Southern California Edison (SCE) Comments on the CAISO's Final Draft Proposal on Uneconomic Adjustments in the MRTU Market Optimization Presented at the CAISO's September 25, 2008 MSC Meeting

SCE appreciates the opportunity to comment on the CAISO draft final proposal on Uneconomic Adjustments in the MRTU Market Optimizations, dated September 19, 2008 and was presented at the September 25, 2008 MSC meeting.

The draft final proposal addressed several issues relating to uneconomic adjustments in the MRTU markets. The specific issues addressed in the draft final proposal have been identified by the CAISO as issues that will need a tariff change prior to implementing market software and does not include the final parameter values that will be used in the CAISO's market software. The CAISO intents to continue monitoring and adjusting parameter values as needed during market simulation and publish a finalized list of parameters in the November timeframe. SCE respectfully provides comments to the CAISO's draft final proposal addressing the following issues:

1. Setting real-time 5-minute interval prices based on the energy Bid Cap when there is a supply shortfall;

2. Using the Energy Bid Cap as the pricing run parameter on transmission constraints that are relaxed in the scheduling run;

3. Adopting an energy price cap and price floor (proposed at +/-$2,500) to limit potentially extreme LMPs that can arise due to the interaction of multiple constraints;

4. Enforcing in the reliability procurement mechanism provided by Residual Unit Commitment (RUC) any Energy Limits submitted in the day-ahead market for use-limited resources;

5. Providing financial firmness to holders of existing ETC/TOR rights if they are submitted, valid IFM self-schedules are unbalanced by Uneconomic Adjustments in the IFM; and

6. Maintaining the Uneconomic Adjustment parameter values in the BPMs, and the process whereby the parameter values may be revised.

Concerns over Process
Before commenting on the specific issues listed above, SCE would like to provide a general comment on the stakeholder process and timeline the CAISO has presented on the issues in the draft final proposal. SCE's feels that the issues addressed in the draft final proposal are complicated policy level issues that require a thorough stakeholder process for gaining resolution. Two of the issues in particular, price caps/floors and supplemental payments for ETC/TOR holders, were introduced for the first time to stakeholders in the September 19th draft final proposal and first discussed with stakeholders at the September 25th MSC meeting. However, the CAISO proposes to develop draft tariff language in mid-October, and then gain final Board approval at the

end of October. Given the important policy implications of these two items alone, and the need to have these satisfactorily addressed well before MRTU goes "live", SCE views the CAISO's proposed timeline for resolution and tariff filings as unrealistic and we can not support the schedule proposed by the CAISO. Moreover, SCE strongly believes these issues will have significant financial implications to market participants. Therefore, SCE requests the CAISO to provide sufficient time for market participants to test these critical functionalities in future simulations once the tariff policy are finalized.

Stakeholders raised many concerns at the September 25th MSC meeting that need to be addressed by the CAISO before finalizing its proposal. SCE requests the CAISO conduct additional rounds of stakeholder meetings to address the concerns raised by stakeholders and only after all concerns have been better understood and alternatives proposed, then develop a timeline for FERC filings and implementation.

Item 1: Real-time prices based on the energy bid cap during supply shortfall conditions

Under conditions of supply shortfall in the real-time market, the CAISO software will relax the energy balance constraint using a pre-set scheduling run parameter (currently set to $6,500), and resulting shortfall quantity is then sent to the pricing run and associated with a pricing run parameter for the purpose of setting real-time prices. After considering stakeholder comments on alternative values for the pricing run parameter associated with relaxation of the energy balance constraint, the CAISO is proposing to set the pricing run energy balance constraint parameter value to the energy bid cap (currently $500)

SCE supports the CAISO's proposal to set the energy balance constraint used in the pricing run to the bid cap of $500. SCE feels that setting the pricing run parameter under insufficient supply conditions to the bid cap ($500) is consistent with the pricing policy the CAISO provided in its testimony to FERC in 2006.   SCE agrees with the CAISO that the energy balance constraint will act as a price floor in raising the LMP to $500 if the LMP, based on the last economic signal, is less than $500 and also will not prevent the LMP from going above $500 if such a price is indicative of an economic signal.

Item 2: Using the energy bid cap as the pricing run parameter on transmission constraints

The CAISO's draft final proposal proposes that the $500 energy bid cap apply to the transmission constraint pricing run parameter. CAISO's proposal to adopt the energy bid cap is based on the following considerations: First, the energy bid cap is consistent with the commonly-help expectation, noted above that the CAISO would not set pricing parameter values in such a way as to trigger what might be construed as scarcity prices higher than the energy bid cap. Second, in those unlikely cases where the last economic signal before relaxing the constraint is relatively low, the pricing run parameter will not artificially inflate the shadow price of the constraint.

Consistent with our response to the energy balance constraint parameter value, SCE supports the CAISO's proposal to set the transmission constraint parameter value used in the pricing run to the bid cap of $500.

Item 3: Adopting an energy price cap and price floor

Throughout the market simulation process, stakeholders including SCE, have raised concerns to the CAISO about the high and volatile prices (both positive and negative) in the real-time market. In the draft final proposal, the CAISO states that the high and volatile real-time prices that stakeholders are seeing in market simulation are in large part a result of RTD determining the dispatches and prices for the upcoming interval by optimizing over a multi-interval time horizon. The CAISO further states that honoring inter-temporal constraints that affect the dispatch and pricing results in subsequent intervals can have potential significant impacts on the first interval prices. After reviewing several options addressing stakeholders concerns about the high and volatile real-time prices, the CAISO proposes to adopt a price cap at $2,500 and price floor at ($2,500) for the hourly energy LMP's in the IFM, the hourly inter-tie LMP's in the HASP, and the five-minute interval LMP's in the RTD. These cap and floor values would also apply to ancillary services' marginal prices as well as to energy LMP's.

First, the concept of price caps and floors are a major policy issue, and SCE feels it is not appropriate to address such an important and far reaching issue in a technical paper such as Uneconomic Adjustments in the MRTU Optimization (a.k.a Parameter Tuning). SCE raised this exact concern at the July 9th board of governors meeting and would like to reiterate that major policy issues such as price caps and floors should not be discussed in the context of penalty parameter values for the market optimization software. Introducing price caps and floors will have real policy implications that need to be fully discussed with CAISO's stakeholders. Particular issues that have not been addressed with stakeholder but need to prior to implementing a price cap and floor policy include:

- Will FERC accept price caps and floors?
- Will FERC propose alternative levels of price caps and floors?
- How long will price caps and floors be active?
- Are price caps and floors tied to bid cap levels?
- If price caps and floors are implemented, will they create market uplift and if so at what magnitude?
- What are the implications of publishing prices that are not used for market settlements?
- Will posting prices that are not used for settlements have unintended consequences on the bilateral trading market?
- What are the implications of price caps and floors with respect to virtual bidding?
- Will price caps and floors distort the real-time dispatch?
- How will the congestion and loss components of the LMP be determined under price caps and floors?

At this time, it is SCE's view that the introduction of price caps and floors, and the contentious debate that is likely to follow, is distracting us from a more important issue: What are the underlying problems with the market that are creating these extreme prices

and what changes in the market design or operations need to be implemented in order to produce just and reasonable prices? In short, it appears that there are serious market issues that must be addressed, and the solution is not simply to mask the defects by introducing a price cap and declaring the case closed.

SCE continues to believe that the root cause of the high and volatile real-time prices is that the model has fundamental flaws, such as honoring inter-temporal constraints in forward time horizons and enforcing unnecessary constraints, which cause it to continue to produce unreasonable results. SCE would like the CAISO to focus its efforts on making sure the real-time model produces reasonable prices before discussing the introduction of price caps. The standard that the CAISO should be using to validate real-time prices should not be based on mathematical accuracy but rather are the real-time prices just and reasonable. Furthermore, if fundamental modeling problems continue to persist, then implementing price caps and floors at +/- $2,500 does not guarantee just and reasonable prices, and certainly do not protect consumers from the economic harm that will result if these caps bind with any regular frequency.

In sum, the issue of high and volatile real-time prices and subsequently price caps/floors are important issues that need to be resolved prior to the start of MRTU. SCE does not believe the CAISO's current timeline of draft tariff language posted by October 18th is sufficient to resolve these important issues. While SCE is not opposed to the discussion of introducing prices caps and floors in MRTU, however we feel the focus should be on correcting the underlying problems with the CAISO's real-time software rather than discussing price caps and floors at this time. Once the market has confidence that the market software produces reasonable results, particularly in real-time, a discussion on price caps/floor to protect against mathematical anomalies may be prudent.

Item 4: Pricing results produced by Residual Unit Commitment (RUC)

SCE has raised its concerns to the CAISO staff on numerous occasions regarding the irrational prices we are seeing being produced by RUC during market simulation. As stated previously, it is SCE's position that the standard for prices should not be based on pure mathematics but rather are the prices being produced by the software just and reasonable. Based on the results seen through market simulation, SCE does not see RUC producing just and reasonable prices. On a daily basis, we continue to see RUC prices multiples higher than IFM energy, IFM spinning, and IFM non-spinning reserve prices. In effect, the market software is placing a higher economic value on an inferior product, such as RUC, than that of energy and operating reserves.   Additionally, even in instances where only a small quantity of RUC awards are actually being paid the RUC clearing price, prices in the hundreds of dollars will serve as a price signal to which it will ultimately distort market behaviors and threaten significant economic harm to customers.

Rather than enforcing additional constraints, as is proposed in the draft final proposal, SCE questions whether the CAISO is already enforcing too many constraints. The CAISO is implicitly assuming that they will turn every MW of RUC capacity into energy in real-time while at the same time holding the commitment and dispatch of all other resources selected in the IFM at precisely the IFM levels. These assumptions are not realistic – both the CAISO and individual market participants have tremendous flexibility in both HASP and real-time to modify the output and commitment of certain units. Moreover, the CAISO has flexibility in extreme conditions to relax various constraints, including transmission limits, and still maintain grid reliability. However, the sequential

nature of RUC practically guarantees that the RUC process will begin in an optimization corner – the CAISO then adds additional constraints to a solution that is already in a corner (e.g. transmission needed to readily resolve an issue is already "full" coming out of the IFM), and the results lead to unreasonable RUC prices.

In contrast, we recommend the CAISO to view RUC as capacity that is not expected to produce energy, but more like insurance. That is, if all else fails, the CAISO has access to energy to maintain a reliable grid. Even if the CAISO has to perform some redispatch or operate closer to emergency limits for short periods of time, RUC still can perform its role as insurance.

Rather than adding constraints in RUC, SCE requests that the CAISO perform sensitivities on constraints used in RUC so that we can better assess what constraints are causing RUC prices to be unreasonable. Some examples of constraints that the CAISO could consider relaxing in RUC include:

- Enforce IFM commitment decisions but not dispatch levels or schedules.
- Relax transmission constraints to emergency levels.
- Relax the honoring of inter-temporal constraints such as ramp rates and minimum run times.
- Enforce only competitive path constraints.

SCE views resolving the high RUC prices that we continue to see in market simulation as a critical issue to the successful deployment of MRTU. RUC pricing needs to be addressed prior to the start of the market. If such prices are realized in actual market operations, we expect to see significant changes in behavior that will harm customers.

Item 5: Providing financial firmness to existing ETC and TOR holders

Stakeholders holding existing ETC and TOR contracts ("right holders') have expressed concern that some portion of their valid submitted self-schedules may be exposed to market congestion charges in the event that they are subject to uneconomic adjustments in the IFM. Right holders have correctly identified instances where the CAISO's market software is not honoring the relative priority of their contracts as described in the CAISO tariff. In particular, right holders have observed the curtailment of their contracts prior to the curtailment of generic LAP level load. This outcome is primarily a result of how IOU versus ETC/TOR load is modeled in the CAISO's market software. IOU load is modeled using large default LAPs for scheduling and settling most of the load in each of the IOU service territories, while ETC/TOR load is modeled in such a way so that they are scheduled and settled at the actual physical location of the contract. The end result of the difference in modeling is that ETC/TOR load can actually get a lower scheduling priority than a non-ETC/TOR load, i.e., are more likely to be curtailed if there is a binding transmission constraint in the area of the ETC load. To address this issue, the CAISO is proposing to provide right holders, whose contracts get curtailed, a supplemental payment that would provide them with a financial hedge against the difference between day-ahead and real-time congestion costs.

At this point, SCE does not have enough information to determine the seriousness of this issue of this issue and requests the CAISO provide metrics from market simulation

on the frequency and magnitude of contract curtailments.. However, based on the presentation provide by the City and Count of San Francisco and discussions that followed, SCE agrees with the rights holders that the CAISO's current modeling methodology has the potential to not honor the curtailment priority of ETC's and TOR's as specified in the MRTU tariff. The CAISO's software needs to avoid cutting ETC and TOR contracts inconsistent with the scheduling priority defined in the MRTU tariff and do so without using high parameter values that severely distort market results. We also note, that any solution that preserves a small amount of ETC's by curtailing thousands of MW's of LAP load is likewise unacceptable. As a result of this apparent modeling conflict, SCE suggests the CAISO explore in further detail the proposal put forth by the City and County of San Francisco and the State Water Project; which suggests modeling ETC/TOR load similarly to how generic LAP load is modeled in the scheduling run of the market software while leaving it modeled as a custom LAP in the pricing run

With respect to the CAISO's proposal to provide a supplemental payment to right holders to hedge against the exposure of real-time congestion prices, SCE feels that this discussion should not take place until we resolve the process that will be used to honor ETC and TOT contracts in accordance with the tariff in a reasonable manner. Once the core problem is resolved, we can better address what should be done to address unusually outcomes when ETC's are curtailed.

In sum, SCE views this issue as an important issue that needs to be resolved prior to the start of MRTU. There does not appear to be a simple solution to this issue, and SCE does not see how this can be resolved based on the timeline put forth by the CAISO. SCE recommends the CAISO explore the proposal presented by the right holders at the September 25th MSC meeting and hold a subsequent stakeholder meeting to discuss its findings and to explore other potential solutions. Only after a solution to the modeling problem is identified, the CAISO should discuss with stakeholders the need for a supplemental payment to protect right holders from real-time charges in the event that ETC and TOR rights get curtailed incorrectly.

Item 6: Maintaining uneconomic adjustment parameters values in the BPMs

The CAISO's proposal is to use the BPM's as the primary vehicle for maintaining the uneconomic adjustment parameter values used in market operation instead of including the parameter values in its tariff. CAISO feels that the BPM's provide them with the necessary flexibility to make changes relatively quickly if market performance warrants it and features a FERC approved change management process that includes stakeholder review of proposed changes before they are implemented in production.

As stated consistently throughout the uneconomic adjustment stakeholder process, it is SCE's position that all items that impact rates, terms, and condition need to be included in the CAISO tariff. On the other hand, we also note that the CAISO does need a process to rapidly address problems with parameters if the market produces spurious prices. As such, it is SCE's preference that the CAISO maintains uneconomic adjustment parameters in the BPM's, but should have a process in place that allows rapid changes to the parameters, if needed, that can be implemented before prices are finalized and settled.