

## Stakeholder Process: Convergence Bidding Design

### Summary of Submitted Comments

Stakeholders submitted three rounds of written comments to the ISO in 2009 on the following dates:

- Round One, 7/24/2009
- Round Two, 10/2/2009
- Round Three, 10/14/2009

11 additional rounds of comments were received from stakeholder between June 2006 and November 2008

Stakeholder comments are posted at: [http:// http://www.caiso.com/1807/1807996f7020.html](http://www.caiso.com/1807/1807996f7020.html)

Other stakeholder efforts in 2009 include:

- Conference Calls<sup>1</sup>
  - 8/13/2009
  - 8/27/2009
  - 9/9/2009
- In-person meetings<sup>2</sup>
  - 7/9/2009
  - 9/18/2009
  - 10/9/2009
- Other stakeholder efforts
  - Technical working group conference calls held every other week from September to early December 2009.
  - Three in-person stakeholder meetings and two conference calls held for educational purposes with other ISOs.

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<sup>1</sup> Three additional conference calls were held between October 2006 and June 2007

<sup>2</sup> Ten additional stakeholder meetings held between June 2006 and November 2008

Market participants that provided no comment on a particular topic are not listed in the matrix.

Management Proposal	Load Serving Entities, CPUC, Suppliers, Traders	Management Response ( Completed by the ISO)
<p>Convergence Bidding will be allowed at nodes, trading hubs and interties</p>	<p><b>Support</b></p> <p>ARem , Barclay, BPEC, CDWR, Calpine, Citigroup Energy, Constellation, DC Energy, Dynegy, EPIC, Financial Marketers, J.P. Morgan, L.S. Power Associates, Mirant, Morgan Stanley, NRG, Powerex, RRI, Shell Energy, Six Cities, Western, WPTF</p> <p><b>Oppose</b></p> <p>CPUC: ISO should start slow and allow convergence bidding at the three default LAPs only</p> <p>PG&amp;E: ISO should start slow and allow convergence bidding at the three default LAPs only. Nodal bidding at interties should not be allowed until issues raised by the ISO are resolved.</p> <p>SCE</p>	<p>Management is taking a conservative approach to convergence bidding at the nodal level and believes that the safeguards included in the proposal and the price discipline provided by nodal convergence bidding will guard against concerns about market manipulation raised by some market participants. The benefits provided by nodal convergence bidding are superior to convergence bidding at the LAP level when it comes to disciplining supplier market power, price convergence at the nodal level, more granular information provided to the market and market liquidity. LAP level convergence bidding will provide benefits as far as converging prices at the LAP level but will not provide benefits to converging prices at the nodal level which is where the ISO has seen the most price divergence. LAP level convergence bidding will also not allow market participants to hedge their physical positions in the market and would have limited effect on mitigating supplier market power on a local level.</p>
<p>Position limits will be set at 10% initially at the internal nodes and 5% at the interties</p>	<p><b>Support</b></p> <p>PG&amp;E, SCE, Six Cities, Western</p> <p><b>Oppose</b></p> <p>Barclay, BPEC, Calpine, Citigroup Energy, Constellation, DC Energy, EPIC, Financial Marketers, J.P. Morgan, L. S. Power Associates, Mirant, Morgan Stanley, NRG, Powerex, RRI, Shell Energy</p> <p>Dynegy: Significantly and arbitrarily limits ability for supplier to hedge its units production at that node.</p> <p>WPTF: Position limits are arbitrary, have no precedence in other markets and no technical basis.</p>	<p>Position limits will prevent any individual market participant from taking a large and potentially harmful position at a node. As the market matures these position limits will be lifted on a pre-determined schedule. Position limits will allow the ISO to provide full functionality while mitigating risk given the move to nodal convergence bidding. Management believes this is a superior approach to limiting convergence bidding to the three default load aggregation points which would dilute benefits provided by convergence bidding. Most market participants oppose position limits and those who support them are ultimately in favor of implementing convergence bidding at the LAP level. This is a key element of the conservative approach that the ISO is taking.</p>
<p>Position limits will be lifted on a set schedule over the course of two years for the internal nodes and three years for the interties unless the ISO files with the commission to change the schedule.</p>	<p><b>Support</b></p> <p>Barclay, Calpine, Constellation, DC Energy, Dynegy, J.P. Morgan, Mirant, Morgan Stanley, NRG, Powerex, RRI, Shell Energy</p> <p>WPTF: All position limits should be lifted on an aggressive schedule. More stringent position limits on interties should be lifted if the ISO determines there are no adverse impact by convergence bids to the potential issues the ISO defined.</p>	<p>Management believes the convergence bidding market will mature quickly considering the market already exists in other independent systems operators' markets. Position limits will be left in place longer if market results and activity show this is necessary. Management will consult with DMM and MSC as needed and does not believe a formal report or pre-defined metrics are necessary. Pre-defined metrics would also be difficult to establish and may</p>

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	<p><b>Conditional</b></p> <p>Six Cities</p> <p><b>Oppose</b></p> <p>L.S. Power Associates</p> <p>CPUC : Lifting of position limits should be based on pre-defined metrics</p> <p>Citigroup Energy: If the CAISO elects to impose position limits, they should adhere to the CAISO’s previously proposed schedule of one year.</p> <p>PG&amp;E: Request a process where DMM and the MSC offer formal opinions at relaxation points regarding the appropriateness of relaxation.</p> <p>SCE: Lifting of position limits should be based on pre-defined matrix</p>	<p>defined metrics would also be difficult to establish and may prove to be inaccurate once the convergence bidding market is in operation. All of the market participants that oppose position limits support Management lifting those limits on a pre-defined schedule.</p>
<p>Proposed CRR Settlement rule will net the market results across all hours of each day corresponding to the participant’s CRR. For each congested constraint that is found to be affected by the participant’s convergence bids, the rule will consider the aggregate (net) impact of this congestion on participant’s CRRs during each hour. If it is determined that a market participant’s convergence bids were used to artificially increase day-ahead congestion, CRR payments to that market participant will be reduced.</p>	<p><b>Support</b></p> <p>Constellation, Dynegy, J.P. Morgan, RRI, Shell Energy, Six Cities, Western DC Energy: Proposed rule strikes the right balance avoiding a preponderance of false positives while still flagging potential incidences of market manipulation.</p> <p>WPTF: Flow threshold defined for claw back should be defined in tariff since it has direct impact into ones’ rates and terms of operation.</p> <p><b>Conditional</b></p> <p>EPIC, SCE</p> <p>PG&amp;E: Rules should be extensively tested in market simulation and a stakeholder meeting held to review results and consider adjustments.</p>	<p>The Department of Market Monitoring proposed CRR settlement rule was based on a variation of the PJM methodology, but that is more targeted based on specific flows and congestion impacts. The proposed rule generally was supported by market participants.</p>
<p>When a market participant submits convergence bids in the day-ahead market, the value of these bids will immediately be compared to the market participant’s available credit limit. The value of the convergence</p>	<p><b>Support</b></p> <p>DC Energy, EPIC, NRG, PG&amp;E, RRI, Shell Energy</p> <p>Constellation: Supports for initial implementation but 95% threshold should be reviewed after convergence bidding is implemented</p>	<p>The proposed credit policy received widespread support from market participants. Quite a few market participants believe using the 95<sup>th</sup> percentile to determine the reference price is very conservative and that the ISO should review this policy after convergence bidding is implemented. <b>Management will review the reference price 12 months</b></p>

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<p>bids, based on historical reference prices, will be added to the estimated aggregate liability of the participant.</p>	<p>Dynergy: Requests ISO revisit use of 95<sup>th</sup> percentile after implementation.</p> <p>J.P. Morgan: Requests that the CAISO assess the feasibility (cost and impact on implementation timeline) of using the proposed dynamic credit process and application to determine and enforce available credit requirements in the overall market</p> <p>Mirant: Review 95<sup>th</sup> percentile after implementation.</p> <p>Powerex: Consider updating reference prices to previous day or week rather than from the three months of a previous year.</p> <p>SCE: Provide SCs with a daily estimate of EAL</p> <p>WPTF: Move to credit policy that is consistently robust between physical and virtual market</p> <p><b>Oppose</b></p> <p>Financial Marketers: 95<sup>th</sup> percentile used to set reference prices is excessive and will be harmful to the market. Urge the ISO to use 50<sup>th</sup> percentile which has been successfully used at MISO.</p>	<p><b>after convergence bidding is implemented to determine if adjustments are necessary. After this point Management will review the reference price every three years or more often if necessary.</b> Stakeholders also commented that the ISO should move towards a credit policy that is just as robust for physical bids as well.</p>
<p>There was no change to current information release policy proposed as part of the convergence bidding stakeholder process. Currently both physical bid information and virtual bid information will be released on a 90 day schedule.</p>	<p><b>Support</b></p> <p>DC Energy, Dynergy, EPIC, Mirant, NRG, RRI, Shell Energy, WPTF</p> <p>Constellation: Physical and virtual bid information should be released contemporaneously.</p> <p><b>Oppose</b></p> <p>SCE: proposal should, at a minimum, release the cleared quantities of virtual bids, on a nodal level, shortly after the IFM posts results</p>	<p>A separate stakeholder process, which will start at the end of October, will address information release for both physical and virtual bids. The ISO needs to take a broader look at its information release policy since the implementation of the new market design. Because this issue is relevant for all bid information, Management determined that this issue should be addressed separately from the convergence bidding stakeholder process. The Market Surveillance Committee recommended in their opinion on convergence bidding that the ISO release information on virtual bids as part of the day-ahead process. Market participants remain divided on this issue as some advocate the release of physical and virtual bid information contemporaneously while others advocate for the release of only virtual bidding information on a quicker timeline than for physical bids.</p>
<p>Virtual Demand will be allocated a portion of IFM Tier 1 uplift and virtual supply will be allocated a portion of RUC Tier 1 uplift</p>	<p><b>Support</b></p> <p>Calpine, Constellation, DC Energy, Dynergy, J.P. Morgan, Mirant, RRI, Shell Energy</p>	<p>The proposal for allocating bid cost recovery uplifts for IFM and RUC to convergence bids was highly debated. A divide remains between market participants that believe the ISO is not allocating enough of these costs to market participants</p>

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	<p>NRG: Proposal reasonable emulates cost causation</p> <p>WPTF: Proposal strikes a reasonable balance between incremental costs caused by virtual transactions and does not charge virtual transactions when market outcomes are consistent with ultimate outcomes (actual demand)</p> <p><b>Conditional</b></p> <p>CDWR: CAISO should incorporate and implement two-tier Real Time Uplift along with CB</p> <p><b>Oppose</b></p> <p>CPUC</p> <p>EPIC: The ISO must prove that virtual bids create uplift costs before determining to allocate such costs</p> <p>Financial Marketers: Proposal allocates too many costs to virtual transactions that are not warranted.</p> <p>PG&amp;E: Allocation should be at more granular level since ISO is implementing nodal convergence bidding.</p> <p>SCE: Proposal does not represent cost causation and should be more granular. ISO should commit to revising methodology within one-year after convergence bidding is implemented</p>	<p>versus market participants that believe the ISO is allocating too many costs to convergence bids that may stifle the liquidity of the market. Management’s proposal for cost allocation represents cost causation by charging convergence bids for incremental costs caused while not charging convergence bids if market outcomes are consistent with real-time conditions. Management will monitor uplifts after convergence bidding is implemented and determine if a more granular cost allocation approach is necessary</p>
<p>A transaction fee of \$.005 per bid segment will be charged for each submitted convergence bid. A separate fee for GMC will be created for convergence bidders and will be allocated based on gross cleared Mwh. This fee will allocate a portion of the day-ahead scheduling and market usage charges to convergence bidders. The ISO estimates this fee will be between \$.065 and \$.085 per gross cleared Mwh. Convergence bidders will also pay</p>	<p><b>Support</b></p> <p>CPUC, Calpine, Constellation, DC Energy, Dynegy, J.P. Morgan, Mirant, NRG, PG&amp;E, RRI, SCE, Shell Energy, WPTF</p> <p><b>Oppose</b></p> <p>EPIC</p> <p>Financial Marketers: Any lawful Convergence Bidding Charge must be based on a revenue requirement that reflects the incremental increase (if any) that virtual transactions make to the costs normally recovered through the Forward Scheduling Charge and MU-FE Charge.</p>	<p>The proposal to allocate a portion of existing GMC costs to convergence bids based on gross cleared Mwh had widespread support from stakeholders. The fee is estimated to be between \$.065 and \$.085 per cleared Mwh and will be finalized in the GMC stakeholder process early next year. The \$.005 bid segment fee will economically mitigate the volume of convergence bids coming into the ISO markets and discourage “fishing” bids.</p>

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<p>the settlement and client relations fee of \$1000 per month for each SCID. Revenues from transaction fee will be used to reduce GMC charge.</p>		
<p>The LMPM process will be based on physical supply and the ISO load forecast. This is the same process the ISO uses currently for LMPM.</p>	<p><b>Support</b></p> <p>Calpine, Constellation, DC Energy, J.P. Morgan, Mirant, NRG, RRI, Shell Energy, WPTF</p> <p>Dynegy: Support further investigation into the Option B outlined by DMM</p> <p><b>Conditional</b></p> <p>CPUC: Encouraged by ISOs proposal but would prefer Option B</p> <p>SCE: Would prefer that ISO go with Option B so the design of LMPM does not need to be revisited to meet FERC order of basing Pre-IFM runs on bid on demand.</p> <p><b>Oppose</b></p> <p>PG&amp;E: Take more time to vet Option B provided by DMM</p>	<p>As part of our overall conservative approach to the design of convergence bidding, Management propose that local market power mitigation (LMPM) be performed based on physical bid-in generation and forecast demand. The mitigation mechanism for local market power is designed so that physical generation needed to meet physical demand will be appropriately mitigated. DMM provided analysis that determined that there were two viable options, known as option A and option B for the LMPM process with the inclusion of virtual bids. Viable Option A is the current approach for LMPM and is the option Management is proposing. Management chose option A because DMM advised this is a solid approach, the MSC also recommended going with this approach and because the current approach requires no software changes while Option B requires significant software changes.</p> <p>Option B includes both virtual and physical bids in the Pre-IFM runs. In the all constraints run the default energy bids would be used to determine what physical supply is mitigated. Management will further consider Option B in a subsequent stakeholder process as a way of complying with the FERC directive to base LMPM on bid-in demand within 3-years of MRTU start-up.</p>
<p>Market participants that want to submit convergence bids that are not yet scheduling coordinators will have to complete the scheduling coordinator certification process with appropriate modifications.</p>	<p>Support</p> <p>Constellation, DC Energy, Dynegy, NRG, PG&amp;E, Shell Energy, WPTF</p> <p>RRI: The proposal reasonably balances the need to certify an entity’s capability and financial stability while not imposing onerous requirements</p>	<p>Market participants that are not yet certified scheduling coordinators that want to participate in convergence bidding will either need to become a certified scheduling coordinator or contract with a certified scheduling coordinator to submit bids on their behalf. Market participants that want to become a certified scheduling coordinator will follow the existing process with some modifications. For example, the receipt of dispatch instructions is not applicable to convergence bids and it is not necessary for convergence bidders to maintain twenty-four hours a day, seven days per week communications, beyond that of a primary and secondary phone contact.</p>

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<p>The ISO will continue to achieve an AC solution in the day-ahead market with the inclusion of convergence bids to the fullest extent possible. If necessary the ISO will enforce MW limit constraints at a location or set of locations to limit the amount of convergence bids at certain locations.</p>	<p><b>Support</b></p> <p>Citigroup, Constellation, DC Energy, Dynegy, NRG, RRI, Shell Energy, WPTF</p> <p><b>Oppose</b></p> <p>PG&amp;E</p> <p>SCE: ISO must demonstrate to stakeholders that a nodal bidding design with AC Convergence is achievable before proposing a final design that is solely dependent upon nodal bidding</p>	<p>In order to increase the likelihood of ensuring AC convergence under virtual bidding, Management will include the software capability of enforcing MW limit constraints on a location basis to limit the amount of unrealistic virtual bids on a particular location or set of locations. These limits will only be used when AC solution is not attainable. This MW limit will be done within the IFM before the day-ahead market clears. When a MW limit enforcement is needed, it will be applied to the total flow affected by both physical and convergence bids. Some market participants advocate that the ISO should have a contingency plan to implement LAP level convergence bidding if it is found through testing that an AC solution is not achievable with the inclusion of convergence bids. If Management identifies a technical show stopper in testing, the stakeholder process will be re-opened and the issue discussed with stakeholders to determine how to proceed. Depending on that nature of the technical problem it may or may not be the correct solution to revert to a LAP level implementation.</p>
<p>In the event that virtual bidding by any particular participant or group of participants was found to be contributing to a sustained unwarranted divergence in prices in the integrated forward market and real time market, the ISO would have the authority to suspend or limit virtual bidding by individual market participants at specific nodes. Upon suspension the ISO would have 10 business days to file supporting documentation with the FERC. The suspension would remain in effect for 90 calendar days from the time the ISO submitted its initial filing at FERC unless FERC directs otherwise or the ISO determines the suspension is no longer necessary. After this 90 day period the suspension would</p>	<p><b>Support</b></p> <p>Constellation, DC Energy, NRG, PG&amp;E, RRI, SCE, Shell Energy</p> <p>Dynegy: ISO should also have the ability to reduce the suspension period from 90 days, if the exchange of information between the market participant and CAISO suggests that a lesser period of time is warranted</p> <p>WPTF: Reporting event to FERC should be confidential</p>	<p>The determination of whether a sustained divergence in prices in the integrated forward market and real-time market occurs would be based on a calculation of the deviation between average hourly prices in these markets during a rolling four week period, or other such period determined to be appropriate given the participant's bidding behavior under review. The ISO's determination of whether the participant's bidding behavior caused or significantly contributed to this price divergence would be based on simulations of the ISO's integrated forward market results without the virtual bids under review, when practicable, or other appropriate analytical methods as necessary. This approach provides the ISO with authority to quickly respond to any convergence bidding practices that are having the effect of undermining the physical validation provisions for sellers choice contracts, or allowing generators to profit from uninstructed deviations, or, more generally, manipulating market prices or deterring price convergence. At the same, time, ISO's authority to quickly protect against such scenarios is ultimately limited by FERC, which may act on an expedited basis to remove or modify any limitations placed by the ISO.</p>

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<p>remain in effect only if approved by FERC.</p>		
<p>There are no changes proposed to the residual unit commitment process (RUC) as a result of convergence bidding</p>	<p><b>Support</b></p> <p>Constellation, DC Energy, Dynegy, NRG, RRI, Shell Energy</p> <p>WPTF: Given that the RA program mandates sufficient planning reserve capacity, all of which must participate in the RUC market at a \$0/MW price, the possibility of market participants using virtual supply to force non-zero RUC prices seems remote. Further the ISO has established a process to review start-up and minimum load bidding considering the need for mitigation.</p> <p><b>Oppose</b></p> <p>CPUC, PG&amp;E</p> <p>SCE: Believe a comprehensive redesign of RUC is needed, especially with the introduction of nodal virtual bidding. The ISO has simply assumed away any problems with RUC without reasonable analysis and without properly considering the impact nodal virtual bidding will have on RUC.</p>	<p>Some market participants believe that a comprehensive redesign of residual unit commitment (RUC) is needed, especially with the introduction of nodal virtual bidding could increase reliance on RUC. In January 2008, prior to MRTU start-up, the ISO performed tests and provided a report on RUC performance in response to stakeholder concerns about the design, performance and results from the residual unit commitment process seen in market simulation. At that time the ISO determined that that the results and performance of RUC were consistent with the FERC-approved RUC design and, most importantly, did not indicate any flaws in either the design or the implementation of RUC that suggest there could be unintended consequences that would jeopardize the successful performance of the new MRTU market structure.</p> <p>The ISO revisited this topic again in the context of convergence bidding and performed some additional tests to simulate the effect that large quantities of virtual supply and nodal virtual demand could have on RUC. The initial testing showed no anomalous or extreme RUC results in terms of quantities and costs of RUC capacity or RUC prices. Additional testing will be performed on RUC once the ISO has a system in place to submit virtual bids under market simulation conditions. This will occur during the implementation phase of convergence bidding.</p> <p>Management will address the need for market power mitigation in RUC in the stakeholder process that is currently addressing changing rules for start-up and minimum load bidding in the event that there is a decision to increase caps or frequency for start-up and minimum load bids.</p> <p>The simultaneous optimization of RUC and IFM was ranked high in the most recent round of the market initiatives roadmap process. Implementation analysis and planning for this market enhancement still need to be determined.</p>