



Memorandum

To: ISO Board of Governors

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

Date: March 14, 2018

Re: **Decision on congestion revenue rights auction efficiency proposal**

This memorandum requires Board action.

EXECUTIVE SUMMARY

Management is seeking Board approval of several rule changes to the ISO congestion revenue rights design that will serve as a first step in addressing the observed inefficiencies with the ISO congestion revenue rights auction. As discussed below, Management plans to bring further proposed changes to the Board in early summer, but is seeking action on these proposed changes now so that they can be developed and implemented in time for the 2019 annual congestion revenue right allocation and auction process.

Over recent years, the ISO has sold congestion revenue rights in its auction for substantially less than their payouts based on day-ahead market congestion revenue. Since 2014, these auction congestion revenue right sales have averaged \$99.5 million per year less than the payments these entitlements received from the day-ahead market. In an efficiently functioning auction, auction revenues should more closely align with congestion revenue rights payouts.

Last year, the ISO undertook a comprehensive root cause analysis of the systemic problem of congestion revenue right payouts greatly exceeding the prices paid for these rights in the auction. The ISO was able to use the insights obtained from that analysis, completed late last year, to consider various policy changes to address the auction revenue deficiency. Based on the policy work done to date, Management proposes to implement the following changes this summer in time for the 2019 congestion revenue right auction and allocation processes:

- Limit allowable source and sink pairs in the auction to combinations that align with hedging physical deliveries of energy in the ISO market. This will eliminate other congestion revenue rights (i.e., source-sink pairs) that are not aligned with physical deliveries of energy and have historically been a major part of the auction revenue shortfall.

- Create an additional annual transmission outage reporting deadline that is aligned with the annual congestion revenue rights allocation and auction process so that known transmission outages can be incorporated into the congestion revenue rights model used in the annual congestion revenue right process. This will better align the transmission topology in the annual allocation and auction model with the transmission topology used in the day-ahead market, improving the auction's efficiency.

Management continues to work on additional modifications to the 2019 congestion revenue rights auction, which it plans to bring to the Board in early summer, that are designed to further mitigate congestion revenue right payouts in excess of auction revenues. Among the changes being considered are a partial funding approach to congestion revenue rights and reducing the amount of congestion revenue rights released in the annual auction process. Management is also willing to further discuss and seek stakeholder input on a proposal by the Department of Market Monitoring and certain load serving entities to limit the congestion revenue rights auction to capacity brought forward by willing buyers and sellers. However, Management has concerns that such an approach may be inconsistent with FERC-policy and could undermine certain benefits that can only be attained through an ISO-run auction process. Management will also continue to explore additional rule changes that will take more time to develop and implement for the 2020 congestion revenue rights auction.

Management proposes the following motion:

Moved, that the ISO Board of Governors approves the proposal to implement the congestion revenue rights auction efficiency proposal 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 congestion revenue rights auction efficiency proposal 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.

BACKGROUND

Congestion revenue rights facilitate participation in the ISO's market by providing market participants the ability to hedge congestion costs associated with the supply delivery in the ISO's locational marginal price-based day-ahead market. Allowing market participants to hedge congestion cost risk is an important part of the ISO's market design. Congestion revenue rights provide market efficiency benefits through enabling market participants to hedge their exposure to congestion cost risk, which reflects the cost of redispatch to address congestion on the transmission grid. As a result, market

participants are able to engage in more efficient power contracting because suppliers do not have to include congestion cost risk premiums in their supply contracts or their energy bids. Congestion revenue rights and the congestion revenue rights auction are a standard part of all of the ISO and RTO market designs in the United States.

Congestion revenue rights entitle holders to a payment or charge based on the differences, due to congestion, of the locational marginal prices between two locations in the day-ahead market. For instance, if location A has a locational marginal price of \$30/MWh and location B has a locational marginal price of \$50/MWh, the holder of a congestion revenue right from location A to location B will receive \$20/MWh (the difference between location A and location B day-ahead energy prices). An entity with supply at location A but with demand at location B would be exposed to \$20/MWh in congestion charges if it does not acquire a congestion revenue right from location A (the source) to location B (the sink). The entity would receive \$30/MWh in day-ahead market energy payments for supply at location A, but would be charged \$50/MWh for energy delivered to location B in the day-ahead market. This entity can hedge the \$20/MWh congestion cost by purchasing the congestion revenue right.

Market participants obtain congestion revenue rights in annual and monthly allocation and auction processes. In both the annual and monthly process, the ISO first allocates congestion revenue rights to load serving entities based on their requests, and then auctions the remaining congestion rights to all eligible participants (e.g., generator owners, marketers, and financial traders). Currently, the ISO releases 75 percent of system transmission capacity in the annual allocation and auction process and 100 percent of system capacity in the monthly allocation and auction process. Each congestion revenue right has a source and a sink. Sources and sinks currently can be at generator locations, load locations, trading hubs, pricing nodes, and import/export scheduling points. The auction produces prices based on auction participants' bids for congestion revenue rights and a model of the transmission system. The auction models flows from the sources to the sinks of all congestion revenue right bids. The auction price of a congestion revenue right will be non-zero if it produces flows over transmission constraints for which there is more demand for transmission capacity than available transmission capacity. The auction revenue received for a congestion revenue right will be less than the payments made to the holder if a constraint frequently binds in the day-ahead market at a high congestion cost, but does not bind, or binds at a lower cost, in the auction.

The price of congestion revenue rights used as a hedge to lock in the cost of day-ahead market transmission service on a forward basis should reflect market participants' expectations of congestion price exposure in the day-ahead market plus a premium due to the certainty they provide. Generally, over the long-term, congestion revenue rights prices should reflect the value of the hedge provided against day-ahead market congestion charges and consequently should generate auction revenues that are more or less commensurate with the payments congestion revenue rights receive from the day-ahead market.

The ISO's congestion revenue rights auction has not been efficient because auction revenues have been much less than congestion revenue right payments, rather than producing prices reflecting congestion revenue rights' value as hedges. Total payments to auctioned congestion revenue rights in 2014 were \$187 million more than auction revenues. This shortfall decreased in 2015 to about \$60 million, further decreased in 2016 to about \$51 million, but has increased in 2017 to \$100 million.

PROPOSAL

Management proposes several congestion revenue right auction and allocation process rule changes that it proposes to implement beginning with the upcoming annual auction and allocation process for 2019 that starts in July. Implementing the rule changes in the 2019 annual process should help mitigate the shortfall in annual auction revenue as compared to the payments to the congestion revenue rights. These proposed rule changes are based on Management's extensive analysis of the drivers of the low auction revenues compared to congestion revenue right payments, which it published in a report last November.

Management is pursuing other congestion revenue right rule changes that do not require tariff changes. These include greater transparency on transmission outage reporting performance, process improvements, and a review of current modeling criteria. Management also plans to work with stakeholders on additional measures. It plans to seek the ISO Board of Governors' approval in early summer for some or all of these additional items in time for the upcoming annual auction and allocation process that starts in July.

The initial congestion revenue right auction and allocation process rule changes that Management proposes to implement beginning with the annual auction and allocation process for 2019 are described below.

Limit allowable source and sink pairs in the auction

Management proposes to limit congestion revenue right sources and sinks to only the combinations needed to hedge congestion costs associated with delivering supply. As previously described, congestion revenue right auction participants can currently purchase congestion revenue rights that have sources and sinks at generator locations, load locations, trading hubs, pricing nodes, and import/export scheduling points. This allows auction participants to bid for congestion revenue rights at many different locations, increasing their ability to purchase congestion revenue rights involving constraints that do not bind or bind at a lower cost in the auction, but then bind at relatively high prices in the day-ahead market. This results in congestion revenue rights being purchased at a much lower price in the auction than the payments made based on the day-ahead market.

To mitigate this issue, Management proposes to only accept congestion revenue right bids sourcing and sinking in the following ways: (1) from a generator bus to a load serving entity load aggregation point, a trading hub, or scheduling point; or (2) from a trading hub to a load serving entity load aggregation point or scheduling point; or (3) from scheduling point to a load serving entity load aggregation point or trading hub.

Management's analysis of the congestion revenue rights auction revenue deficiency revealed that congestion revenue rights that do not have these proposed sources and sinks have historically accounted for 81 percent of the congestion revenue right profits. Moreover, market participants purchased these rights for 38 cents on the dollar. In contrast, market participants purchase congestion revenue rights that do have the proposed sources and sinks for 74 cents on the dollar. Thus, no longer allowing non-delivery pair bids will enable congestion revenue right auction participants to obtain hedges for supply delivery while eliminating a significant contributor to the excessive congestion revenue right profits.

Management also proposes to provide a mechanism through which market participants that acquire congestion revenue rights in the allocation or auction processes can sell those rights back into auctions. Currently the congestion revenue rights auction does not have an explicit sell feature for congestion revenue rights.

Create annual outage reporting deadline for annual congestion revenue rights process

Management proposes to create an annual transmission outage reporting deadline in order to receive transmission outages in time to model in the annual congestion revenue rights allocation and auction. Transmission outages have a direct impact on the amount of transmission capacity that can be made available to market participants as congestion revenue rights. The ISO currently releases 75% of transmission capacity in its annual allocation and auction processes to account for potential unknown outage conditions. However, even at this level, Management found that congestion revenue rights awarded in the annual process routinely exceed the amount of capacity available in the monthly processes because of outages identified after the ISO has conducted the annual process. Obtaining transmission outages in time for the annual process is crucial to ameliorating this deficiency because it would allow the ISO to reduce the transmission capacity in the annual process to account for the outage and not release the congestion revenue rights in the first instance.

Transmission outage information affects more than just the network topology that the ISO uses in its allocation and auction process. The ISO relies on the outage information to determine appropriate constraints and contingency conditions to monitor in the allocation and auction. If the conditions considered in the annual process are far different from the actual conditions, auction revenues collected in the annual process will not be enough to cover eventual payouts leading to a higher auction revenue deficiency. Management's analysis shows that almost half of the auction revenue

deficiencies are associated with congestion revenue rights that the ISO awards in the annual process.

To address this inefficiency, Management proposes to require transmission owners to submit outages that could potentially cause congestion revenue inadequacy for the following calendar year by July 1. These consist of the same types of outages that transmission owners are currently required to report thirty days prior to the month in which the outages are to occur. Management also proposes to narrow this requirement to outages that could potentially cause congestion revenue inadequacy to facilities that meet the current voltage and duration requirements as defined in the tariff and result in transmission topology changes. This proposal is consistent with outage reporting rules at other ISOs and RTOs.

POSITIONS OF THE PARTIES

The generation, marketing, and financial communities do not support the proposal to limit the allowable source and sink pairs in the auction because they argue it will hinder a participant's ability to manage its congestion exposure, and thereby increase costs. They also argue that in order for a participant to hedge congestion exposure under the proposed rules, they will have to purchase a larger quantity of less effective congestion revenue rights forcing participants to add higher risk premiums into their offers, further exacerbating the auction efficiency issue. Southern California Edison does not support this proposal because they favor a more substantial change of limiting the congestion revenue rights auction to willing counterparties.

The California Department of Water Resources, Energy Users Forum, Marin Clean Energy, Northern California Power Agency, the Office of Ratepayer Advocates, Pacific Gas & Electric Company, Powerex, and the Six Cities support the proposal to limit the allowable source and sink pairs in the auction because it may provide auction revenue deficiency relief, but mostly see it as a short-term measure on the way to more comprehensive changes.

Most stakeholders support changes to the outage reporting rules. The generation, marketing, and financial communities advocate for stricter outage reporting rules with clear financial accountability assigned to transmission owners. Pacific Gas & Electric Company, and San Diego Gas & Electric do not support the proposal because it would increase the cost of transmission maintenance imposed on ratepayers. Southern California Edison and Silicon Valley Power do not support the proposal because they favor a more substantial change of limiting the congestion revenue rights auction to willing counterparties.

The Market Surveillance Committee supports both proposals.

A stakeholder comment matrix is included as Attachment A. The Market Surveillance Committee provided a formal opinion on Management's proposal and is included as Attachment B.

CONCLUSION

Management requests the ISO Board of Governors approve the changes described above. The proposed changes will improve congestion revenue rights auction competitiveness consistent with the use of congestion revenue rights as a hedge for supply delivery, reduce auction revenue deficiencies, and allow the ISO to more accurately release congestion revenue rights corresponding to transmission that will ultimately be available in the day-ahead market.

Management is continuing to work on additional modifications to the 2019 congestion revenue rights auction that it plans to bring to the Board in early summer that are designed to further mitigate payouts in excess of auction revenues.