

ABSTRACT

This report presents the results of a technical and economic evaluation of producing methanol from bituminous coal using Texaco coal gasification and ICI methanol synthesis. The scope of work included the development of an overall configuration for a large plant comprising coal preparation, air separation, coal gasification, shift conversion, COS hydrolysis, acid gas removal, methanol synthesis, methanol refining, and all required utility systems and off-site facilities. Design data was received from both Texaco and ICI while a design and cost estimate were received from Lotepro covering the Rectisol acid gas removal unit.

The plant processes 14,448 tons per day (dry basis) of Illinois No. 6 bituminous coal and produces 10,927 tons per day of fuel-grade methanol. An overall thermal efficiency of 57.86 percent was calculated on an HHV basis and 52.64 percent based on LHV.

Total plant investment at an Illinois plant site was estimated to be \$1159 million dollars in terms of 1979 investment. Using EPRI's economic premises, the first-year product costs were calculated to \$4.71 per million Btu (HHV) which is equivalent to \$30.3 cents per gallon and \$5.37 per million Btu (LHV).