. Payments for Incremental Energy When Actual MCP is Higher than Projected Price Used in RTMA Dispatch



Proposed Solution: Interim and Long-term

Interim Solution

The ISO has identified an interim solution that can be implemented in a very short time to address the problem of high uplift charges. Under this interim option, pre-dispatched inter-tie bids would be paid (and charged) on an "as bid" basis.

Implementing this option does not require any change in the RTMA software (no new prices to be published). It does require changes in the settlement system ISO staff believes that settlement changes necessary for the "pay-as-bid" approach could be implemented within six weeks assuming we make no changes to the cost allocation methodology.

One concern we have with this interim solution is a basic issue associated with all "pay as bid" systems. The bids would reflect expectations of the price rather than marginal costs and could lead to market inefficacies.

On balance, we believe this is an appropriate interim action, since it will decrease uplift payments and ensure that the CAISO is "revenue neutral" in terms of incremental and decremental bids that are pre-dispatched, not for system needs, but as part of the process of "clearing" all incremental and decremental bids at the interties under Phase 1B.

Longer-Term Options

We have identified four options for addressing the high uplift charges being incurred under new dispatch and settlement rules of inter-tie bids.

In addition to the interim option of settling pre-dispatched bids on an "as-bid" basis, described above, three other options involve settlement of all pre-dispatched bids based on the prices at which incremental and decremental bids are "cleared" in the RTMA software used to determine which inter-ties bids are pre-dispatched. In practice, RTMA does not calculate a single pre-dispatch MCP for each hour. Instead, it calculates separate MCPs for each 15-minute period of the next hour. This is because RTMA uses a 15-minute, rather than an hourly load forecast. However, since RTMA does consider the constraint that the hourly interties cannot change every 15-minutes, the prices it computes for a scheduling point in some 15 minute intervals may potentially be higher or lower than the marginal hourly bid price accepted at that scheduling point[5]. There are three possible ways to deal with the four pre-dispatch prices to settle the hourly imports/exports:

- Option 1: Use the simple average of the 4 quarter-hour prices. The simple average is appropriate here since each accepted pre-dispatch intertie bid is fixed in quantity for all 4 quarter-hour intervals. However, this may potentially end up being higher than

[5] It appears that if there is no need for non-economic adjustment (i.e., the market can be cleared using only bid prices), then the average of the 4 quarter-hourly prices computed in RTMA would not exceed the lowest accepted hourly DEC bid price and would not be lower than the highest accepted hourly INC bid price. However, at this time, this conjecture is subject to mathematical proof (or disproof by counter-example).

the lowest price hourly DEC bid accepted or lower than the highest price hourly INC bid accepted at the intertie, It would not necessarily guarantee bid cost recovery for all pre-dispatched intertie bids. However, this option does not allocate uplift charges to CAISO ratepayers

- Option 2: Use the simple average as in Option 1 but supplement it with uplift payments to make sure no accepted INC intertie bid is paid less than its bid price and no accepted intertie DEC bid is charged more than its DEC bid price. This has potentially the same problem (although with much smaller magnitude) of the ISO ratepayers subsidizing the market clearing transactions of the imports and exports.
- Option 3: Pay the pre-dispatched INCs the minimum of the four 15-minute prices, and supplement with uplift as needed to ensure no accepted INC bid is paid less than its bid price. Charge all pre-dispatched DECs the maximum of the four 15-minute prices, and supplement with uplift as needed to ensure no accepted DEC bid is charged more than its bid price. This settlement rule would not allocate uplift to CAISO ratepayers and would ensure all accepted INC and DEC that are pre-dispatched are made whole.

In addition, as noted above, another option is to settle pre-dispatched bids on an "as-bid basis", described under Option 4 below:

- Option 4: Pay (and charge) pre-dispatch interties as bid. This has the known problem associated with "pay as bid" systems. The bids would reflect expectations of the price rather than marginal costs and could lead to market inefficiencies, but would reduce the magnitude of the problem in the short term and can be quickly implemented. It would reduce uplift payments and ensure revenue neutrality for the CAISO.

All four options for the longer term solution discussed above (but not for the interim) include a change in the manner in which costs for pre-dispatched energy are allocated. With this proposed change in settlement for pre-dispatched bids, there would be two tiers of payment for imbalance energy used to serve the net negative deviation (primarily the under-scheduled load): one at the pre-dispatch price for the net import/export deviation (from the hour-ahead schedule) at each intertie and one at the real-time price in each zone. In order to better allocate these costs according to cost causation, current pre-dispatch cost allocation rules – which allocate incremental pre-dispatch uplifts to the net negative deviations --- should also be modified. To the extent there are any net pre-dispatch costs or revenues, we propose to combine those net costs or revenues (and net pre-dispatch import MWh) with real-time net costs and revenues (and net instructed MWh). We would compute a unit rate ($/MWh) for the combined cost/revenue and dispatched quantity and apply it to real-time net negative deviation in the usual Tier 1 /Tier 2 allocation. However, this change in cost allocation would require additional modifications in the settlement software, so we did not include these changes in cost allocation in the interim option proposed (Option #4).

Comparison of Options

We believe it is reasonable to evaluate Options 1 through 4 with respect to three main criteria[6]:

1. Avoiding allocating charges to CAISO rate payers who bear no cost responsibility
2. Guaranteeing bid or better compensation for both real-time imports (intertie INC bids) and exports (intertie DEC bids)
3. Ease of implementation
4. Market efficiency.

Table 1 provides a summary evaluation of options in terms of these different considerations.

Permanent Solution:

Among the options in Table 1, Option 1 is preferred by the ISO at this time We recommend this option as a permanent fix that would not only be applicable under Phase 1b RTMA, but would also be suitable under MRTU.

[6] We encourage market participants to suggest additional criteria and provide their ranking of these options.

Table 1. Summary of Options

Option	Avoid Cost Shift to Rate Payers	Ensure Bid or Better for the Intertie Bids	Ease of Implementation	Market Efficiency
Option 1. Settle pre-dispatch at average of quarter hour prices with no uplift	YES	Yes, except possibly under rare conditions.	Moderate impact on RTMA; Moderate impact on settlement software	No obvious efficiency loss or gaming incentives
Option 2. Settle pre-dispatch at average of quarter hour prices with uplift to ensure bid cost recovery	Yes, except possibly under rare conditions.	YES	Moderate impact on RTMA; moderate impact on settlement software	No obvious efficiency loss or gaming incentives
Option 3. Settle pre-dispatch INC at the minimum of quarter hour prices with uplift to ensure bid cost recovery; Settle pre-dispatch DEC at the maximum of quarter hour prices with uplift to ensure bid cost recovery	YES (can result in some surplus from intertie settlements for rate payers)	Guarantees bid or better (but the "better" is not as good as that under Option 2)	Minimal to no impact on RTMA; moderate impact on settlement software	No obvious efficiency loss or know gaming opportunities
Option 4. Pay and charge pre-dispatch as bid	YES (can result in some small surplus *if there remains an* overlap from inter-tie bids)	Guarantees the bid but not better	No impact on RTMA; lowest *impact on* settlement software	Can lead to bidding based on *expectation of* clearing prices (some market inefficiency)

Timeline of Decision Process

3/11/05	Conference call with market participants
3/16/05	Publication of issue and solution white-paper
3/18/05	2nd conference call with market participants
3/22/05	Special Board of Governors meeting. Request authorization to make Section 205 filing to implement interim solution.
3/31/05	Board meeting to discuss permanent options

ATTACHMENT B

Memorandum

To: ISO Board of Governors

From: Anjali Sheffrin, Ph.D., Director of Market Analysis
Mark Rothleder, Director of Market Operations

cc: ISO Officers, ISO Board Assistant

Date: *March 18, 2005*

Re: **Modification of Settlement for Pre-dispatched Bids from Interties**

This memorandum requires Board action.

EXECUTIVE SUMMARY

In recent weeks, the ISO has observed a significant increase in costs associated with bids for real time energy being pre-dispatched on inter-ties with neighboring control areas. Under current settlement rules, these charges are incurred when the actual price in the ISO's real time market is either higher or lower than the prices for pre-dispatched bids. In order to reduce these costs, the ISO is proposing to make modifications to its settlement rules and software in two phases: an interim solution in the settlement rule which can be implemented quickly, and a long-term solution which will require changes to software and three months to implement. The interim solution is to modify the settlement rules for pre-dispatched bids on inter-ties, so that all bids are settled on an "as-bid" basis. The necessary software changes can be implemented within the 45 day time lag between the time transactions occur and the time settlement calculations are processed. Therefore, Management is recommending that the Board of Governors authorize the filing of a tariff amendment with the Federal Energy Regulatory Commission ("FERC") to implement the proposed "as bid" payment of intertie transactions. We will also request: (1) that the amendment be made effective as of the day following the tariff filing; (2) a shortened comment period for the filing of interventions and protests; and (3) expedited consideration, requesting that FERC issue its order within 45 days. Attached hereto is a more detailed technical paper explaining the background, problems and proposed solutions summarized in this memorandum.

Background

The high uplift charges observed in recent weeks can be attributed to a combination of three major factors:

1) The ISO implemented the Phase 1B changes to its real-time market software on October 1, 2004. These changes include a new Real-Time Market Application (RTMA), which performs automated economic pre-dispatch of all incremental and decremental energy bids on inter-ties. In addition to dispatching only incremental or decremental bids anticipated to meet ISO system demand, the ISO dispatches all other incremental bids at a price lower than remaining decremental bids through a market clearing function. This "market clearing" feature of RTMA is designed to promote overall economic efficiency, and encourage bidding of import/export bids into the ISO system, as well as to avoid some gaming opportunities associated with previous procedures.

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2) Under current settlement rules, the ISO pays/charges incremental/decremental bids from inter-ties that must be pre-dispatched by the ISO based on projected system conditions on a "bid or better" basis. For example, if the actual real-time price ends up being lower than the bid price for pre-dispatched incremental bids, bidders offering to sell will be paid an uplift payment equal to the difference between their bid price and the real-time price. On the decremental side, if the actual real-time price is lower than the bid price for decremental energy pre-dispatched by the ISO, bidders buying will only be charged the real-time price. This creates the potential for uplift charges whenever the ISO clears the market by predispatching all overlapping bids of incremental and decremental energy on the inter-ties. The uplift charges are allocated first to scheduling coordinators based on their net negative deviation and then to all metered demand (excluding pre-dispatched supplemental ties). A substantial portion of the uplift associated with the overlapping bids that cleared during pre-dispatch is allocated to load. Since the overlapping bids do not pay for the uplift there is an incentive for them to create additional demand by submitting more volume of overlapping bids thereby increasing uplift costs to load.[1]

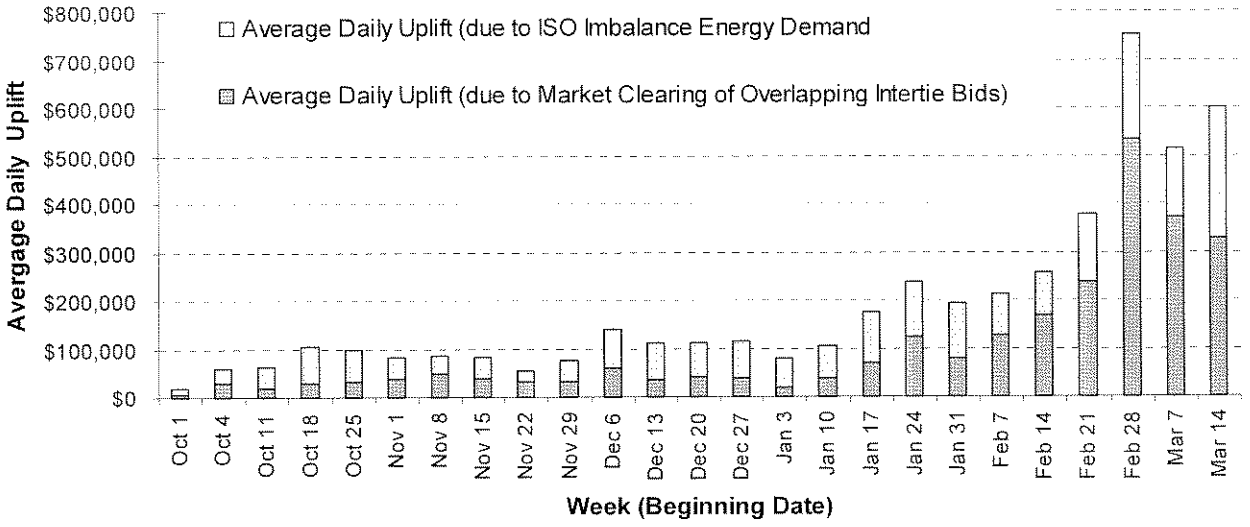
3) In recent weeks, real time prices have frequently deviated significantly from the bid prices of incremental and decremental energy bids on inter-ties that have been dispatched by the ISO in order to "clear the market". Causes of these price deviations include the difficulty of projecting the volume of uninstructed deviations that will occur and the amount of net inter-tie energy that may be needed, at the time that inter-tie bids must be pre-dispatched, prior to each operating hour. The ISO has been addressing this issue by developing enhancements to the RTMA software that are expected to be ready for implementation in the next few weeks. These changes are expected to decrease, but cannot eliminate, the divergences between prices of pre-dispatched intertie bids and ex post real time prices.

Financial Impacts

Since implementation of Phase 1B, the ISO estimates that about $ 31million in uplift costs have been incurred as of the date of this memorandum, approximately $17 million of which is attributable to the "overlapping" incremental and decremental bids that are cleared, but essentially net out so that no net energy is provided or received from the ISO system. In the last six weeks alone, the uplift associated with overlapping bids has reached approximately $12 million, averaging nearly $400,000 per day. Figure 1 shows daily average uplift payments for each week since Phase1B changes went into effect, disaggregated into two components: the portion of uplift payments associated with net imbalance energy demand of the ISO system, and the portion associated with the clearing of overlapping inter-tie bids. The ISO believes that a pay "as-bid" rule would reduce net costs by the amount of uplift payments currently associated with the clearing of overlapping inter-tie bids.

[1] Although it should substantially reduce uplift costs, the interim solution will not change the allocation of uplift costs. The ISO will consider changing the allocation of uplift costs as part of the longer-term solution.

Figure 1. Average Daily Uplift Payments



Longer-Term Options

The proposal to pay/charge inter-ties bids on an "as-bid" basis represents an interim solution, which effectively addresses the problem by reducing the uplift and can be implemented immediately. For the longer-term, the ISO Management recommends an approach based on the single-price auction market design. In this market design, all incremental and decremental inter-tie bids dispatched by the ISO would be settled at a single pre-dispatch market clearing price. This approach will require changes in the RTMA software used to dispatch bids, publication of the market clearing prices on the OASIS site, and as well a changes to the settlement software and would require at least three months to implement. There are several variations of the single pre-dispatch market clearing price approach under consideration.

As part of longer-term modifications, the current system for allocating costs associated with incremental and decremental energy and uplift charges to ISO customers may be modified to better align cost allocation with cost causation.

Management intends to present the pros and cons of the longer-term options at the Board Meeting on March 31, 2005.

Process in Developing Recommendation

In its analysis of the causes for the high uplift costs associated with predispatched intertie bids and in developing the recommendations for the corrections, the ISO staff involved a number of parties. On March 11, the ISO held a public call describing the problem and the various options under review. Participants requested a white paper with a more detailed description of the options and a schedule for decision-making. After coordinating with various departments within the ISO, and undertaking a detailed review of the various options and the software changes and implementation

schedule required for each, the ISO published a white paper on March 16th. A second public call was held on March 18 as part of the regularly scheduled Phase 1B call. A summary of the public comments received is provided below. The ISO also discussed the problem and recommended actions with members of the Market Surveillance Committee (MSC), which concurred with the interim option being proposed. The MSC will be providing a discussion of the various long-term options at the March 31st Board meeting.

Market Participant Input

During the March 18 conference call, representatives of two in-state generation owners (Mirant and Duke) noted that going to an "as-bid" design might cause suppliers to increase bid prices for imports. The ISO noted that this is the acknowledged drawback of "as-bid" versus "single price" auction designs, and that this was why the longer term solution calls for settling inter-ties bids based on a single pre-dispatch market clearing price.

One marketer (Sempra Energy Trading) suggested that if the ISO achieved better convergence between prices of pre-dispatched intertie bids and the ex post price, the "bid or better" guarantee of current settlement rules could be eliminated and imports/export bids could be settled directly on ex post prices. The ISO noted that it is taking steps to improve price convergence. However, the ISO also noted that this was how imports were settled prior to Phase 1B, and that, even when real time prices were highly correlated with pre-dispatched bid prices, several major importers indicated that this price risk served as a major deterrent to participation in the ISO market.

One participant (Sempra Solutions) inquired as to whether the ISO was seeking to retroactively modify how uplift charges already incurred would be allocated. The ISO indicated that this was a separate matter and was not the subject of the current modifications under consideration.

The ISO management recommends the Board consider approval of the following motion:

MOVED,

That the ISO Board of Governors hereby authorizes Management to modify financial settlement of pre-dispatched energy bids on inter-ties so that bids are settled on an "as-bid" basis, and file the tariff amendment necessary to make these changes effective March 23, 2005.

ATTACHMENT C

g) Hourly Pre-Dispatch. If Dispatched, each System Resource flagged for Hourly Pre-Dispatch in the next hour shall be Dispatched to operate at a constant level over the entire hour. The RTD Software shall perform the Hourly Pre-Dispatch for each hour once prior to the operating hour. Hourly Pre-Dispatched System Resources shall be Pre-Dispatched in merit order and shall not set the price. The Hourly Pre-Dispatch shall not subsequently be revised by the RTD Software.

2.5.22.6.2 Transmission System Constraints.

RTD shall use a Zonal DC network model where all nodes within a Zone would be collapsed into a single equivalent "Zonal bus." The constraints using the Zonal network model shall be the following:

a) Power balance constraint in each Zone. The system Imbalance Energy requirement shall be calculated on a Zonal basis. The power balance constraints shall dictate an optimal Dispatch that would eliminate the Imbalance Energy requirement in all Zones, subject to (b) below.

b) Inter-Zonal Interface constraints. These constraints shall limit the net active power flow on Inter-Zonal Interfaces at or below their transfer limits. For Inter-Zonal Interfaces between the ISO Control Area and another Control Area, inter-Zonal transfer capacity shall be reserved for awarded Ancillary Services from System Resources not already Dispatched.

2.5.22.6.3 Inter-hour Dispatch of Resources Without Real-Time Energy Bids.

Real-time Dispatch Instructions shall be issued for each Dispatch Interval as needed to prescribe 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. Such Dispatch Instructions shall be based on the lesser of: 1) the applicable operational ramp rate as provided for in SBP Section 6.5 and 2) the ramp rate associated with the Standard Ramp. The Dispatch

(c) the Scheduling Coordinator for the Participating Generator, owner or operator of the Curtailable Demand or System Resource concerned shall have Uninstructed Imbalance Energy due to the difference between the Generating Unit's, Curtailable Demand's or System Resource's instructed and actual output (or Demand). The Uninstructed Imbalance Energy shall be subject to the settlement for Uninstructed Imbalance Energy in accordance with Section 11.2.4.1 and the Uninstructed Deviation Penalty in accordance with Section 11.2.4.1.2. This applies whether the Ancillary Services concerned are contracted or self-provided.

The ISO will develop additional mechanisms to deter Generating Units, Curtailable Demand and System Resources from failing to perform according to Dispatch instructions, for example reduction in payments to Scheduling Coordinators, or suspension of the Scheduling Coordinator's Ancillary Services certificate for the Generating Unit, Curtailable Demand or System Resource concerned.

2.5.23 Pricing Imbalance Energy.

2.5.23.1 General Principles. Instructed and Uninstructed Imbalance Energy shall be paid or charged the applicable Resource-Specific Settlement Interval Ex Post Price or the Zonal Settlement Interval Ex Post Price except for hourly pre-dispatched Instructed Imbalance Energy, which shall be settled as set forth in Section D 2.1.2 in Appendix D of the Settlement and Billing Protocol. These prices are determined using the Dispatch Interval Ex Post Prices. The Dispatch Interval Ex Post Prices shall be based on the bid of the marginal Generating Units, System Units, and Curtailable Demand dispatched by the ISO to increase or reduce Demand or Energy output in each Dispatch Interval as provided in Section 2.5.23.2.1.

The marginal bid is

11.2.4.1.1.2 Bid Cost Recovery for System Resources

The ISO shall settle predispatched Energy from System Resources based on each resource's Energy Bid costs for each Settlement Interval, for each System Resource submitting bids in the Real Time Market pursuant to Section 2.5.22. This Energy bid cost settlement shall be calculated as set forth in Sections D 2.1.2 and D 2.6.3 in Appendix D of the Settlements and Billing Protocol. Bid cost settlement shall apply to both incremental and decremental predispatched Energy.

An uplift payment will be made as necessary for each Settlement Interval to assure that the System Resource recovers its Energy Bid costs for the quantity of Energy delivered. Payments for un-recovered bid costs for portions of Energy associated with bids above the Maximum Bid Level are subject to recall if such bids have not been adequately justified pursuant to Section 28.1.2.

11.2.4.1.2 Penalties for Uninstructed Imbalance Energy

Effective December 1, 2004, the ISO shall not charge any Uninstructed Deviation Penalties pursuant to this Section 11.2.4.1.2 until FERC issues an order authorizing the ISO to charge Uninstructed Deviation Penalties pursuant to this section. Beginning with Settlement Statements for the first Trading Day for which FERC authorizes the ISO to charge Uninstructed Deviation Penalties pursuant to this section, the ISO shall charge Scheduling Coordinators Uninstructed Deviation Penalties for Uninstructed Imbalance Energy resulting from resource deviations outside a Tolerance Band from their Dispatch Operating Point, for dispatched resources, or their Final Hour-Ahead Schedule otherwise. The Dispatch Operating Point will take into account the expected Ramping of a resource as it moves to a new Hour-Ahead Schedule at the top of each hour and as it responds to Dispatch Instructions. The Uninstructed Deviation Penalty will be applied as follows:

a) The Uninstructed Deviation Penalty for negative Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval. The Uninstructed Deviation Penalty for positive Uninstructed Imbalance Energy will be calculated and assessed in each Settlement Interval in which the ISO has not declared a staged System Emergency;

D 2.1.2 Instructed Imbalance Energy Charges on Scheduling Coordinators

Standard Ramping Energy is Energy associated with a Standard Ramp and shall be deemed delivered and settled at a price of zero dollars per MWh.

Ramping Energy Deviation is Energy produced or consumed due to hourly schedule changes in excess of Standard Ramping Energy and shall be paid or charged, as the case may be, at a Resource-Specific Settlement Interval Ex Post Price calculated using the applicable Dispatch Interval Ex Post Prices as described in this Appendix D 2.4. For Scheduling Coordinators scheduling a MSS that has elected to follow its Load, this Ramping Energy Deviation will account for the units following Load.

Ramping Energy Deviation shall be settled as an explicit component of Instructed Imbalance Energy for each resource *i* in Dispatch Interval *k* of Settlement Interval *o* for hour *h*, and calculated as follows:

$$REDC_{i,h,o} = \left(\sum_{1}^{k} RED_{i,h,o,k} \right) * STLMT\_PRICE_{i,h,o}$$

Hourly Predispatched energy from System Resources is an explicit component of Instructed Imbalance Energy for each interchange resource *i* in Dispatch Interval *k* of Settlement Interval *o* for hour *h*, and settled pursuant to Sections 11.2.4.1.1 and 11.2.4.1.1.2 of the ISO Tariff. The settlement calculation is as follows:

If (

$(COST\_AT\_STLMT\_PRICE_{i,h,o} > 0$

And

$BID\_COST_{i,h,o} > 0)$

Then

$$IIEC\_PREDISPATCH_{i,h,o} = (-1) * \min\left(COST\_AT\_STLMT\_PRICE_{i,h,o}, BID\_COST_{i,h,o}\right)$$

Else

$$IIEC\_PREDISPATCH_{i,h,o} = (-1) * BID\_COST_{i,h,o}$$

Where

$COST\_AT\_STLMT\_PRICE_{i,h,o} =$

$$\left(\sum_{1}^{k} IIE\_PREDISPATCH_{i,h,o,k}\right) * STLMT\_PRICE_{i,h,o}$$

$BID\_COST_{i,h,o} =$

$$\sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH\_FOR\_SEGMENT_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m}$$

for the portion of incremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ less than or equal to the Maximum Bid Level and all decremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ greater than or equal to the Bid Floor.

))

The amount of Instructed Imbalance Energy that will be deemed delivered in each Dispatch Interval will be based on Dispatch Instructions, as provided for in Section 2.5.22.6, and Final Hour-Ahead Schedules. The amount of Instructed Imbalance Energy to be settled in a Settlement Interval will be equal to the sum of all Instructed Imbalance Energy for all Dispatch Intervals within the relevant Settlement Interval. Instructed Imbalance Energy for each Settlement Interval shall be settled at the relevant Resource Specific Settlement Interval Ex Post Price. Generating Units, Participating Loads, and System Units may be eligible to recover their Energy Bid costs in accordance with Section 11.2.4.1.1.1. Instructed Imbalance Energy from System Resources shall be settled in accordance with Section 11.2.4.1.1.2.

The Instructed Imbalance Energy amount for each resource *i* in Settlement Interval *o* for hour *h* shall be determined as follows:

$$IIEC_{i,h,o} = (-1) * \left(\begin{array}{l} \sum_{1}^{k} \sum_{1}^{m} IIE\_ECON_{i,h,o,k,m} + \sum_{1}^{k} \sum_{1}^{m} RIE_{i,h,o,k,m} \\ + \sum_{1}^{k} IIE\_RERATE_{i,h,o,k} + \sum_{1}^{k} IIE\_ML_{i,h,o,k} \end{array} \right) * STLMT\_PRICE_{i,h,o}$$

$$+ IIEC\_OOS_{i,h,o} + REDC_{i,h,o} + IIEC\_REG_{i,h,o} + IIEC\_PREDISPATCH_{i,h,o}$$

Uninstructed Imbalance Energy is Imbalance Energy due to non-compliance with a Dispatch Instruction and shall be settled as provided for in SABP Appendix D Section 2.1.1.

A resource shall have met its performance requirement if its $UIE_{i,h,o}$ is within its relevant Tolerance Band. A resource meeting its performance requirement in Settlement Interval o will have a $PERF\_STAT_{i,h,o} = 1$. A resource that has not met its performance requirement in Settlement Interval *o* will have a $PERF\_STAT_{i,h,o} = 0$.

Must-offer resources that produce a quantity of Energy above Minimum Load due to an ISO Dispatch Instruction during a Waiver Denial Period are not subject to the Tolerance Band requirement for purposes of receiving Minimum Load Cost Compensation, as defined in section 5.11.6.1.1. Accordingly, the $PERF\_STAT_{i,h,o}$ for eligible must-offer resources, as defined in section 5.11.6.1.1, shall be set to 1, irrespective of deviations outside of the Tolerance Band, for the purpose of determining eligibility for Minimum Load Cost Compensation during a Waiver Denial Period. The Tolerance Band shall be used to apply UDP during a Waiver Denial Period.

Non-dynamically scheduled System Resources do not have a Tolerance Band. Non-Participating Load Agreement (PLA) load resources are not subject to the performance requirement.

D 2.6.2 Unrecovered Costs Neutrality Allocation

For each Settlement Interval *o*, the total Unrecovered Costs for Trade Day *d* shall be allocated pro-rata to each Scheduling Coordinator *g* based on its Metered Demand, calculated as follows:

$URC\_ALLOC_{g,h,o} = M_{g,h,o} \bullet Per\ Unit\ Price$

where,

$M_{g,h,o}$ = the Metered Demand in the ISO control area for Scheduling Coordinator *g* in Settlement Interval *o* for hour *h*;

$$Per\ Unit\ Price = \frac{-1 * \sum_{1}^{i} COST\_RECOVERY_{i,h,o}}{\sum_{1}^{g} M_{g,h,o}}$$

D 2.6.3 Calculation of Unrecovered Bid Cost Payment for System Resources

As set forward in Section 11.2.4.1.1.2, System Resources that are pre-dispatched hourly incremental or decremental Instructed Imbalance Energy will be settled based on their Energy bid costs for each Settlement Interval for the quantity of Energy delivered in each Settlement Interval. The hourly pre-dispatched Instructed Imbalance Energy is first settled as set forth in Section D 2.1.2. An additional uplift payment for any applicable Settlement Interval shall be determined when settlement as set forth in Section D 2.1.2 is insufficient recovery

of its bid costs for the Settlement Interval. For pre-dispatched hourly Instructed Imbalance Energy, where the resource-specific settlement amount is positive and the bid-cost is positive, an uplift payment is determined for each Settlement Interval based on the minimum of zero or the difference between the resource-specific settlement amount and the bid cost settlement amount as follows:

The predispatched uplift payment for each applicable Settlement Interval is calculated as follows:

If (

$(COST\_AT\_STLMT\_PRICE_{i,h,o} > 0$

And

$BID\_COST_{i,h,o} > 0)$

Then

$$PREDISPATCH\_UPLIFT_{i,h,o} = \min\left(0, COST\_AT\_STLMT\_PRICE_{i,h,o} - BID\_COST_{i,h,o}\right)$$

Where

$$COST\_AT\_STLMT\_PRICE_{i,h,o} = \left(\sum_{1}^{k} IIE\_PREDISPATCH_{i,h,o,k}\right) * STLMT\_PRICE_{i,h,o}$$

$$BID\_COST_{i,h,o} = \sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH\_FOR\_SEGMENT_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m}$$

Else

$PREDISPATCH\_UPLIFT_{i,h,o} = 0$)

for the portion of incremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ less than or equal to the Maximum Bid Level and all decremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ greater than or equal to the Bid Floor.

D 2.6.4 Allocation of Unrecovered Cost Payments for Hourly Pre-dispatched System Resources

For each Settlement Interval *o*, the total uplift payments ($PREDISPATCH\_PMT_{i,h,o}$) for all hourly pre-dispatched System Resources will be included in the Excess Cost Payments to be allocated to a Scheduling Coordinator's Net Negative Deviation through allocation of excess costs and/or ISO metered Demand through excess cost neutrality allocation.

D 2.6.5 Excess Cost Payments for Instructed Incremental Energy Bids above the Maximum Bid Level

Incremental Instructed Imbalance Energy above the Maximum Bid Level will receive an additional Excess Cost Payment subject to operating within a resource's Tolerance Band.

Excess cost payments are calculated as follows:

$$EXCESS\_COST_{i,h,o} = \left[\left(\sum_{1}^{k}\sum_{1}^{m} IIE\_ECON_{i,h,o,k,m} + \sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH_{i,h,o,k,m} + \sum_{1}^{k}\sum_{1}^{m} RIE_{i,h,o,k,m}\right) * STLMT\_PRICE_{i,h,o} - BID\_COST_{i,h,o} - BID\_COST\_RIE_{i,h,o}\right] * PERF\_STAT_{i,h,o}$$

for the portion of energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ and $RIE\_PRICE_{i,h,o,k,m}$ greater than the Maximum Bid Level.

D 2.7 Transmission Loss Obligation

The transmission loss obligation charge shall be determined as follows: For Generators:

$TL_{i,h,o} = ME_{i,h,o} * (1 - GMMa_h)$

For System Resources, the transmission loss obligation shall be determined as follows:

ATTACHMENT D

2.5.22.6.1 Resource Constraints.

The RTD Software shall enforce the following resource physical constraints:

a) Minimum and maximum operating resource limits. Outages and limitations due to transmission clearances shall be reflected in these limits. The more restrictive operating or regulating limit shall be used for resources providing Regulation so that the RTD Software shall not Dispatch them outside their regulating range.

b) Forbidden Operating Regions. Resources can only be ramped through these regions. The RTD Software shall not Dispatch resources within their Forbidden Operating Regions unless at the maximum applicable ramp rate to clear the Forbidden Operating Region in consecutive Dispatch Intervals.

c) Operational ramp rates and start-up times. The submitted operational ramp rate as provided for in SBP Section 6.5 shall be used for all Dispatch Instructions. Each Energy Bid shall be Dispatched only up to the amount of Imbalance Energy that can be provided within the Dispatch Interval based on the applicable operational ramp rate. The Dispatch Instruction shall consider the relevant start-up time as provided for in SBP Section 6.6, if the resource is off-line, the relevant ramp rate function, and any prior commitments such as schedule changes across hours and previous Dispatch Instructions. The start-up time shall be determined from the start-up time function and when the resource was last shut down. The start-up time shall not apply if the corresponding resource is on-line or expected to start.

d) Maximum number of daily start-ups. The RTD Software shall not cause a resource to exceed its daily maximum number of start-ups.

e) Minimum up and down time. The RTD Software shall not start up off-line resources before their minimum down time expires and shall not shut down on-line resources before their minimum up time expires.

f) Operating (Spinning and Non-Spinning) Reserve. The RTD Software shall Dispatch Spinning and Non-Spinning Reserve subject to the limitations set forth in Section 2.5.22.3.

g) Hourly Pre-Dispatch. If Dispatched, each System Resource flagged for Hourly Pre-Dispatch in the next hour shall be Dispatched to operate at a constant level over the entire hour. *The RTD Software shall perform the Hourly Pre-Dispatch for each hour once* prior to the operating hour. Hourly Pre-Dispatched System Resources shall be Pre-Dispatched in merit order~~, but shall be price-takers, *i.e.*,~~ and shall not set the price. The *Hourly Pre-Dispatch shall not subsequently be revised by the RTD Software.*

2.5.23 Pricing Imbalance Energy.

2.5.23.1 General Principles. Instructed and Uninstructed Imbalance Energy shall be paid or charged the applicable Resource-Specific Settlement Interval Ex Post Price or the Zonal Settlement Interval Ex Post Price, except for hourly pre-dispatched Instructed Imbalance Energy, which shall be settled as set forth in Section D 2.1.2 in Appendix D of the Settlement and Billing Protocol. These prices are determined using the Dispatch Interval Ex Post Prices. The Dispatch Interval Ex Post Prices shall be based on the bid of the marginal Generating Units, System Units, and Curtailable Demand dispatched by the ISO to increase or reduce Demand or Energy output in each Dispatch Interval as provided in Section 2.5.23.2.1.

The marginal bid is the highest bid that is accepted by the ISO's RTD Software for increased energy Supply or the lowest bid that is accepted by the ISO's RTD Software for reduced energy Supply. In the event the lowest price decremental bid accepted by the ISO is greater and not equal to the highest priced incremental bid accepted, then the Dispatch Interval Ex-Post Price shall be equal to the highest incremental bid accepted when there is a non-negative Imbalance Energy system requirement and equal to the lowest accepted decremental bid when there is a negative Imbalance Energy requirement.

When an Inter-Zonal Interface is operated at the capacity of the interface (whether due to scheduled uses of the interface, or decreases in the capacity of the interface), the marginal incremental or decremental bid prices in some Zones may differ from one another. In such cases, the ISO will determine separate Ex Post Prices for the Zones.

The ISO will respond to the Dispatch instructions issued by the RTD Software to the extent practical in the time available and acting in accordance with Good Utility Practice. The ISO will record the reasons for any variation from the Dispatch instructions issued by the RTD Software.

11.2.4.1.1.2 Bid Cost Recovery for System Resources

The ISO shall settle predispatched Energy from System Resources~~The~~ based on each resource's Energy Bid costs ~~ISO shall determine,~~ for each Settlement ~~Period~~Interval, for each System Resource submitting bids in the Real Time Market pursuant to Section 2.5.22~~, whether there exists a surplus or deficit in that resource's recovery of its Energy Bid costs~~. This Energy bid cost settlement shall be calculated as set forth in Sections D 2.1.2 and D 2.6.3 in Appendix D *of the Settlements and Billing* Protocol. Bid cost settlement shall apply to both incremental and decremental predispatched Energy. ~~This determination of market revenue surplus or deficit shall be calculated as the difference between: 1) the Instructed Imbalance Energy payment as based on the simple average of the relevant Dispatch Interval Ex Post Prices for each Settlement Period and 2) the resource's Energy Bid cost for each Settlement Period.~~

An uplift payment will be made as necessary for each Settlement ~~Period~~ Interval to assure that the System Resource recovers its Energy Bid costs for the quantity of Energy delivered. Payments for un-recovered bid costs for portions of Energy associated with bids above the Maximum Bid Level are subject to recall if such bids have not been adequately justified pursuant *to Section* 28.1.2.

D 2.1.2 Instructed Imbalance Energy Charges on Scheduling Coordinators

Standard Ramping Energy is Energy associated with a Standard Ramp and shall be deemed delivered and settled at a price of zero dollars per MWh.

Ramping Energy Deviation is Energy produced or consumed due to hourly schedule changes in excess of Standard Ramping Energy and shall be paid or charged, as the case may be, at a Resource-Specific Settlement Interval Ex Post Price calculated using the applicable Dispatch Interval Ex Post Prices as described in this Appendix D 2.4. For Scheduling Coordinators scheduling a MSS that has elected to follow its Load, this Ramping Energy Deviation will account for the units following Load.

Ramping Energy Deviation shall be settled as an explicit component of Instructed Imbalance Energy for each resource *i* in Dispatch Interval *k* of Settlement Interval *o* for hour *h*, and calculated as follows:

$$REDC_{i,h,o} = \left(\sum_{1}^{k} RED_{i,h,o,k} \right) * STLMT\_PRICE_{i,h,o}$$

Hourly Predispatched energy from System Resources is an explicit component of Instructed Imbalance Energy for each interchange resource *i* in Dispatch Interval *k* of Settlement Interval *o* for hour *h*, and settled pursuant to Sections 11.2.4.1.1 and 11.2.4.1.1.2 of the ISO Tariff. The settlement calculation is as follows:

If (

$(COST\_AT\_STLMT\_PRICE_{i,h,o} \geq 0$

And

$BID\_COST_{i,h,o} \geq 0)$

Then

$$IIEC\_PREDISPATCH_{i,h,o} = (-1) * \min\left(COST\_AT\_STLMT\_PRICE_{i,h,o},\ BID\_COST_{i,h,o}\right)$$

Else

$IIEC\_PREDISPATCH_{i,h,o} = (-1) * BID\_COST_{i,h,o}$

Where

$COST\_AT\_STLMT\_PRICE_{i,h,o} =$

$$\left(\sum_{1}^{k} IIE\_PREDISPATCH_{i,h,o,k}\right) * STLMT\_PRICE_{i,h,o}$$

$BID\_COST_{i,h,o} =$

$$\frac{\sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH\_FOR\_SEGMENT_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m}}{}$$

for the portion of incremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ less than or equal to the Maximum Bid Level and all decremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ greater than or equal to the Bid Floor.

))

The amount of Instructed Imbalance Energy that will be deemed delivered in each Dispatch Interval will be based on Dispatch Instructions, as provided for in Section 2.5.22.6, and Final Hour-Ahead Schedules. The amount of Instructed Imbalance Energy to be settled in a Settlement Interval will be equal to the sum of all Instructed Imbalance Energy for all Dispatch Intervals within the relevant Settlement Interval. Instructed Imbalance Energy for each Settlement Interval shall be settled at the relevant Resource Specific Settlement Interval Ex Post Price. Generating Units, Participating Loads, and System Units may be eligible to recover their Energy Bid costs in accordance with Section 11.2.4.1.1.1. Instructed Imbalance Energy from System Resources shall be settled in accordance with Section 11.2.4.1.1.2.

The Instructed Imbalance Energy amount for each resource *i* in Settlement Interval *o* for hour *h* shall be determined as follows:

$$IIEC_{i,h,o} = \left(\begin{array}{l} \sum_{1}^{k}\sum_{1}^{m} IIE\_ECON_{i,h,o,k,m} + \sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH_{i,h,o,k,m} + \sum_{1}^{k}\sum_{1}^{m} RIE_{i,h,o,k,m} + \\ \sum_{1}^{k} IIE\_RERATE_{i,h,o,k} + \sum_{1}^{k} IIE\_ML_{i,h,o,k} \end{array} \right) * STLMT\_PRICE_{i,h,o} * (-1) + IIEC\_OOS_{i,h,o} + REDC_{i,h,o} + IIEC\_REG_{i,h,o}$$

$$IIEC_{i,h,o} = (-1) * \left(\begin{array}{l} \sum_{1}^{k}\sum_{1}^{m} IIE\_ECON_{i,h,o,k,m} + \sum_{1}^{k}\sum_{1}^{m} RIE_{i,h,o,k,m} \\ + \sum_{1}^{k} IIE\_RERATE_{i,h,o,k} + \sum_{1}^{k} IIE\_ML_{i,h,o,k} \end{array} \right) * STLMT\_PRICE_{i,h,o} + IIEC\_OOS_{i,h,o} + REDC_{i,h,o} + IIEC\_REG_{i,h,o} + IIEC\_PREDISPATCH_{i,h,o}$$

Uninstructed Imbalance Energy is Imbalance Energy due to non-compliance with a Dispatch Instruction and shall be settled as provided for in SABP Appendix D Section 2.1.1.

D 2.6.3 Calculation of Unrecovered Bid Cost Payment for System Resources

As set forward in Section 11.2.4.1.1.2, System Resources that are ~~dispatched and deliver hourly~~ pre-dispatched hourly incremental or decremental Instructed Imbalance Energy will be ~~paid the higher of the simple average of the twelve Dispatch Interval Ex Post prices for the hour or~~ settled based on their Energy bid costs for each Settlement Interval for the quantity of Energy delivered in each ~~hour~~Settlement Interval. The hourly pre-dispatched Instructed Imbalance Energy is first settled as set forth in Section D 2.1.2.~~The determination of the~~An additional ~~hourly~~ uplift payment for any applicable Settlement Interval shall be determined ~~as follows~~when settlement as set forth in Section D 2.1.2 is insufficient recovery of its bid costs for the Settlement Interval. For pre-dispatched hourly Instructed Imbalance Energy, where the resource-specific settlement amount is positive and the bid-cost is positive, an uplift payment is determined for each Settlement Interval based on the minimum of zero or the difference between the resource-specific settlement amount and the bid cost settlement amount as follows: ~~(1) Market deficits or surpluses are calculated as the difference between the resource-specific price and the resource's (hourly) bid cost; (2) An hourly uplift payment will be determined for any amount less than zero;~~

~~(3) This hourly amount will then be divided evenly by the relevant number of *n*-Settlement Intervals and paid this portion for each Settlement Interval of the hour.~~

The ~~hourly~~-predispatched uplift payment for each applicable Settlement Interval is calculated as follows:

$$PREDISPATCH\_UPLIFT_{i,h} = \min\left(0, \sum_{1}^{o} \frac{\left(\left(\sum_{k=1}^{2}\sum_{1}^{m} IIE\_PREDISPATCH_{i,h,o,k,m}\right) * STMLT\_PRICE_{i,h,o} - \right)}{\left(\left(\sum_{k=1}^{2}\sum_{1}^{m} IIE\_PREDISPATCH_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m}\right)\right)}\right)$$

If (

$(COST\_AT\_STLMT\_PRICE_{i,h,o} > 0$

And

$BID\_COST_{i,h,o} > 0)$

Then

$$PREDISPATCH\_UPLIFT_{i,h,o} = \min\left(0, COST\_AT\_STLMT\_PRICE_{i,h,o} - BID\_COST_{i,h,o}\right)$$

Where

$$COST\_AT\_STLMT\_PRICE_{i,h,o} =$$

$$\left(\sum_{1}^{k} IIE\_PREDISPATCH_{i,h,o,k}\right) * STLMT\_PRICE_{i,h,o}$$

$$BID\_COST_{i,h,o} =$$

$$\sum_{1}^{k}\sum_{1}^{m} IIE\_PREDISPATCH\_FOR\_SEGMENT_{i,h,o,k,m} * IIE\_PRICE_{i,h,o,k,m}$$

Else

$$PREDISPATCH\_UPLIFT_{i,h,o} = 0 \;)$$

~~$PREDISPATCH\_PMT_{i,h,o} = PREDISPATCH\_UPLIFT_{i,h} / n$~~

~~where,~~
~~n is the relevant number of Settlement Intervals o in the relevant hour *h* for resource *i*.~~

for the portion of incremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ less than or equal to the Maximum Bid Level and all decremental energy bid segments with $IIE\_PRICE_{i,h,o,k,m}$ greater than or equal to the Bid Floor.

ATTACHMENT E

NOTICE OF FILING SUITABLE FOR PUBLICATION IN THE FEDERAL REGISTER

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	)	**Docket No. ER05 -____-000**

Notice of Filing

[ ]

Take notice that on March 23, 2005, the California Independent System Operator Corporation (CAISO) tendered for filing an amendment to the CAISO Tariff, Amendment No. 66, for expedited consideration and acceptance by the Commission. The CAISO states that the purpose of Amendment No. 66 is to implement an interim solution to the problem of excessive costs incurred as a result of the manner in which import and export bids from System Resources are cleared and settled under Phase 1B of the CAISO's Market Redesign and Technology Upgrade ("MRTU")

The CAISO states that this filing has been served upon the Public Utilities Commission, the California Energy Commission, the California Electricity Oversight Board, and all parties with effective Scheduling Coordinator Agreements under the CAISO Tariff.

The CAISO is requesting the amendment to be made effective as of March 24, 2005. The CAISO is also requesting that the Commission act on this Amendment within 45 days of the date of filing, and that the Commission shorten the period for comments and protests to 10 days after the date of filing.

Any person desiring to intervene or to protest this filing should file with the Federal Energy Regulatory Commission, 888 First Street, N.E., Washington, D.C. 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 CFR 385.211 and 385.214). Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene. All such motions or protests should be filed on or before the comment date, and, to the extent applicable, must be served on the applicant and on any other person designated on the official service list. This filing is

available for review at the Commission or may be viewed on the Commission's web site at http://www.ferc.gov, using the **eLibrary** (FERRIS) link. Enter the docket number excluding the last three digits in the docket number field to access the document. *For assistance, please contact* FERC Online Support at FERCOnlineSupport@ferc.gov or toll-free at (866)208-3676, or for TTY, contact (202)502-8659. Protests and interventions may be filed electronically via the Internet in lieu of paper; see 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site under the "e-Filing" link. The Commission strongly encourages electronic filings.

Comment Date: _____