PJM Zonal Term Outlook

What's the impact of a sustained coal price rally in PJM?

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Data Sources for this Publication

- Argus
- PJM
- SNL

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Executive Summary

The rally in Central Appalachia coal prices from $34/ton in June 2016 to more than $56/ton in November 2016 has significant implications for power prices in PJM at both the RTO and zonal levels. Coal still sets the marginal price during 42% of on-peak hours in PJM and, as we discuss below, we do not see that changing much at the RTO level (absent congestion) through 2020 even as another 16 gigawatts of gas-fired combined cycles come on line. Outages play a large part in keeping coal on the margin during lower load periods. At the PJM zonal level, the impact of coal prices on fundamentals is more nuanced as every important zone in PJM has a unique supply stack and outlook. Our analysis shows that the zones most affected by a rally in coal prices lie in Western PJM (AEP, ComEd, ATSI) because their supply stacks cannot solve for average on-peak load without coal generation, even after accounting for interzonal imports. The most fundamentally bearish zones will be the more "gassy" PJM zones or those that can solve average on-peak load easily with new combined-cycle generation (when congestion is present). These zones include PPL and PSEG as well as Dominion in later years. BGE and PEPCO are more complicated but also bearish going forward. A sustained coal rally should continue to exert downward pressure on PJM West Hub over AEP-Dayton and NI Hub spreads. In this outlook, we also analyze coal, peaker, and renewable offers in PJM and discuss historical and future bidding behavior and strategy.

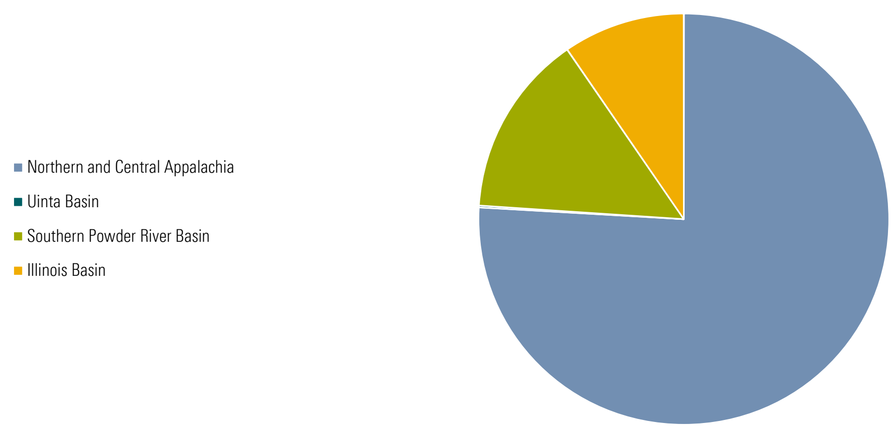
Key Takeaways

- Bullish: Coal-heavy western PJM zones AEP and ATSI due to their reliance on an older, inefficient coal fleet. The combined-cycle buildout does not affect these zones' fundamentals. Absent congestion, the units in these zones could be marginal for PJM energy prices and therefore bullish the RTO.
- Bullish: ComEd will have more coal on margin in 2018 once the Quad Cities nuclear plant retires. Most imports into ComEd come from coal-heavy regions IPH and AEP.
- Bearish: PPL is one of the most fundamentally bearish zones in PJM due to cheap TGP Zone 4 and Transco-Leidy gas and its large number of combined cycles. The potential for bearish congestion in this zone is a major risk.
- Bearish: BGE and PEPCO will see two large combined cycles come on line downstream of the Bagley-Graceton and Conastone-Northwest constraints as well as an increase in interzonal import capability by 2018.

PJM RTO-Level Impact

The recent rally in global coal prices driven by supply shortages in China has been reflected by higher Appalachian Basin coal prices and lower offer prices from PJM's coal generation fleet. Over 90% of PJM coal plants now have scrubbers to lower nitrogen dioxide, sulfur dioxide, and hazardous air pollutants in order to comply with CSAPR, MATS, CAIR, and ARP regulations. The units that chose not to comply are either retired, not dispatched often enough to run up against emission limits, or below 25 megawatts of capacity. Many coal generators in PJM chose to retrofit their plants based on analysis assuming far higher gas price inputs than prevail today, but the cost is sunk and these units will be generating for years to come. While many assumed coal generation would begin burning cheaper Illinois Basin coal once scrubbers were in place, most generators chose not to, given the associated increase in operations and maintenance costs. More than 57 GW of coal plants in PJM have some form of flue gas desulfurization equipment to reduce SO2 emissions, and 63 GW of coal plants are equipped with baghouse or FGD particulate control. As a result, Appalachia Basin (Northern and Central) coal still reigns supreme in PJM, constituting 76% of coal contracts. As prices for these coal supplies have increased, our analysis looks at the impact on power prices in PJM at both the RTO and zonal levels (Exhibit 1).

Exhibit 1 PJM Coal Contracts by Region



Source: SNL, Morningstar

PJM is much different from its eastern counterparts NYISO and ISO-NE as coal is still needed to solve average on-peak load (not just peak) and remains marginal. Because of this, spark spreads in PJM remained elevated between 2014 and 2016. The question we have posed before and still ask is: Will the coal floor still be in place after the large combined-cycle buildout in PJM? At the RTO level, by month, the answer remains clear. Even after adjusting for an increase in coal-related planned and forced outages, coal is still needed to solve average on-peak load every month of the year at the RTO level (absent congestion). Later in this report, we discuss why this is not necessarily true at the zonal level.

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