

Promoting Clean Coal Technology: Coal Gasification

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The Ministry of Coal, Government of India, is steadfast in its efforts to promote coal production and ensure surplus supply, while transitioning towards cleaner energy alternatives like solar, wind, and hydroelectric power, recognizing the need to address environmental concerns and reduce carbon emissions. At the forefront of promoting clean coal technology, particularly coal gasification, the Ministry aligns with the Government's vision of fostering a resilient and sustainable energy ecosystem. Coal plays a pivotal role in India's energy system, accounting for nearly 70% of the total electric generation. It is also a critical input in various industries such as steel, sponge iron, cement, and paper. And because of initiatives like 'Make In India', the Ministry anticipates increased demand and higher economic growth projections.

To introduce clean coal technologies, the Government has launched several clean coal initiatives, including the Coal Gasification Mission. It aims to gasify 100 million tonnes of coal by 2030 through surface coal/lignite gasification projects. The Ministry highlights collaborative efforts in advancing Surface Coal Gasification (SCG) projects in Coal India Limited (CIL) coalfields. Notably, strategic bilateral agreements were executed in October 2022, including a Memorandum of Understanding (MoU) between BHEL & CIL, as well as an MoU between IOCL, GAIL & CIL, aiming to foster cooperation and expertise in driving the implementation of SCG projects.

To support these initiatives, a financial assistance scheme has been proposed to promote Coal/Lignite Gasification Projects by Government PSUs and the Private Sector, with an allocation of ₹ 8500 crores for incentives towards coal gasification projects. The scheme aims to demonstrate the financial and technical viability of gasification projects, accelerate markets for downstream products, and create an additional value chain in the economy for coal.

Significant strides have been made through joint venture agreement (JVA), wherein Government has approved the equity investment proposal by CIL in JVs of CIL-GAIL and CIL-BHEL. The JV Agreement has been formally signed between CIL and Bharat Heavy Electricals Limited (BHEL) for setting up an ammonium nitrate plant through coal gasification (SCG), which is poised to revolutionize indigenous technology, at Lakhanpur area of Mahanadi Coalfields Limited, Odisha. The upcoming plant as backward integration would help in securing the raw material, reducing import dependency of ammonium nitrate and promoting Atmanirbhar Bharat Abhiyaan. Additionally, Joint Venture Agreement is under consideration between Coal India Limited (CIL) and Gas Authority of India Limited (GAIL). The agreement aims to establish a Surface Coal Gasification (SCG) project at Eastern Coalfield Limited (ECL) and is expected to be signed shortly.

The adoption of gasification technology in India will revolutionize the coal sector, reducing reliance on imports of Natural Gas, Methanol, Ammonia, and other essential products. It will contribute to India's vision of becoming Aatmanirbhar and create a surge in employment opportunities. The implementation of coal gasification is expected to make significant contributions to the nation's development by reducing imports by 2030.

The Government is also actively engaged in clean coal initiatives such as extraction of Coal Bed Methane (CBM) gases, exploring Coal to Hydrogen, Carbon Capture and Storage (CCS), Coal beneficiation through washeries, etc. to mitigate emissions and enhance environmental sustainability. Investing in research and development is also prioritized to enhance coal utilization efficiency and develop innovative technologies, thereby ensuring their long-term competitiveness and sustainability.

The Ministry of Coal remains committed to promoting coal gasification projects, which hold immense

potential for transforming coal into various valuable products. The proposed scheme and incentives are designed to attract Government PSUs and the Private Sector, fostering innovation, investment, and sustainable development in the coal gasification sector.

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