

## America's Emerging Electric Power Emergency

*Climate policies are driving the premature closure of fossil fuel electric power plants without adequate functional replacement. Electricity shortages have begun in TX and CA and will begin in MD, DE, NJ. Federal intervention is necessary. In an extreme case, the military could bring substantial baseload capacity online within 4 years by building nuclear plants on federal land.*

[PJM](#) (a regional transmission organization), employs an independent Market Monitor to provide state-of-the-market reports. Their latest report [announced that](#) a key challenge is the expected retirements of between 24-58 GW (14-34%) of reliable “firm” capacity by 2030 with no clear source of replacement capacity. Wind and PV are regarded as energy not capacity resources. No clear solution has emerged.

Both Federal and State climate policies have been forcing the closure of coal plants. Some States allow the construction of new combined cycle natural gas plants. Given time, this would work well if sufficient natural gas supplies existed. Other States, notably Maryland, Delaware and New Jersey, have policies that force the closure of all fossil fuel plants. This is where the most serious system reliability problems will first become apparent.

In 2023, Talen Energy announced its intention to deactivate its big Brandon Shores (Baltimore) units. PJM has determined that this loss will [adversely affect reliability of PJM Transmission](#). The PJM system had enough accessible generation reserves such that it could manage the loss of Maryland's first 6 coal plants without compromising reliability of service. But Brandon Shores is a tipping point, putting the DC/Baltimore region at risk of rolling blackouts.

The crisis is escalating. In October 2023, [Talen announced](#) the deactivation of its 841 MW Wagner gas/oil peaker facility. A [subsequent transmission analysis](#) showed the affected area includes MD, NJ, DE, PA, VA, and WV—a multiple State impact. Seven Maryland peaker power plants have recently filed for early deactivation. Since May 2024 Illinois [delivered 20 power plant deactivation filings to PJM](#).

### Electric power reliability has become a national security issue:

- Fossil fuel plants are closing without firm capacity replacement, impacting system reliability.
- The impact of imprudent policy extends beyond political boundaries to adjacent States, affecting regional areas, making this a national problem.
- The rate of plant deactivation appears to be escalating, indicating the urgent need for external intervention. It may be too late to avoid electricity shortages.
- Peaker combustion turbines are essential for a reliable system. Clean peakers can use green fuel.
- PJM has been reactive, and their regulatory constraints preclude a proactive solution. They only have transmission and market incentive tools at their disposal. The fundamental need is to quickly build local unforced (firm) capacity.
- Forced demand management (rolling blackouts), efficiency, transmission, storage, intermittent generation all help, but only a little.



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- States have the authority to choose power plant types but lack an understanding of system behavior and the implications of a State being only a component of a bigger system. States are fundamentally political organizations and lack the skills, experience and discipline to deal with the problem.
- Political discord hinders progress. Coastal States want to eliminate fossil fuel immediately, while noncoastal States disagree. The nuclear power option has not been adequately considered.

**Recommendations:**

- Task the Department of Defense to lead the response, with the Department of Energy and others (e.g. NERC) in supporting roles. This structure separates emergency management and objective system analysis from the political arena. The military has the experience skills and culture needed to manage large, complex projects like the Manhattan project.
- The place to start is a national risk assessment and a [JCIDS](#)-like requirements review.
- Develop an emergency response appropriate to maintain national electric power reliability. An extreme option is the rapid deployment of oversized nuclear power plants on federal land. With appropriate authorities, particularly the ability to rationalize regulation, the military could construct sufficient nuclear power capacity on military bases in affected States within four years. After completion, the plants would be turnkey sold/leased to local utility operators.
- On the management side: Review and comment on legacy authorities, such as State choice of generation. Consider governance structure changes, including combining or splitting ISOs and reevaluating the roles of FERC, NERC, PUCs, etc.
- Provide stakeholders with electric power system design tools, validated models, certified databases. Develop technology agnostic concept designs for optional system scenarios. Focus on the endgame, the eventual inevitability of zero fossil fuel.
- Develop electricity market configuration options starting from first principles, that price aligns with system cost.
- Develop plans for transitioning to sustainable fast neutron reactors with fuel recycling to eventually replace existing reactor technology.

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