

# MISO Joining the Coal to Gas Bandwagon

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**Data Sources Used in This Publication**  
MISO  
ICE  
EQXLive  
EIA

To discover more about the data sources used, [click here](#).

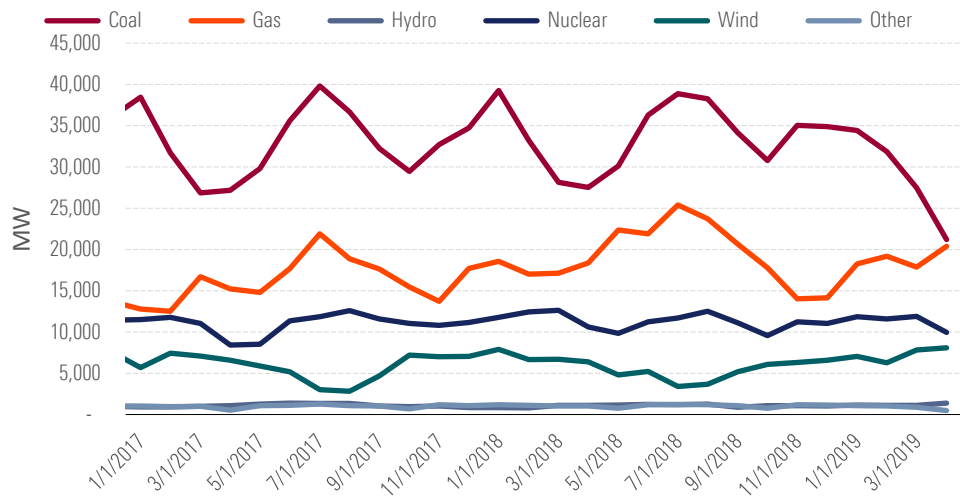
### A Striking Change

Coal to gas switching in PJM receives a lot of attention, which makes sense as 2018 was the first year natural gas became the number one generation source. In April, coal and natural gas economics have inverted in MISO indicating the region is well on its way to seeing the same. Up until April, MISO was looking normal with natural gas and coal rising and falling together with general MISO demand and coal on top. In April, as natural gas prices have continued to plummet and coal prices remain high, MISO has started to see an inversion like PJM. Coming up behind this and like other ISOs, is the impending shift to renewables. While natural gas is having its moment, renewables are becoming mainstream as well. This note will take a look at the changing fuel mix in MISO and the price trends that underlay this striking change.

### Coal Dropping Fast

The total ISO fuel mix can be seen in Exhibit 1. For reference, the last couple of years are included to show the relatively flat up and down bi-annual cycle, which moves between high demand summer and winter periods and low shoulder seasons. Coal and gas have generally risen and fallen together until this shoulder season, when natural gas has continued to rise and coal has dropped much further to a new recent low. This represents a paradigm shift in the ISO as the region starts leaning on more natural gas and retires inefficient coal units. This trend can be seen on a regional basis, as well. North, Central, and Southern footprints in MISO are all seeing the demand destruction in coal with natural gas and a little bit of wind making up the difference.

**Exhibit 1** MISO Fuel Mix



Source: MISO

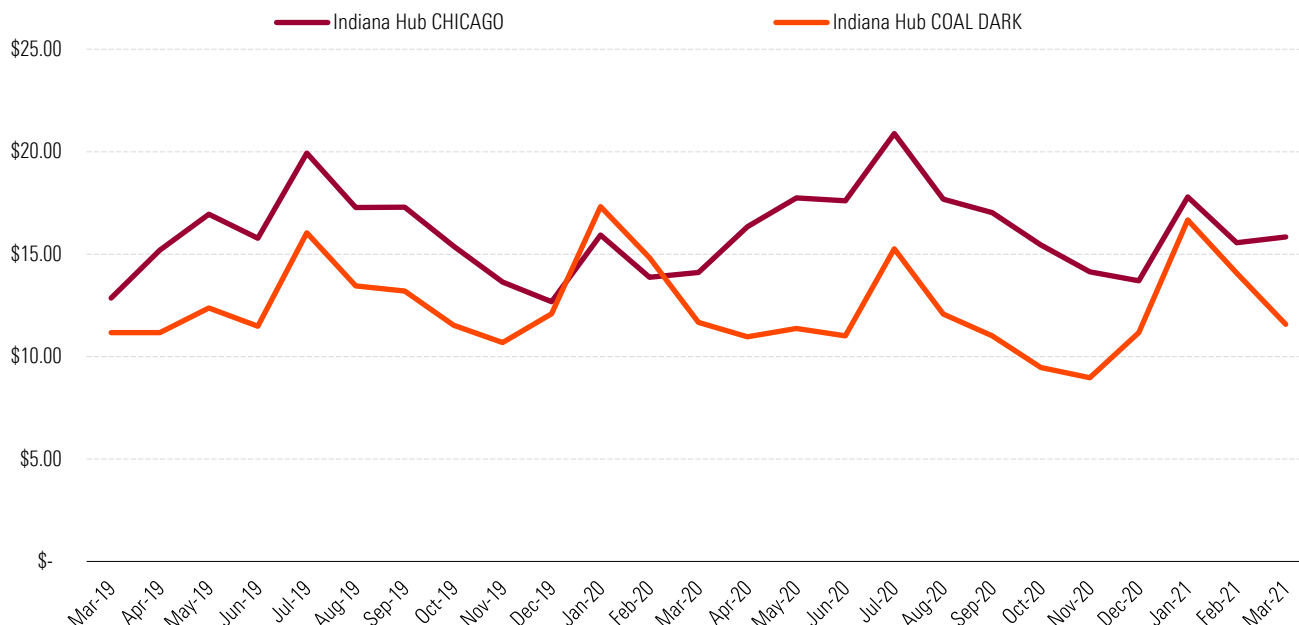
### Coal Inventories

U.S. Coal inventories at the end of January were at record lows for the last decade. Dipping below 100 million tons for the first time since at least 2008. This threshold is another clear signal of coal's exit in the future of the U.S. energy portfolio. According to the EIA, the estimated inventory levels by coal type are bituminous stocks at 40.4 million short tons, subbituminous stocks at 55.9 million short tons, and lignite at 2.883 million short tons. Weekly production has pointed to being higher at this point year on year, but overall levels are dropping as the market shrinks. This maintains supply and demand pressures on coal prices.

### Spark Spreads Over Dark Spreads

The MISO switch to gas makes sense considering the underlying fuel dynamics. While Appalachia coal is expensive at the moment, PRB and ILB have been reasonable averaging \$12.50 and \$38.75 per short ton, respectively, the economics still leave a switching floor around \$3.00/mmbtu. At this price level coal remained competitive when natural gas prices moved up over this past winter, which was colder than normal for the Midwest. By mid-March and into April we have seen gas daily prices from TCO pool and Chicago drive down to \$2.50/mmbtu. The fuel usage switch is fundamentally driven by the cheaper natural gas prices undercutting coal. As long as natural gas remains cheap into the summer, we should see a continuation of natural gas dominating the fuel mix. The forward spark and dark spreads at Indy Hub indicate that this price dynamic is set to continue over the summer until next winter as you see in Exhibit 2. Beyond summer, current prices look to show natural gas pulling away further out into the curve. This is not good news for coal as the reduced capacity factor from reduced run times has further put pressure on coal plant economics, which may lead them out of the market altogether.

**Exhibit 2** Midwest Spark and Dark Spreads



Source: MISO, EOXLive, ICE, Morningstar

### Power Prices

This change in the fuel mix has not been overly apparent in MISO prices, which does not necessarily mean it has not had an impact. Normal pricing for April (Exhibit 3) in the last couple of years has generally settled closer to the coal setting \$30/MWh. However, with natural gas being the marginal megawatt we see power prices driving down sub-\$25/MWh. As this switch continues, this trend should lead to a bearish power outlook in MISO for the upcoming summer. On top of a cooler Midwest weather outlook—see ["The Midwest is Cold Again"](#)—that looks to continue the colder center pattern in North America, lower cooling degree days coupled with shifts to the MISO fuel mix mean the bearish summer outlook looks even more likely.

**Exhibit 3** MISO Major Hub Monthly Average Day Ahead Energy Price

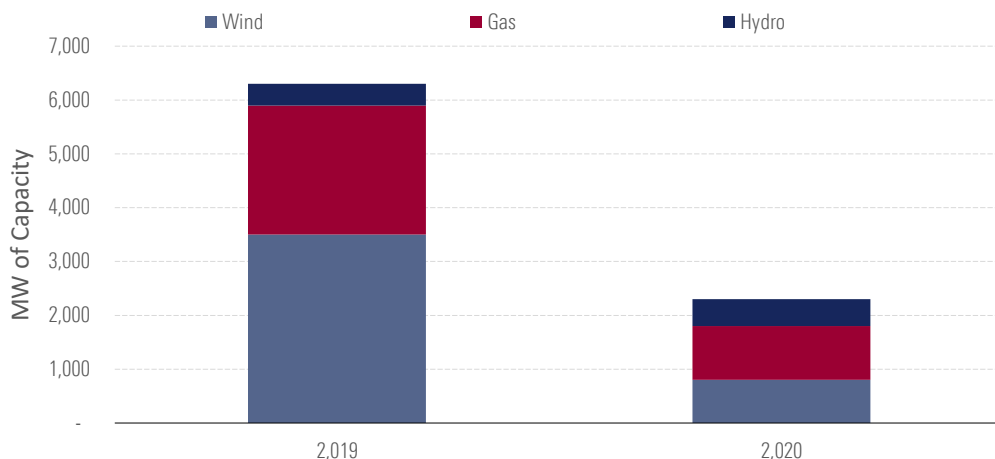
Year	Illinois	Indiana	Michigan	Minnesota	Arkansas	Texas	Louisiana
Apr-2017	\$ 28.61	\$ 30.12	\$ 30.43	\$ 27.24	\$ 28.81	\$ 30.36	\$ 30.49
Apr-2018	\$ 28.30	\$ 29.81	\$ 30.03	\$ 27.10	\$ 27.90	\$ 28.88	\$ 29.54
Apr-2019	\$ 25.90	\$ 27.21	\$ 27.30	\$ 25.32	\$ 25.81	\$ 27.31	\$ 27.05

Source: MISO

### Another Wave of Wind

Like other ISOs that have seen or are seeing the switch from coal to cheaper natural gas, another wave is coming behind it (Exhibit 4). The region's expected added capacity for both wind and natural gas in the next couple of years is a bit more of a moving target than other regions, but it looks to be making a couple of sizable jumps in wind capacity. This structural shift has happened elsewhere in the country. Additional wind will shift the supply stack and push out older and less efficient baseload coal plants in the region, leaving natural gas as the price-setting marginal unit and also providing a backstop for intermittent wind generation.

**Exhibit 4** MISO Interconnection Queue Capacity



Source: MISO

**MISO**

With MISO's considerable portion of coal in its generation stack, prices tend to settle in the upper \$20s during on-peak hours. Changing dynamics this year as evidenced by April so far are pointing to the region approaching a tipping point in its generation stack. The underlying fuel dynamics point toward increased natural gas dominance in the ISO. With this shift, the ISO is set to join the rest of the U.S. with natural gas being its main fuel source at the expense of coal generators. Only SPP will remain having coal as the dominant fuel. At the same time, additional wind and natural gas capacity coming on line later this year will further reinforce this trend. If 2019 is not the year of natural gas in MISO, then 2020 surely will be. ■■■

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