



Interagency Task Force on Carbon Capture and Storage

California CCS Review Panel Meeting
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Task Force Background

- On February 3, 2010, the President established an interagency CCS Task Force, co-chaired by EPA and DOE, with a report due in 180 days (August).
- The Task Force has developed a plan to overcome barriers to widespread, cost-effective deployment of CCS within 10 years, including bringing 5-10 commercial demonstration projects online by 2016.
- The group was charged with exploring incentives for commercial CCS adoption and addressing any financial, economic, technological, legal, institutional, social, or other barriers to deployment.
- Led by DOE and EPA, more than 100 Federal employees from 14 Departments and Agencies drafted the report based on published literature, individual input from more than 100 experts and stakeholders, and public comments.



General Report Outline



- Role of CCS in Climate Policy
- Status of CCS
 - Technology
 - Costs
 - Demonstration Projects
 - Regulatory Framework
- Current Barriers for CCS Deployment
 - Market Failures
 - Regulatory Uncertainty
 - Public Acceptance
- Conclusions and Recommendations

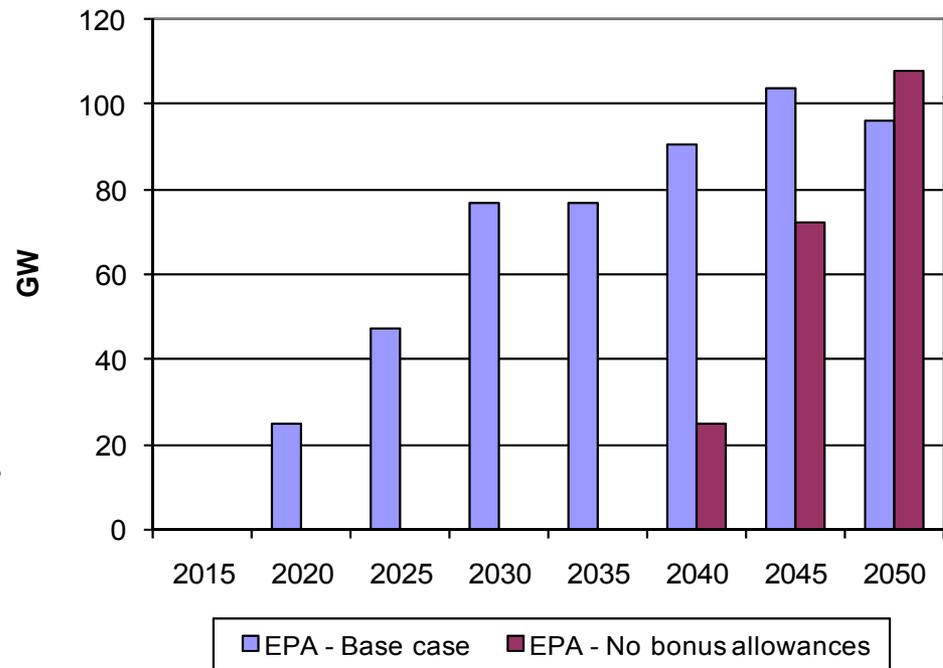


Role of CCS in Climate Policy



- EPA analyses of cap-and-trade legislation clearly show the importance of CCS in achieving climate goals while containing costs.
- A cap-and-trade system would serve to make CCS cost-competitive for widespread commercialization.
- If international offsets or other key technologies are not available, CCS becomes even more important as a cost containment option.

CCS Deployment under American Power Act





DOE-Supported Demonstration Projects



Performer	Location	Capture Technology	Capture Rate (m tons/y)	Target Formation	Start Date
Pre-Combustion Capture					
Summit Texas Clean Energy	Odessa, TX	Selexol	3.0	EOR	2014
Southern Company	Kemper County, MS	Selexol	2.0	EOR	2014
Hydrogen Energy California	Kern County, CA	Rectisol	2.0	EOR/Saline	2016
FutureGen Alliance	Meredosia, IL	Oxy	1.0	EOR/Saline	2015
Post-Combustion Capture					
Basin Electric	Beulah, ND	Amine	0.5-1.0	EOR/Saline	2014
NRG Energy	Thompsons, TX	Amine	~0.5	EOR	2015
American Electric Power	New Haven, WV	Chilled Ammonia	1.5	Saline	2015
Industrial					
Leucadia Energy Lake Charles	Lake Charles, LA	Rectisol	4.0	EOR	2014
Air Products	Port Arthur, TX	Amine	1.0	EOR	2013
Archer Daniels Midland	Decatur, IL	Amine	1.0	Saline	2014

- DOE is providing approx. \$4B to support projects which:
 - Demonstrate the operation of current CCS technologies integrated at scale.
 - Develop improved CO₂ capture technologies and advanced power generation technologies to significantly reduce the cost of CCS.
- There are other domestic and international CCS efforts that will contribute to the demonstration of CCS.



Accelerated R&D language



- The report contains a brief discussion of accelerated R&D as one option to move CCS forward:

“One option for improving the cost-effectiveness of CCS deployment is to accelerate the availability of 2nd generation CCS technologies, and DOE is currently working to utilize Recovery Act funding for this purpose. This accelerated program will focus on developing more efficient, lower capital cost CCS technologies, and help to meet the President’s goal to enable widespread, cost-effective deployment of CCS within ten years.”



Regulatory Framework



- CCS projects can proceed under existing laws.
- EPA is developing requirements tailored for CCS, which will reduce uncertainty for early projects and help to ensure safe and effective deployment.
 - Safe Drinking Water Act (SDWA): Standards and requirements for permitting wells used to inject carbon dioxide (CO₂) for geologic sequestration.
 - Clean Air Act (CAA): Standards and requirements for reporting CO₂ capture and geologic sequestration.
 - Resource Conservation and Recovery Act (RCRA): Applicability of RCRA to CO₂ streams being sequestered.
 - Marine Protection, Research, and Sanctuaries Act (MPRSA): Requirements for sub-seabed disposal of CO₂.
- Experience gained from regulating and permitting early CCS projects will inform the need for an enhanced regulatory framework for widespread CCS deployment.



CCS TF - Findings

- There are no insurmountable technological, legal, institutional, or other barriers that prevent CCS from playing a role in reducing GHG emissions.
- Lack of a carbon price is the key barrier to commercial deployment of CCS.
- Existing Federal programs are being used to deploy 5-10 large-scale integrated CCS projects to be on-line by 2016. However, early CCS projects face challenges including the cost and performance of current generation technology.
- Federal agencies can use existing authorities and programs to begin addressing barriers for these (and other) early CCS projects while ensuring protection of public health and the environment.
 - Supporting technology development
 - Providing legal and regulatory clarity
 - Supporting regulatory implementation
 - Addressing long-term liability and stewardship
 - Developing tools for public engagement and outreach



CCS TF – Findings (cont.)



- R&D can enable commercial deployment of CCS by:
 - Demonstrating available technology to address integration issues,
 - Improving the cost and performance of 2nd generation CCS technology.
- Projects can proceed under existing law, however, regulations need to be developed and/or finalized and regulators need training and tools.
- Increased coordination with all stakeholders (both Federal and State) will enhance government's ability to assist these projects.
- Open-ended Federal indemnification should NOT be used to address long-term CO₂ storage liability. However, long-term liability and stewardship are important issues which require further evaluation.
- Public engagement and outreach is extremely important for CCS.
- International collaboration complements domestic efforts on CCS and facilitates global deployment.



Recommendations: Technology Development



- DOE and EPA should create a Federal agency roundtable to:
 - Act as point of contact for project developers and permitting authorities.
 - Create a technical advisory committee comprised of experts from the power and industrial sectors, NGOs, State officials, and academia.
 - Track CCS demonstration projects in order to identify any additional research or regulatory needs.
- DOE, in coordination with EPA, Treasury, and USDA, should track the use and efficacy of Federal financial support for CCS projects.
- The Administration should continue to support international collaboration that complements domestic CCS efforts and facilitates its global deployment.



Recommendations: Regulatory Development



- By late 2010, EPA should finalize rulemakings under SDWA and CAA and propose a RCRA applicability rule.
- EPA and DOI should immediately formalize coordination and prepare a strategy to develop regulatory frameworks for offshore CO₂ storage.



Recommendations: Regulatory Implementation



- EPA, in coordination with DOE and DOI, should develop capacity building programs for underground injection control regulators.
- EPA and DOE should identify data needs and tools to support regulatory development, permitting, and project development.
- EPA, in consultation with other agencies, should track regulatory implementation for early commercial CCS projects and consider whether additional statutory revisions are needed.



Recommendations:

Long-Term Liability and Stewardship

- By late 2011, EPA, DOE, Department of Justice (DOJ), DOI, and Treasury should further evaluate certain approaches to address long-term liability and stewardship.
- The Task Force examined 7 approaches to address long-term liability including the current framework under existing laws.
 - The Task Force agreed that near-term projects can move forward under the existing liability framework and that open-ended Federal indemnification, an option currently under consideration, should not be used.
 - Recommended approaches include:
 - Reliance on the existing framework;
 - Limitations on claims;
 - Creation of a fund for claims and site stewardship;
 - Transfer of liability to the Federal government after site closure (w/contingencies).



Recommendations: Public Outreach



- DOE and EPA should coordinate among Federal agencies, states, industry, and NGOs to evaluate key concerns around CCS in different areas of the US.
- Using this information, DOE and EPA should develop a comprehensive outreach strategy including:
 1. A broad strategy for public outreach, targeted at the general public and decision makers; and
 2. A more focused engagement with communities that are candidates for CCS projects, to address issues such as environmental justice.
- DOE and EPA should establish a clearinghouse for public access to unbiased, high-quality information on CCS and develop outreach tools for project developers and regulators.



What did others think?

- Google News: 300+ articles
 - New York Times: Federal Task Force Reasserts the Need for a Price on Carbon.
 - “The plain-spoken report describes the gantlet CCS must run to become commercial: for example, explaining the technology to the public and clearing the regulatory thorns....It doesn’t mince words about the most important policy: ‘The lack of comprehensive climate change legislation is the key barrier to CCS deployment.’”
 - NRDC’s George Peridas’s Blog:
 - “It appears that they struck the balance, solicited wide input, and reached sound conclusions.....The Task Force was careful not to paint a rosy picture....concise, well written and very useful volume.”
 - “Those expecting the Administration to take the future of CCS in its hands and deliver a bright future at one fell swoop through this report will be disappointed - but they should have been looking at (and talking to) the U.S. Congress instead.”
 - Paul Browning, a GE Energy vice president:
 - “disappointed” with the report, which “missed a key opportunity to address the the most serious impediment.....the current lack of market drivers that either lower costs or create financial incentives for power companies to invest in advanced CCS technology.”



Thank you.

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[http://fossil.energy.gov/programs/sequestration/ccs task force.html](http://fossil.energy.gov/programs/sequestration/ccs_task_force.html)