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FOR IMMEDIATE RELEASE

2019 State of the Market Report for PJM: January through September

MARKET MONITOR FINDS PJM WHOLESALE ELECTRICITY MARKETS COMPETITIVE

(Eagleville, PA November 14, 2019) PJM Interconnection's wholesale electric energy market produced competitive results during the first nine months of 2019, according to the *2019 State of the Market Report for PJM: January through September*, released today by Monitoring Analytics, LLC, the Independent Market Monitor for PJM.

The Independent Market Monitor, Joseph Bowring, announced findings of the report today. The report is the Independent Market Monitor's assessment of the competitiveness of the wholesale electricity markets managed by PJM in 13 states and the District of Columbia. The report includes analysis of market structure, participant behavior and market performance for each of the PJM markets.

"Our analysis concludes that the results of the PJM Energy Market were competitive in the first nine months of 2019," Bowring said.

Energy prices were significantly lower in the first nine months of 2019 than in the first nine months of 2018. The load-weighted average real-time LMP was 30.0 percent lower in the first nine months of 2019 than in the first nine months of 2018, \$27.60 per MWh versus \$39.43 per MWh. Of the \$11.83 per MWh decrease, 34 percent was a result of lower fuel costs. Other contributors to the decrease were the dispatch of lower cost units, decreased load and lower markups. Inflation adjusted load weighted real-time energy prices were lower in the first nine months of 2019 than in the first nine months of any year since the creation of the PJM energy market on April 1, 1999.

Energy prices in PJM in the first nine months of 2019 were set, on average, by units operating at, or close to, their short run marginal costs, although this was not always the case. This is evidence of generally competitive behavior and competitive market outcomes, although high markups for some marginal units did affect prices.

Net revenue is a key measure of overall market performance as well as a measure of the incentive to invest in new generation to serve PJM markets. Net revenues are significantly affected by fuel prices, energy prices and capacity prices. In the first nine months of 2019, average energy market net revenues decreased by 52 percent for a new combustion turbine, 36 percent for a new combined cycle, 82 percent for a new coal plant, 32 percent for a new nuclear plant, 74 percent for a new diesel, 29 percent for a new onshore wind installation, 29 percent for

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a new offshore wind installation and 19 percent for a new solar installation compared to the first nine months of 2018.

Total energy uplift charges decreased by \$106.3 million or 60.1 percent, from \$176.9 million in the first nine months of 2018 to \$70.6 million in the first nine months of 2019.

Total payments for demand response programs decreased by \$41.5 million, 9.5 percent, from \$435.1 million in the first nine months of 2018 to \$393.7 million in the first nine months of 2019. The capacity market is the primary source of revenue to participants in PJM demand response programs. In the first nine months of 2019, payments to demand response resources in the capacity market decreased by \$37.3 million, 8.8 percent, while payments to demand resources in the economic program decreased by \$1.5 million or 65.3 percent.

When there are binding transmission constraints and locational price differences, load pays more for energy than generation is paid to produce that energy. The difference is congestion. Congestion costs decreased by \$697.2 million or 62.5 percent, from \$1,116.2 million in the first nine months of 2018 to \$419.1 million in the first nine months of 2019. Congestion reflects the underlying characteristics of the power system, including the capability of transmission facilities, the fuel costs and geographic distribution of generation facilities and the geographic distribution of load.

ARR and FTR revenues offset 103.6 percent of total congestion costs for load during the 2016/2017 planning period but offset only 50.0 percent of total congestion costs for the 2017/2018 planning period, the first planning period in which new rules required the allocation of balancing congestion to load instead of FTR holders. ARR and FTR revenues offset 92.1 percent of total congestion costs for the 2018/2019 planning period, the first year ARR holders received surplus congestion revenue. The goal of the FTR market design should be to ensure that load has the rights to 100 percent of the congestion revenues.

The Independent Market Monitor (also known as the Market Monitoring Unit or MMU) evaluates the operation of PJM's wholesale markets to identify ineffective market rules and tariff provisions, proposes improvements to market rules and tariff provisions when needed, monitors compliance with and implementation of the market rules, identifies potential anticompetitive behavior by market participants and provides comprehensive market analysis critical for informed policy and decision making. Joseph Bowring, the Market Monitor, ensures the independence and objectivity of the monitoring program.

For a copy of the State of the Market Report, visit Monitoring Analytics at: http://www.monitoringanalytics.com/reports/PJM_State_of_the_Market/2019.shtml