

Design Variable Identification and Economic Analysis of the CCS Transportation Network in Korea

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With problems and concerns related to global warming ever more growing, carbon capture and storage(CCS) is deemed as the only technically feasible solution to greenhouse gas emission. Thus many researchers are investing considerable amounts of time and money to develop each and every aspect of CCS, including CO₂ capture, transportation, and storage. Various obstacles, however, lie up ahead in commercializing the CCS technology, with economic feasibility as one of its toughest. Since CCS itself is a very expensive technology, many industries are reluctant in its application, setting aside the social interest and global regulations that are being made. In this study, economic evaluation of the CO₂ transport system in Korea are made, where important variables are identified and the costs of transportation scenarios are analyzed. Various transportation routes regarding the CO₂ capture sites in Korea will be considered, excluding the capture and storage sequences. Specific equipments will be studied and cost evaluated to set a guideline in designing the transportation of CO₂. Various transportation methods including pipelines, shipping, and tank lorries are considered and their optimal combinations will be studied.