

News Release

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ISO markets continued to perform competitively in 2016

Department of Market Monitoring reports total wholesale costs decrease 9%

FOLSOM, Calif. – The California Independent System Operator’s (ISO) Department of Market Monitoring (DMM) reports that wholesale energy markets remained competitive in 2016 with wholesale prices decreasing by about 9 percent. Market prices were low because of lower natural gas prices, improved hydro-electric conditions, moderate loads and about 1,900 megawatts of new peak summer generating capacity from solar resources.

Overall prices in the ISO energy markets in 2016 were highly competitive, averaging close to what the DMM estimates would result under highly efficient and competitive conditions.

- The total estimated wholesale cost of serving load last year was about \$34 per megawatt-hour, which was about 9 percent lower than in 2015, and the lowest nominal cost since 2008. The primary driver of lower electric prices was a 9 percent drop in natural gas prices.
- Costs for various ancillary services procured to reliably back up and balance other generating resources increased from \$62 million in 2015 to \$119 million or about 1.6 percent of wholesale cost in 2016. This cost increase was driven by an increase in regulation reserve capacity procured to help balance variable resources (solar and wind), particularly in the late winter and spring months.
- Transmission congestion within the ISO system was slightly lower than last year and had a limited impact on average overall prices across the system.

“Renewable generation increased significantly in 2016 and is expected to continue to increase in the future. This will continue to drive the need for market and operational mechanisms to increase flexibility of resource schedules and ramping capability,” said Eric Hildebrandt, Director of Market Monitoring.

The expansion of the ISO’s real-time energy imbalance market to include balancing areas in other states helped increase the efficiency of generation dispatches throughout the West. Increased regional integration in the real-time market helped manage supply fluctuations due to increased reliance on renewable energy and kept the need to decrement renewable generation in the ISO quite low.



Congestion revenue rights sold in the ISO's auction continued to consistently generate significantly less revenue for transmission ratepayers than is paid to the entities purchasing these financial products in the ISO's auction. From 2012 through 2016, ratepayers received about 49 percent of the value of their congestion revenue rights that the ISO auctioned. In 2016 this represented a loss to transmission rate payers of \$48 million. DMM continues to recommend the ISO address this issue by allowing transmission ratepayers to collect congestion revenues rather than auctioning off congestion revenue rights.

Non-hydroelectric renewable generation directly connected to the ISO system accounted for about 20 percent of total supply in 2016, up from about 18 percent from 2015. This growth was driven primarily by the increase in generation from solar resources. Energy from wind and solar resources directly connected to the ISO grid provided more than 15 percent of system energy, compared to about 12 percent in 2015. Solar energy production increased by about 32 percent compared to 2015 and accounted for about 9 percent of the total supply. The overall output from geothermal generation provided about 5 percent of system energy while contributed to about 6 percent of system energy. Natural gas power plants continued to be the largest source of energy in 2016 serving about 32 percent of load, although this was a drop of about 8 percent from 2015.

Meanwhile, hydroelectric generation increased to about 10 percent in 2016, up from about 5 percent of total supply in 2015.

Almost 3,300 megawatts of new generation connected to the grid in 2016 with about 2,300 megawatts of summer peaking capacity. Of the total new generation, about 1,900 megawatts was solar, about 300 megawatts of new natural gas power plants were added, and about 50 megawatts of storage interconnected to the grid. Over 1,200 megawatts of older natural gas plants were retired or went on long-term outage.

Demand Response programs operated by the ISO participating utilities continued to meet about 4 percent of the ISO's overall system resource adequacy capacity requirements. Average annual system energy delivered in 2015 was almost unchanged from 2014 with about 231,495 gigawatt-hours, which continued the same trend as the past several years. The 2016 peak load was 46,232 megawatts set on July 27.

Click [here](#) to see the full report.

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