POWERLINE NEWS

Morgan Stanley Warns of 44 GW Power Shortfall by 2028 as AI Demand Surges

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The Looming Power Crisis

After a decade of taking coal-fired power offline, there is increasing concern about the capacity of the national power grid. Replacement energy sources have not kept pace with the growing demand for power. A Goldman analyst reported that 9 of the 13 power grids across the country have reached dangerously low levels of spare capacity and that this will lead to potential blackouts and price spikes during times of high demand. The most urgent are the Mid-Atlantic states serving 65 million people. In July, the US Department of Energy issued its fifth emergency order allowing operating of generation units in excess of their operating limit.

AI as the Demand Driver

Much of the new demand for power is coming from the rapid expansion of data centers used to power AI for technology companies. Microsoft CEO, Satya Nadella stated that access to power is rate limiting and may cause some data centers to sit idle. It takes two years to build a data center but 10 years to build a transmission line due to FERC permitting delays. Data centers currently consume 4% of all the electricity produced and this is expected to rise to 12% by 2030.

There is a race to launch new data centers and access to reliable power has now become a competitive advantage. Microsoft, Google, Meta, and Amazon alone are spending 400 billion dollars this year to build out AI capacity. The plans are for even more than that next year. Competing for AI dominance is not only between companies but between countries as well. The winners will be determined by who can get the power needed.

Morgan Stanley Warns of Infrastructure Lag

Now, analyst Stephen Byrd of Morgan Stanley has said that AI power demand is “rising at a non-linear rate” and that the speed of expansion is overwhelming the national power grid. He predicts a 20% power shortage in just three years with a 44 gigawatts deficit if new power is not connected quickly. Mr. Byrd suggests that some solutions that could be brought online quickly would include:

New Gas-Fired power plants	15-20 gw
Bloom Energy Fuel Cells	5-8 gw
Nuclear Power Data Centers	5-15 gw

However, that still leaves a potential shortage in just three years. That is not enough time to build more power.

The Coal Question & Environmental Constraints

In his report, Mr. Byrd mentioned some possible short term solutions, however, it is surprising that there was no mention of coal which can be quickly brought online. In 2010, there were about 500 operating coal fired power plants, Over the next nine years 290 of them have been retired and taken offline. This is nearly 60% of the coal-fired capacity. Since 2011 about 140 GW of electrical energy from coal has been taken offline. Much of this is sitting idle and could be turned back on without much effort.

The DOE's 2025 *Resource Adequacy Report* highlights a growing gap between retiring baseload generation and the deployment of new capacity replacements. Coal plants, which currently contribute approximately 203 GW to the grid, represent a significant opportunity for refurbishment—particularly the ~100 GW of capacity that could be rapidly modernized to address near-term reliability concerns

One of the main reasons for shutting down 290 coal-fired power plants has been compliance with new environmental regulations coming from the EPA regarding the effluents generated. These include the flue gas scrubber water and leachate collected from combustion residue known as fly ash. The new regulations set very low limits for arsenic, selenium, mercury, and halides such as bromide.

Environmental Technology Solution

Upgrading the effluent treatment for coal plants is not that difficult and can be done, but there has also been pressure from the EPA and environmental law groups to shut down coal regardless. An advanced resonating membrane system known as VSEP manufactured by New Logic Research has been used for more than a decade to treat the effluents and can meet the stringent effluent limitation guidelines (ELG) for discharge. After VSEP treatment with RO, the clean water can be discharged or reused in the scrubber or cooling towers. The EPA has also named New Logic's advanced membrane system as a best available technology

About New Logic Research

New Logic Research has been a trusted provider of advanced membrane filtration systems for over 38 years. Its VSEP technology is deployed globally across power generation, mining, and industrial wastewater applications. Learn more at www.vsep.com/industries/power-gen or contact info@vsep.com.