

# Memorandum

**To:** ISO Board of Governors  
**From:** Eric Hildebrandt, Director, Market Monitoring  
**Date:** February 9, 2017  
**Re:** Department of Market Monitoring update

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*This memorandum does not require Board action.*

## EXECUTIVE SUMMARY

This memo provides a summary of annual market performance in 2016. The Department of Market Monitoring will provide a more detailed analysis of 2016 market performance in its annual report, which DMM plans to publish in April.

Average electricity prices in the ISO markets remained highly stable and competitive in 2016. Day-ahead and real-time electricity prices dropped about 13 percent, driven primarily by a 10-percent drop in the cost of natural gas. Electricity prices were also lower due to increased solar and hydro generation, and increased efficiency in the real-time market due to the expansion of the energy imbalance market.

Bid cost recovery payments dropped from \$92 million in 2015 to \$72 million in 2016. This drop represents a trend of decreasing bid cost recovery payments dating back to 2013. The drop in bid cost recovery payments in 2016 was driven by a \$15 million drop in bid cost recovery payments for the day-ahead market.

In 2016, revenues received by transmission ratepayers from the ISO's congestion revenue rights auction were \$47.5 million less than payments made by transmission ratepayers to entities purchasing these financial instruments. Auction revenues paid to transmission ratepayers equaled only \$.68 for every dollar paid out by ratepayers to other entities as a result of the congestion revenue rights auction. Most of these payments by ratepayers are made to purely financial entities that purchase congestion revenue rights but are not engaged in serving any load or managing any generation in the ISO market. DMM continues to work with the ISO and stakeholders in an effort to address this issue to avoid losses to transmission ratepayers.

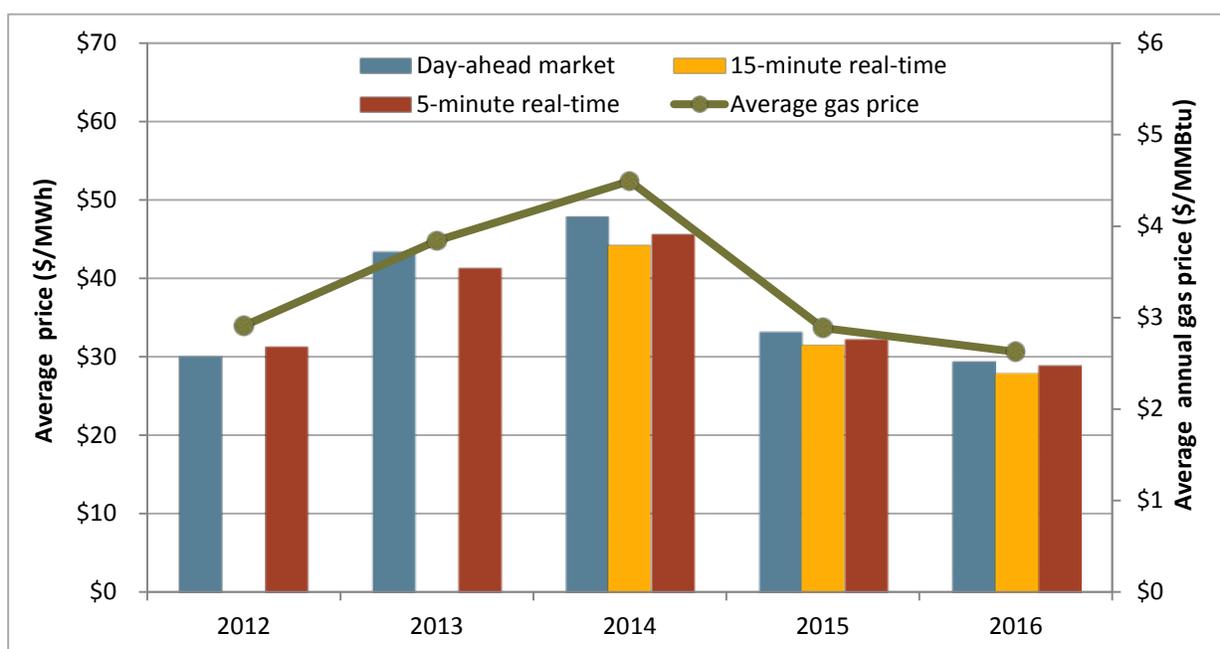
## Electricity market prices

Average electricity prices in the ISO markets remained highly stable and competitive. Average prices in the day-ahead and real-time market are approximately equal to prices DMM estimates would result under highly competitive conditions in which supply is offered at or near marginal costs.

As shown in Figure 1, day-ahead and real-time electricity prices dropped about 13 percent, driven primarily by a 10 percent drop in the cost of natural gas. Electricity prices were also lower due to increased solar and hydro generation, and increased efficiency in the real-time market due to the expansion of the energy imbalance market.

In 2016, average annual prices in the day-ahead and real-time market were very close, as shown in Figure 1. However, during many hours, day-ahead prices tended to be systematically higher than 15-minute prices. As noted in prior DMM reports, this trend tended to occur in the mid-day hours when real-time prices are often lower due to large amounts of solar generation.

**Figure 1. Average annual electricity and gas prices (2012-2016)**



## Bid cost recovery payments

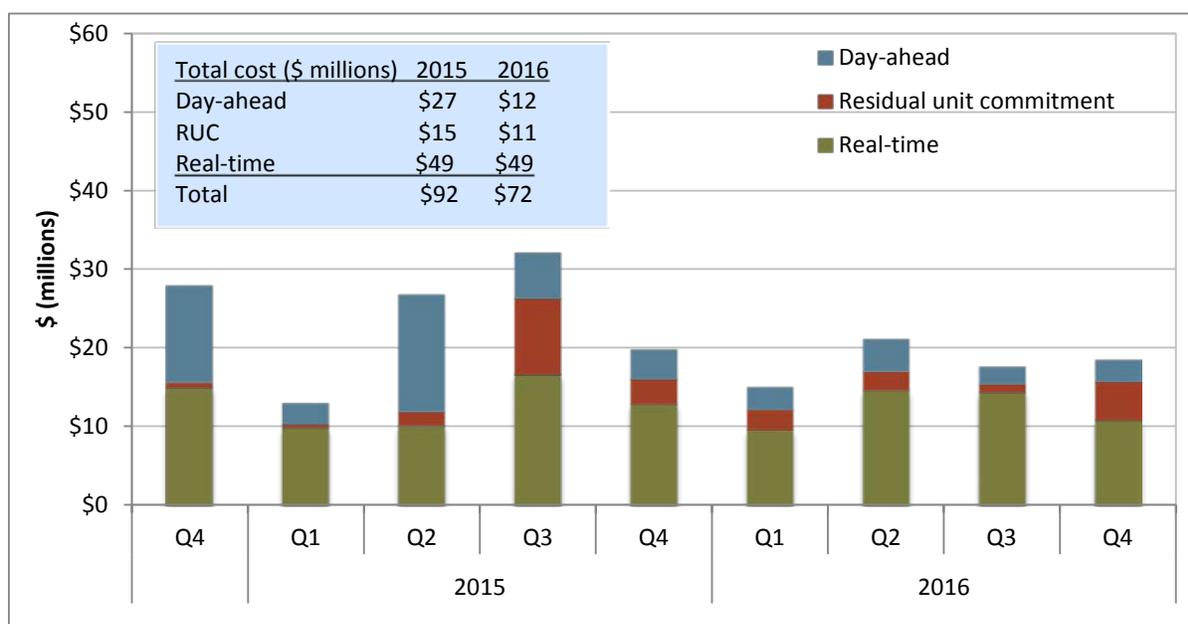
Bid cost recovery payments dropped from \$92 million in 2015 to \$72 million in 2016. This drop represents a trend of decreasing bid cost recovery payments since 2010. The drop in bid cost recovery payments in 2016 was driven by a \$15 million drop in bid cost recovery payments for the day-ahead market.

In 2015, day-ahead bid cost recovery payments were driven up by the need to commit additional capacity in northern California when transmission from southern California on Path 15 was limited by transmission outages. Additionally, in 2015 bid cost recovery payments for residual unit commitments were higher because of payments made in the third quarter to a number of long-start units for anticipated hot weather and high loads that did not materialize. These conditions were in part a result of El Niño weather patterns over California.

Bid cost recovery payments in 2016 totaled the lowest amount of payments since 2010, continuing a trend of decreasing overall payments since 2013, when payments totaled about \$107 million. Real-time payments continue to make up the majority of bid cost recovery payments made during 2016, also continuing a long-standing trend.

These bid cost recovery figures include payments made to units in the energy imbalance market, in addition to units in the ISO. Payments to these units totaled less than \$2 million in 2016, and were also small in 2015. Because these units are only participating in the energy imbalance market, bid cost recovery payments are only real-time payments.

**Figure 2. Bid cost recovery payments**



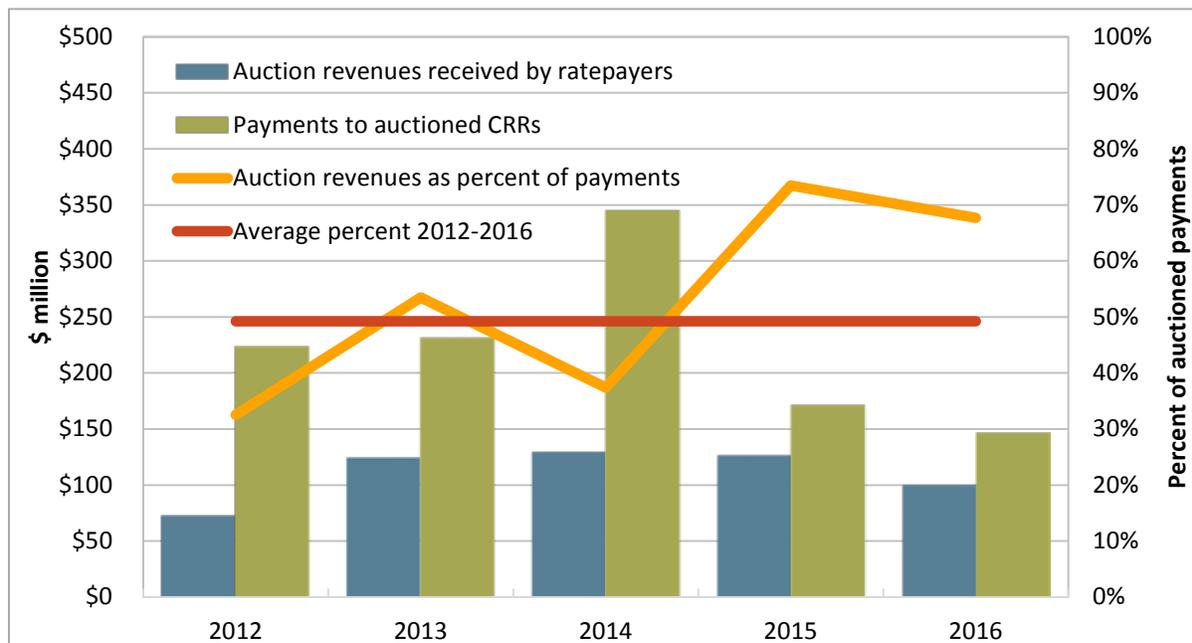
## Congestion revenue rights

In 2016, revenues received by transmission ratepayers from the ISO's congestion revenue rights auction were \$47.5 million less than payments made by transmission ratepayers to entities purchasing these financial instruments. Auction revenues received by transmission ratepayers equaled only \$.68 for every dollar paid out by ratepayers to other entities purchasing congestion revenue rights in the ISO's auction.

Most of these congestion payments are paid to purely financial entities that purchase congestion revenue rights but are not engaged in serving any load or managing any generation in the ISO market. In 2016, these financial entities received \$87.8 million in congestion payments for \$55.1 million in auction costs, representing a profit of 59 percent. Marketers received \$9.8 million in profits with a return of 27 percent. Owners of physical generating units that might purchase congestion revenue rights as a hedge for bilateral energy sales received \$4.9 million in profits with a return of 57 percent.

Figure 3 shows a continuation of a persistent trend that occurs each year. Since 2012, transmission ratepayers received an average of about \$123 million less per year in revenues from the ISO's auction compared to the payments made by ratepayers to entities purchasing these congestion revenue rights. Over the last five years, ratepayers have received about \$.49 in auction revenues for every dollar ratepayers paid out to other entities.

**Figure 3. Losses to transmission ratepayers due to ISO congestion revenue rights auction (2012-2016)**



DMM believes this trend warrants reassessing the component of standard electricity market design under which ISOs auction off additional congestion revenue rights after allocating congestion revenue rights to load serving entities.<sup>1</sup> In response to DMM's recommendation on this issue, the ISO has agreed to begin a stakeholder process to assess this issue in 2017. DMM is continuing to work with the ISO and stakeholders to further develop and assess options to address this issue.

DMM recommends that it is more equitable for the ISO to not auction off additional congestion revenue rights after allocating congestion revenue rights to load serving entities. If the ISO believes it is beneficial to facilitate a market for financial congestion contracts, DMM has recommended that the congestion revenue rights *auction* can be modified into an actual *market* for congestion revenue rights based on bids submitted by entities willing to buy or sell congestion revenue rights.

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<sup>1</sup> Congestion revenue rights are not actually the rights to congestion revenues. In most months, congestion revenues are significantly lower than the payments owed to the owners of congestion revenue rights. Congestion revenue rights are simply financial swap contracts, in which an entity pays a fixed price in the auction and then receives a payment stream equal to the difference between the day-ahead market LMPs of two nodes. Congestion revenues and auction revenues both go into the same pool of money (the Congestion Revenue Rights Balancing Account) that is used to settle the payment stream owed to congestion revenue rights holders. Therefore, transmission ratepayers end up having to use their congestion revenues to pay for losses they incur in the ISO's congestion revenue rights auction.