



A Roadmap for U.S.–China Collaboration on Carbon Capture and Sequestration

Report Summary | November 2009

The United States and China are the two largest emitters of greenhouse gases. And both countries must be part of the solution if we are to avoid the potentially catastrophic consequences of climate change. Collaboration between China and the United States on low-carbon solutions offers the greatest opportunity for meaningful emissions reductions. Both nations rely heavily on coal as an energy source, and addressing emissions from coal combustion must therefore be part of a portfolio approach to tackling climate change. One possible solution is carbon capture and sequestration, or CCS—a process that separates and captures carbon dioxide from large point sources such as coal power plants and stores it away from the atmosphere by several means, including underground sequestration. Cooperative efforts that advance the long-term research, development, and deployment of CCS could produce tremendous benefits for both nations, including job growth and lower electricity costs.

Roadmap for CCS collaboration

I. Sequester pure CO₂ streams from existing plants

Take advantage of existing pure streams of CO₂ at various Chinese industrial facilities and vast geological sequestration capacity to initiate five jointly funded geological sequestration projects that can each store 2 to 3 million tons of CO₂ per year. Each project would cost \$50 to \$100 million, with an American contribution of \$20 to \$40 million.

II. Invest in research and development for retrofitting existing power plants

Develop a strategy for research, development, and deployment of post-combustion CCS retrofits for existing coal power plants under the U.S.-China joint clean-energy research center.

III. Catalyze markets for CCS

Mobilize private capital by investing public funds. The United States and China should offer financial incentives for companies, develop a global carbon offset regime that includes CCS participations, and create a global market for carbon abatement.

Benefits of CCS collaboration

1. Accelerate U.S. technology development

U.S. expertise in sequestration is well developed and can immediately be applied to China in sequestration projects. Collaboration with China will help accelerate CCS deployment in the United States by 5 to 10 years.

2. Create U.S. Jobs

Collaboration will sharpen CSS deployment and bring with it U.S. job growth. Under a business-as-usual scenario, the CCS sector would create 127,000 jobs in the United States by 2022. A five-year acceleration of CCS deployment as a result of U.S.-China collaboration increases that figure to 430,000. A 10-year acceleration in deployment could create as many as 940,000 new U.S. jobs by 2022 (see figure, right).

3. Lower U.S. electricity costs

Collaboration will quickly help lower the cost of CSS and pass savings on to consumers. A five-year acceleration of CCS deployment in the United States would lead to \$5 billion in savings, and a 10-year acceleration would lead to \$18 billion in savings.

4. Rapid emissions reductions

Such a joint project could drastically cut emissions in just the first two to five years. Five jointly funded geological sequestration sites could sequester 10 to 15 million tons of CO₂ per year, equivalent to taking 1.7 to 2.5 million cars off the road.

5. Direct cost savings

Several components of CSS are cheaper in China than in the United States. These include steel, cement, labor, and the savings from more rapid project completion. Focused joint efforts could therefore reduce the cost of individual retrofit projects and construction time by as much as 50 percent.

For the full report, please go to www.americanprogress.org/issues/2009/11/china_ccs.html or www.asiasociety.org/climate

Total U.S. employment associated with CCS, by year

