

Regulatory and Policy Implications for Basin Scale Geologic Carbon Sequestration Projects

Rehmer, Donald E.¹ (1) ERP, Southern Illinois University, Carbondale, IL.

Geologic sequestration or carbon capture and storage (CCS) of carbon dioxide emissions has the potential for the largest storage capacities and longest residence times. Deep saline aquifers in sedimentary basins around the world have the largest geological storage capacity (up to 10,000 Gt) followed by hydrocarbon reservoirs (920 Gt) and coal seams (15 Gt). Industry has been employing CO₂ in enhanced oil production (EOR) for decades. Ancillary benefits exist for sequestration projects in petroleum and coal-bed methane reserves (ECBM) in the production of fuels concomitant with the long term storage of CO₂. A number of limiting factors are inherent with all sequestration methods but further scientific and policy research may be able to minimize their effect. Relevant regulatory questions such as monitoring, verification, ownership of the CO₂ stream and the pore space are presented and related to possible policy scenarios in order to highlight regulatory gaps that need to be addressed before effective regional scale geologic carbon sequestration solutions can be implemented successfully. An economic distinction can be made between CCS in saline aquifers and CCS in EOR and ECBM projects. EOR and ECBM projects have the advantage of producing revenue from the recovery of additional resources which can help to defray the costs of infrastructure that will be necessary for basin wide CCS projects in deep saline aquifers. A number of recent legal and regulatory efforts have been made in the United States, Canada, Australia, the European Union and other jurisdictions. Relevant policy developments are examined and an alternative policy path is proposed. A phased approach to geologic sequestration follows the successful model of the 1990 Amendments to the Clean Air Act (Acid Rain Program) in contrast to the economy wide emissions trading strategy currently being pursued by the United States Congress.