Stakeholder Comments

FERC Order 764 Draft Final Proposal

Submitted by	Company	Date Submitted
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The following are Southern California Edison's (SCE) comments on the California Independent System Operator's (CAISO) Draft Final Proposal[1]. SCE commends the CAISO for working with stakeholders to address design changes mandated by the Federal Energy Regulatory Commission (Commission).

Several stakeholders, including SCE, do not support including Intertie Convergence Bidding (ICB) in this process[2]. The mandated Order 764 changes may suffer delays due to ICB issues. SCE supports the Order 764-relevant components of the CAISO's proposal and advises the CAISO to split the Order 764 and ICB initiatives into separate processes. These processes can run concurrently and even be presented together at the Board. However, filing these together at the Commission only risks implementation delays for Commission mandated enhancements.

While submitting these comments, SCE has also separately submitted a presentation on Convergence Bidding. The presentation illustrates, in detail, what "betting against the CAISO" is, and how SCE feels the CAISO should address this problem. SCE has asked Commission to Order the CAISO to address this problem[3], but irrespective of the Commission's ultimate ruling, the CAISO should act on this issue immediately.

[1] http://www.caiso.com/Documents/DraftFinalProposal-FERC-Order764MarketChanges.pdf
[2] http://www.caiso.com/Documents/FERC%20Order%20No%20764%20market%20changes%20-%20papers%20and%20proposals%7CStakeholder%20comments%7CComments%20on%20revised%20straw%20proposal
[3] See attached comments of SCE at the Commission on Transmission Constraint Relaxation Parameter in Docket number ER13-1060

I. SCE opposes any ICB reintroduction until the CAISO addresses the core structural uplift problem associated with all Convergence Bids.[4]

Convergence Bidding is a strictly financial instrument and should only be transacted between willing counterparties. However, market prices can diverge based on actions taken by non-market participants – in particular, actions taken by the CAISO. In this case, the CAISO itself can make changes in its modeling of the system between the DA and RT market runs. If such a change produces price divergence, Convergence Bidders can profit from placing Convergence Bids. However, there is no willing counterparty in this situation, in fact, this transaction against the CAISO, rather than willing market participant, is not even a "market transaction" in the common sense. In effect, the Convergence Bidder has made a bet against the CAISO. Since the CAISO is a public benefits corporation, it does not have a balance sheet to willingly become the counterparty to such a transaction. The CAISO must therefore pay for this Convergence Bidding activity from others in the market. Presently, the CAISO forces load to pay for these bets. Load however had no control over changes to the model nor did they willingly enter into a transaction with the Convergence Bidder. This current structure is unjust and unreasonable and must be remedied before any attempt to address ICB implementation.

Further, SCE shares stakeholder concerns[5] that ICB has not been considered within the EIM framework. There are a plethora of other design change initiatives being undertaken by the CAISO with no demonstration of how these changes will interact or whether they will even perform as intended. Of note, with the introduction of a "real-time only EIM", the market models for the DA and RT optimizations – by permanent design – will be different. Given different DA and RT models, we question how convergence bids, particularly on the inter-ties, can either 1) result in price convergence, or 2) be funded without uplift since they will be structural "bets against the CAISO changing the model" between DA and RT. It is therefore prudent for the CAISO to perform adequate impact analysis of all contemplated changes prior to any implementation efforts to ensure that the elements as a whole produce a just and reasonable result, and that convergence bids fund via willing market transactions and without uplift.

Finally, the CAISO has not solved the Dual Constraint and its proposal to skirt around the problem is insufficient. The Dual Constraint exists since Physical and Convergence Bids are not fungible in the CAISO's proposal. Thus, the Dual Constraint issue has not been resolved in spite of the CAISO's claim. If anything, the CAISO's proposal may threaten intertie liquidity. Further, if the uplift from lack of resolution to this problem is non-de minimis, ICB would, once again, have to be suspended.

[4] With both Convergence Bidding (CB) uplifts and Energy Imbalance Market (EIM) addressed, SCE may be willing to try the CAISO proposal in spite of no actual fix of Intertie Convergence Bidding (ICB) issues. These are minimum prerequisites for ICB implementation under monitoring and with an immediate suspension option.
[5] As voiced by WPTF during the April 2, 2013, CAISO stakeholder meeting.

While the CAISO's approach to the Dual Constraint does not fully address the issue, SCE believes that the most significant issue is that of all Convergence Bids occurring between willing counterparties, and second, that the ultimate design functions properly in the context of EIM market.

II. SCE comments on Order 764 relevant components of the CAISO proposal:

SCE commends the CAISO for its initiative and efforts in addressing the Commission mandates. The CAISO has taken the lead in providing a feasible solution that, SCE believes, will benefit the market. The CAISO's proposal offers more options than any other WECC BA. Such a design structure is the foundation on which market liquidity can be observed due to the accommodating nature of the framework. And while in general we oppose unnecessary complexity, providing the proposed options at this time provides tools for risk mitigation, and should help ease the transition to the new design and preserve liquidity. While actual market outcomes may vary, the CAISO recognizes that building an enabling framework is the goal of any proper market design process. It is our hope that the market will naturally evolve to full 15-minute participation and, eventually unutilized scheduling options can be eliminated.

a. SCE supports the proposed Intertie Scheduling Options

SCE supports the CAISO's proposed scheduling options. SCE understands the need for the economic hourly bid block with single intra-hour curtailment option as a starter for the new market design. However, SCE believes that, in time, the market will reflect the superiority of other options thereby eliminating the need for extraneous options.

SCE supports the CAISO's proposal to allow SCs to opt for either auto updating tags (by the CAISO) or updating tags themselves. This support is conditional on SCE's understanding that an SC can opt back in if needed. Ideally, this would be an hourly choice made by the SC. SCE would like clarification on if SCs electing "auto updating" will have the ability to occasionally submit their own tags and what the process will be to "override" the automation.

b. SCE opposes the lack of "worse-of" pricing or a decline charge for 15 minute participants that do not deliver

SCE remains convinced the CAISO should implement a "worse-of" pricing mechanism or a decline charge for 15 minute participants that do not deliver.

The CAISO proposes that: "The declines charge will not apply if the decline is made after the start of the market run for the applicable 15-minute interval because in this case the resource will receive a financially binding 15-minute

market dispatch and be subject to the RTD price for the undelivered portion."

SCE views this as an inappropriate proposal as it is inconsistent with overall market and operation goals designed to better deal with uncertainty. The CAISO has repeatedly stressed the reliability concerns stemming from variable supply and has emphasized the need for physical supply certainty. The CAISO has launched numerous initiatives such as FRP, FLRR, IDAM, etc., and stressed the immediacy of reliability needs and the urgency of addressing variability. On one hand the CAISO proposes Contingency Modeling and on the other hand the CAISO proposes a purely financial 15 minutes with no bearing on resource behavior. Such inconsistent philosophy is counter-productive in both market and operating space.

Particularly, SCE does not understand why the CAISO is not implementing a decline charge or worse-of rule for the interties. The 15 minute market is the last opportunity for intertie resources to participate economically. Moreover, it is our understanding the optimization will treat these transactions as "given" in all down-stream processes. Why then, does the CAISO propose a design that rewards parties that strategically violate CAISO instructions? Moreover, why, when the last designed option for economic participation has passed (i.e., after the 15-minute market has passed) does the CAISO promote and reward strategic non-economic participation that can only be captured via uninstructed behavior? For the interties, the CAISO's market is not designed to incentivize economic behavior past 15 minutes. The absence of a decline charge or worse-of rule is, in effect, the CAISO signaling intertie resources that they can only participate in the RTD price by defying the CAISO's instructions. We object to a rule that encourages parties to act against the core economic structure of the market design.

Thus we urge, at the very minimum, the CAISO to correct this design on the interties via either via a "worse of" rule or a decline charge.

c. SCE supports the CAISO's PIRP proposal

SCE understands that the CAISO proposes changes that will enhance the participation of Variable Energy Resources (VER) in the CAISO market. Such changes are appropriate in the context of the Commission's mandate on Integration of Variable Energy Resources (Order 764).

SCE does not believe that the contemplated changes to PIRP would trigger a right to renegotiate in the majority of our intermittent power purchase contracts. With that, SCE sees no valid reason for concerns regarding contractual integrity for PIRs.

Finally, under the CAISO's proposal, the new definition of PIRP creates a new class of Instructed Energy (IE), with the vast majority of wind movement now being IE. At its core, there will be two forms of IE:

i. Dispatched with economic bids consistent with CAISO needs.
ii. Dispatched per CAISO's forecast, irrespective of economic bids, or CAISO grid needs.

These two classes of IE will ultimately require different treatment where appropriate.

d. SCE requests the CAISO provide information on the implementation process

Given the extensive market changes mandated by Order 764, and given the scope of the CAISO's proposal in meeting these changes, SCE requests that the CAISO perform a full market simulation to address implementation concerns. It appears this new design will impact most if not all market participants. Full details must be provided so market participants can make necessary settlement and scheduling system changes. Time is of the essence in order that both the CAISO and stakeholders can be ready for a Spring 2014 implementation. SCE requests that the CAISO lay out the process schedule regarding Business Requirements documentation release and release a schedule and plan for a full market simulation.

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	)))	Docket No. ER13-1060-000

MOTION TO INTERVENE AND COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY ON PROPOSED CAISO TARIFF AMENDMENT TO REDUCE THE REAL-TIME TRANSMISSION CONGESTION RELAXATION PARAMETER

Pursuant to Rules 211 and 214 of the Rules and Regulations of the Federal Energy Regulatory Commission ("Commission" or "FERC"), 18 C.F.R. §§ 385. 211, 214 (2012), and the Combined Notice of Filings issued on March 11, 2013 in the above-captioned docket, Southern California Edison Company ("SCE") hereby submits its Comments on the California Independent System Operator's ("CAISO") March 8, 2013 proposed Tariff Amendment regarding reducing the real-time transmission congestion relaxation parameter ("Amendment").

I. MOTION TO INTERVENE

SCE, a wholly owned subsidiary of Edison International, is an investor-owned utility, subject to the Commission's jurisdiction. SCE's principal place of business is 2244 Walnut Grove Avenue, Rosemead, California 91770. SCE is a Transmission owner and operator, and thus is affected by the outcome of this proceeding, as it proposes a modification to the CAISO's Tariff. As such, SCE has an immediate interest in the outcome of this proceeding. SCE's interest cannot be represented by any other party and, consequently, SCE respectfully requests

that the Commission grant SCE permission to intervene in this proceeding. SCE hereby reserves its rights to raise substantive issues regarding all aspects of this proceeding, and to file additional comments, as warranted by the proceeding. SCE designates the following person for service on the Commission's service list in this proceeding:

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II. INTRODUCTION

As an electric utility with both retail and wholesale customers, SCE has an obligation to ensure that the rates paid by those customers are reasonable and not inflated by unnecessary administrative or market costs. Likewise, the CAISO, whose tariff spells out the rules under which its markets and processes will run, has an obligation to eliminate unnecessary costs that will eventually be passed on to ratepayers. As the CAISO has recognized in its Amendment filing, the current structure – with a parameter[1] of $5,000 – is no longer necessary or reasonable, as it imposes an "unnecessarily high cost"[2] while "achieve[ing] no additional congestion relief benefits."[3] As the CAISO's filing – including the testimony of Mark Rothleder – explains, reducing the parameter to $1,500 creates no significant reduction in congestion relief *benefits*, while the change provides substantial relief from unjustified economic transfers.

Therefore, SCE strongly supports the CAISO's Amendment, and respectfully requests that the Commission approve it in its entirety. It would be unjust and unreasonable to inflict unnecessary costs on ratepayers, when the imposition of such costs provides no benefit to those

[1] "The transmission relaxation parameter limits the permissible increase in congestion cost associated with the use of ineffective bids and overall congestion cost." CAISO Amendment, Filing Letter at p. 11.
[2] *Id.* at p. 13.
[3] *Id.* at p. 14.

ratepayers, or to system reliability. Furthermore, SCE urges the Commission to require the CAISO to address the question of whether "bets against the CAISO" (*i.e.* Convergence bids with no willing counterparty) should be permitted.

III. SCE STRONGLY SUPPORTS THE CAISO'S PROPOSED AMENDMENT

A. Observed Extreme Prices are "Unjustifiable," "Unnecessary" and "No Longer Reasonable."[4] The Commission Must Take Corrective Actions.

The current transmission constraint parameter was set at $5,000 by the CAISO through an amendment to the then-soon-to-be-implemented Market Redesign and Technology Upgrade ("MRTU") Tariff in November 2008, after an extensive stakeholder discussion, as one of several non-price parameter modifications.[5] Based on its review and projections at that time, the CAISO stated that:

> These rules and the associated parameter values are just and reasonable because they (1) implement Commission-approved MRTU scheduling priorities, including the emphasis on utilizing economic bids as far as possible before adjusting self-schedules; (2) ensure that high scheduling parameters necessary to implement those priorities do not unduly impact settlement prices, while at the same time allowing prices to reflect the underlying circumstances that led to the adjustment of one or more non-priced quantities; (3) support the fundamental MRTU objective to create feasible and operationally prudent schedules and dispatch instructions; and (4) honor the least-cost solution principle underlying MRTU by ensuring that the market optimization does not pursue unnecessarily expensive re-dispatch solutions when a non-priced quantity can be adjusted at lower cost to the system.[6]

SCE supported this portion of the CAISO's Amendment,[7] based on stakeholder discussions and its own projection of the results it would produce in practice. However, the

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[4] *Id*. at pp. 4, 15, 16, 56, 63, 64, etc.

[5] *See* Docket No. ER09-240. http://www.caiso.com/Documents/November4_2008Amendments-includeMarketParametersandComplianceFilinginLAPDemandClearinginDocketNo_ER09-240.pdf ("November 4, 2008 Amendment").

[6] November 4, 2008 Amendment, Filing Letter at p. 3.

CAISO recognized at that time that MRTU had not yet gone live, and thus the parameters had not yet been tested. Therefore, it tempered its filing with the promise that:

> Even after MRTU *go live*, the CAISO will continue to evaluate its market results and as necessary will modify the parameters to ensure that results continue to be consistent with MRTU policy as reflected in its tariff.[8]

Over the intervening years between MRTU *go live* and today, the CAISO and Market Participants have had ample opportunity to examine the cost and effectiveness of the transmission constraint parameter as a component of the CAISO's market structure. The data resulting from the market, particularly in the last year or so, has made it clear that the parameter, as agreed to in the stakeholder process, does not produce a just and reasonable result, but rather produces excessively high, and frequently economically irrational and unjustifiable prices under this structure.

In particular, SCE is concerned that a material number of high prices are transitory, lasting only 5 or 10 minutes. As noted by Mark Rothleder, it may not even be possible for physical resources to response to these prices because of their short-lived nature. Thus, rather than solving physical emergency conditions, the prices spikes typically only impact parties with uninstructed deviations and Convergence Bidders. Moreover, high priced transitory price spikes can have negative market impacts. As noted in Attachment A, Affidavit of Jeffrey Nelson, these can include:

> …1) they often represent a mathematical concern to the optimization but do not translate to an actual physical concern requiring any exceptional action from CAISO operators; 2) due to conservative assumptions in the model (such as the 3-5% transmission buffers noted in Mark Rothleder's Testimony), [9] they do not typically represent an actual supply shortage in the system or a physical overload of transmission; 3) their transient nature may not provide enough time for a physical reaction such as a significant change in generation dispatch; 4) if parties attempt to respond with the physical movement of supply, the transient price may

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[7] Intervention and Comments Of Southern California Edison Company on the California Independent System Operator's Amendment to Include Market Parameters and Compliance Filing on Laps, filed November 25, 2008 in Docket No. ER09-240.

[8] November 4, 2008 Amendment, Filing Letter at p. 9 (italics in original).

[9] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at pp. 57

> "disappear" before the physical response can materialize; and 5) their fleeting nature is akin to "crying wolf." That is, the extreme price should serve as a signal to the market that an extreme event has occurred on the system. However, this is typically not the case. Thus, market participants cannot simply rely on extreme market prices to discern if it signals a true shortage or emergency condition demanding an immediate physical response, or if it simply represents a mathematical artifact due to the optimization algorithm that one should simply ignore.[10]

Moreover, SCE analysis of recent market performance show that over half of all price spikes in SCE's DLAP greater than $900/MWh have been transitory in nature, lasting only 5 or 10 minutes.[11] By reducing the parameter to $1,500, the magnitude of price spikes should, on average, be reduced from the status quo. This, in turn should "result in more reasonable real-time market results and produce prices signals more closely aligned with physical conditions…."[12]

B. The CAISO's Proposal Maintains Reliability at Levels Comparable to Today

The CAISO "performed a series of sensitivity analyses to evaluate the performance of the ISO market to produce market solutions that adequately address congestion in the real-time through the ISO market."[13] The conclusion provided by these analyses, as discussed in depth in the Testimony of Mark Rothleder, is that reducing the transmission constraint parameter from $5,000 per MWh to $1,500 per MWh produced no appreciable differences in either reliability or congestion relief,[14] yet decreased the cost – which is eventually passed on to ratepayers – substantially.

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[10] Attachment A, Affidavit of Jeffrey Nelson ("Nelson Affidavit") at ¶ 3.
[11] Nelson Affidavit at ¶ 4.
[12] *Id*. at ¶ 10.
[13] CAISO Amendment, Filing Letter at p. 13.
[14] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at pp. 30, 47-48, 51-55, 60-61.

C. The CAISO's Proposal Does Not Change Market Operations or Participant Bidding Rules

Implementation of the CAISO's proposed Amendment would not change the way the CAISO physically operates the grid. The only change will be that unnecessary administrative cost inputs will be reduced, thereby reducing overall unnecessary costs to Market Participants. The CAISO estimates that, had the $1,500 parameter been in place in the last 12 months, it could have reduced Real Time Congestion Offset ("RTCO") uplifts by 36% (or approximately $64 million) during that period of time.[15] Thus, units will continue to be dispatched in the same way as under the current paradigm, rules for bidding will not change, and market operations should remain effectively the same as today. Moreover the CAISO will only change a parameter in the Real-time market, leaving all other aspects untouched. As Mark Rothleder describes in his testimony:

> In order to avoid forgoing legitimate economic commitment or considering of effective redispatch of interties based on economic bids, the ISO does not propose to reduce the transmission constraint relaxation parameter of $5000 used in the day-ahead market, the hour ahead scheduling process, or the real time unit commitment processes.[16]

Additionally, the change will help address excessive compensation observed with the current parameters:

> The ISO's analysis of the difference in the amount of relief using a $5,000 transmission constraint relaxation parameter versus a $1500 parameter supports the conclusion that resources are compensated in excess relative to the congestion relief value such resources provide.[17]

Further, the CAISO notes that the focus should not be on whether some resources' bids get picked or not by the dispatch solution. Instead, the focus should be on which set of resources provide an optimal solution by providing congestion relief at lower cost.[18]

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[15] *Id.* at p. 55.
[16] *Id.* at p. 61.
[17] *Id.* at p. 58.
[18] *Id.* at p. 60.

Finally, the current structure can be detrimental to some generators; the revised parameter level could help mitigate these problems. Mr. Rothleder observes that resources, "may find the extreme real-time congestion prices detrimental to their revenue because any negative real-time deviations would be financially exposed."[19] Thus, reduction of the RTCO through the CAISO's proposal benefits the system as a whole, resources and load.

D. The Proposed Parameter Prices Exceed the Bid Cap, Allow Prices to Rise Well Above the Parameter when Appropriate, and are Not Price Caps

Currently, the transmission constraint parameter administratively sets prices greater than the bid cap ($1,000/MWh), and this will continue to be the case even under the revised parameter. In fact, the revised parameter will still exceed the bid cap by 50%. Moreover, the CAISO proposal does not cap prices at any particular level, and the current $1,000 bid cap will not be revised downward.

For clarity, under the proposed structure prices will still be at least as high as the generator's bid,[20] and can rise to much higher levels than the bid cap of $1,000/MWh based on system conditions and bids. In fact, when multiple binding constraints occur simultaneously (*i.e.* cascading parameters), prices can rise to many multiples of the $1,500 parameter. For all practical purposes, prices remain unbounded. Thus, the Commission should reject any arguments that the CAISO proposes to "cap prices."

The CAISO states, the $5,000 parameter was set when "the ISO had not yet had any experience with operating an actual nodal market."[21] At the current $5000 setting, "the market optimization run is likely to select many more combinations of costly bids that are less and less effective" and "that even at the lesser parameter setting of $1,500, the market optimization is

[19] *Id.* at p. 58.
[20] *Id.* at p. 58.
[21] *Id.* at p. 36.

likely to produce a combination of bids that are just as effective at relieving the constraint when it is binding."[22]

> In light of the ISO's finding that there appears to be no improvement in the effectiveness of resources in relieving congestion at the higher parameter setting, which I describe in detail below, there is no justifiable reason for imposing the greater cost to the market.[23]

While at the same time, "there is a diminishing value in the use of a higher parameter to achieve a viable market solution."[24] Thus, the proposal still allows prices to rise, but it does so in a more economically rational and reasonable manner than with the current parameter.

E. Convergence Bidding Contributes Materially to Unreasonable Uplift - Structural Reforms in Addition to the Parameter Reduction are Required

According to the CAISO, real-time markets *prices* are "unjustifiable," "unnecessary," and "no longer reasonable." SCE agrees. Addressing the parameter price is a necessary immediate fix. However, this fix alone is not *sufficient* to address the extreme *costs* resulting from the real-time market. In his testimony, Mark Rothleder states that, "the bulk of the real-time congestion offset is attributed to convergence bids,"[25] and that:

> while physical demand is allocated the congestion costs associated with that transfer in capability, convergence bids are liquidated in real time and therefore are not allocated any of the real time congestion offset costs.[26]

Based on Figure 3 in Mr. Rothleder's testimony,[27] RTCO costs in the 12 month period from March 2012 through February 2013 were approximately $179 million. About $95 million of this cost was due to Convergence Bids, which equates to approximately 53% of the total. As pointed out in Mr. Rothleder's testimony, price spreads between day-ahead and real-time

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[22] *Id.* at p. 42.
[23] *Id.* at p. 30.
[24] *Id.* at p. 44.
[25] *Id.* at p. 25.
[26] *Id.* at p. 24.
[27] *Id.* at p. 26.

markets are *not* being converged by Convergence Bids under these circumstances.[28] Instead, these Convergence Bids *contribute* to the RTCO and *do not converge prices*. Such exploitation will only be repeated as the CAISO:

> …anticipate[s] that as we move into the shoulder months in the spring time, when more resources and grid facilities have scheduled outages, the system will again become more constrained. In addition, summer operational conditions can be constrained due to unexpected events such as fires. This will put pressure on the real-time congestion offset again.[29]

Finally,

> Even before the notable increase in real-time congestion offset costs over the summer, as reflected by the red portions of each bar in Figure 3, convergence bidding activity usually accounted for the bulk of the real-time congestion offset. As the offset itself grows, so does the convergence bidding contribution and it continues to be the most significant contribution.[30]

While lowering the parameter should improve the situation, without additional changes the CAISO market design will continue to force load to fund tens of millions of dollars to convergence bidding activities, even though load may have had no part in the convergence bid transactions. For example, under a counterfactual where the CAISO had the lower $1,500 parameter in place during the 12 month period from March 2012 through February 2013, and assuming the CAISO's resulting 36% cost savings, load still would have paid $60 million in uplift as a result of convergence bid transactions alone.[31] This unjust and unreasonable outcome requires immediate redress.

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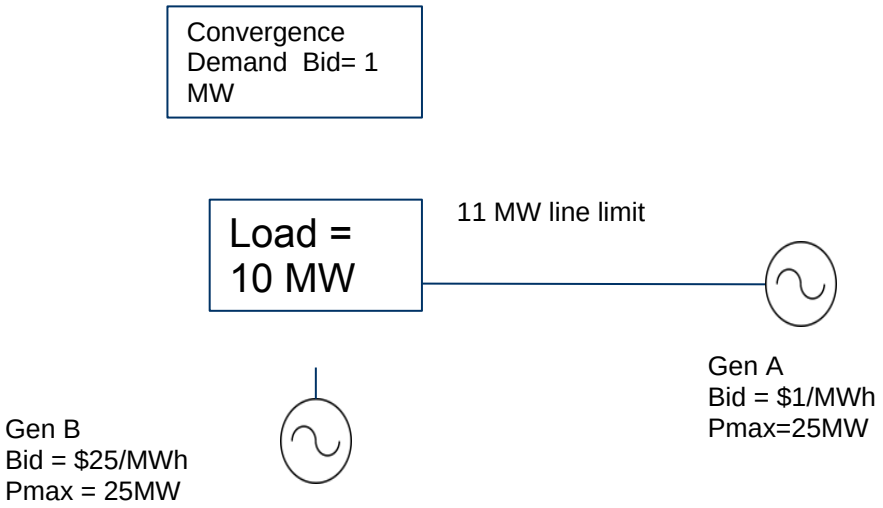
[28] *Id.* at p. 27.
[29] *Id.* at p. 35.
[30] *Id.* at p. 25.
[31] 100% – 36% = 64%. 64%* $95 million caused by Convergence Bids = $60 million. The total uplift load would face would still be 64% of $179 = $114 million

F. The Current Market Design Inappropriately Allows Convergence Bidder to "Bet Against the CAISO" and then Requires Measured Demand (Load) to Fund Resulting Payments via Uplift

A properly functioning convergence bidding market should result in *de minimis* uplift. That is, every convergence bid transaction should have a willing counterparty (load, generation, or a different convergence bidder) that funds any resulting payments. However, the CAISO has now clearly determined that when it changes the market model between the Day-Ahead ("DA") and Real-Time ("RT") markets,[32] convergence bids are frequently funded via uplift, rather than from normal Locational Marginal Price ("LMP") market settlements. Such model changes by the CAISO are often driven by reliability requirements and can include transmission derates, forced transmission outages, network reconfigurations, nomogram limit changes, loop flow modeling/compensating injections, and model changes to comply with instructions of other balancing authorities. Of note, neither load nor generation has any control over such inputs to the market model – only the CAISO controls these model inputs.

To see the uplift problem created with convergence bids and model changes, consider the illustrative example below:



[32] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at p. 26.

For this example, assume that 10MWh of load and 1MWh of Convergence Bid demand clear the DA market. Gen A bids $1/MWh, and Gen B bids $25/MWh. As a result, the low cost unit "Gen A" sells to the market. Thus, DA prices for the load, generation, and convergence bid demand clear at $1/MWh. The transmission line is rated at 11MW, so the optimization will assume all of the power will flow from Gen A, across the transmission grid, to serve the 10MWh physical load and the 1MW convergence bid demand. Also assume both generators use the same bids in DA and RT. Now consider the following three possible scenarios in the ***real-time*** market:

1) Physical Load remains 10MW, the generator and the line maintain their DA ratings

Here, the CAISO has 10MWh of load it must serve in RT, and Gen A is backed down from its DA schedule of 11MWh to the actual load of 10MWh. Since Gen A bids the same in the DA and RT market, it simply buys back 1MW at $1/MWh, and the RT LMP for the load and generation remain $1/MWh. Because load stays on schedule, it has no exposure to the RT price. The Convergence bid demand bought 1MW from the DA market at $1/MWh, and now sells back this 1MW at the RT price, also at $1/MWh, and neither gains nor loses money. The table below summarizes the DA and RT transactions (negative dollars represent a payment to the CAISO by the generator/load/convergence bidder; positive dollars represent a payment from the CAISO to the generator/convergence bidder).

Entity	**DA Settlement**	**RT Settlement**	**DA+RT Settlement**
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-1MW@$1 = -$1	$10
Convergence bid	-1MW@$1 = -$1	1MW@$1 = $1	$0

As a result, there are no uplifts. The total money collected from load fully funds the payments owed to the generation.

2) Physical Load remains 10MW, Gen A trips off-line in RT

Again the CAISO has 10MWh of load to serve in RT, but this time Gen A is not available. As a result, the CAISO must secure 10MWh from the more expensive Gen B (at $25/MWh from Gen B, instead of $1/MWh from Gen A). As a result, RT prices for load, Gen A, Gen B and the Convergence bid transaction all have a RT LPM of $25/MWh. Moreover, Gen A must replace its *full 11MW/h* DA schedule at the RT LMP of $25/MWh. Since load conforms to its DA schedule, it has no exposure to the RT price. The Convergence bid demand bought 1MW from the DA market at $1 and now sells back this 1MW at the RT price of $25 and realizes a net gain of $24. The table summarizes the results.

Entity	**DA Settlement**	**RT Settlement**	**DA+RT Settlement**
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-11MW@$25 = -$275	-$264
Gen B	$0	10MW@$25 = $250	$250
Convergence bid	-1MW@$1 = -$1	1MW@$25 = $25	$24

Here again there are no uplifts. The total money collected from Load and Gen A ($274) fully funds the payments owed to Gen B ($250) and the Convergence bid transaction ($24). In the terminology used by SCE in docket ER11-4580, the Convergence bid transactions "fully fund." That is, the CAISO paid everyone in full without the need for any uplift. Moreover, the Convergence bid transaction had a "willing counterparty." That is, Gen A *willingly* sold to the DA market, even though it knew it risked tripping and incurring uninstructed deviations that would be replaced at the RT price. Load *willingly* avoided any payments with the Convergence bid transaction by buying in the DA market and sticking precisely to schedule in RT; it had no uninstructed deviations. So far in these examples, Convergence bidding is working as designed, and conforms to SCE's view of a proper implementation.

3) ***Physical Load remains 10MW, the transmission line is derated to 0MW in RT***

This case highlights SCE's major concern with the CAISO's implementation. Again assume the CAISO has 10MWh of load to serve, but given a transmission outage, Gen A cannot flow to the load. Here, because of the line trip, the CAISO must change the market model. What was modeled as an 11MW limit in the DA market model, the CAISO now changes to 0MW in the RT market model. As a result, the CAISO must secure 10MWh from the more expensive Gen B (at $25/MWh instead of from Gen A at $1/MWh). In turn Load, Gen B and the Convergence bid transaction all have a RT LPM of $25/MWh. However, because of the line outage, the LMP at Gen A separates from the system and remains at $1/MWh. Without available transmission, the CAISO must decrease the output of Gen A to 0MW, but Gen A only pays its LMP of $1MW/h (not $25/MWh as in the case where the unit trips) to the CAISO. Since load conforms to its DA schedule, it has no (direct) exposure to the RT LMP. The Convergence demand bid bought 1MW from the DA market at $1 and now sells back this 1MW at the RT price of $25 and realizes a net gain of $24. The table summarizes the results.

Entity	**DA Settlement**	**RT Settlement**	**DA+RT Settlement**
Load	-10MW@$1 = -$10	$0	-$10
Gen A	11MW@$1 = $11	-11MW@$1 = -$11	$0
Gen B	$0	10MW@$25 = $250	$250
Convergence bid	-1MW@$1 = -$1	1MW@$25 = $25	$24

Here, the CAISO only collects a total of $10 from Load and Gen A. However under the current design, the CAISO must make payments of $250 to Gen B, *and* $24 to the Convergence bid transactions for a total payment obligation of $274. With only $10 collected from load, this results in $264 of uplift to be paid by load.

Unless the CAISO decides to drop firm load, it has no choice but to turn on Gen B. Thus we view the payment of $250 to Gen B as necessary to maintain reliability. The CAISO currently socializes this uplift cost to Measured Demand, and given that this payment "keeps the lights on," SCE considers it "necessary" uplift.

But focus now on the Convergence bid transaction and the *additional* $24 of uplift it creates. First, observe the Convergence bid transactions no longer "fully funds" – rather it relies on CAISO uplift for payment. Second, and of crucial importance, the Convergence bid transaction *has no "willing counterparty."* That is, as Gen A followed ISO instructions to the letter in RT, and Load consumed precisely its DA, there are no deviations for the Convergence bid transaction to trade against.

G. The CAISO Must Address the Policy Question of Whether It Is Appropriate to Fund Convergence Bids via Uplift

Query: In the example above, if Load and Gen A have no deviations and are not "counterparties" to the Convergence bid transaction, then who is the counterparty?

Answer: The CAISO.

In general, anytime the CAISO changes the market model between DA and RT, California risks uplift created by Convergence bid transactions. As noted above, appropriately only the CAISO controls such model changes.[33] These model changes all have at least two things in common: 1) they are made at the discretion of the CAISO for reliability reasons; and 2) market participants (load, generation, and Convergence bid transaction) have no control over these changes.

Put plainly, if a Convergence bid transaction only makes money when the *CAISO* changes the market model between the DA and RT market, Convergence bidders are "betting against the CAISO." They are not taking a financial position against another Market Participant,

[33] Model changes do not include load consuming more/less than its DA market award, generation outages/derates, or uninstructed generation deviations.

but rather directly against the grid operator itself,[34] and thus the transaction has no "willing counterparty" and the transaction likely will not "self-fund."

Exacerbating this poor design, the CAISO currently takes "any and all bets." And each and every time the CAISO loses the "bet" it compels load – even if load wanted nothing to do with the bet – to pay the bidder in full on the CAISO's behalf. This is inherently unjust and unreasonable and inconsistent with the functioning of a true market.

If such "bets against the CAISO" happened rarely or produced *de minimis* uplift, perhaps we could sidestep the core policy question of "Should we allow bets against the CAISO?" But the data shows these "bets" produce systematic and material gains, and in turn unreasonable uplift to load – to the tune of $100 million for the twelve most recent months.[35] The Commission simply cannot allow this to continue.

H. The Commission Should Order the CAISO to Address the Identified Convergence Bidding Uplift Issue within 3 Months

"Bets against the CAISO" should no longer be honored. Rather, the CAISO should only pay Convergence bid transactions to the extent they "fully fund" through the market. The CAISO should view Convergence bid transactions requiring payments from uplift as *prima facie* "bets against the CAISO" and the uplift portion should not be paid. In our example above with the transmission outage, rather than pay the Convergence bid transaction $24 (all from uplift), the CAISO should simply consider it a type of bid it will not honor, and return the original $1 "bet" back to the convergence bidder. We note that this approach allows Convergence bidding to continue in full force; transactions against Market Participants would continue to be paid in full, but "bets against the CAISO," by accident or design, would not be honored. Had California adopted this policy a year ago, load likely could have avoided some $100 million in uplift unnecessarily paid by ratepayers.

---

[34] Moreover, since they transact against the grid operator rather than a market participant, we find it a misnomer to even refer to these as "market transactions."

[35] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at p. 26, Figure 3.

While our principle of no longer honoring "bets against the CAISO" is simple in concept, we realize implementation likely will not be simple. Moreover, there may be others that disagree with this policy position, or that have better ways of ensuring just and reasonable market outcomes. However, time is of the essence, and while lowering the parameter to $1,500 promises some important relief, it is insufficient to address the remaining core design problem with convergence bids. Even in light of the lower parameter, SCE strenuously objects to being subjected to the current rules, given the extreme costs that will likely be passed on to our ratepayers. As a result, in addition to approving the Amendment as filed, SCE respectfully requests that the Commission Order the CAISO to address its current practice on paying Convergence bid transactions via uplift when profits result from CAISO model changes beyond the control of both load and generation. Specifically, the Commission should Order the CAISO to conduct an expedited stakeholder process on this issue and reply with a proposed solution within 3 months.[36]

IV. CONCLUSION

For all of the foregoing reasons, SCE respectfully requests that the Commission allow SCE to intervene and be granted party status in the above-captioned proceeding. Furthermore, SCE requests that the Commission accept the CAISO's Amendment in its entirety, to ensure that the market results in just and reasonable pricing to Market Participants, and, ultimately, to ratepayers. Finally, SCE respectfully requests that the Commission order the CAISO to conduct a stakeholder process to determine if the practice of paying an uplift on convergence bids in situations where the profits result from CAISO model changes outside the control of load and generation is just and reasonable.

[36] A short timeline is appropriate in this situation, given that the uplifts are substantially higher in the Summer months.

Respectfully submitted,

JENNIFER R. HASBROUCK
ANNA VALDBERG
GARY CHEN
ERIN K. MOORE

By: Erin K. Moore

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

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Telephone: (626) 302-6848
Facsimile: (626) 302-3540
E-mail: erin.moore@sce.com

Dated: March 29, 2013

Attachment A

Affidavit of Jeffrey Nelson

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	)))	Docket No. ER13-1060-000

AFFIDAVIT OF JEFFREY NELSON

I, Jeffrey Nelson, declare and state:

1. I, Jeffrey Nelson am currently the Manager of the Market Design and Analysis group at Southern California Edison. I have over 20 years of experience in the electric utility industry. I have held positions as an electrical engineer, analyst, energy trader, project manager and manager. As part of Southern California Edison's Integrated Planning and Environmental Affairs Department, I currently manage a group focusing on analysis, policy and strategy related to participation in California's energy and GHG markets and neighboring electricity markets.

I hold a Bachelor's degree in electrical engineering from the University of California, Los Angeles, as well as an MBA from the Anderson school at UCLA.

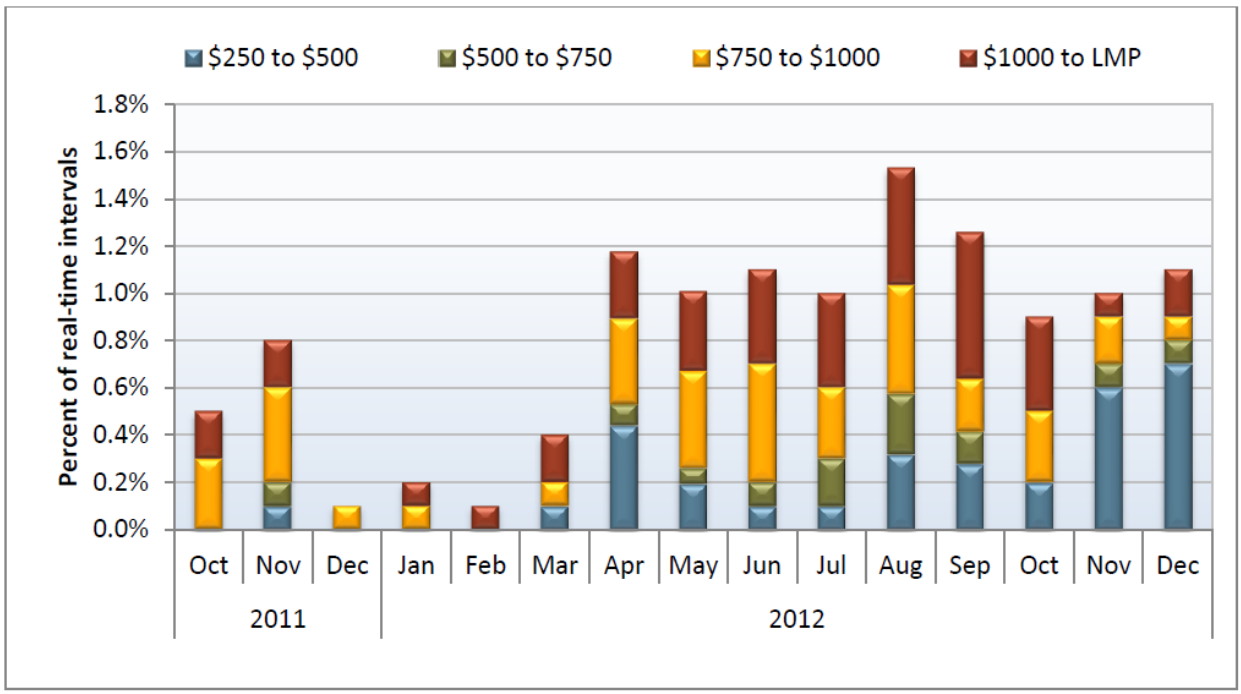
Since the late 1990s, my work has focused on electricity deregulation strategy and the design, analysis and monitoring of electricity, capacity and emission markets. I have participated in a host of FERC dockets including investigations related to the Western electricity crisis of 2000- 2001, the development California's revised nodal electricity market, which went live in April 2009, as well as ongoing efforts related to CAISO markets and other regional and national issues, including the integration of renewable resources.

I have submitted multiple affidavits to the Commission, including Docket Nos. ER11-4580, EL09-62, and ER06-615.

The Real-Time Market Produces Excessive Prices of a Transient Nature

2. Shown below is Figure 1.5 from the CAISO's Department of Market Monitoring ("DMM") Report on Market Issues and Performance.[37] Per the graph, the Real-Time market regularly produces price spikes, with a large percentage exceeding $500/MWh.

Figure 1: Frequency of price spikes as shown in Figure 1.5 of DMM report



3. SCE further examined those price spikes by identifying spikes that are *transient* in the nature. Transient price spikes are particularly of concern, because: 1) they often represent a mathematical concern to the optimization but do not translate to an actual physical concern requiring any exceptional action from CAISO operators; 2) due to conservative assumptions in

[37] Department of Market Monitoring Q4 2012 Report on Market Issues and Performance, at p. 11.

the model (such as the 3-5% transmission buffers Noted in Mark Rothleder's Testimony[38]), they do not typically represent an actual supply shortage in the system or a physical overload of transmission; 3) their transient nature may not provide enough time for a physical reaction such as a significant change in generation dispatch; 4) if parties attempt to respond with the physical movement of supply, the transient price may "disappear" before the physical response can materialize; and 5) their fleeting nature is akin to "crying wolf." That is, the extreme price should serve as an economic signal to the market that an extreme event has occurred on the system and requires and immediate and extreme response. However, this is typically not the case.

As a result, market participants cannot simply rely on extreme market prices to discern if it signals a true shortage or emergency condition demanding an immediate physical response, or if it simply represents a mathematical artifact due to the optimization algorithm that load and generation should simply ignore.

4. For this evaluation purpose, SCE found prices fit the criteria of a "transient price spike" if Locational Marginal Prices ("LMPs") of SCE's DLAP exceeded $900/MWh for only one or two consecutive intervals. Figure 2 shows an actual (and somewhat typical) instance of Real-Time ("RT") price spikes that fits the criteria as a "transient price spike," and Figure 3 shows an instance of sustained RT spikes that does not fit the criteria. Each of the twelve intervals represents 5-minutes. In Figure 2, the transient price spikes last 10 minutes, while prices were in the more normal range during the intervals before and after the spikes.

[38] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at pp. 57

Figure 2: Transient price spike example: the price was below $50/MWh before and after the transient price spike occurred

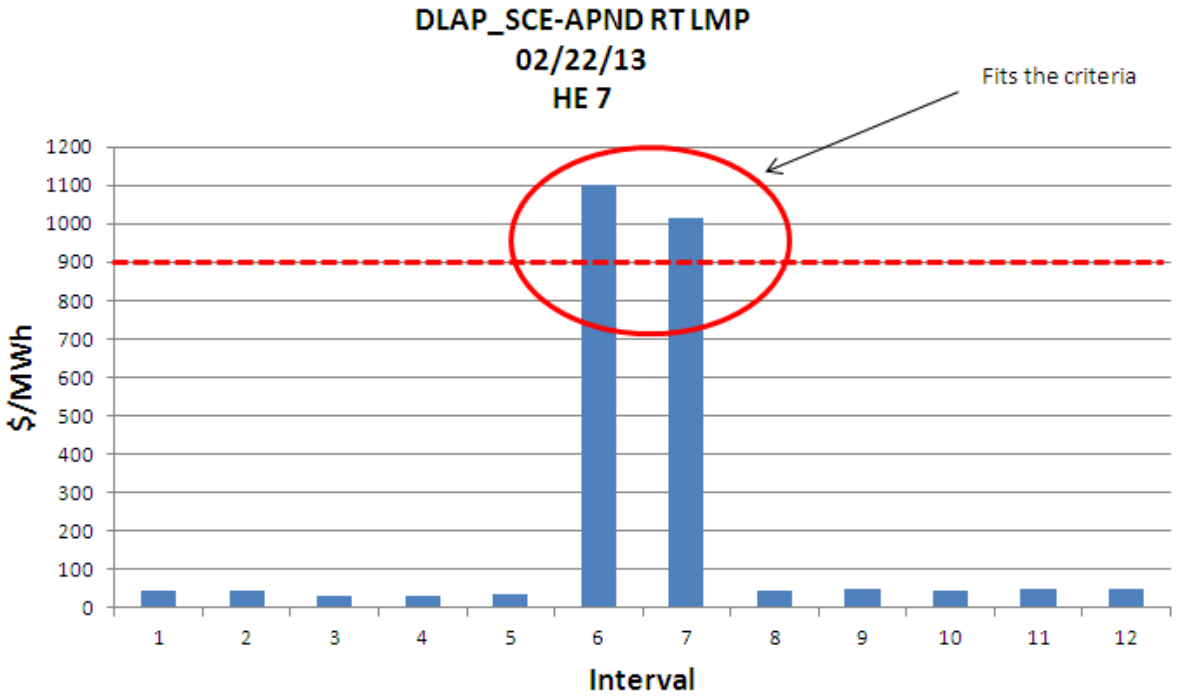
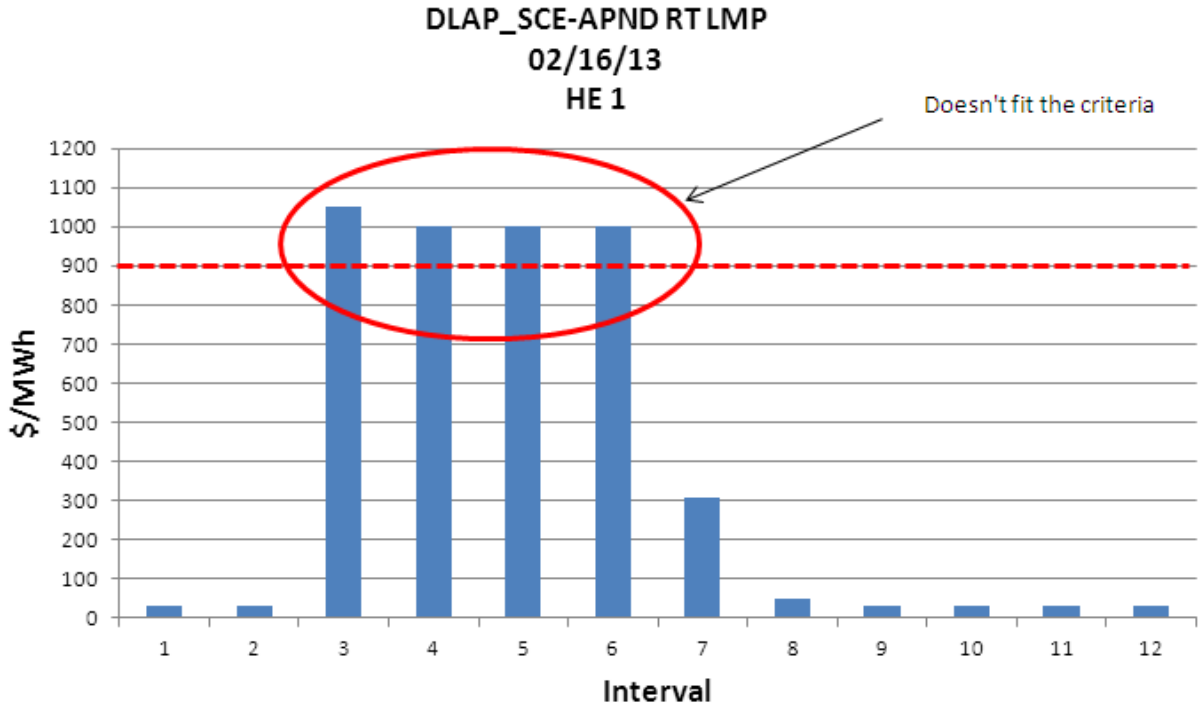


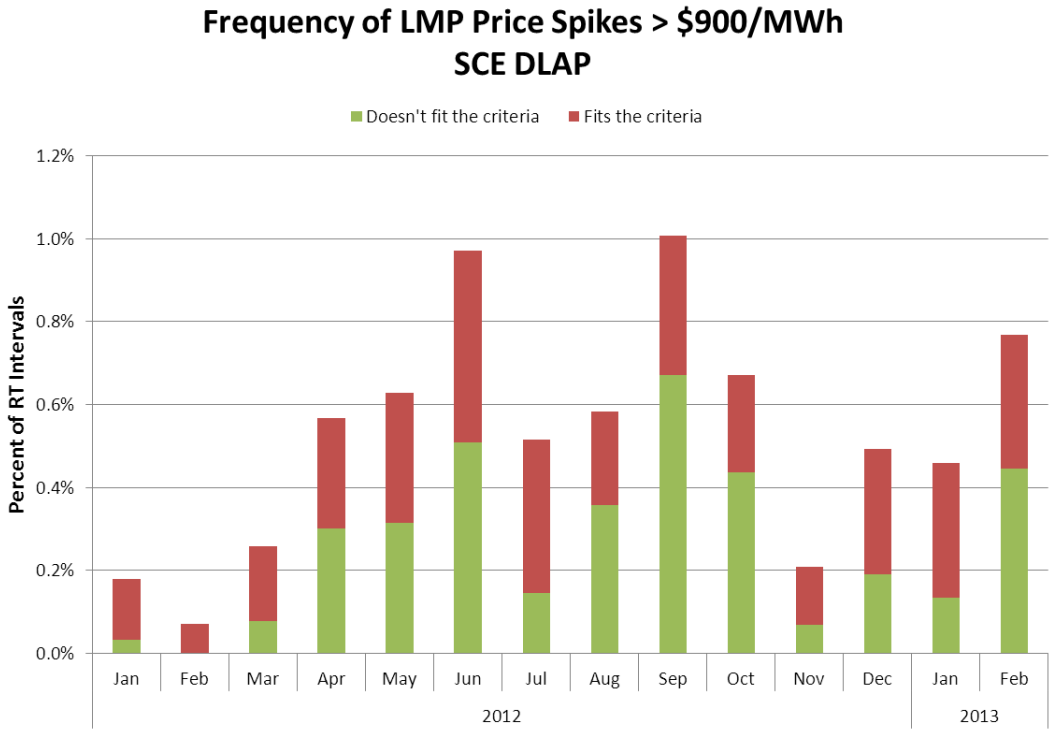
Figure 3: Non-transient price spike example



5. Figure 4 shows all price spikes in the SCE DLAP between January 2012 and February 2013 priced above $900/MWh. In each month, the graph categorizes the spikes depending on their duration. Transient price spikes lasting 10 minutes or less are categorized as "Fits the criteria" and price spikes lasting longer than 10 minutes as "Doesn't fit the criteria."

6. As seen from the chart, the transient price spikes contribution to just over half, 50.2%, of all price spikes examined. I have found no evidence that transient spikes typically reflect true physical violations or typically result in extraordinary operator reactions such as Exceptional Dispatch, a declaration of an emergency, or curtailments of Firm load or Firm schedules. Rather, it is my opinion these spikes typically reflect mathematical results from the optimization. While such extreme prices should be signaling to the market an extreme physical problem on the grid, no such physical problem typically exists.

Figure 4: Transient price spikes consist of over half of all price spikes above $900/MWh in recent months



7. Table 1 below provides the numerical values, including the count of events, used to generate Figure 4.

Table 1: Number of intervals with transient and non-transient price spikes above $900/MWh at the SCE DLAP

		Number of Intervals			Percent of Intervals	
		All	Doesn't fit the criteria	Fits the criteria	Doesn't fit the criteria	Fits the criteria
2012	Jan	8928	3	13	0.03%	0.15%
	Feb	8352	0	6	0.00%	0.07%
	Mar	8916	7	16	0.08%	0.18%
	Apr	8640	26	23	0.30%	0.27%
	May	8928	28	28	0.31%	0.31%
	Jun	8640	44	40	0.51%	0.46%
	Jul	8928	13	33	0.15%	0.37%
	Aug	8928	32	20	0.36%	0.22%
	Sep	8640	58	29	0.67%	0.34%
	Oct	8928	39	21	0.44%	0.24%
	Nov	8652	6	12	0.07%	0.14%
	Dec	8928	17	27	0.19%	0.30%
2013	Jan	8928	12	29	0.13%	0.32%
	Feb	8064	36	26	0.45%	0.32%
			321	323		

Total number of price spikes observed = 644

Percentage of prices spikes that fit the criteria = 50.2%

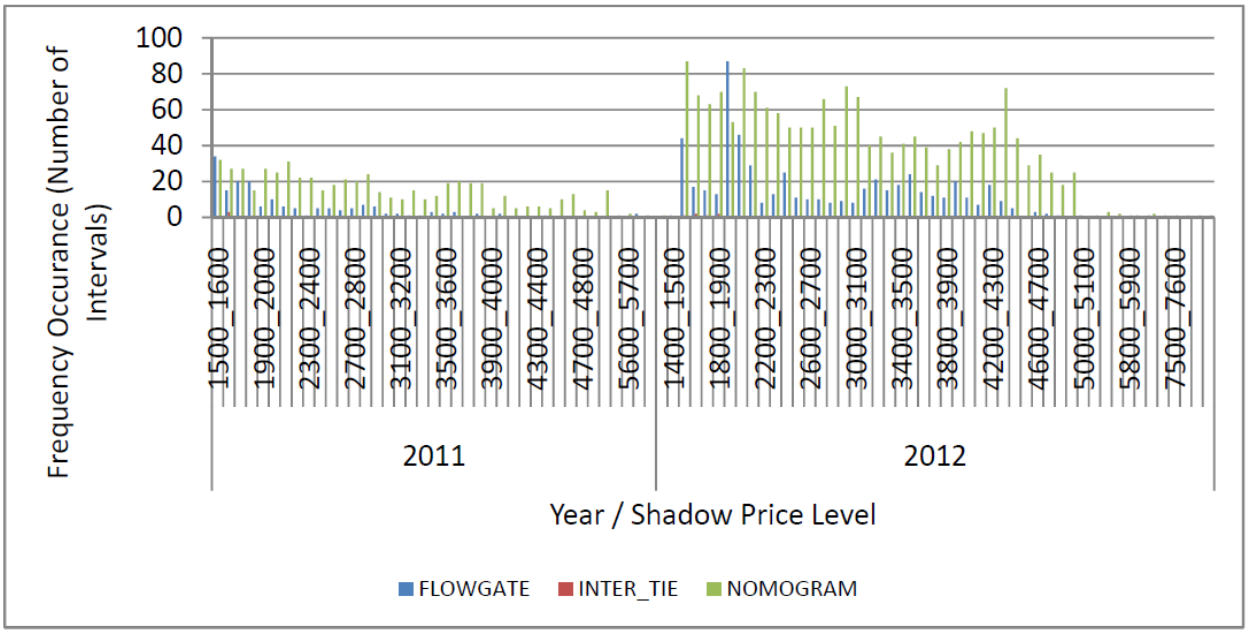
8. One reason for the extreme value of the price spikes is the use of the current $5,000 parameter for transmission constraints. As seen in Figure 5 below, provide by the CAISO,[39] 2012 saw a dramatic increase in the number of intervals where a transmission constraint bound above $1,500/MWh.

[39] CAISO Amendment, Attachment ISO-1, Testimony of Mark A. Rothleder, at p. 31.

9. If the transmission parameter is reduced to $1,500/MWh, I expect to see a material reduction in the relative share of high shadow prices which exceed $1500/MWh. In turn, I expect to see a reduction in the average $/MWh of a price spike. This includes the price of transient price spikes.

10. Because of the concerns noted above with transient spikes, it is my opinion that a reduction in the average $/MWh value of transient prices spike will result in more reasonable real-time market results and produce prices signals more closely aligned with physical conditions when compared with prices produced under the current $5,000/MWh parameter.

Figure 5: Duplicate of Figure 5 of Mark Rothleder Testimony: Frequency of Congestion Where Shadow Prices exceeded $1,500 MWh in the Real-time



I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed March 29, 2013 at Rosemead, California.

_____

Jeffrey Nelson

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing **MOTION TO INTERVENE AND COMMENTS OF SOUTHERN CALIFORNIA EDISON COMPANY ON PROPOSED CAISO TARIFF AMENDMENT TO REDUCE THE REAL-TIME TRANSMISSION CONGESTION RELAXATION PARAMETER** upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Rosemead, California, this 29th day of March, 2013.

Case Analyst
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-6846

UNITED STATES OF AMERICA

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	)))	Docket No. ER13-1060-000

AFFIDAVIT OF JEFFREY NELSON

I, Jeffrey Nelson, declare and state:

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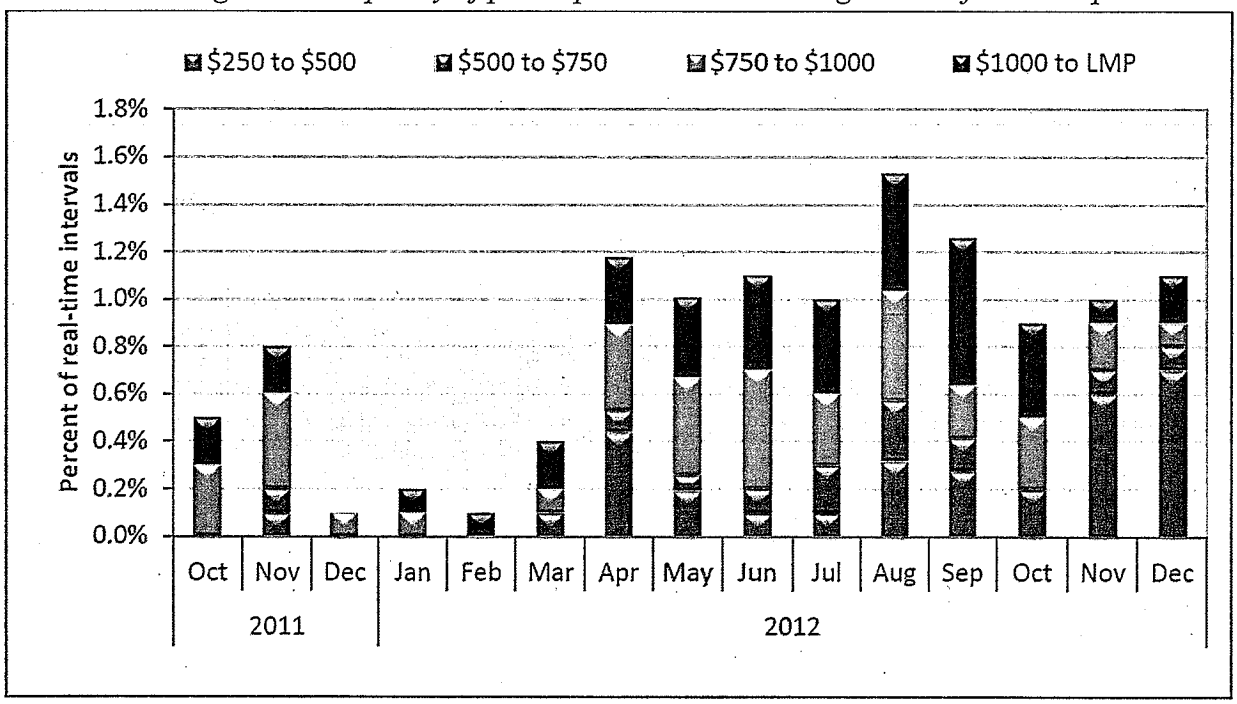

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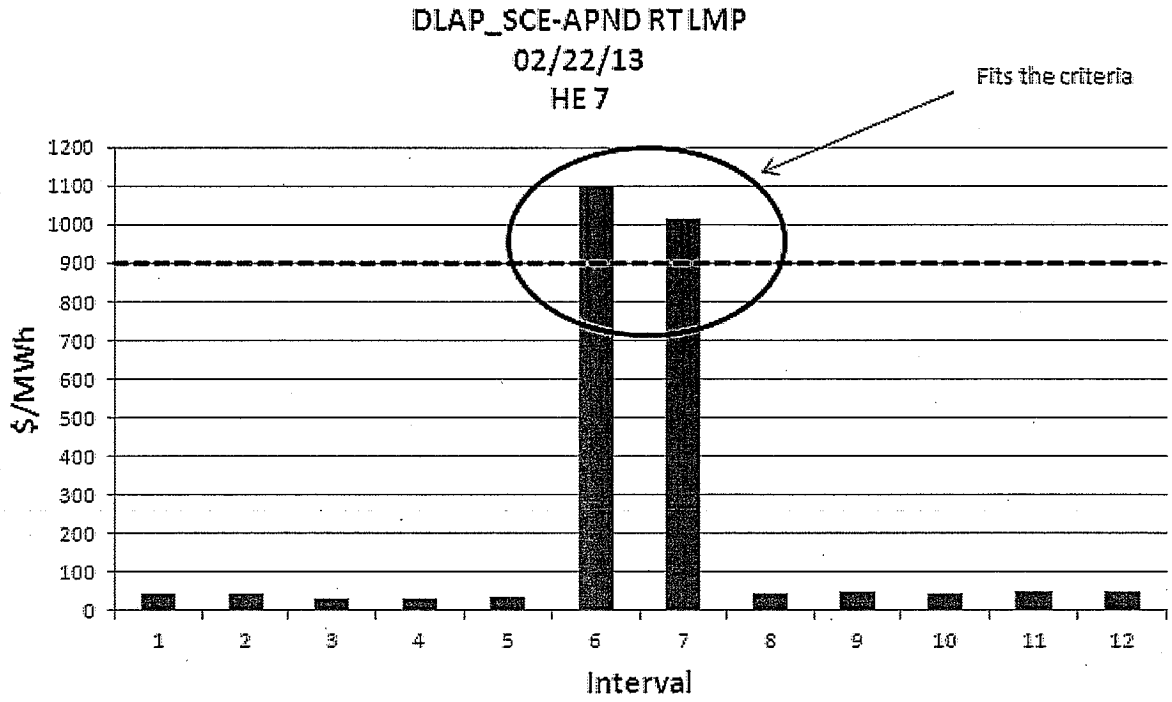

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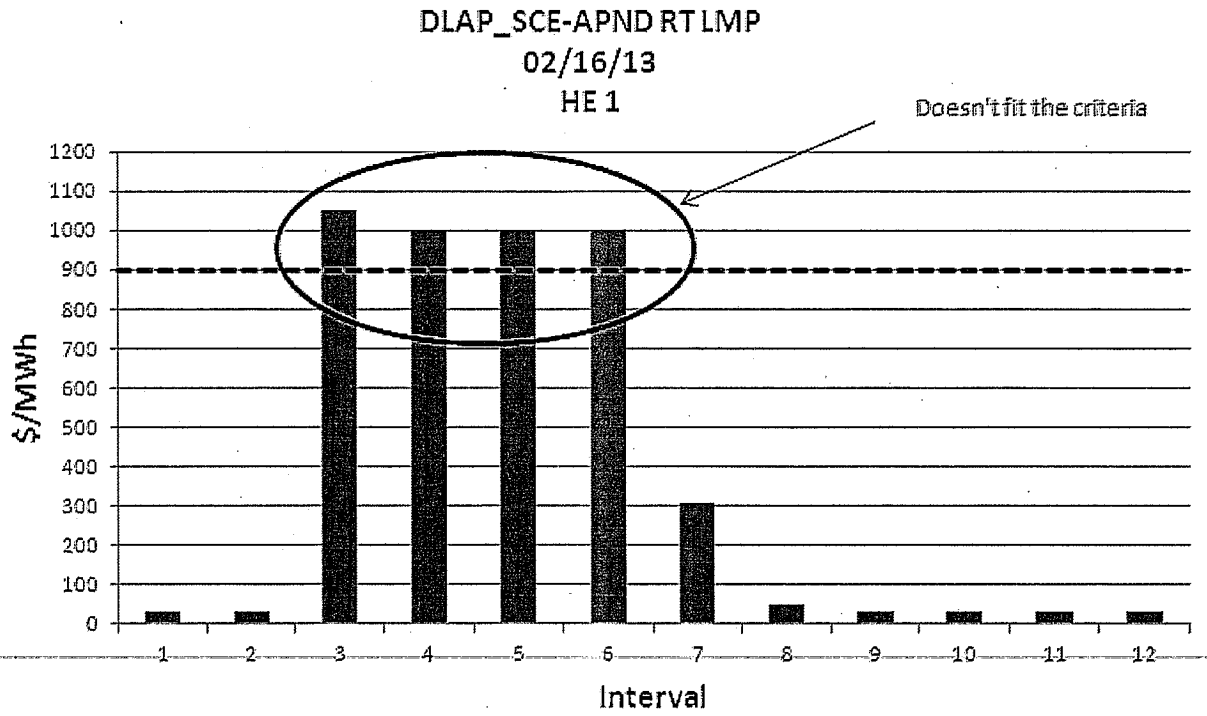

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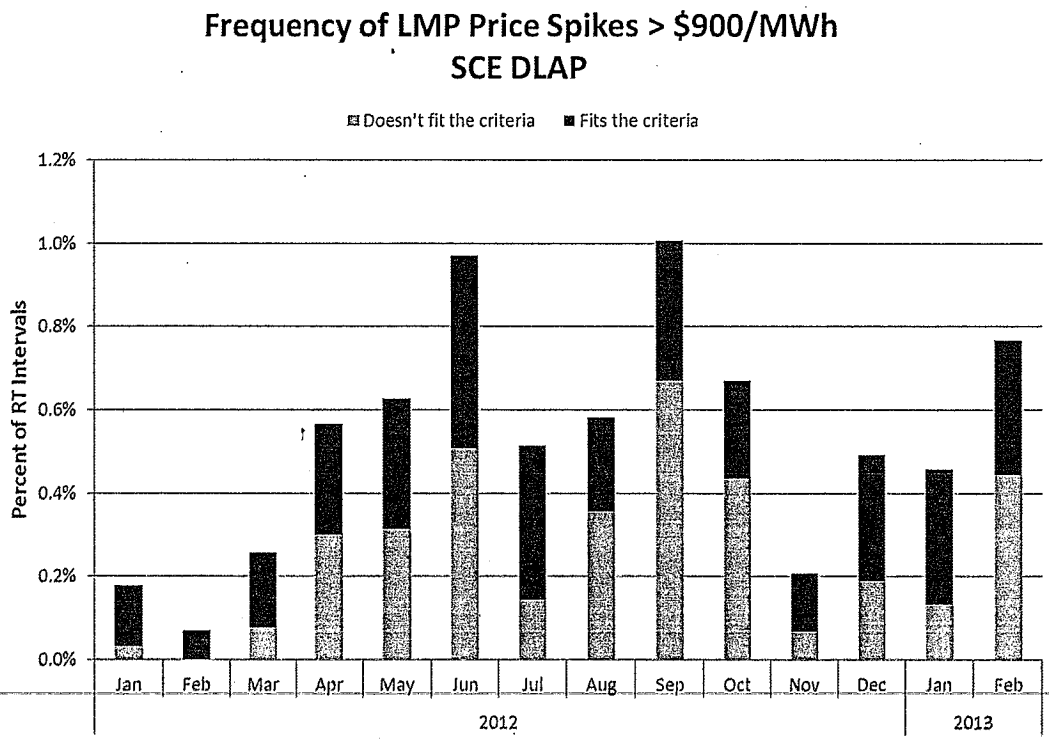

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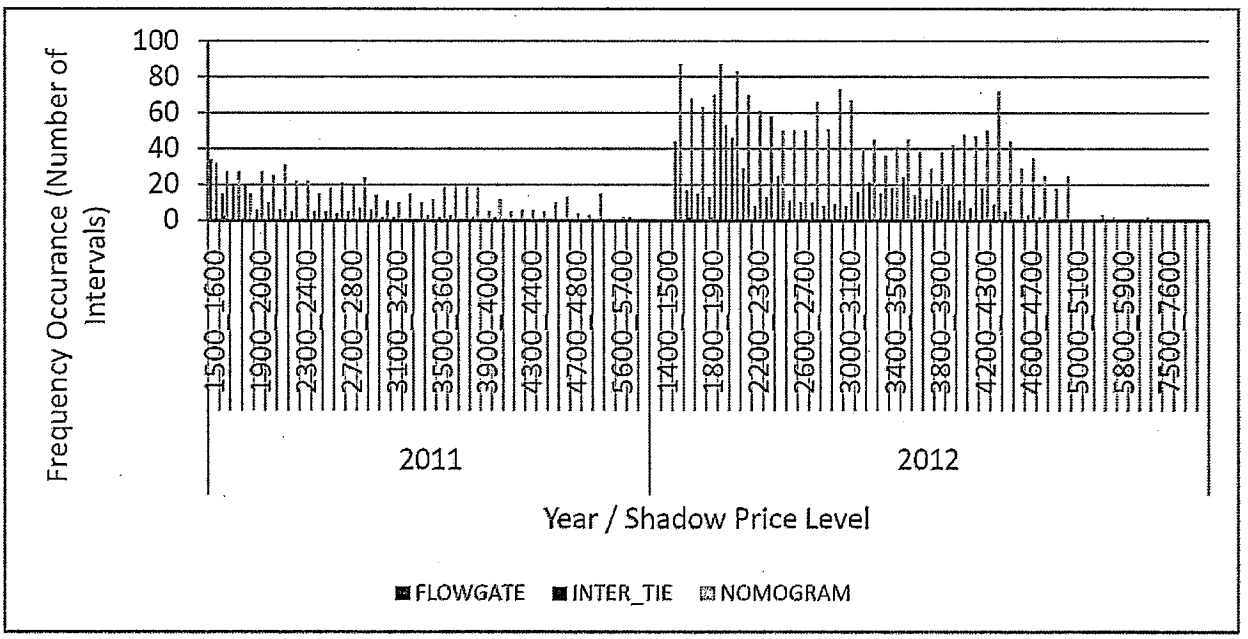
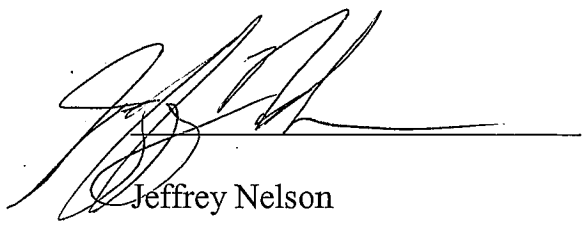


I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed March 29, 2013 at Rosemead, California.



Jeffrey Nelson

ACKNOWLEDGMENT

State of California
County of Los Angeles)

On March 29, 2013, before me, Ana A. Calderón
(insert name and title of the officer)

personally appeared Jeffrey Nelson,
who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/~~are~~ subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/~~her/their~~ authorized capacity(~~ies~~), and that by his/~~her/their~~ signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature Ana G. Calderon (Seal)

ANA A. CALDERON
Commission # 1879547
Notary Public - California
Los Angeles County
My Comm. Expires Feb 7, 2014

Document Content(s)

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