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FOR IMMEDIATE RELEASE

2021 State of the Market Report for PJM

MARKET MONITOR FINDS PJM WHOLESALE ELECTRICITY MARKETS COMPETITIVE

(Eagleville, PA March 10, 2022) PJM Interconnection's wholesale electric energy market produced competitive results during 2021, according to the *2021 State of the Market Report for PJM* 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 2021," Bowring said.

Energy prices increased significantly in 2021 from the very low levels in 2020. The real-time load-weighted average LMP in 2021 increased 82.8 percent from 2020, from \$21.77 per MWh to \$39.78 per MWh, the largest annual percent increase since the start of PJM markets in 1999, although not the largest dollar per MWh increase. Of the \$18.02 per MWh increase, 72.7 percent was a direct result of higher fuel and emission costs, particularly higher natural gas prices. The real-time hourly average load in 2021 increased by 3.6 percent from 2020, from 84,584 MWh to 87,606 MWh.

The total price of wholesale power increased from \$44.59 per MWh in 2020 to \$65.14 per MWh in 2021, an increase of 46.1 percent. Energy, capacity and transmission charges are the three largest components of the total price of wholesale power, comprising 97.5 percent of the total price per MWh in 2021. In 2020, for the first time since the start of the PJM Capacity Market in 2007, the cost of transmission was greater than the cost of capacity for an entire year. The cost of transmission continued to be greater than the cost of capacity in 2021.

Energy prices in PJM in 2021 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.

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Higher gas costs and higher power prices changed the relative economics of coal and gas units in 2021. Coal generation increased 17.8 percent and gas generation decreased 2.4 percent in 2021 compared to 2020. The changes in relative fuel prices slowed but did not change the long term decline in the share of coal and the increase in the share of gas. The share of total PJM energy produced from coal was 22.2 percent in 2021, down from 54.9 percent in 2008, and the share of energy produced from natural gas was 37.7 percent, greater than any other fuel source, up from 7.4 percent in 2008.

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. Theoretical net revenues from the energy market increased for all unit types in 2021 compared to 2020. Theoretical energy net revenues increased by 76 percent for a new combustion turbine, 78 percent for a new combined cycle, 642 percent (from a level near zero in 2020) for a new coal unit, and 86 percent for a new nuclear plant.

Total energy uplift charges increased by \$87.4 million, or 96.2 percent, in 2021 compared to 2020, from \$90.9 million to \$178.3 million.

When there are binding transmission constraints and locational energy price differences, customers pay more for energy than generation is paid to produce that energy. The difference is congestion. Congestion belongs to customers and should be returned to customers. Total congestion increased by \$466.6 million or 88.2 percent, from \$528.7 million in 2020 to \$995.3 million in 2021. But only 44.8 percent of total congestion paid by customers for the first seven months of the 2021/2022 planning period was returned to customers through the ARR and self-scheduled FTR revenues offset. The goal of the FTR market design should be to ensure that customers have the rights to 100 percent of the congestion that customers pay.

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/2021.shtml