



# Memorandum

**To:** ISO Board of Governors

**From:** Keith Casey, Vice President, Market & Infrastructure Development

**Date:** March 14, 2018

**Re: Decision on commitment costs and default energy bid enhancements proposal**

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*This memorandum requires Board action.*

## EXECUTIVE SUMMARY

Management proposes to modify the ISO's rules for submitting supply offers to allow suppliers to more accurately reflect their costs in the ISO market. The modifications will provide increased flexibility for suppliers to bid in their actual costs, along with safeguards to mitigate market power under uncompetitive conditions. Some of these rule changes are also needed to comply with Federal Energy Regulatory Commission (FERC) Order No. 831.

The ISO market design allows resources to submit separate bid components for their market bid for energy above minimum load, minimum load costs, start-up costs and, for multi-stage resources, their transitions from one configuration to another. Minimum load, start-up, and transition costs are collectively referred to as "commitment costs."

Under the current design, the ISO calculates daily "reference levels" for each natural gas generator that are based on published natural gas price indices. Commitment cost bids are capped at reference levels determined by 125 percent of the ISO-calculated costs. The ISO sets reference levels for energy above minimum load at 110 percent of its calculation of each resource's costs. These energy reference levels are referred to as "default energy bids."

Unlike energy bids, which the ISO market only limits to a resource's default energy bid if it detects local market power, commitment cost bids are always capped at the resource's reference level, even under competitive conditions. The California ISO is the only ISO in the United States to do this. Other ISOs only limit commitment cost bids to reference levels if market power is detected.

Suppliers have raised concerns that the current commitment cost bid cap does not always allow suppliers to reflect their actual or expected costs. The gas price indices used to calculate reference levels may not reflect the wide variety of generators throughout the ISO balancing area and the broader Energy Imbalance Market footprint, and may not reflect volatile or illiquid gas markets. This existing cap can undermine market efficiency and discourage participation in the market. Additionally, the existing daily minimum load bid construct prevents resources from reflecting minimum load costs that vary throughout the day.

Management proposes to enhance suppliers' ability to reflect commitment costs by replacing the static commitment cost bid cap with a dynamic commitment cost local market power mitigation test. The ISO will run the test in the market systems and will mitigate commitment cost bids prior to executing the applicable market run if a resource is needed to relieve a transmission overload. Management also proposes a "circuit-breaker" commitment cost bid cap to protect against test failures.

Management's proposal also includes enhancements that enable suppliers to request adjustments to both commitment cost and energy reference levels before the ISO market runs. Verified cost adjustments would then be used in the ISO market runs. In the event the costs could not be verified prior to the market run, Management proposes that the market participant be given the opportunity for an after-the-fact recovery of actual costs that could not be verified before the market ran. The proposal also changes minimum load bids from daily to hourly.

Management presented this proposal to the Energy Imbalance Market governing body on March 8, and the Governing Body voted to provide advisory input to the ISO Board of Governors supporting this proposal.

Management proposes the following motion:

***Moved, that the ISO Board of Governors approves the proposal to implement the commitment costs and default energy bid enhancements described in the memorandum dated March 14, 2018; and***

***Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the commitment costs and default energy bid enhancements described in the memorandum dated March 14, 2018, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Federal Energy Regulatory Commission guidance in any initial ruling on the proposed tariff amendment.***

## DISCUSSION AND PROPOSAL

The following sections first provide related background information describing the ISO existing supply bidding related market rules and FERC's Order No. 831, and then describe Management's proposal to enhance suppliers' ability to reflect and recover costs in the ISO market.

### Background

The ISO market design allows resources to submit separate bid components for their market bid for energy above minimum load, minimum load costs, start-up costs and, for multi-stage resources, their transitions from one configuration to another. Minimum load, start-up, and transition costs are collectively referred to as "commitment costs."

The ISO calculates daily reference levels for each natural gas generator that are based on published natural gas price indices.<sup>1</sup> The ISO sets commitment cost reference levels at 125 percent of its calculation of each resource's costs. The ISO sets reference levels for energy above minimum load at 110 percent of its calculation of each resource's costs. These energy reference levels are referred to as "default energy bids."

The ISO market uses the energy reference levels as part of its local market power mitigation measures for energy bids. The market replaces a resource's energy bid with its default energy bid if the resource fails a test that detects if the resource has market power in setting energy locational marginal prices. Otherwise, the market rules only limit energy bids to a \$1,000/MWh "circuit-breaker" cap.

In contrast, commitment cost bids are always limited by a static bid cap set at the ISO's daily calculation of 125 percent of a resource's costs.<sup>2</sup> The California ISO is the only ISO or RTO in the United States to do this. Other ISOs and RTOs only limit commitment cost bids to reference levels if market power is detected. Specifically, PJM uses a three-pivotal supplier test to detect local market power, which is similar to the California ISO's energy local market power test, and only limits commitment costs if a resource fails the test. Alternatively, NYISO, MISO, SPP, and ISO-NE use a conduct and impact market power test for commitment costs, and only potentially limit commitment costs if a supplier's bids (i.e. its "conduct") are above a certain cost threshold.

A temporary tariff provision adopted to address the limited use of the Aliso Canyon storage facility provides for the ISO to calculate reference levels for the day-ahead market based on natural gas price index information published by the Intercontinental Exchanges (ICE) based on "next-day" gas trading occurring on the morning of the day-ahead market. The ISO

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<sup>1</sup> The ISO calculates reference levels for other supply resources based on costs suppliers submit to the ISO's master file.

<sup>2</sup> Use limited resources are currently allowed to use the "registered cost" option for commitment costs that fixes a resource's commitment cost up to 150% of projected costs for 30 days. Changes approved by the Board of Governors in March 2016 will limit the registered cost option to new use-limited resources that do not have one year of locational marginal price data to calculate an opportunity cost adder.

calculates reference levels for the real-time market based on gas price indices published the evening before the day of the real-time market, which are based on next-day gas trading.

These gas price indices used for the day-ahead market and real-time market may not reflect actual costs, particularly for the real-time market, because “same-day” gas prices can be significantly different than the next-day gas prices that occurred on the prior day. These gas price indices may also not reflect individual generators’ costs throughout the ISO balancing area and the broader western energy imbalance market footprint that may be located away from the gas trading hubs on which the indices are based.

Resources are also limited in accurately reflecting commitment costs because minimum load bids are currently daily values in which suppliers can only submit a single hourly minimum load cost for the entire day. Although suppliers can update this cost for the remainder of the day in the real-time market, not allowing minimum load cost bids to vary by hour prevents either the day-ahead or real-time markets to consider costs that may vary hourly.

In summary, the ISO’s existing commitment cost bidding rules based on a static commitment cost bid cap can inappropriately limit resources from reflecting their actual costs. It is especially important for suppliers to be able to reflect accurate commitment costs so that the ISO market efficiently commits the right set of resources. Similarly, the ISO’s existing calculation of default energy bids may not accurately reflect individual resources’ actual costs to produce energy.

Management’s proposal also addresses compliance with FERC’s Order No. 831. This order requires allowing energy supply bids that can set market prices of up to \$2,000/MWh if the bid is based on verifiable actual costs. Bids for virtual supply or imports do not have to demonstrate actual costs. The order states that energy supply bids above \$1,000/MWh that are subject to cost verification can only set market prices if the ISO can verify the costs prior to the market run. Otherwise, the resource is eligible for an uplift payment if the ISO verifies the costs after-the-fact.

## **Proposed changes**

Management proposes to modify the ISO’s rules for submitting supply offers to allow suppliers to accurately reflect and recover their costs in the ISO market. These rule changes include safeguards against market power and are described in the following sections.

### ***Replace static commitment cost cap with “market-based” commitment cost bids and commitment cost local market power mitigation test***

Management proposes to replace the static commitment cost bid cap set at each resource’s reference level with rules that will allow suppliers to submit “market-based” commitment cost bids. The market would only mitigate these bids to a resource’s

commitment cost reference level if a test in the market detects the resource has commitment cost local market power. Otherwise, these “market-based” bids will only be limited by a circuit-breaker commitment cost bid cap. Management also proposes related rule changes to protect against inflated commitment costs when the market must keep a resource on because of inter-temporal constraints or other market conditions.

There are two situations under which the proposed commitment cost market power mitigation test will mitigate commitment costs. First, the test will mitigate commitment costs when a resource can relieve a non-competitive constraint that is “binding” in the market, for example, when flows on a transmission line are at the line’s capacity.<sup>3</sup> Second, the test will mitigate commitment costs of any committed resource the market could have potentially committed to relieve the constraint. This second situation is necessary because the market may commit a resource based on its minimum load and then the constraint the market committed it to relieve becomes not binding. These are the resources that potentially have commitment cost market power because the market may have committed them to unload the constraint.

Management proposes to limit market-based commitment cost bids to a circuit-breaker bid cap to guard against potential situations not accounted for by the commitment cost local market power mitigation test and related rules. Management proposes to phase-in commitment cost bidding flexibility to ensure the commitment cost local market power mitigation test and related rules are functioning appropriately when first implemented. Management proposes to set the circuit breaker commitment cost bid cap for the first 18 months at 150 percent of each resource’s commitment cost reference level. After this period, the cap will increase to 300 percent of each resource’s commitment cost reference level. Management proposes 300 percent because it provides a reasonable range based on historical gas-price volatility to capture costs the vast majority of the time and because it is similar to the bid amounts subject to mitigation under other ISO’s conduct and impact test commitment cost market power mitigation methodologies.

Similarly, management proposes to phase-in the level to which the market will mitigate commitment costs in the event a resource fails the commitment cost market power test. For the first 18 months, Management proposes to mitigate the commitment costs of resources that fail the commitment cost market power test to 125 percent of ISO-calculated costs, which is similar to the current static commitment cost bid cap. This is so that suppliers will not be subject to a more restricted ability to reflect costs than under the existing rules in the event the new commitment cost local market power mitigation test inaccurately detects market power when in fact it does not exist. After 18 months, the market will mitigate commitment costs of resources that fail the commitment cost market power mitigation test to 110 percent of ISO-calculated costs. This value is calculated similarly to a default energy bid, which is also 110 percent of ISO-calculated costs.

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<sup>3</sup> It will also mitigate the commitment cost of any resource needed to meet a minimum online constraint. These constraints commit a minimum amount of capacity within a limited area and generally do not entail competitive conditions.

The phased-in approach provides protection against potential false positives and false negatives of the dynamic commitment cost market power mitigation. In the event the ISO determines the market power mitigation is not functioning as designed, we will correct the mitigation or file with FERC to extend the period of the interim bid caps.

Management proposes related rules to disallow changes to minimum load bids when the market must keep a resource or multi-stage generator configuration on or off because of an exceptional dispatch instruction. Similar to the existing energy settlement rules for exceptional dispatches, these rules would apply to exceptional dispatches needed to relieve constraints deemed uncompetitive ahead of time based on historical pivotal supplier test results. Similar rules will apply when the market cannot shut a resource down until it ramps it to its minimum load.

### ***Allow market participants to request adjustments to their energy and commitment cost reference levels***

As described earlier, in the operational timeframe, a resource's actual costs may differ from the ISO-calculated costs used to determine a resource's energy or commitment cost reference level. Management proposes to allow suppliers to request an adjustment to a resource's reference level if its documented costs exceed the costs the ISO used to calculate the reference level.

Management proposes to screen energy and commitment cost bids reference level adjustment requests using an automated "reasonableness threshold." The market will automatically accept reference level adjustment requests that fall within the reasonableness threshold. Otherwise, it will cap the adjustment at the reasonableness threshold. An exception will be for energy bid costs above \$1,000/MWh as required by FERC Order No. 831, which mandates that the ISO verify incremental energy offers above the \$1000/MWh cap are cost-based and accurately reflect their actual or expected short-run marginal cost prior to the market run. Consistent with this requirement, time permitting, the ISO will review manually the resource's costs that exceed the energy before the market runs, if the supplier submits the appropriate evidence in a timely manner. Management does not propose to extend this same manual verification opportunity to the commitment costs because it would be virtually impossible to verify these costs before the market run given that they are based on more complex factors other than the cost of fuel, which is the main driver for incremental energy costs and more easily verifiable. In any case, as discussed below, Management proposes that suppliers have the opportunity to demonstrate their costs incurred after the market run if they exceed the thresholds and could not be verified before the market run.

Management proposes that the reasonableness threshold be the result of a daily resource-specific calculation that adds a fixed percentage to the fuel cost component of a resource's reference level calculation. For natural-gas-fired resources, Management proposes to calculate the reasonableness threshold by scaling the gas price used in the

reference level calculation by 125 percent on Mondays or days after holidays, which are subject to increased price volatility due to the lag between the trading and operational days, and by 110 percent on other days. Management proposes to scale the fuel or fuel-equivalent costs of other resources by 110 percent.

Management selected these scaling percentages to capture most of the difference between actual gas purchases and the published indexes. The reasonableness threshold calculation for Mondays and days after holidays scales gas price by a higher percentage because the practices for purchasing gas over the weekend and for Monday, and trading conditions involving holidays, frequently cause the actual gas purchase price to exceed the published index.

Management proposes that the ISO have the ability to modify the standard reasonableness threshold calculation of individual resources to reflect particular differences between these resources' costs and the costs used to calculate their reference levels. As described below, Management's proposal includes provisions for suppliers to seek after-the-fact cost recovery for actual costs incurred but for which the supplier submitted a reference level adjustment that was limited by the reasonableness threshold. The ISO would modify the standard reasonableness threshold calculation for an individual resource if repeated after-the-fact cost recovery requests showed the standard calculation did not reflect the resource's costs.

Management proposes to require that suppliers base reference level adjustment requests on actual price quotes. The ISO will have the authority to audit these requests even if they fall within the thresholds and there will be provisions to suspend the ability of a supplier to request reference level adjustments, and to potentially refer the supplier to FERC for submitting false information, if its requests cannot be backed up with actual price quotes.

***Allow market participants to seek after-the-fact cost recovery for actual incurred costs for which the ISO approved a reference level adjustment request before the market ran***

Management proposes to allow suppliers to request after-the-fact that the ISO review a reference level adjustment request that was limited by the reasonableness threshold and not incorporated into the market. Verified actual costs would be eligible for after-the-fact recovery through a bid cost recovery uplift payment. To comply with FERC Order No. 831, this will include energy costs above the \$1000/MWh that were not manually verified before the market run and \$2,000/MWh cap that were not included in the market.

The costs eligible for after-the-fact recovery will be limited to documented actual costs. The supplier would have to incur these costs contemporaneously with the market they were used for and the gas system balancing rules would have to not allow any delay in procurement. In addition, the supplier will have to attest it does not have balancing group arrangements that allow it to delay purchasing gas. If a supplier can delay

purchasing gas, it could presumably purchase gas at prices more consistent with the reasonableness threshold.

### ***Hourly minimum load costs***

Management proposes to change minimum load bids from daily to hourly bids. As described earlier, resources currently are unable to accurately reflect commitment costs because suppliers can only submit a single hourly minimum load cost for the entire day. Allowing minimum load cost bids that vary by hour will allow the ISO market to consider costs that may vary by hour and better enable suppliers to recover these costs.

Management also proposes to allow resources that do not have a minimum load output level, i.e. minimum load value is set at zero MW, to nonetheless have an hourly commitment that the market will treat the same as a minimum load cost. An example of such a cost is the cost for a demand response resource to maintain readiness to respond to a real-time market dispatch instruction.

### **Other changes**

Finally, management proposes the following additional changes:

- Establish a negotiated option for determining commitment cost reference levels, similar to the existing negotiated option for determining default energy bids.
- Make permanent the existing temporary tariff provision that provides for the ISO to calculate reference levels for the day-ahead market based on natural gas price index information published by the Intercontinental Exchanges (ICE) based on “next-day” gas trading occurring on the morning of the day-ahead market. This is an important provision as it improves the accuracy of resource reference levels used for the day-ahead market.
- Make permanent an existing tariff provision that provides for the ISO to publish two-day-ahead advisory market results to market participants. This will benefit market participants as it allows them to better estimate day-ahead market results so they can more accurately purchase gas before the day-ahead market runs.
- Recalibrate the ISO market’s constraint relaxation price parameters to be consistent with the increased \$2,000/MWh energy bid cap required by FERC Order No. 831. These price parameters are intended to be reflected in the market to reflect scarcity in the event the market has to relax a constraint to come to a feasible solution. They need to be proportional to the level of the energy bid cap to function appropriately.

## **POSITIONS OF THE PARTIES**



Stakeholders are generally divided on the balance between increased bidding flexibility to allow suppliers to more accurately reflect costs versus protecting against market power and other adverse market behavior.

The ISO's Market Surveillance Committee, EIM participants, third-party generators, and the Environmental Defense Fund either strongly support management's proposal or support it as better than the existing rules but maintain it still does not offer enough bidding flexibility. These stakeholders strongly support management's proposal to allow "market-based" commitment cost cap bids that are only mitigated under local market power conditions, maintaining that ISO-calculated reference levels are often below resources' actual costs. These stakeholders believe it is important to expeditiously implement Management's proposal to correct this.

The Market Surveillance Committee concludes in its final opinion on Management's proposal as follows: "Overall, we support these elements of the CAISOs dynamic market power design and believe it will both enable the CAISO to provide more offer price flexibility to gas-fired resources within the CAISO during periods of gas price volatility and will also enable the CAISO to coordinate a more efficient market across the broader EIM region and better accommodate the diverse gas supply situations of utility generation across the west." The Environmental Defense Fund notes that Management's proposal is critical to ensure the full actual costs of gas-fired generation are reflected in the ISO market so that the ISO market does not overly rely on gas-fired generation, and thus increasing greenhouse gas emissions, by artificially suppressing its price.

EIM participants and third party generators generally maintain the commitment cost circuit breaker bid caps should be higher because they could restrict legitimate costs, especially during the initial 18-month phase-in period.

The ISO Department of Market Monitoring (DMM), as well as PG&E and SCE, appear to agree with Management's proposal in principle, but maintain it needs additional safeguards to protect against market power and other ways adverse market behavior could inflate costs. They maintain Management's proposal that allows suppliers to request adjustments to resource reference levels, and greater commitment cost bidding flexibility in general, may provide opportunity for adverse market behavior to inflate costs. DMM and PG&E also maintain the ISO should further test commitment cost local market power mitigation before implementing it. In response, Management changed its proposal by lowering the interim circuit breaker bid cap from 200 percent to 150 percent of a resource's reference level. This change allows additional protections during the first 18 months to ensure the new market power mitigation provisions are working as designed.

DMM and PG&E, as well as some other stakeholders, maintain the ISO should implement a DMM proposal to update the gas price used to calculate real-time market reference levels based on gas trades the ISO observes on ICE rather than

implementing Management's proposed procedures for automated reference level adjustments.

Management believes its proposal strikes an appropriate balance between increased bidding flexibility to allow suppliers to more accurately reflect costs versus protecting against market power and other adverse market behavior. Management believes a core design principle should be that suppliers are much more able than the ISO to determine their costs. Management's proposal for commitment cost local market power mitigation is robust, and Management has examined the potential for other adverse market behavior to inflate costs under its proposal and has addressed all of the identified ways this could occur.

Management does not believe DMM's proposal to update real-time market reference levels based on gas trades observed on ICE would be consistent with FERC's recent guidance on the ISO's Aliso Canyon gas-electric coordination proposals. FERC has required the ISO to only use gas price index information that meets certain FERC standards. The gas trade information DMM proposes to use does not meet those standards. While management believes that gas trade information could be used, along with other information, as part of a manual reference level adjustment approval process, that process would be labor intensive. Management believes its proposal for an automated proposal strikes a balance between implementation cost and complexity, providing suppliers flexibility, and protecting against adverse market behavior.

A stakeholder comment matrix is included as Attachment A. The Department of Market Monitoring raised several concerns in their comments on the revised draft final proposal. Management has provided a detailed response to DMM's comments included as Attachment B. The Market Surveillance Committee provided a formal opinion on Management's proposals and is included as Attachment C.

## **CONCLUSION**

Management requests Board approval of the proposal discussed above. The proposed changes will significantly improve suppliers' ability to accurately reflect cost expectations, provide an additional mechanism for cost recovery, and encourage increased participation from flexible resources in the ISO balancing area and the voluntary western energy imbalance market.