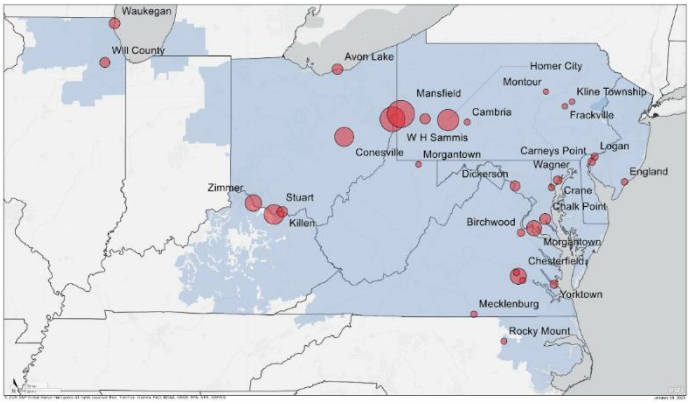
Ohio
Electric Reliability Major Concerns

The Perfect Storm

The National Electric Reliability Corporation (NERC) just issued a report warning citizens and policymakers that certain sections of the U.S. are critically close to running out of power. Ohio is part of the PJM Regional Transmission Organization (RTO). As the NERC Long-term Electric Reliability Report showed, PJM will fall short of electricity during periods of extreme weather. NERC predicts an 'Elevated Risk' starting in 2026.

"Power Plants are retiring faster than they're being replaced. The arithmetic doesn't work."
FERC Chairman Mark Christy (testimony before Congress April 2024)

Over the past six years (since 2018), electric utilities and power producers in PJM have closed **nearly 400 electric generators** amounting to **over 30 GW** of capacity (22.2 GW coal, 3.1 GW natural gas, 1.5 GW nuclear, and 3.2 GW other) The electricity provided by these generators would be enough to power **over 14 million** average-sized homes. **(Map of Coal Plants Closed 2018-2024)**

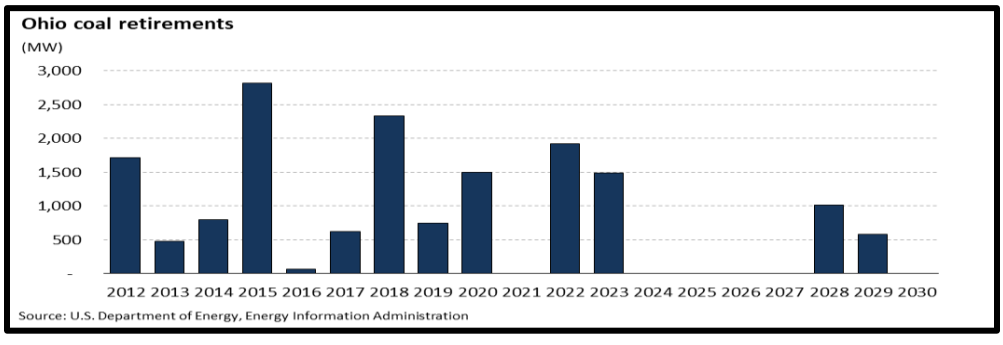


What's more shocking is that electric utilities and power producers in PJM have announced the closure of **43 more electric generators** amounting to **14.5 GW** (11.7 GW coal, 1.1 GW natural gas, 1 GW nuclear, and 0.7 GW of other technologies) electricity – enough to power **over 7 million homes.**

Ohio Heading Towards a Power Shortage?

The state of Ohio is following the PJM trend. Since 2012, electric utilities in Ohio have closed 14,500 MW of power. *(Enough to power 7.1 million homes)*

Ohio has lowered its electric reliability by closing coal power plants and replacing them with natural gas and renewables. Just ten years ago, 68% of the electric generation was coal. Today, they only represent 25% of the generation capacity. Wind and solar only perform when the weather is right, and natural gas is dependent on a 'just in time' from a pipeline. Both nuclear and coal have months of fuel at the power plant that can be called upon at a moment's notice.



OHIO PLANNED RETIREMENTS			
Owner	**Name**	**Capacity (MW)**	**Year**
AEP	Cardinal 1	585	2029
Vistra	Miami Fort 7 & 8	1,020	2028

Rapid Growing Electric Demand

Power demand in the PJM Interconnection region is growing at an unprecedented rate, driven by the proliferation of power-intensive industries such as data centers and the increasing electrification of transportation and heating.

Report from FERC –

- Nationwide electricity demand to **grow 4.7 %** over the next five years.
- Peak demand is expected to **grow to 38 GW** over the next five years.
- Data centers across the US are likely to reach **35GW** by 2030, up from 17GW in 2022
- The nation's 2,700 data centers sapped more than **4 % of the country's total electricity** in 2022, with projections to **consume 6 % by 2026.**

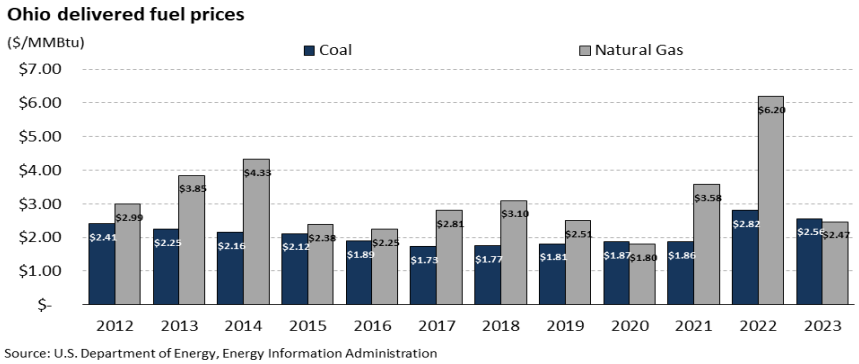
AI requires a high level and steady source of electricity. Reliability is a premium. Therefore, renewable power, which may be a less expensive source cannot provide the guaranteed power need for these large data centers. However, Ohio has a mandate that 8 ½ percent of your electric generation be renewable.

Capacity Factor Ratings by Source (PJM)

Power Source	Nuclear	Coal	Natural Gas	Solar	Wind
PJM Average	95%	84%	79%	9%	35%

Is Natural Gas the Panacea?

Although natural gas generation is listed as a 'dispatchable' resource, available 79 percent of the time based on PJM assessments, it still requires a 'just in time' fuel source delivered via pipeline. Both nuclear and coal have months of fuel at the plant sight. As experienced in winter storms Uri in 2021 and Elliott in 2023, delivery of natural gas can be a major problem. Well heads and pumping stations froze, which halted the flow of natural gas to the power plants.

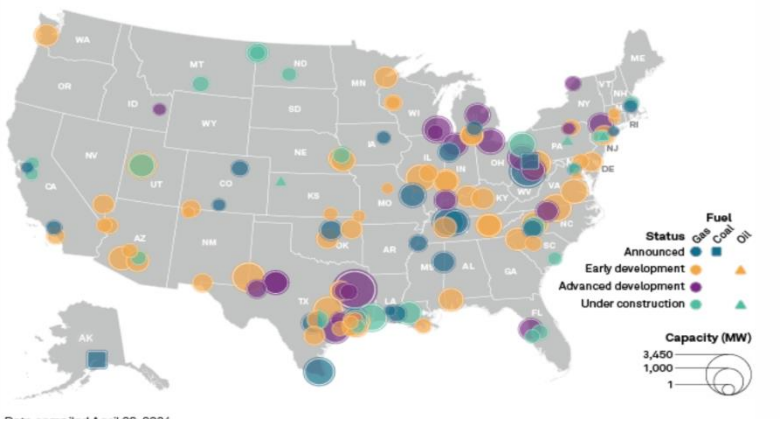


Source: U.S. Department of Energy, Energy Information Administration

Another reliability concern for Ohio is the rapid buildout of natural gas generation. Ohio is now the 5th largest state for natural gas electric generation. With 60 percent of its generation now coming from natural gas, is the state over-reliant on one fuel? While the fuel price of uranium and coal is very stable. As the graph below indicates, coal prices haven't risen above $3.00/MMBtu while natural gas prices have increased to over $6.00/MMBtu.

According to S&P Global, there are 133 natural gas plants that have been announced or in the siting, permitting and construction stage. Much of it is planned in PJM

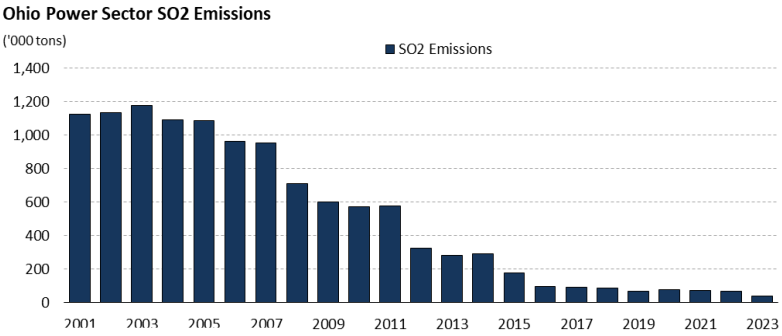
However, it should be noted, that according to U.S. EIA, the average time to site, permit and construct a baseload Combined Cycle natural gas plant is approximately **four years.** That depends on specific state regulations and whether there is litigation from environmental groups and landowners.

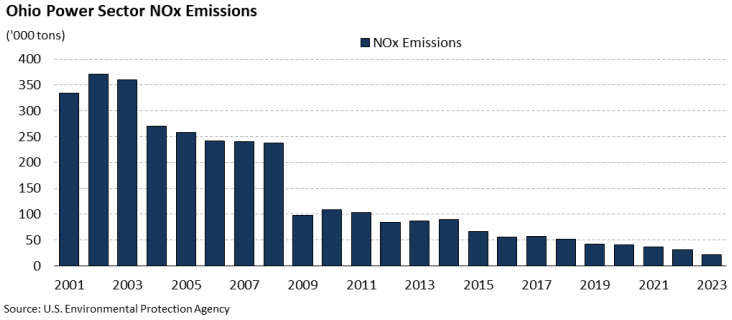


Ohio's Environmental Achievement

When deciding what electric resource mix is best for the state, the environment must be considered. Fortunately, health related air emissions have dropped dramatically over the past decade.

Since 2013, Sulfur Dioxide (SO2) emissions have decreased by 86%.





Source: U.S. Environmental Protection Agency

Likewise, Oxides of Nitrogen (NOx) have decreased by 74% since 2013.

Ohio can Ensure its Energy Future

Although Ohio is deregulated, it does not relieve the State of its obligation to provide reliable energy to its citizens. Other states have taken the steps below to provide a more secure electric system.

1) Prohibit the closing of a dispatchable power plant until the new electric generation is entirely constructed and tied into the Ohio electric transmission grid.
2) Require the new electric generation to be equal to or greater than the full nameplate capacity of the power plant the utility is closing.
3) New renewable generation must be backed up with at least 50 percent dispatchable power generation. With 8½ percent of Ohio's electric generation required to come from renewable generation, this firming requirement will ensure the state can meet reliability needs.