


# WESTCARB Annual Business Meeting

## CCS Institutional Issues: What Happens If Something Goes Wrong?

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Scottsdale, AZ  
September 15–17, 2009



## Overview

- What is meant by “what could go wrong”?
- Tools for Risk Management
  - Insurance
  - Federal Liability Provisions
  - State Proposals
- Challenges, Questions, Next Steps

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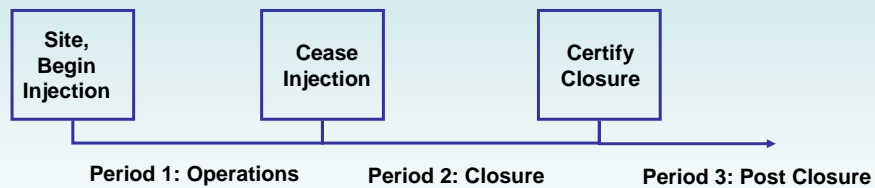


## What Could Go Wrong?

- Conventional Concerns
  - Worker HSE / OSHA
  - Industrial accidents
  - Above ground leakage of CO<sub>2</sub>
  - Equipment delays, breakage, failure
- Less Conventional / Newish Concerns
  - Subsurface leakage of injected CO<sub>2</sub>
  - Property damage / trespass
  - Human health and environmental impacts
  - Climate change liability



## When Could That Take Place?

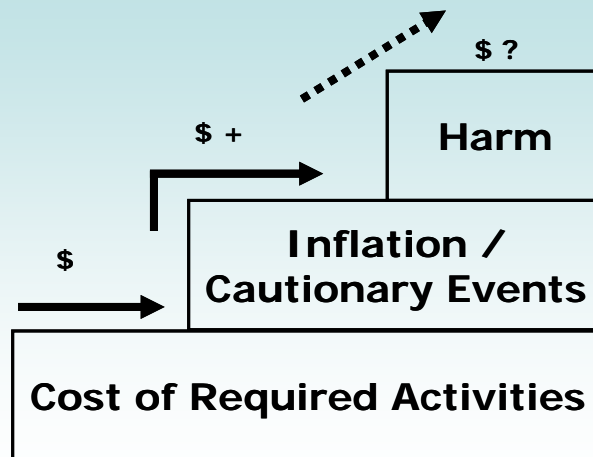


## Traditional O/O Responsibilities

- Compliance with regulatory requirements, potentially including regulatory changes over time
- Corrective action, remediation, ongoing maintenance of equipment, wells, impacted area (if any)
- Potential liability for damages, torts



## Traditional O/O Responsibilities



**But... At What Cost?**



## Where You Stand Depends On Where You Sit

- Oil And Gas Operators
  - More comfortable with risk; prefer less government intervention; self insurance attractive; LT climate liability a concern
- Power Generation Companies
  - More risk averse; prefer great certainty; risk diversification attractive; putting large amounts of capital at risk a concern
- “The” Public
  - Want to know who is accountable; do not want to have to use lawsuits to seek compensation; perceived risk significant
- Those Deeply Involved In The Climate Change Policy Debate
  - Question why, if risk is so great, why it is being pursued instead of nuclear and renewables; no more federal bailouts; what about moral hazard?



## Insurance – Navigating The System

- Delivery Vehicles:
  - Commercial and specialty insurers – Zurich, AIG, ACE, XL, Chubb, Lloyds
  - Industry mutual companies – AEGIS, EIM, OIL
  - Specialty structures: self-insurance, risk retention groups
  - Brokers – McGriff, AON
- Review Process:
  - Teams of analysts review geology, geochemistry, operating and maintenance plans, and closure/post-closure plans
  - Consider maximum and expected costs and risk assessment



## Insurance Products

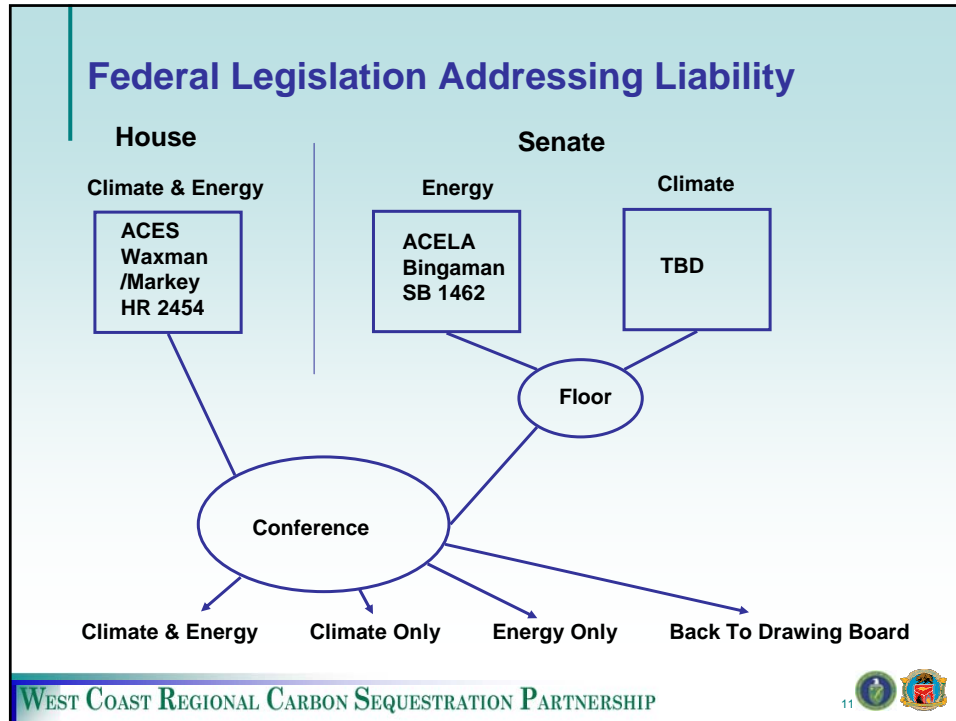
- 2 CCS Products; Offered by Zurich
- CCS Liability Insurance
  - Pollution event liability
  - Business interruption
  - Control of well
  - Transmission liability
  - Geomechanical liability
- Geologic Sequestration Financial Assurance
  - Specified closure and post closure activities
- Other Projects Insured Through Specialty Policies Or Endorsements On Existing Policies



## Additional Recommendations From Zurich

- Establish CCS Safety Board
- Establish A Trust Fund For Long Term Stewardship Only
- Do Not Establish a Liability Framework In Which Government Provides First Dollar Liability





- ### American Clean Energy Security Act
- Sets Caps On Sources >25,000 TPY; Trading; Offsets
  - Allocations For CCS (~\$160-280B / 72 GW)
  - Performance Standards For New Coal Plants
  - Regulates GS For Climate Through EPA
  - Incentives For Early Demonstration
  - Incentives For Broad Deployment Through Carbon Storage Research Corp Funded Through Wires Charge @ \$1B/Year
  - Calls For Studies of Implementation Issues Including Liability
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## American Clean Energy Leadership Act

- Creates Large-Scale Carbon Storage Program (>1MTPY) For Up To 10 Qualified Projects; Administered BY DOE
- Qualified Projects Must Comply With All Technical And Financial Assurance Requirements AND Conduct At Least 10 Years Post-Injection Monitoring After Plume Stabilization
- At Certificate Of Closure, Qualified Projects Will Be Indemnified From Damages\* In Excess Of The Amount Already Required AND Federal Government Will Take On Responsibility For Long Term Stewardship Using a Per Ton Charge Collected During Operational Life

\*Except Gross Negligence, Fraud, etc.

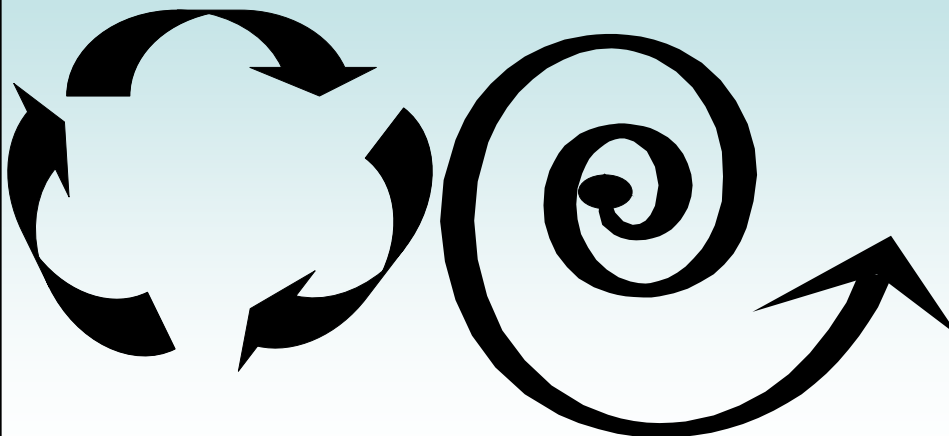
## Shaping Up For Messy Floor Debate

- SB 1502 – “Casey Bill” – CS Stewardship Trust Fund Act
  - Creates LTS Trust Fund, administered by DOE
  - Requires private liability insurance
  - Establishes limits on post-closure liability
- Senate Environment
  - Appears to be focused on funding, allocation, trading mechanisms – but open to change
- Senator Baucus
  - More moderate provisions to ensure technologies available for coal utilities (timing of caps, funding/allocation; liability and other institutional issues)
- Senator Reid
  - Something along the lines of the T. Boone Pickens plan?

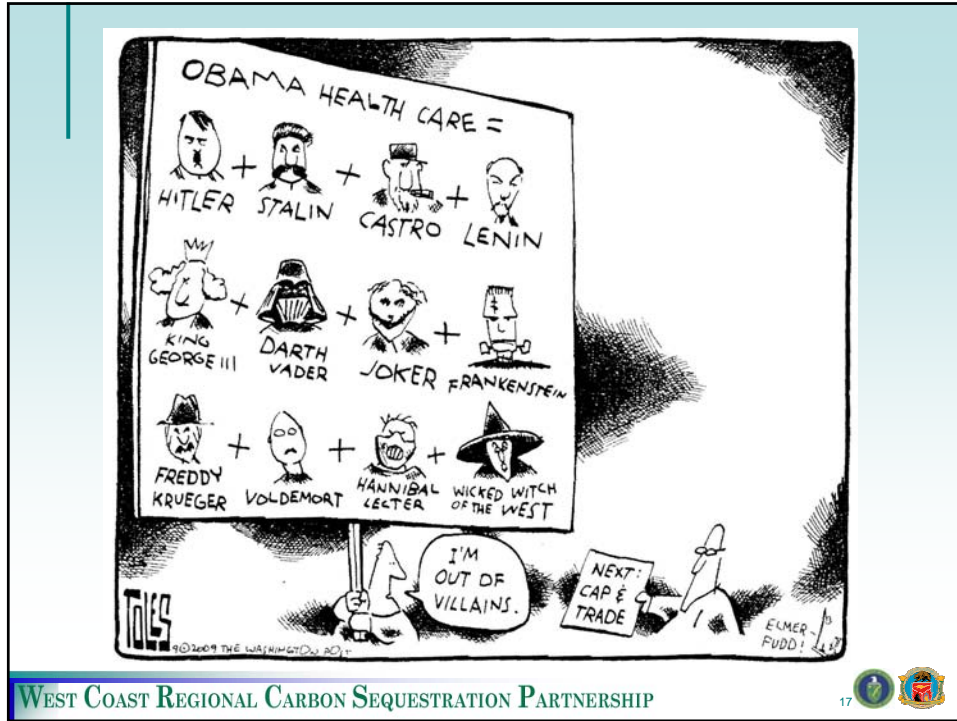
## States As Laboratory

- North Dakota – Financial Assurance
- Wyoming – Pore Space, Unitization, Liability
- Michigan – Liability, Stewardship
- Texas – Offshore Subseabed

## Shifting Paradigm?







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