

Third Annual Conference on Carbon Capture and Sequestration Paper Title:

**FUTURE U.S. GREENHOUSE GAS EMISSION REDUCTION SCENARIOS
CONSISTENT WITH ATMOSPHERIC STABILIZATION**

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Topic: Role of Sequestration in Stabilization

The paper analyzes a scenario for reducing U.S. greenhouse gas (GHG) emissions that is consistent, in the near term, with the President's Global Climate Change Initiative (GCCl) and, in the longer term, atmospheric stabilization at 550 ppm. The purpose for formulating and evaluating such a stabilization scenario is to define the role and expectations for performance of carbon sequestration technologies in a future, speculative carbon-constrained world. The analysis shows that an integrated approach, involving emphasis on energy efficiency, cost-effective renewables and availability of advanced CO₂ capture and storage technology, would be required for emissions stabilization. Under this scenario, the carbon intensity of U.S. GDP is reduced by 18% in 2012 per the GCCl. From 2012 to 2050, GHG emissions intensity is further reduced toward an absolute target of 1,250 MMmtC/year, representing a substantial U.S. contribution toward an atmospheric stabilization concentration of 550 ppm. This analysis examines opportunities for reducing emissions (both CO₂ and non-CO₂ GHGs) in all sectors, including transportation, electricity supply, industrial, commercial and residential. The analysis quantifies the potential contribution of the various GHG reduction options and shows that advanced lower-cost CO₂ capture and storage technology will need to play a key role in any future GHG emissions reduction scenario.