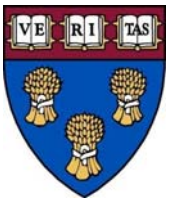
OCTOBER 29, 2010

SUMMARY REPORT
OF

Expert Workshop Addressing CCS Liability, Oversight, and Trust Fund Issues Convened on June 21, 2010 in Washington, D.C. by Harvard Law School's Emmett Environmental Law & Policy Clinic, with support from the Energy Technology Innovation Policy Project at the Harvard Kennedy School, and the Harvard University Center for the Environment



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Preface

This expert workshop on CCS liability, oversight, and trust fund issues was organized by Harvard Law School's Emmett Environmental Law and Policy Clinic (the "Clinic") as part of its ongoing work to develop a legal framework to govern carbon capture and sequestration in the U.S. Under the direction of Wendy B. Jacobs, Clinical Professor and Director, the Clinic engages students in local, national, and international projects covering a broad range of environmental issues, including climate change, carbon capture and sequestration, renewable energy, and environmental justice.

On June 21, 2010, the Clinic brought over 35 leading experts from the U.S. and Canada to address CCS liability, oversight, and trust fund issues. A list of participants is included in Appendix A. This workshop was informed by a working paper prepared by the Emmett Environmental Law and Policy Clinic entitled, "Proposed Liability Framework for Geological Sequestration of Carbon Dioxide." The working paper is available at: http://www.law.harvard.edu/academics/clinical/elpc/publications/publications.html.

This summary report represents a synthesis of the main points and arguments that emerged from the discussion. It does not represent a consensus document. Rather, the report reviews the major themes discussed. Where there was significant disagreement, we have tried to present both sides of the argument. Any errors or misrepresentations remain our responsibility.

The Clinic would like to thank the Energy Technology Innovation Policy Project at the Harvard Kennedy School and the Harvard University Center for the Environment for their continuing support for the Clinic's work on carbon capture and sequestration.

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INTRODUCTION

There is broad consensus in scientific, business, and political circles that carbon capture and sequestration ("CCS") must be demonstrated quickly on a large scale because it is likely to be an important technology for reducing carbon dioxide ("CO_2") emissions throughout the world. Indeed, a number of commentators predict that it may be impossible to achieve significant emissions reduction in the United States and abroad without the use of CCS.[1]

Consensus regarding the value of CCS technology centers around three potential benefits. First, CCS holds promise for significantly reducing coal-generated CO_2 emissions. The United States has large coal reserves and, at present, coal-generated electricity is less expensive than other energy sources. Currently, almost half of the domestic energy supply is generated from coal.[2] It is therefore not realistic to expect that coal will be eliminated from the U.S. fuel supply in the next few decades. CCS offers a potentially significant opportunity for reducing CO_2 emissions from this source while other non-CO_2 emitting sources of energy are developed, refined, sited, and deployed. Second, CCS offers the potential to create high-quality domestic jobs in the technology, manufacturing, and construction industries. If the United States develops substantial CCS expertise quickly, it can export technologies and expertise to other countries as they develop CCS technology. Third, the creation of an accessible stream of captured CO_2 will support continued domestic production of oil and gas through enhanced oil and gas recovery.[3]

Numerous barriers impede the demonstration of large-scale CCS projects (those that capture and sequester at least 1.5 million tons of carbon dioxide annually).[4] First and foremost is the absence of any national price on or restriction of CO_2 emissions in the United States. Other key barriers include uncertainty about liability; the dearth of pipelines to transport captured CO_2, requiring significant investment in infrastructure; and the transaction costs and impracticality associated with acquisition of huge swaths of pore space, making access to sequestration sites difficult in many parts of the U.S.

Many argue that the prospect of unknown liabilities far in the future impedes the financing of CCS projects. Lack of experience sequestering CO_2 at large volumes creates uncertainty with

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[1] *See, e.g.*, GLOBAL CCS INSTITUTE, STRATEGIC ANALYSIS OF THE GLOBAL STATUS OF CARBON CAPTURE AND STORAGE – REPORT 5: SYNTHESIS REPORT 5 (2009); INTERNATIONAL ENERGY AGENCY ("IEA"), TECHNOLOGY ROADMAP: CARBON CAPTURE AND STORAGE (2009); Carbon Sequestration Leadership Forum, About the CSLF, http://www.cslforum.org/aboutus/index.html?cid=nav_about (last visited Oct. 29, 2010); CO_2 Capture Project, What is the CO_2 Capture Project? http://www.co2captureproject.org/aboutus.html (last visited Oct. 29, 2010).

[2] For the rolling 12 months ending in January 2010, coal accounted for 1.8 billion MW hours of electricity generation in the U.S., out of about 4 billion MW hours in total. U.S. Energy Information Administration, Net Generation by Energy Source: Total (All Sectors), Table 1.1, http://www.eia.doe.gov/cneaf/electricity/epm/table1_1.html (last visited Oct. 29, 2010).

[3] *See, e.g.*, U.S. Department of Energy, Enhanced oil recovery/CO2 injection, http://fossil.energy.gov/programs/oilgas/eor/ (last visited Oct. 29, 2010).

[4] *See, e.g.*, WENDY B. JACOBS, LEAH COHEN, LARA KOSTAKIDIS-LIANOS AND SARA RUNDELL, PROPOSED ROADMAP FOR OVERCOMING LEGAL AND FINANCIAL OBSTACLES TO CARBON CAPTURE AND SEQUESTRATION (2009); SYNTHESIS REPORT, *supra* note 1, at 30; INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2007: MITIGATION OF CLIMATE CHANGE 19 (2007).

respect to the timing and magnitude of potential liability. The absence of a national framework for delineating liability and financial responsibility for owners and operators of CCS projects, and for landowners who consent to having CO_2 sequestered in the pore space under their land compounds this uncertainty. The U.S. also does not yet have rules in place regarding the oversight and stewardship of sites requiring management far into the future, decades after active sequestration operations have ceased. Nor is there any national legal framework in place for the financing of such long-term site stewardship or payment of potential future liabilities decades after a site has been closed.

A number of different proposals have been made to address issues of liability, oversight, and financing for long-term stewardship of CCS projects. The Workshop aimed to bring together experts and policymakers to discuss these issues in light of various options being put forward. Five specific proposals were discussed during the Workshop, including those put forward by American Electric Power ("AEP"), Senators Bingaman and Casey, Harvard Law School's Emmett Environmental Law and Policy Clinic, and Southern Company. A description of each proposal discussed at the Workshop is included in Appendix B.

The Workshop discussion itself focused on the following five questions:

1. Limits on liability for demonstration v. commercial projects: Should liability be limited for the first five or ten demonstration projects to provide incentives for rapid deployment of these projects? Should there be any limits on liability for projects after the first five or ten demonstration projects?
2. If we favor limits on liability, what mechanisms should be used to limit liability: Caps? Indemnities? Industry-financed fund? Public/private cost-sharing? Preemption of state claims?
3. When should site-specific risk be taken into account, if at all? At the beginning of the project? In the middle of a project? At closure? Should site-specific risks be taken into account? For demonstration projects, post-demonstration projects?
4. Claims resolution process: Does the group favor a stream-lined claims resolution process such as the one described in Section 5 of the Harvard Emmett Environmental Law and Policy Clinic's white paper?
5. What role should states play in overseeing sequestration sites and managing liability?

1. LIMITS ON LIABILITY FOR DEMONSTRATION VS. COMMERCIAL PROJECTS

1.1 Does the absence of limits on liability constitute a barrier to deployment of CCS?

A number of proposals include limits on liability for demonstration, and in some cases commercial, projects as a mechanism for addressing this perceived barrier to the rapid deployment of CCS. The need to include limits on liability depends on whether the absence of limits poses an actual barrier to deployment. The workshop discussions highlighted the lack of consensus among experts on this issue, where answers ranged from, "We don't need anything; current insurance policies can handle it" to "We need a broad liability-limiting scheme. Liability should transfer to the government once a site enters the post-closure, long-term stewardship phase."

Some experts argue that the absence of limits on liability does not constitute a real barrier. Instead they point to the lack of a price on CO_2, which prevents the creation of a market for carbon capture and sequestration, as the main barrier to CCS. Establishing a liability scheme prior to imposing a price on CO_2 could lead to the development of a scheme that is neither needed nor appropriate in a world where CO_2 is regulated. Experience with activities such as offshore oil exploration, enhanced oil recovery ("EOR"), natural gas storage, and the underground injection of hazardous wastes demonstrates that the private sector is willing to invest in high-risk activities without limits on liability, at least where there is an opportunity for financial gain. Similar to CCS, actors in these other enterprises remain responsible over long periods of time and may be liable for problems that arise after a site has been closed. When a value is placed on CCS activities, owners/operators may also be willing to invest in CCS despite potential liability.

Others argue that the absence of limits on liability does constitute a barrier. Proponents of this view claim that there is no profit to be made on CCS, and unknown, unconstrained future liabilities impede the financing of CCS projects. Lack of experience sequestering CO_2 at large volumes creates uncertainty with respect to the timing and magnitude of potential liability. The absence of a national framework for delineating liability and financial responsibility for owners and operators of CCS projects, and for landowners who consent to having CO_2 sequestered in the pore space under their land compounds this uncertainty. Market mechanisms for risk management, such as insurance and the ability to bring in business partners with different risk tolerances, are not well-developed to address these risks.

The fact that projects are being piloted does not necessarily indicate that liability barriers do not exist since many pilot projects are moving forward under the assumption that government will address liability issues prior to the post-closure phase. These efforts may be halted if nothing is done to address liability and long-term stewardship[5] of sequestration sites. Experience with Department of Energy ("DOE")-funded projects seems to support this position. DOE does not take responsibility for liability or long-term stewardship of sequestration sites. The inability to resolve these issues has impeded demonstration projects outside of EOR formations, where existing commercial infrastructure could be adapted to CCS research and

[5] "Stewardship" is defined as responsibility from A to Z for sites, after issuance of a certificate of closure. Stewardship will occur after the site has received a permit, has been operating for several years/decades, and the site has been through many hurdles. Stewardship issues will be far in the future.

owners/operators stood to gain financially.[6] This outcome is troubling because saline and other non-EOR formations are estimated to comprise the bulk of storage capacity in the United States.[7] Therefore, deployment of large-scale demonstration projects in these formations is essential to deployment of commercial-scale CCS. Finally, industries such as EOR may not be proper analogies for CCS on the issue of liability. EOR offers an opportunity for profit, which is not the case with other types of sequestration projects. The only reason anyone will pay $100 million to develop a sequestration site is to avoid having to *pay* $101 million. It is highly uncertain whether CO_2 sequestration will be a profit-making enterprise even with a price on CO_2.

1.2 Liability limits as an incentive to early deployment of CCS

Experts agree that providing certainty regarding liability and long-term stewardship will create incentives for deploying early demonstration projects. Among experts who consider the absence of liability limits to be a barrier, there appears to be support for the idea of limiting liability for early demonstration projects, but no consensus on whether liability limits should be imposed for later commercial projects. Moreover, there is still disagreement as to the number of demonstration projects that should benefit from liability limits. Senator Bingaman's model proposes to limit liability for the first ten demonstration projects.[8] However, under this approach, no sites will be closed during the time when the next ten to twenty projects will be started. Hence, uncertainty about future liability will continue to pose a problem for the latter projects. Moreover, liability limits for the first ten projects may not be adequate to gain knowledge regarding the risks posed by storage in different types of geologic formations. If liability transfer mechanisms are being used as a way to provide incentives for early actors in order to gain knowledge from first-mover projects, then limits may be required to incentivize large-scale demonstration projects located in geologically and geographically diverse areas of the U.S.

1.3 Other impacts of limiting liability – the role of public perception

Public perception of CCS is a barrier, particularly in the wake of the 2010 Gulf Oil Spill. A statutory scheme limiting liability for CCS owners/operators could have further negative impacts on the public perception of CCS. It may be sensible to provide financial or other incentives for CCS in a way that would not spur public mistrust.

[6] *See* CRAIG A. HART, ADVANCING CARBON SEQUESTRATION RESEARCH IN AN UNCERTAIN LEGAL AND REGULATORY ENVIRONMENT: A STUDY OF PHASE II OF THE DOE REGIONAL CARBON SEQUESTRATION PARTNERSHIPS PROGRAM (2009), 15-20, at http://belfercenter.ksg.harvard.edu/files/2009_Hart_CCS_RDD_Legal_Barriers_rev.pdf.

[7] *Id.* at 20.

[8] *See* proposed Senate bills S. 1013 and S. 1462.

2. IF WE FAVOR LIMITS ON LIABILITY, WHAT MECHANISMS SHOULD BE USED TO LIMIT LIABILITY?

Proposals for limiting liability include various mechanisms for achieving this goal. These range from insurance and a transfer of liability to the federal government after site closure and certification to creation of private cost-sharing or a trust fund to finance operational and post-closure claims.

2.1 Insurance

CCS owners/operators may currently purchase casualty and environmental insurance to cover the operational period for their projects. Casualty policies cover "sudden and accidental" events, and would cover some environmental problems. Environmental insurance covers third-party liability and cleanup resulting from pollution, and could include CO_2 as a covered condition. A handful of insurers are now making these policies available for ten to thirty years of coverage. The policies are written on a claims-made basis to cover claims for conditions that manifest themselves within the policy period. The policies typically carry large deductibles. There seems to be a general consensus that such arrangements would be adequate to manage risk during the operational period of a sequestration site, in coordination with other financial assurance requirements.

The availability and adequacy of insurance for addressing post-closure liability is far less certain. A site owner/operator could purchase a blended finite policy to cover liability during the post-closure period if there were no liability transfer or long-term stewardship regime in place. Under this type of policy, the site owner/operator pre-pays a portion of future losses in advance by setting up a trust fund within the commercial insurance industry. For example, a trust might consist of $2 million for monitoring costs, plus an additional $10 million for liabilities. On top of this "pre-payment," the owner/operator would also pay premiums. Apart from being expensive, these policies are limited to about fifteen years, which would not be sufficient to cover the significantly longer time-frames required for CCS. Although some stakeholders at the Workshop expressed a preference for private mechanisms, such as insurance, over limits on liability many questioned the extent to which insurers would be able to value storage risks given the lack of experience with sequestration, or willing to issue policies covering the long time periods required.

2.2 Transfer of liability to state or federal government after site closure and certification

Alternatively, liability could be transferred to state or federal government after site closure and certification instead of relying on insurance or other private mechanisms to manage post-closure risks.[9] Many experts argue that a post-closure transfer of liability is more appropriate given the long timeframes involved and the fact that government is more likely to endure than individual owners/operators. Setting specific criteria regarding when, how, and if "closure" happens can help reduce site-specific risks and ensure that sites are well selected and managed.[10] However, there appears to be no consensus as to whether liability should transfer to federal or state government. Advocates for a state-based approach contend that it is better to rely on state authorities to assume responsibility for post-closure site stewardship with federal funding, given the variation in sub-surface conditions across the country. Proponents of

[9] Of course, the options discussed need not be mutually exclusive.

[10] Several states have addressed the criteria for closure in a detailed way. *See* WENDY B. JACOBS & DEBRA STUMP, PROPOSED LIABILITY FRAMEWORK FOR GEOLOGICAL SEQUESTRATION OF CARBON DIOXIDE App. C (2010).

federal control argue that a state-based approach may spur a race to the bottom and that states may lack the capacity to adequately monitor and manage closed sites. There is also disagreement as to what closure criteria should include, with suggestions ranging from simple to more complex, performance-based or prescriptive criteria.

Other stakeholders claim that a post-closure transfer of liability to the government provides the potential for moral hazard during the operational period. These critics argue there is no guarantee that a site will be adequately understood at closure or that a regulator will respond appropriately. Therefore, giving a certificate of closure and limiting liability post-closure could create a risk that the owner/operator will cut corners or otherwise game the system to get the certificate of closure as quickly and cheaply as possible.

2.3 Establishment of private cost-sharing to finance claims during the operational and post-closure periods

Some proposals recommend the establishment of private cost-sharing arrangements to finance claims during the operational and, in some cases, the post-closure periods. Under a private cost-sharing arrangement, owners/operators would be liable for damages occurring at a sequestration site up to a specified dollar amount. Compensation for damages above that limit would be co-financed by other CCS owners/operators through a trust or an industry-financed fund.

2.4 Creation of a trust fund to finance post-closure and other claims

Many proposals recommend the creation of a trust fund to finance post-closure and other claims. A majority of stakeholders seem to agree that the creation of a trust fund is necessary for managing CCS liability and long-term stewardship. Those in favor of creating a dedicated industry-financed trust fund argue it will ensure that funds are there to address problems as they arise – during site operation and long afterwards – given that the risks of carbon sequestration are still largely unknown. Critics counter that use of a trust fund will be inefficient because it will mean that capital sits in the fund unused, or will create the temptation for Congress to draw on the fund for other purposes. Moreover, a fund that continues to accumulate capital over time is ill-suited to current understanding of project risk profiles, in which risks decline over time, and subsequently would not require large amounts of financing in the post-closure period.

Experts also disagree as to what the trust fund should be used for or how it should be financed and managed. A number of environmental trust funds have been established through federal legislation and provide potential models from which to draw. Examples include: Superfund,[11] the Abandoned Mine Reclamation Fund,[12] and the Oil Spill Liability Trust Fund.[13] These funds are financed through a combination of industry-based per ton fees and federal appropriations, although only the Oil Spill Liability Trust Fund establishes limits on liability for claims ($1 billion per incident). Experience with these funds suggests it can be difficult to ensure a stable source of funding, as user-fees may expire and not be reauthorized. Similarly, it is hard to predict future liabilities, particularly for a new industry such as CCS where the long-term liabilities are still largely unknown. This creates problems for ensuring that financing is sufficient

[11] 26 U.S.C. § 9507.

[12] 30 U.S.C. § 1231.

[13] 26 U.S.C. § 9509.

to cover future needs or that caps on liability are set at the right level, as the recent Gulf Oil Spill has demonstrated.

One solution is to provide for periodic adjustment or re-evaluation of financing needs and liability caps to ensure that the trust fund accurately maps to existing needs with respect to post-closure liabilities. This approach is proposed in Section 6 of the Harvard Law School's Emmett Environmental Law and Policy Clinic "Proposed Liability Framework for Geological Sequestration of Carbon Dioxide."[14] Decisions will also be required as to who will manage the funds. Options range from providing oversight authority to a regulator or some other public entity to stakeholder oversight through a trust fund board.

[14] JACOBS & STUMP, *supra* note 10, at 19-24.

3. WHEN SHOULD SITE-SPECIFIC RISK BE TAKEN INTO ACCOUNT, IF AT ALL?

3.1 Site selection

There is consensus that site selection is one of the most important aspects of risk management in the sequestration context. Large variations in risk posed by different sequestration sites means that site-specific risk should be taken into account for properly managing the risks posed by CCS projects. Stakeholders largely agree that a liability and management framework should be designed to encourage good site selection and responsible risk management practices during the operational period. However, experts have yet to reach agreement on the appropriate mechanisms for achieving these goals and the point at which site-specific risk should be taken into account.

3.2 Risk-based per-ton sequestration fees

Some argue that providing incentives at the beginning of a project for choosing the lowest risk sites is critical. Some advocate the use of a risk-based per-ton sequestration fee assessed throughout operation of the project as a way to achieve this goal. Proponents of this approach argue that site-specific risks are not that difficult to determine and can be distinguished by region, as well as by site.

However, a robust system for risk analysis of sequestration sites must still be put in place and current risk profiles for CCS projects have yet to be tested in practice. Critics caution that at least early in the development of CCS, trying to define the "real" risk posed by different sequestration sites is difficult. Even where it is possible to identify differences in risk in different formations, such differences may not yet be quantifiable and therefore accurate assessment of risk-based fees is inappropriate at this stage. Risk-based fees might be established for different areas of the country or for types of formations used rather than by individual site. Varying risk-based fees by individual site may also be difficult to administer; they could lead to lengthy hearings during the administrative process, be too complex for regulators to implement, and fail to encourage responsible management practices by the owner/operator. Industry stakeholders also raise concerns that use of "risk-based" fees could subject them to additional liability since a court might look at the assessment of a higher fee as an indication that the owner/operator chose a risky site.

During the early stages of CCS deployment, it may be simpler to rely on the regulatory agency to ensure that sites are properly selected and charge a flat fee per ton of sequestered CO_2 that could vary for different regions or types of formations. This could be achieved by requiring good site selection at the beginning of the project as a pre-condition to project permitting.

3.3 Risk-based closure fees

Alternatively, site-specific risk could be considered at closure through a risk-based closure assessment. This would allow regulators to take into account more information regarding the actual problems encountered and actual information generated at a sequestration site. Critics of this approach argue that it would lead to too much uncertainty at the end of the project regarding the fees owed, and that there would not necessarily be less uncertainty regarding post-closure risk at that point in the project. Considering site-specific risk at closure may also impede financing of CCS projects, as capital markets prefer that project risk be assessed upfront. Experts agree that if a closure assessment is imposed, there should at least be standards regarding how the closure assessment will be calculated, in order to reduce uncertainty.

3.5 Other considerations

Site-specific risk is not the only type of risk involved in sequestration. It is also important to consider other risks, such as the transportation of CO_2, when considering the overall risk posed by a given sequestration site. Moreover, broader liability considerations may also impact site selection and owner/operator behavior. For example, if the first dollar of claims is covered by a trust fund, owners/operators may cut corners regarding site characterization and management. Private cost-sharing arrangements, such as the model discussed in Section 2.3, could be used to address these concerns.[15]

[15] *See also* JACOBS & STUMP, *supra* note 10, at 10-11; SOUTHERN COMPANY, "Discussion Draft: 4/9/2010," para. 3 (2010).

4. CLAIMS RESOLUTION PROCESS

A detailed proposal to establish an alternative claims resolution mechanism is provided in the working paper prepared by Harvard Law School's Emmett Environmental Law and Policy Clinic entitled, "Proposed Liability Framework for Geological Sequestration of Carbon Dioxide."[16] The proposal would establish a streamlined process for reviewing claims made by individuals harmed by sequestration sites to be paid out of an industry-financed trust fund. This mechanism would also preempt certain state tort law "nuisance" claims resulting in damages less than a certain amount.

There was not much discussion of alternative claims resolution at the Workshop, although the proposal did not appear to be particularly controversial. Some experts favor a streamlined claims process for small claims but not for big multi-party claims, which they suggest might be better addressed through traditional litigation channels. Others argue that prior attempts to create streamlined claims processes resulted in greater uncertainty and litigation and therefore they are not in favor of such an approach.

[16] *See* JACOBS & STUMP, *supra* note 10, at 16.

5. ROLE FOR STATES IN MANAGING LIABILITY

Stakeholders generally agree that there should be a substantive role for states in permitting sites and managing liability for CCS, although there does not appear to be consensus regarding what the states' role should include. Some argue for taking advantage of state expertise in permitting and characterization of sub-surface geology by allocating states a stewardship role for sequestration sites. Others argue that liability should be managed under a combined approach in which the states would have primacy and the Federal Government would provide close oversight. Proponents of this approach argue that it would provide greater flexibility in accommodating the variation in sub-surface conditions and level of expertise among states in regulating these issues while avoiding a race-to-the-bottom. Critics argue that a state-centric approach would be undesirable given that many sites may straddle state boundaries, many states are currently in fiscal crisis and do not have the resources to assume additional responsibilities, and there is a large variation in experience and capacity in this area at the state level.

KEY INSIGHTS AND CONCLUSIONS

Stakeholders do not completely agree on either the larger issues or the details for addressing liability and oversight of CCS projects. However, having had the opportunity to consider and digest the range of views in the interim since the workshop, the author can identify several important areas of emerging consensus. First, climate legislation is necessary for the development and deployment of commercial-scale CCS. Without either a limit or price on CO_2 emissions, owners/operators lack the financial incentives to pursue deployment of CCS. It is unlikely to happen at commercial-scale without legislated restrictions on CO_2 emissions in the U.S.

Second, any scheme governing liability and oversight of CCS must deal with public perception. Public uneasiness with CCS could at least in part be addressed through the creation of a dedicated industry-financed trust fund to provide the public with assurance that it will not be responsible for the potential liabilities and risks associated with CCS. Third, different geology functions differently and geologic formations vary in different parts of the country. A system to manage the risks and liabilities of CCS must take this variation into account. One option may be to use differentiated-based fees, either during the operational period or at closure. Industry concerns regarding the assumption of additional liability as a result of labeling these fees "risk-based" could be dealt with semantically. For example, fees might be referred to as "geology-based."

There is no consensus as to whether liability for sequestration sites should transfer to government or whether government should provide other types of limits on liability for owners/operators of CCS projects. However, experts agree that the private sector dislikes uncertainty and needs time or other bounds on the uncertainty posed by sequestration sites. Companies do not last forever and a mechanism is needed that provides for long-term oversight and stewardship of sequestration sites and addresses public perception issues. Stakeholders also agree that there should be a substantive role for the states, although there is currently no consensus on what that role should include.

In February 2010, President Obama established an Interagency Task Force on Carbon Capture and Storage (the "Task Force") and charged it with proposing a plan to overcome the barriers to widespread deployment of CCS within ten years. The Report of the Task Force, which was issued in August, identifies the lack of consensus surrounding issues of liability and oversight of CCS and recommends continued discussion and study of potential solutions.[17]

The public and private sectors should continue to engage in discussion to reach consensus on these issues and work together to finance rapid deployment of large-scale demonstration projects in a variety of geological settings, on-shore and off-shore. In these economically difficult times, CCS provides an opportunity to preserve and create high-quality domestic jobs in the coal sector and the technology, manufacturing, and construction industries, while reducing CO_2 emissions and enhancing energy security. In the absence of any national limits on CO_2 emissions, some form of liability cost-sharing is necessary.

Harvard Law School's Emmett Environmental Law & Policy Clinic looks forward to continuing this important dialogue.

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[17] *See* COUNCIL ON ENVIRONMENTAL QUALITY, REPORT OF THE INTERAGENCY TASK FORCE ON CARBON CAPTURE AND STORAGE (2010), 68-76, 109, 124-127, at http://www.epa.gov/climatechange/policy/ccs_task_force.html (last visited Oct. 29, 2010).

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Summary Comparison of Key Components of Liability Management Proposals

The following proposals were discussed during the June 21, 2010 Expert Workshop Addressing CCS Liability, Oversight, and Trust Fund Issues. Note that Senator Bingaman's bill was not presented at the Workshop, but since it was discussed during the Workshop, a summary is included.

	Harvard Law School	Southern	AEP	Bingaman (S. 1462)	Casey (S. 1502)
1. Limits on liability for demonstration vs. commercial projects					
	Caps on liability for up to 10 demonstration projects. For commercial projects, 3 tiers of private cost-sharing.	4 tiers of liability for demonstration and commercial projects.	Indemnities for 10 first-mover projects. Indemnification is in excess of financial protection required by Sec'y of Energy. Each agreement may indemnify O/Os for all or part of costs to satisfy remediation and civil claims.	Indemnification during operational period for 10 large-scale demonstration projects. Indemnification will be in excess of liability covered by the required financial protection. Indemnification limited to $10B for the 10 demonstration projects.	No limits on liability for demonstration or commercial projects.
2. If we favor limits on liability, what mechanisms should be used?					
Insurance	Trust Fund money can be used to purchase private insurance. Privately-funded financial assurance required during	DOE and Treasury to determine whether DOE should obtain private risk management instruments to minimize federal	Board may contract with private insurers to provide claim adjustment services for public claims and may purchase insurance to cover costs of post-closure	Not addressed.	Operators are required to maintain adequate liability assurance.

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	operational period.	liability arising from cooperative agreements.	public claims and remediation.		
Transfer of liability to federal government upon site closure and certification?	Yes.	No transfer of liability, but cost-sharing between industry and federal government throughout life of project.	Yes.	Yes.	Yes.
Creation of a national trust fund to finance post-closure and other claims?	Yes.	Two funds, including Carbon Sequestration Maintenance Trust Fund and Carbon Sequestration Orphan Site Account.	Yes.	No.	Yes.
What is the trust fund used for?	Operational period: – Emergency corrective action and maintenance; – Orphan sites; – Payment of claims for damages above liability limits for up to ten early, large demonstration projects;	<u>Maintenance Fund</u>: Infrastructure maintenance and MMV of closed facilities. Post-closure remediation financed through separate cost-sharing. <u>Orphan Fund</u>:	– Long-term stewardship costs; – Payment of post-closure claims according to payment schedule set by Board; – Monitoring and remediation of closed sites; – Orphan sites	n/a.	– Post-closure civil claims limited to an amount established by DOE; – Long-term stewardship; – Administrative costs.

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	– Cost-sharing for later, post-demonstration projects. During post-closure: stewardship, corrective action, remediation, payment of liability claims, natural resource restoration.	remediation, infrastructure maintenance, and MMV of orphan sites.	– Administrative costs of agencies and Board.		
Post-closure stewardship?	Yes, federal stewardship includes MMV, corrective action, remediation and related activities.	Yes, DOE assumes responsibility for infrastructure maintenance and MMV (does not include remediation).	Yes, DOE or State takes responsibility for monitoring and remediation.	Yes, if DOE accepts title or transfer of closed site, it will monitor and conduct remediation.	Yes, DOE responsible upon issuance of closure certificate for MMV, remediation, and related activities. DOE may coordinate with EPA.
3. When should site-specific risk be taken into account, if at all?					
Risk-based per-ton sequestration fees? Risk-based closure fees?	Closure assessment, site-specific and risk-based.	No risk-based per ton sequestration fee or closure assessment.	Risk-based per-ton sequestration fee set by the Board for commercial projects. Board can adjust fees every 5 years.	n/a	Risk-based per-ton fee set by DOE. Fee may be set based on level of site-specific risk.

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4. Claims resolution process?					
	Yes, during operational and post-closure periods.	No.	Yes, post-closure.	No.	No, but claims for damages brought post-closure are filed in the U.S. Court of Federal Claims.
5. Role for states in managing liability?					
	Yes, states may apply for primacy. Long-term stewardship financed by national trust fund with federal oversight.	Not specifically addressed.	State may accept long-term stewardship.	Not specifically addressed, although proposal provides $10M/year for 10 years to DOE to carry out training program for State agencies (permitting, mgmt, inspection, and oversight of CCS projects).	State may request responsibility for long-term stewardship.
Preemption of state claims	Yes.	No.	No.	No.	No.