POWERLINE NEWS

DOE Launches $100M Grant Program to Modernize U.S. Coal Power Plants

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The U.S. Department of Energy (DOE) has announced a new $100 million federal funding initiative aimed at modernizing and refurbishing existing coal-fired power plants. This follows a broader $625 million commitment made in September to support the coal sector's role in stabilizing the national power grid amid rising demand and capacity shortfalls.

Strategic Objectives of the Funding Opportunity

Outlined in the DOE's latest Notice of Funding Opportunity (NOFO), the program targets three key areas of technological advancement:

- Advanced Wastewater Treatment Systems
  Deployment of scalable, cost-effective systems capable of recovering clean water from effluent streams and concentrating byproducts such as gypsum for beneficial reuse.
- Fuel Flexibility Upgrades
  Engineering modifications that enable dual-fuel capability—allowing plants to switch between coal and natural gas depending on market and operational conditions.
- Co-Firing Systems
  Integration of systems that support simultaneous combustion of coal and natural gas to enhance fuel flexibility and reduce emissions.

These upgrades are intended to extend the operational life of existing assets, improve environmental compliance, and provide dispatchable baseload power to a grid increasingly strained by intermittent renewable sources and surging demand from AI data centers, semiconductor fabs, and defense installations.

Context: A Capacity Crisis in the Making

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.

An executive order issued earlier this year directs the DOE to leverage all available authority to preserve secure generation capacity. This includes supporting legacy infrastructure that, while aging, remains critical to grid stability.

Advanced Wastewater Treatment: A Case Study in Compliance and Innovation

One of the most promising technologies in the wastewater treatment category is the Vibratory Shear Enhanced Processing (VSEP)system developed by New Logic Research, based in Minden, NV. VSEP has been deployed in coal-fired power plants for over three decades, treating streams such as:

Cooling tower blowdown
Fly ash leachate
Flue gas desulfurization (FGD) effluent

The U.S. Environmental Protection Agency (EPA) has recognized VSEP as a Best Available Technology (BAT) for FGD wastewater under its Effluent Limitations Guidelines (ELG). The system's ability to operate without pretreatment, recover clean water, and concentrate brine for zero-liquid discharge (ZLD) applications makes it a compelling solution for plants facing tightening environmental regulations.

VSEP's membrane crystallization capability allows for in-process gypsum precipitation, enabling beneficial reuse of byproducts and reducing waste disposal costs. The system's modular design and proven performance at scale align with the DOE's funding criteria for economic viability and technical readiness.

Application Process and Deadlines

The DOE is currently accepting concept papers and letters of intent from eligible applicants. Detailed application instructions and eligibility criteria are available on the DOE's official grants portal.
https://www.grants.gov/applicants/grant-applications/how-to-apply-for-grants

Conclusion: A Bridge to Grid Stability

The DOE's latest funding initiative underscores the urgent need for reliable, dispatchable power. Strategic refurbishment of coal-fired assets—paired with advanced wastewater treatment and fuel-flexibility technologies—offers a pragmatic path to bridging the capacity gap.

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.