Project: Carbon Capture and Storage - An Assessment

Clients: Indiana Consortium for Research in Energy Systems and Policy & The Indiana University Center for Research in Energy and the Environment (CREE)

Term: Spring 2010

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Summary:

The purpose of this Capstone project was to analyze the role of carbon capture and storage (CCS) technology as part of a carbon management portfolio over the next 50 years. The Capstone group found that CCS technologies would raise the cost of electricity in coal and natural gas generating facilities by 1.3¢ to 2.2¢ per kWh (between 30% and 60%), depending on the capture technology used and the type of generating facility. Key findings include that natural gas combined cycle's facilities and oxyfuel ultracritical process facilities emerge as the least-cost fossil fuel technologies; Integrated Gasification Combined Cycle technology has the highest cost of electricity without carbon capture but has the lowest incremental cost for adding capture; and Gasification Combined Cycle and oxy-fuel plants have yet to achieve commercial-scale application. The report recommended a government cost-sharing of a portfolio of pilot projects to develop nascent carbon capture technologies.