

Is it Worth Investing in? An Evaluation of the CTL-CCS Project in China

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China's consumption of liquid fuels as well as the country's dependence on foreign oil has increased considerably in recent years. Alternative liquid fuel technologies such coal to oil (CTL) have been attracting attention. We developed a sequential investment real options decision model of a typical CTL-CCS (carbon capture and storage) project in China with flexibility in the timing of the investment and the operation of the project. As an application, the model was used to evaluate the Shenhua direct coal liquefaction project with a CCS retrofit option. The results show that under current market and policy conditions the CTL project is economically infeasible. In addition, high carbon prices or carbon taxes are the premise behind the economic feasibility of CCS technology. It is highly recommended that captured CO₂ be better utilized, given the geological possibilities for CO₂-EOR (enhanced oil recovery) cooperation and relatively lower capture costs.