

OVERVIEW OF SUB-BITUMINOUS COAL POTENTIAL FOR ELECTRICITY GENERATION IN NIGERIA

I. Yusuf^{1*}, N. G. Obaje¹, S. H. Waziri²

¹Department of Geology and Mining, Ibrahim Badamasi Babangida University, P.M.B 11, Lapai, Nigeria.

²Department of Geology, Federal University of Technology, P.M.B 55, Minna, Nigeria

*Corresponding e-mail: yusufishaq73@yahoo.com

Abstract

Electricity supply in Nigeria is characterized by frequent power failures and load shedding, resulting in economic losses through lost production, damaged equipment and the need for expensive stand-by power. The Country has an excessive reliance on its current non-coal generating facilities while its vast coal reserves remain unutilized. Methane (CH₄) is natural gas that occurs in coal beds and has been generated during the conversion of plant material to coal (the process known as coalification). Coal bed methane can be produced from low rank sub bituminous/ bituminous coal. Sub bituminous composed almost entirely of methane, with a minor amount (1.5 to 2%) of carbon dioxide (CO₂). While higher rank bituminous coal may contain minor amounts (less than 3% each) of CO₂ and nitrogen (N₂), very minor to trace amounts of higher hydrocarbons (ethane, propane, butane, etc.), and sometimes a trace of hydrogen sulphide. This paper overviewed the potential in Nigeria vast Sub-bituminous coal for power generation in country. The Nigeria coal reserve, opportunities to implement Clean Development Mechanism (Kyoto Protocol), coal bed methane recovery mechanism and coal bed methane to fuel gas turbine for electricity generation technology are cited to visualise the potential of- developing economically viable coal bed methane (CBM) deliverability for power generating industry to supply electrical energy to the Nigerian electrical grid.