CARBON CAPTURE AND STORAGE:
FINANCIAL, LEGAL, AND REGULATORY
CHALLENGES TO IMPLEMENTATION IN THE U.S.

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Introduction

This paper examines the financial, legal and regulatory challenges facing implementation of carbon capture and storage (or sequestration) technology in the United States. The first section discusses the financial challenges of CCS in terms of credit quality. The second section examines the key legal and regulatory challenges presented by CCS implementation, and offers several considerations for facilitating and encouraging investment in and implementation of CCS technology in the United States.

CCS and Credit Quality

While possible remedial environmental policies related to carbon have been discussed within credit rating agencies for a long time, to date they have not been a major factor in their near-term risk analysis. With politics certain to play an enormous role in how new carbon regulations will play out, such a risk assessment is difficult to quantify for several reasons:

1) When politics is involved, delay is inevitable;
2) The framework of any ultimate carbon regulations will certainly result in winners and losers;
3) Winning for regulated utilities means that they will receive 100% recovery for carbon compliance costs, with estimates of likely increases running from 10% to 35%;
4) Winning for customers means not having rates increase substantially amidst the current economic turmoil;
5) Residential customers will be more susceptible to bearing a larger share of increased costs from new environmental regulations as compared to their politically-connected industrial/commercial brethren;
6) Substantial increases in rates for residential customers will be a very sensitive issue for elected and appointed public officials under current economic conditions;
7) Credit profile impact will turn in large part on the ability of regulated utilities to recover all costs of carbon compliance from any and all customers.

Factors 1 through 6 illustrate why it is so difficult for rating agencies to make a current risk assessment based upon #7. As Eileen Claussen, President of the Pew Center on Global Climate Change, recently stated:

Make no mistake, there are some real obstacles to cap-and-trade becoming law in the U.S. … The main challenge to the bill’s passage … is the current dismal state of the U.S. and global economy. In the coming months, the debate over climate change policy will in reality be a debate over costs.¹

While uncertain of the timing and extent of future carbon legislation, the rating agencies have delineated potential winners and losers. Fitch Ratings has noted that:

The credit rating implications of increased environmental compliance costs on individual utility companies will depend on their ability to recover these costs from consumers through higher prices and financial flexibility to absorb costs that cannot (fully or in part) be passed through in a timely manner.

In Fitch’s view, regulated utilities that can achieve such pass-through of costs should be secure, while wholesale generators may or may not have an ability to pass on increased costs in power prices, with long-term fixed-price contracts a financial burden. Of course, new carbon regulations should encourage a nuclear renaissance and provide a leg up for the nascent renewable energy sector. On the downside, coal-fired merchant generators in regions where gas sets the market stand to have stressed credit profiles.²

¹ SNL Financial, “Emissions Trading Industry Doubts Full Passage of Climate Change Bill This Year,” June 24, 2009.
Standard & Poor’s highlights the difficult financial issues public officials will need to balance as they confront the abatement of the negative effects from carbon:

As the debate over global warming heats up, the challenge for U.S. regulators and lawmakers will be to fashion the emerging variety of state systems and voluntary actions into a single coherent approach to regulating carbon emissions. To achieve a successful result at the most reasonable cost, policymakers will try to create a stable regulatory environment that allows for large, long-lived capital investment and makes tough choices about whether to penalize companies for decisions make before greenhouse gas regulation could have been foreseen. The decisions regulators and legislators make concerning these questions could impact credit by affecting the stability of carbon prices companies might face and by allocating the costs of potential carbon abatement between sectors such as power and autos and between constituents such as lenders and other stakeholders.3

Moody’s concludes that there is still time for proactive utility action to strengthen balance sheets and bolster available liquidity as a prelude to the coming wave of carbon regulation:

Although the current economic turmoil and unsettled financial markets are not encouraging, we incorporate a view that as providers of an essential service, utility management teams will act in a relatively conservative manner to revise, amend and adjust their existing financing plans to start the longer-term preparation for new carbon uncertainties. This expectation, that utilities have time on their side to adjust their plans, is a primary factor behind our initial conclusion that the near-term credit implications are generally neutral.4

Credit concerns thus suggest two imperatives for CCS development and implementation: (1) if CCS is to be a potential economic way to address greenhouse gas regulations, especially in heavily coal-reliant regions, states and the federal government should strive to make CCS

feasible and workable from a legal and regulatory perspective; and (2) constructive regulatory policies providing for timely recovery by utilities of all prudent and reasonable CCS costs will be an important part of making CCS feasible, while also allowing electric utilities to maintain their credit quality in the face of greenhouse gas regulation.

Legal and Regulatory Challenges Associated with CCS

In addition to geological, engineering, technological, economic, and financial challenges, implementation of CCS presents legal and regulatory challenges as well. Although CCS is arguably analogous in some ways to natural gas transportation, enhanced oil or gas recovery, etc., in other ways CCS presents distinctly new legal and regulatory issues. For this reason, federal and state legal and regulatory initiatives are necessary to allow for, and to encourage, CCS implementation.

The key strategic legal and regulatory issues raised by CCS implementation are as follows:

- What entities should be allowed to engage in carbon capture, transport and storage?
- What agency or agencies should be responsible for permitting such activities?
- How should deep underground pore space be dealt with from a property rights perspective – who owns the deep underground pore space? Should such deep underground pore space be considered “public good property”? Should acquisition of necessary surface and subsurface property be facilitated by granting carbon storage developers eminent domain rights?
- What is the potential liability associated with carbon transport and the operation of carbon storage facilities?
- What is the potential liability associated with long-term underground storage of carbon?
- Should the government limit liability in connection with the operation of a carbon storage facility?
- Who should be responsible a carbon facility post-closure? Should the government assume the long-term liability?
• What financial incentives are necessary or desirable in order to facilitate and encourage CCS implementation?
• How will or should the federal and state governments work together to address this issues?

Entities Allowed to Engage in Carbon Transport and Storage Activities
Federal and state governments will need to decide if CO2 transport and storage are better suited to a regulated monopoly setting, or a competitive marketplace setting. CO2 transport, like natural gas pipeline transport, seems to easily lend itself to regulation as a public utility, in order to avoid duplication of pipeline facilities. Carbon storage initially seems to lend itself less to a regulated utility setting and more to a competitive marketplace setting, in that it does not at first blush appear to be a natural monopoly. However, when one considers that underground geological formations suitable for CO2 storage are somewhat scarce resources, and that potentially having multiple developers trying to develop an area that is essentially one underground formation, a regulated utility setting seems to make more sense. In such a regulated setting, carbon storage utilities could be formed and could apply for a certificate of territorial authority that would allow them to develop and operate a geographically defined underground storage area. In return for being granted the exclusive right to develop a carbon storage facility in a certain area, the prices for carbon storage services would be determined by a regulatory agency, much like the prices for utility services are determined today in most states.

Permitting Agencies
The federal and/or state governments will also need to decide whether the primary permitting agency should be environmental in nature (e.g., EPA) or resource-related (e.g., Dept of Interior, Dept of Natural Resources). Again, at first blush, environmental permitting primacy seems obvious. But when one considers the issues that are likely to be encountered, primary regulation of carbon storage as a natural resource may make more sense.

Property Rights Issues
Who owns the pore space deep underground where carbon will be stored? Is it the surface owners, or the mineral rights owners? Or, is this deep underground pore space of so limited use
in any other way, and so important to deal with climate change, that we should deem it a “public
good” rather than private property, similar to air space? Americans take their property rights
seriously, and in order to facilitate public acceptance of carbon storage, the best course of action
might be to consider this deep underground pore space a compensable property right. However,
the analogy to air space is intriguing, to say the least. Clearly, just as landowners do not own the
space far above their property, they do not own property to the center of the earth. But where is
the point at which private property rights do or should end, and common or public rights attach?

Short-Term Liability Issues
With regard to short-term liability – liability accruing during the operation of a carbon storage
facility, for example – the question is not really who should bear that liability, but whether or not
that liability should be limited statutorily. Operators should and will likely bear responsibility
for any harm that results from their operation of a carbon storage facility. But states, and the
federal government, need to consider whether limiting that operational liability through statute
may serve a larger purpose of facilitating and encouraging the development of carbon storage
facilities? States may even compete for carbon storage developers’ interest, for economic
development purposes, and limitations of liability may be a tool that states use in such
competition.

Long-Term Liability Issues
The larger liability issue is who should shoulder liability that may occur hundreds of years from
now, long after the carbon storage facility has closed? This issue presents not only a question of
facilitating or encouraging CCS development, but also a question of feasibility: is it really
feasible to plan on holding a corporation or partnership liable for something that may happen
hundreds of years from now? Will that entity even be in existence at that point in time? For
these reasons, it will be much more feasible if state or federal governments take on post-closure,
long-term liability, possibly combined with funding for such potential liability coming through a
user fee assessed during the operation of the facility.
Financial Incentives

If our society wants to not only facilitate, but also encourage, development of CCS, then it is appropriate to consider incentives. Possible incentives that federal and/or state governments may want to consider include: investment tax credits, property tax credits, property tax abatement, etc. In addition, if carbon storage takes place in a regulated utility setting, regulators should consider granting financial incentives such as special cost recovery mechanisms, enhanced rates of return, construction-work-in-progress ratemaking treatment, abandonment cost recovery, and preapprovals with assurance of cost recovery. At a minimum, timely recovery of all CCS related costs by the regulated utility is critical. As referenced earlier in this paper, such mechanisms, in addition to encouraging CCS activities, will also serve to enhance the credit quality of those entities that engage in CCS development.

State / Regional / Federal Cooperation

Federal and state tensions often exist in our industry. Like electrons, carbon dioxide stored deep underground is not likely to respect state boundaries. Consequently, in order for CCS to develop, states will need to cooperate with their neighbors to fashion regional solutions, or the federal government will need to provide a national solution.

Conclusion

Carbon capture and storage appears to present a significant opportunity for dealing with greenhouse gases and climate change, but a number of legal and regulatory structures must be put into place in order for CCS to develop, and certain incentives may be necessary or desirable to maximize CCS development. States and the federal government will need to work cooperatively to address these novel issues in a timely and fair fashion.