

Coal Gasification in India

Coal is the most abundant fuel resource in India with a cumulative total reserve of nearly 307 Billion tonnes, estimated up to the maximum depth of 1200m. In view of the limited reserves of petroleum and natural gas in the country, coal has the potential to be the major energy, ammonia/urea and organic chemicals resource. However, the low calorific value (GCV about 3600) and high levels of inorganic impurities (35-45%) of the Indian coal and availability of suitable technology to process high ash coal restrict its use for alternate energy over imported crude oil and LNG. At present the 60% of available coal is consumed by the power production units, while steel and cement industry consume around 4% and 7% respectively. Other 29% is used as feedstock for producing various chemicals.

For making best use of coal with an edge over the liquid and gas hydrocarbons, there is a need to improve the efficiency in processing through efficient washing of coal and using improved techniques for processing of coal to energy and/or chemical products. The coal gasification process which produces syn gas from coal by reaction with steam (steam reforming) may be a solution for improving coal conversion efficiency. The clean syn gases after removal of various hazardous emissions were being used in processing plants to produce energy and chemical products.

The high ash content in the Indian coal still remains a major hindrance towards developing an appropriate technology which can be run on commercial basis. The three units of FCIL at Ramagundam, Sindri and Talcher which were setup during 1970-80 using coal gasification technology failed to achieve commercial success due to high ash content of coal feed. Off late, Jindal Steel and Power Ltd (JSPL) has setup coal gasification project at Angul, Orissa for its DRI (steel production) plant. A Joint Venture of Coal India Limited (CIL), GAIL (India) Limited, Rashtriya Chemical Fertilizers Limited (RCF) and Fertilizer Corporation of India Limited (FCIL) are in a process of establishing a new coal gasification-based Fertilizer Complex (Ammonia Urea Complex) at Talcher. It is understood the technology available so far restricts the use of coal with ash content above 30%.

In view of the potential of converting indigenous coal to energy and useful chemicals, NITI Aayog has setup a Technical Committee to discuss and suggest roadmap and suitable

technology for the development of Surface Coal Gasification (SCG) in Indian conditions and a suitable business model for the development of SCG in the country.