POWERLINE NEWS

Global Coal Power Trends: Decreasing in the U.S., Surge in India

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Coal continues to dominate India's energy landscape, powering the majority of the country's electricity needs. With approximately 250 coal-fired power plants generating around 205 GW, coal accounts for 60–70% of India's total electricity production.

New Coal Projects Signal Continued Reliance

India is currently constructing 41 new coal-fired power plants, with 5 additional projects in development. These new facilities are expected to add 32 GW of capacity. Government forecasts suggest coal-generated power will increase by nearly 50%, reaching 307 GW by 2035.

Despite national goals to expand renewable energy and reduce reliance on fossil fuels, progress has been slow. Several regional governments have withdrawn incentives for clean energy projects. Rising demand for air conditioning, industrial electrification, and expanded access to electricity is driving the need for reliable baseload power—making coal a continued priority.

One of India's largest energy companies, Torrent Power, is investing in a 1.6 GW ultra-supercritical coal plant, estimated to cost $2.5 billion USD.

Regulatory Gaps in Pollution Control

India's environmental regulations for coal plants differ significantly from those in the United States. While 85–90% of U.S. coal plants have installed flue gas desulfurization (FGD) systems to reduce sulfur dioxide (SO_2) emissions, India has lagged behind.

A 2015 mandate required all Indian coal plants to install FGD systems. However, implementation has been slow. In 2025, the rule was revised: 79% of coal plants located more than 10 km from major cities are now exempt from installing FGD systems. Plants within 10 km of urban or critically polluted areas have been granted extensions to comply.

Effluent Standards: India vs. U.S.

Even where FGD systems are installed, India's effluent discharge standards are significantly more lenient than those in the U.S. For example:

Contaminant	India Limit	U.S. Limit
Arsenic	200 ppb	5 ppb
Mercury	10,000 ppt	5 ppt
TDS	2100 mg/L	—
COD	250 mg/L	—

These disparities raise concerns about the environmental and health impacts of coal plant effluent in India.

Technology Offers Cleaner Solutions

In the U.S., advanced technologies have helped mitigate coal's environmental footprint. FGD systems have nearly eliminated acid rain and SO_2 emissions. However, these systems produce effluent rich in gypsum and heavy metals, requiring specialized treatment.

One promising solution is the **Vibratory Shear Enhanced Process (VSEP)**, developed by **New Logic Research**. The Vibratory Shear Enhanced Process (VSEP) system uses torsional oscillation of a reverse osmosis membrane to generate incredibly high shear rates at the membrane surface. That allows this RO membrane filter to handle very difficult effluent like FGD without fouling and scaling and can produce very clean water meeting the strictest requirements for Mercury and Arsenic.

New Logic Research has been a trusted provider of water treatment solutions for the power industry since 1987. To explore how VSEP technology can support cleaner coal operations: VSEP FGD Effluent System. To speak directly with an experienced VSEP engineer: info@vsep.com