

Thursday, January 28th

Scaife Hall Auditorium
Room 125

4:30 p.m.
Refreshments at 4:00 p.m.

Carbon Capture and Sequestration: A Review of the Technology and Barriers to its Large Scale Deployment

Carbon capture and sequestration (CCS) is a process to reduce emissions of CO₂ to the atmosphere. It requires the capture of carbon dioxide (CO₂) from large point sources, such as electric power generation facilities, and transport of this CO₂ from the location of capture to a sequestration site, where it is injected deep below the surface and retained for geologic time scales. CCS is an important tool that will allow near-term reductions in greenhouse gas emissions to be made from electric power generation. However, there are a large number of barriers to its adoption by the electricity generation sector including the high cost of current CO₂ capture technologies, the "first-mover" risk of adopting a new technology, and the lack of legal and regulatory structures for geologic sequestration. This presentation will: review the technology behind CCS, progress made to date in demonstrating CCS technology, economics of CCS, and identify both legal and regulatory barriers to implementing CCS and potential solutions.



Sean T. McCoy

Project Manager, CCSReg Project
Department of Engineering & Public Policy
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Sean McCoy is the manager of the CCS Regulatory (CCSReg) Project, which is developing recommendations for regulation of deep geological sequestration of carbon dioxide in the United States. The project is funded by a grant from the Doris Duke Charitable Foundation and anchored in the Department of Engineering and Public Policy at Carnegie Mellon University with collaborators at the University of Minnesota, the Vermont Law School, and the law firm of Van Ness Feldman, P.C. Sean's area of expertise is the economics of CO₂ transport, and sequestration of CO₂ in deep saline aquifers and through enhanced oil recovery (EOR). He has developed coupled performance-economic models of CO₂ transport and sequestration and used them to perform probabilistic assessments of the cost of transporting and storing CO₂ captured from power plants in the various settings. His research forms the basis for sequestration costs in the Integrated Environmental Control Model (IECM), a publicly available model for calculating the performance, emissions, and cost of fossil-fueled power plants, which has been developed at Carnegie Mellon University with the support of the US Department of Energy. Sean earned his Ph.D. in Engineering and Public Policy from Carnegie Mellon University, a B.A.Sc in Environmental Engineering from the University of Waterloo, and is a member of the Society of Petroleum Engineers.

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