

82a Development of CO₂ Separation and Capture Technologies United States Department of Energy Rd&D

Sean Plasynski, Scott Klara, and Rameshwar Srivastava

Electric power generation represents one of the largest CO₂ emitters in the United States. Roughly one third of the United States' carbon emissions come from power plants. Since electricity generation is expected to grow and fossil fuels will continue to be the dominant fuel source, fossil fuel based power generation can be expected to provide even greater CO₂ contributions in the future. Consequently an important component of the United States Department of Energy (DOE) sequestration program is dedicated to reducing CO₂ emissions from power plants by developing technologies for separating and capturing CO₂ for subsequent sequestration and/or utilization. This research is in the early stages, and is exploring a wide range of approaches which include: membranes; solid sorbents; formation of CO₂ hydrates; and advanced gas/liquid scrubbing technologies. This paper will provide an overview of the DOE research program in this area while specifically addressing the status of research efforts related to these promising pathways and potential technology breakthroughs.