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Financial Assurance Mechanisms and CCS

Fred Eames  
On Behalf of the CCS Alliance  
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CCS Alliance

- **Purpose of CCS Alliance:** Promote development of positions and policy by the private sector, States, the federal government, nongovernmental organizations, and others to appropriately address risks associated with the development and deployment of CCS technologies. The CCS Alliance supports efforts to help ensure that these technologies are developed and widely, efficiently and cost-effectively deployed in furtherance of any greenhouse gas emissions reduction strategy implemented at the State, regional, or federal level.
- **Members:** MidAmerican, National Mining Association, National Rural Electric Cooperatives Association, NRG Energy, Zurich
- **Goal:** Sensible policy and regulatory regime at State and federal level that encourages CCS development
- Visit [www.ccsalliance.net](http://www.ccsalliance.net)
- Thanks to Andy Paterson for Econergy slides

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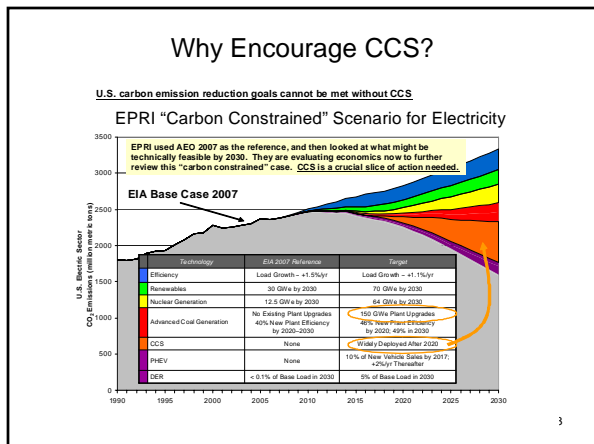
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**HUNTON & WILLIAMS** CCS Alliance: Key Action Items

- Risk Study (Econergy International)
  - Survey of technical, legal/regulatory, and market risks posing impediments to CCS development
  - What do developers and financiers say will determine whether a project can go forward?
- Legal Study (Hunton & Williams LLP)
  - Evaluate legal issues, including potentially applicable liability and risk management structures, affecting CCS
- Studies are intended to assist in shaping policy at State and federal level
- Special Area of Focus: CCS risk management

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**HUNTON & WILLIAMS** CCS Regulatory, Liability, Risk Management Structure

- CCS Alliance Inputs
  - We now know the risks about which the market is concerned
  - We now know the details of the key regulatory, legal, and liability impediments
- CCS Alliance Output
  - A model regulatory and liability structure, including a proposed risk management regime
- We focus on two of the three main policy areas affecting CCS
  - Funding
  - Regulatory structure
  - Liability and risk management structure

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**HUNTON & WILLIAMS** Model Regulatory and Liability Structure

- Goal: Encourage CCS development while appropriately protecting health, the environment, and property
- Knowing the regulatory and liability structures is a predicate to risk management
- To the extent practicable, unify regulation and liability under a single program
  - Unify the regulatory structure
  - Provide a new liability regime to stand in place of others (potentially statutory and common law)
  - (Note: Personal observation, not CCS Alliance position)
- Overly burdensome and overlapping regulation and punitive and open-ended liability structures will discourage CCS development

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**HUNTON & WILLIAMS** Liability Considerations

(Note: Personal observations, not CCS Alliance positions)

- Scope of activities, “inherently dangerous activity” features may necessitate strict liability for owners and operators of injection sites
- Other parties – i.e., generators, transporters – should be able to perform their functions subject to a negligence standard (either gross/willful or ordinary negligence)
- Liability must be limited
  - Define liable parties
  - Liable for what?
  - Liable for how long?
  - Liable for how much?
- Government backstop will be required: no private entity can accept indefinite or millennial risk responsibility

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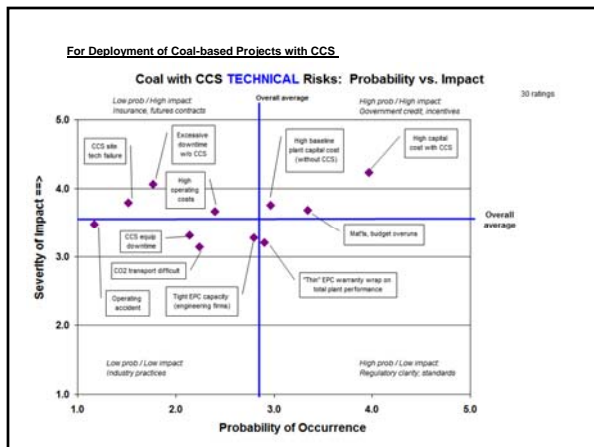
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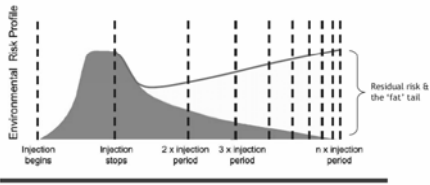






## Avoid a Fat Risk Tail

Figure 3. A Different Risk Profile for CCS Sites



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## How Will Risk Change Over Time?

- Prior slides illustrate the Sally Benson (Stanford University/GCEP) risk curve: risk highest in initial stages (and for initial sites), declining over time to a long, thin risk tail, and risks becoming better known for future sites
- Could there be, as Lindene Patton (Zurich) postulates for improperly sited or surprise sites, a fat risk tail?
- We expect CO<sub>2</sub> to become chemically trapped over time, but as it spreads it may find fractures that result in releases from the confining zone

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## Purpose of Financial Assurance

- "To ensure that an obligated party has the financial capacity to meet its obligations."
  - EFAB hazardous waste FA report, 2006
- "To minimize the number of facilities that are orphaned and abandoned; thereby, reducing the potential that these costs will be borne by the public."
  - EPA GS Stewardship paper, July 2008
- Permanent disposal of CO<sub>2</sub> suggests reviewing the goal of financial assurance in the case of other programs where the potential for risk is very long term
  - Other UIC program well classes
  - Hazardous waste disposal
  - Mining closures

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What Risks Will the Market Cover?

- Owners and operators can find commercial risk management tools for risks from ordinary practices where the frequency and magnitude of the risk can be evaluated with reasonable probability
- Capture, compression, transportation – operations, and thus risk profile, are not expected to differ substantially from similar commercial practices today
- Market likely to cover some portion of storage risks for a period of years
  - Risk covered will be of limited amount
  - Risk covered will be for a limited period

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What Risks Will the Market Cover?

- Operation phase
  - Market available to cover risks during commercial operation for properly sited, operated, and maintained sites; may not extend to all formation types
  - Policies might last several years with option for renewal
  - Coverage likely dollar-limited
  - Specialty risk area likely means few risk partners
- Closure phase
  - For perhaps 10-30 years after operations have ceased and while monitoring is ongoing, some market likely to be available, with limitations above
- Post-closure phase
  - No market available to take risks beyond closure phase

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A Potential Risk Management Structure

- Operation phase
  - Owner/operator bear initial risk (deductible)
  - Market provides financial assurance mechanisms for some dollar-limited amount
    - Example: Owner liable for damages up to \$10 million; Insurer A liable for next \$20 million; Insurer B liable for next \$20 million (figures for illustrative purposes only)
  - Trust fund or other government-established mechanism for liability beyond market capacity
- Closure phase
  - Similar to above
- Post-closure phase
  - Trust fund or other government-established mechanism for liability is responsible for defined set of events

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**HUNTON & WILLIAMS** Risk Management Mechanisms

- Financial strength test
  - Suitable for risks smaller than potentially implicated by CCS
- Corporate guarantees
- Letters of credit
- Third-party sureties
  - Can guarantee to pay cost of remedial action, or payment into a trust fund, in event of non-payment by the principal
  - Surety market has tightened in recent years
- Insurance
  - Insurers concerned about legal precedent requiring payment where insured violated policy terms or failed to pay premium
  - Double payment jeopardy (payment demanded by insured *and* by regulators to third parties)
  - Policies may be cancelled
- Trust funds

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**HUNTON & WILLIAMS** "Backup" Risk Management Mechanisms:  
Focusing on Pooled Risk and Trust Funds

- What will the mechanism look like to address the risk beyond exhaustion (in dollars and/or time) of the private market?
- Price-Anderson model receiving attention in policy considerations
  - Other federal liability mitigation examples (many to be avoided): Paulson Plan, Terrorism Risk Insurance Act, LUST Trust Fund, NFIP, asbestos, flame retardant clothing, small engine aircraft
- IOGCC proposed a State-administered trust fund concept
- Patton/Trabucchi propose a national trust fund
- EPA UIC rules would authorize a trust fund, but require a pay-in period of three years (consistent with other EPA programs)

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**HUNTON & WILLIAMS** What Post-Operation Financial Assurance Do Other Programs Require?

- UIC program
  - 30 years for other well classes
  - (EPA considering longer for CCS because of plume stabilization modeling, size, pressure)
- Hazardous waste facilities
  - 30 years is typical
  - FA period can be adjusted based on site conditions
- Oil and gas
- Mining
  - Depends on estimated length of reclamation, which is intended to avoid future environmental damages
  - Estimated for some sites in excess of 100 years
  - Amounts of FA required vary dramatically by State

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What Have Other States Done?

- Texas and Illinois efforts to obtain FutureGen
- Washington regulations
- Other recent State example

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Conclusion: Principles for Liability/Financial Assurance

- Regulatory structure must set clear and reasonable responsibilities for owners and operators
- Liability structure must be clear and limited
- Owners and operators must have incentive to reduce risk – must avoid moral hazard
- Detailed site-specific evaluation is required
- Should be flexibility in the type of financial assurance instruments available
- Risk should be addressed by the private market to the extent practicable
- If we want coal and we need to have CCS, government will need to provide a liability backstop

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