

The CCS Regulatory Landscape: Progress & A Look Ahead

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Overview

- ▶ Several EPA regulations underway or completed
 - UIC rule under the Safe Drinking Water Act
 - Proposed Exemption for CO₂ Injection under RCRA Subtitle C
 - GHG Reporting Program requirements
 - Permitting & BACT program
 - Utility GHG NSPS
- ▶ Two critical issues still to be addressed
 - Liability framework for CCS projects
 - Regulatory framework for shale gas production

EPA Activities

UIC & GHG Reporting Rules

- ▶ **Underground Injection Control program**
 - Final regulation establishing “Class VI” wells for CO₂ storage promulgated in December 2010
 - EPA is the permitting authority until states apply for primacy
 - Limited number of permits so far
- ▶ **GHG Reporting Program**
 - Final regulation promulgated in December 2010.
 - Requires development of a monitoring plan for GHG for Class VI wells, with opt in for other well classes
 - Unclear how many projects will report in the near term, given pervasive climate policy uncertainty.

RCRA Subtitle C

- ▶ Conditional exemption for CO₂ Injection in UIC Class VI wells from RCRA hazardous waste requirements
 - Proposed in August 2011
 - Comment Period closed October 7, 2011
- ▶ Main thrust of comments
 - Industry wants blanket exemption from RCRA
 - Environmental groups want more data regarding injectate properties; concerned about potential contaminants
- ▶ Final rule scheduled for February 2013

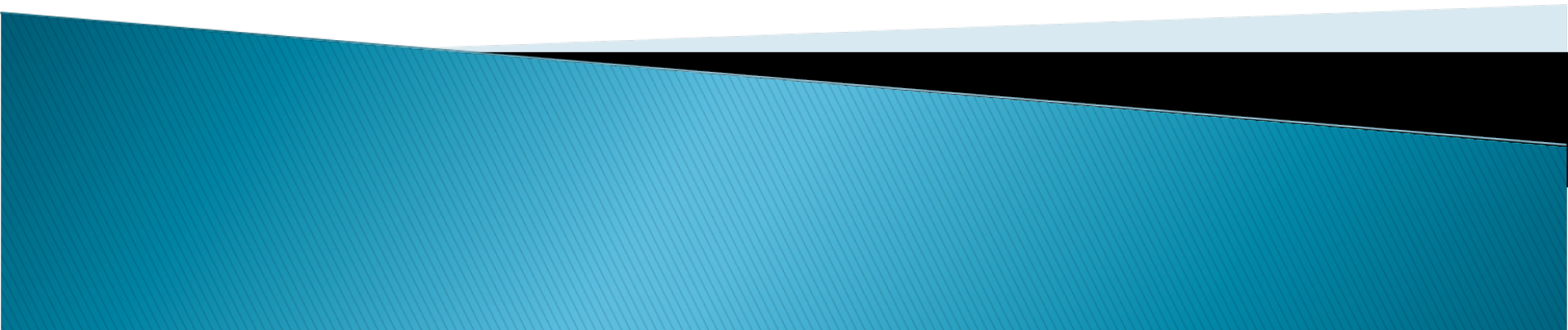
PSD Permitting Guidance

- ▶ EPA BACT Guidance (11/2010) identifies two widely applicable control options for large CO₂ emitters: energy efficiency and CCS
- ▶ EPA encourages all permitting authorities to consider energy efficiency options
- ▶ EPA states that CCS to be considered, but may not be required:
 - “EPA classifies CCS as an add-on pollution control technology that is “available” for large CO₂-emitting facilities...For these types of facilities, CCS should be listed in Step 1 of a top-down BACT analysis for such sources... CCS is an option that merits initial consideration, and, if the permitting authority eliminates this option at some later point in the top-down BACT process, the grounds for doing so should be reflected in the record with an appropriate level of detail.”
- ▶ Permitting actions to date have relied on efficiency and not required CCS.

Utility GHG NSPS

- ▶ Not yet proposed (new schedule to be *negotiated* by Nov)
- ▶ Expected to focus on new coal-fired power plants
- ▶ Issue 1: How Stringent?
 - As with permitting, main technological options are energy efficiency and CCS, with a single standard or fuel-specific standards.
 - Efficiency is inexpensive, but does not deliver significant reductions
 - CCS delivers big reductions, but has not been deployed at this scale and is much more expensive
- ▶ Issue 2: How Flexible?
 - While flexibilities appear legal under NSPS program, trading appears unlikely due to Congressional opposition
- ▶ Issue 3: How Broad?
 - EPA will regulate new sources and could provide guidance to states on the regulation of existing sources
 - Effectiveness of EPA's action depends on how much new coal capacity will be built and the stringency of the standards
 - Regulation of existing sources could take 3+ years, and states can issue weaker standards

Looking Forward: Two Outstanding Issues



CCS Liability

- ▶ The President's CCS Task Force reviewed a variety of approaches to address long-term (post-closure) liability, and recommended further consideration of 4 of them:
 - Reliance on the existing framework for long-term liability and stewardship;
 - Adoption of substantive or procedural limitations on claims;
 - Creation of an industry-financed trust fund to support long-term stewardship activities and compensate for losses or damages that occur after site closure;
 - Transfer of liability to the Federal government after site closure (with certain contingencies)
- ▶ Panel concluded that “open-ended Federal indemnification should not be used to address long-term liabilities associated with CO₂ storage”

Work needs to continue

- ▶ Stakeholders have different perspectives on long-term liability:
 - Industry has stated that long-term liabilities are a key barrier to commercial deployment of CCS
 - Some insurers have said that they cannot currently write policies to cover post-closure risks because they cannot estimate the cost of such policies
 - Environmental groups are concerned that relieving businesses of long-term risks could create a moral hazard and some are unconvinced that the issues surrounding CCS are uniquely challenging
- ▶ A stakeholder process that includes all perspectives should be established to develop consensus recommendations

Broader Regulatory Framework for Shale Gas

- ▶ Today's discussion is founded on the expectation that development of shale gas resources will drive significant growth in use of natural gas
- ▶ This potential growth is threatened by public concern over environmental issues associated with production and use:
 - Infrastructure impacts
 - Water use and disposal
 - Air quality impacts
 - Greenhouse gas impacts
- ▶ Whether real or perceived, these concerns must be taken seriously.

Public Acceptance is Critical to the Development of New Gas Reserves

- ▶ Building confidence in shale gas depends on:
 1. Information and data on what is being done during production
 2. Monitoring data on environmental impacts
 3. A regulatory framework that avoids environmental problems to the extent possible and ensures proper clean-up when problems do arise
- ▶ This framework needs to be established quickly, before positions harden, and in collaboration with industry, NGOs, and regulators (state and Federal)
- ▶ Public opposition to shale gas development could signal future problems for widespread CO₂ injection

Conclusion

- ▶ In the absence of national climate legislation, increased use of natural gas use can be an important near-term GHG mitigation strategy
- ▶ During the current policy vacuum, efforts to move key technologies – like CCS -- toward commercial deployment must be maintained
- ▶ And particular attention should be paid to public concerns regarding both shale gas development and CCS

Thanks!

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