Marsh

# CCUS

## Managing Risk & Insurance

2023 DOE-NETL Carbon Management

Research Project Review

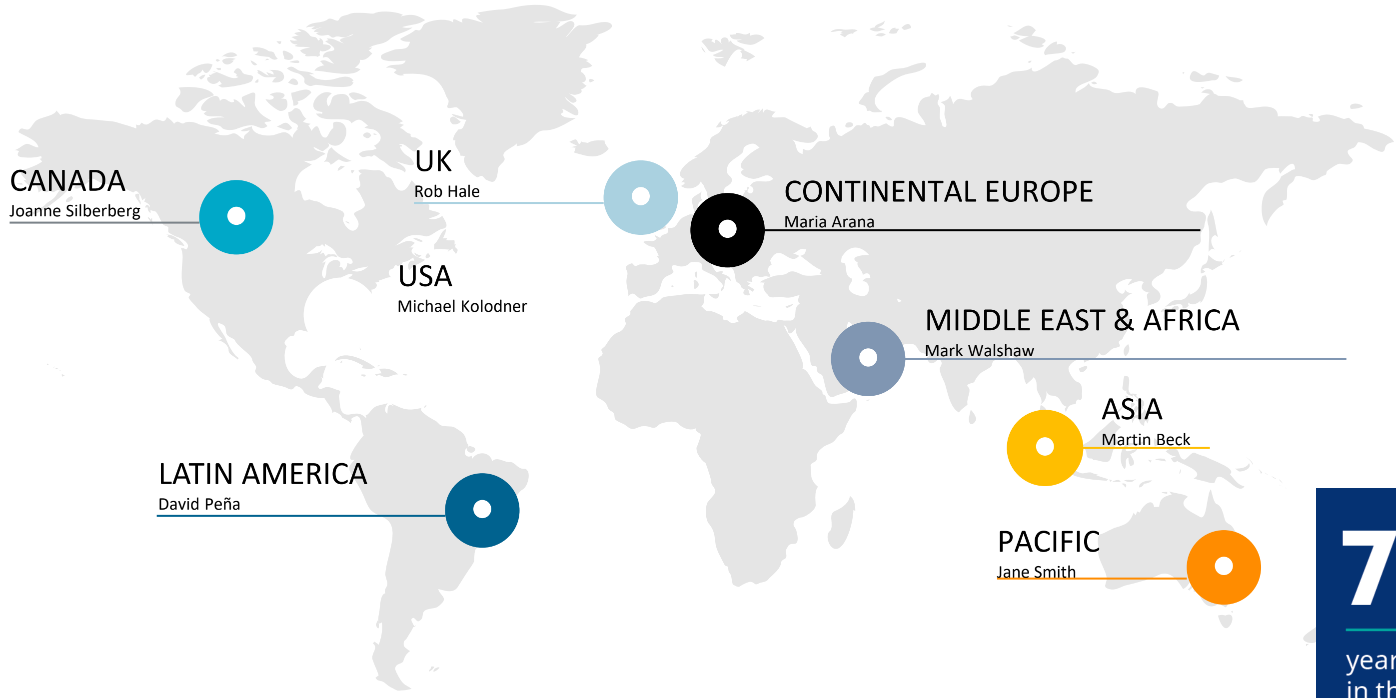
August 29, 2023

A business of Marsh McLennan

# Who Are We?

## Marsh's Power & Energy Global Footprint

- Global Energy, Power & Renewables Practice
- Commitment to Specialization
- Direct Access & Full Transparency
- Unparalleled Leverage & Alignment of Interest




**$5.1 billion**

in **premiums** placed on our clients' behalf into the global marketplace

**MORE THAN 3000**

**energy and power** clients worldwide

**70+**

years of **experience** in the energy and power industry

**70**

**risk engineers** aligned in industry verticals

# CCUS – Insurance & Risk Management

## De-Risking & Better Understanding CCUS

- A project sponsor for a CCUS project is on the right side of ESG history. Sometimes the biggest risk is doing nothing.
- Energy exploration and production companies have been employing $CO_2$ in the process of enhanced oilfield production for approximately fifty years. There have been infrequent incidents of release or seepage with low dollar value claims impact.
- The process of stripping $CO_2$ from a waste stream is well established and less hazardous than piping other substances (i.e. hydrocarbon fuels).
- The process of obtaining a Class VI permit to deposit $CO_2$ in deep formations is complex and thorough. The EPA has demonstrated permits will only be granted if the location demonstrates essentially perfect geology for long-term deep underground storage.
- Most companies evaluating CCUS project options have substantial experience in deep geologic exploration and expert geologists on staff.

# CCUS – Insurance & Risk Management

## De-Risking & Better Understanding CCUS

- The areas where sequestration will be allowed must have substantial pore space, impermeable capstone formations, and be remote from aquifers.
- The EPA requires that any existing dormant wells in the vicinity be extensively inspected to verify that they can not offer a path for $CO_2$ to move between geologic formations.
- In general, projects are being established in areas that are relatively remote from population centers.
- The injection site sponsor must show financial proof of the ability to cap the wells and monitor the site for a prescribed period after injection operations cease.

# CCUS – Insurance & Risk Management

## Common Misconceptions & Realities

### *Misconception*

- Insurers are unwilling to insure CCUS technology and projects.
- All insurers will deem these activities risky, making insurance cost prohibitive.
- Environmental is the most prominent risk and insurers will shy away from this class of business.
- Annual renewals will be an administrative burden.
- 45Q tax credits will be the primary driver for tax equity investors but no insurance backstop exists to protect my investment.

### *Reality*

- Insurers are excited for CCUS! Many have expressed an interest in this space, released whitepapers, and have made accommodations to write policies.
- Environmental insurers have expressed significant interest in this space, several are working with Marsh to craft bespoke policies to cover the unique nature of this risk.
- Insurance programs can be placed for multi-year periods to avoid annual renewals. Non-insurance options are available.
- Tax Indemnification policies are available to protect 45Q tax credits.

# CCUS – Insurance & Risk Management

## Project Risk – Insurance Timeline

**Pre-Construction & Construction**

- Builders' Risk
- Delay In Startup
- General Liability
- Automobile
- Workers' Compensation
- Environmental – Contractors Pollution
- Surety

**Substantial Completion, Maintenance, & Operation**

- All-Risk Property
- General Liability
- Automobile
- Workers' Compensation
- Environmental – Contractors Pollution
- Surety

**Other Coverages & Considerations:**

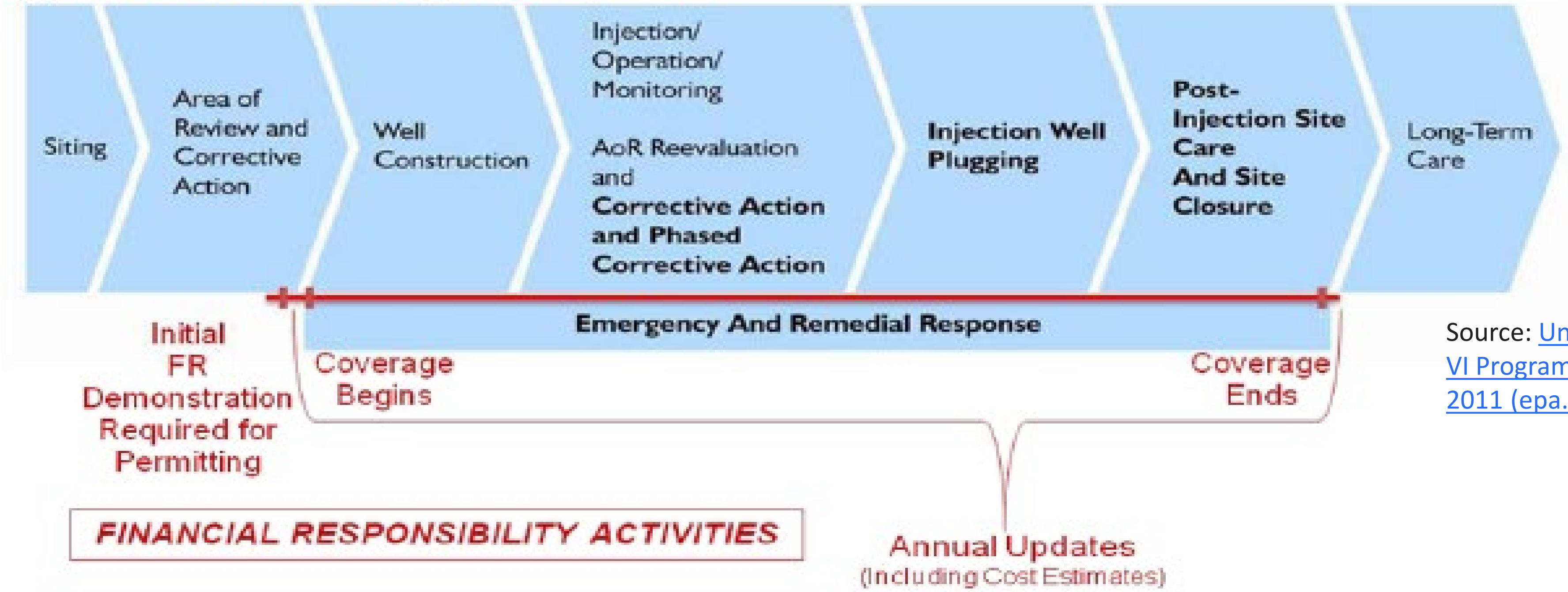
- Directors' & Officers
- Efficacy Coverage

# Financial Assurance Considerations and Solutions

## Overview

- CCS requires an Underground Injection Control Class VI Permit
- All Class VI Permits require a demonstration of financial responsibility during multiple phases of the project as a condition of issuance and a plan to achieve it must be submitted as part of the application process
- The intent of financial responsibility is to guarantee that the applicant has a dedicated funding source to address cleanup costs required by a pollutant release

**Figure 2: GS Financial Responsibility Timeline**




Source: [Underground Injection Control (UIC) Class VI Program Financial Responsibility Guidance July 2011 (epa.gov)]

# Financial Assurance Considerations and Solutions

## Mechanisms Approved by EPA per Project Phase

- Trust Funds
- Surety Bonds
- Letter of Credit
- Insurance
- Self Insurance
- Escrow Account.
- Any other instrument(s) satisfactory to the Director

Approved methods (in order of EPA preference):

Source: [Underground Injection Control (UIC) Class VI Program Financial Responsibility Guidance July 2011 (epa.gov)]

**Table 4: Recommended financial responsibility instruments for GS activities (relative ranking)[10]**

| Corrective Action | Injection Well Plugging | Post-injection Site Care and Site Closure | Emergency and Remedial Response |
|---|---|---|---|
| 1. Trust Fund<br>2. Letter of Credit<br>3. Surety Bond<br>4. Escrow Account<br>5. Financial Test and Corporate Guarantee*<br>6. Insurance | 1. Trust Fund<br>2. Letter of Credit<br>3. Surety Bond<br>4. Insurance<br>5. Financial Test and Corporate Guarantee*<br>6. Escrow Account | 1. Trust Fund<br>2. Insurance<br>3. Financial Test and Corporate Guarantee*<br>4. Surety Bond<br>5. Escrow Account<br>6. Letter of Credit | 1. Insurance<br>2. Letter of Credit**<br>3. Surety Bond**<br>4. Financial Test and Corporate Guarantee*<br>5. Trust Fund<br>6. Escrow Account |

*Financial tests and corporate guarantees present the lowest direct costs to owners or operators, but the highest risk to the public.
**Letters of credit and surety bonds are likely most appropriate for emergency and remedial response during operation phases.

# Questions & Next Steps?

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# Appendix:
# 45Q Tax Credit Insurance

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# 45Q Insurance

## Two Pronged Approach During Operations Phase

### Business Interruption

- **Where:** a component of the property insurance coverage
- **What:** physical damage that prevents injection

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### 45Q Tax Credit Insurance

- **Where:** a bespoke coverage
- **What:** scope:
  - Eligibility
  - Structural Risk
  - Leakage (Recapture)

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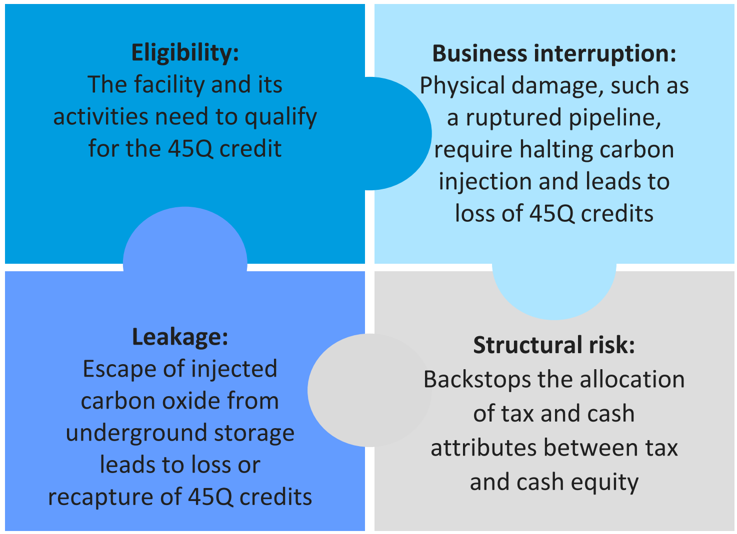
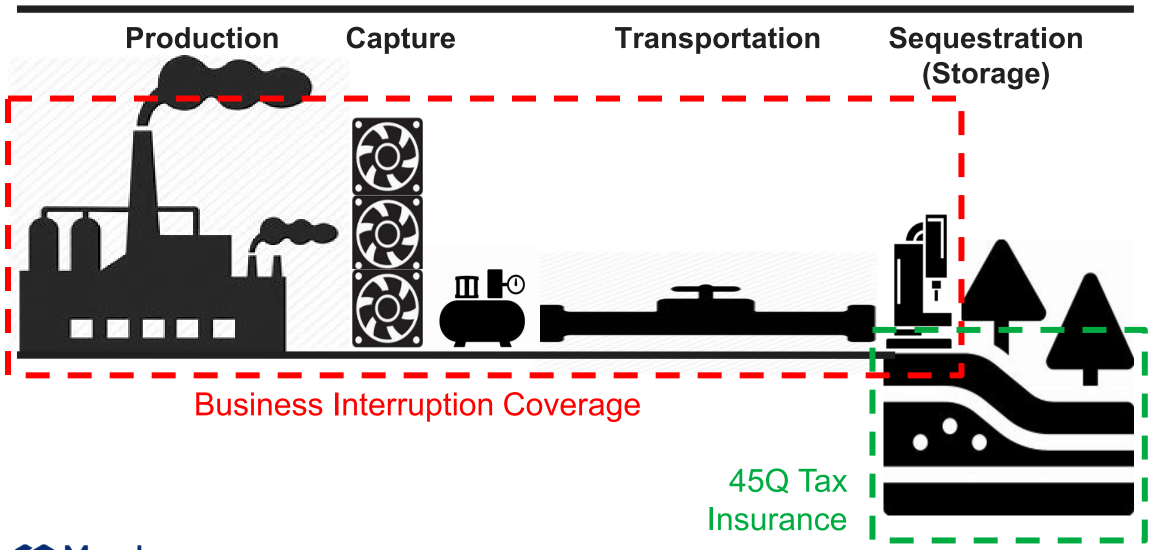
### Holistic Coverage



# 45Q Tax Credit Insurance

## Features and Considerations

- **Alignment of all capital providers:** the program provides both credit enhancement and de-risking to all developers/sponsors and investors/lenders in the CCUS chain
- **Balance sheet risk management:** 45Q credit insurance de-risks the contingent tax risk on the balance sheet of the entity providing the indemnity
- **Risk allocation:** accurately map the obligations of the various participants in the production-capture-transportation-injection chain
  - Ownership of the capture equipment, pipeline, and/or the storage facility
  - Financing arrangements
  - The party claiming the 45Q credit
  - The related indemnity packages
- **Interaction with transaction documents:** eliminate/reduce gap risk on payout timing
- **Other insurances:** The interplay between all insurance coverages needs to be closely examined
- **Limit of liability:** appropriate sizing and a gross-up (to cover taxes on the policy payout)
- **Policy period:** claims-made policy:
  - Limited capacity exists for 12 years plus the 3 year claw back period
  - Most capacity for a period of 10 years from binding
- **Retention:** bifurcated:
  - Standard retention for eligibility and structural risk
  - Retention for leakage?
  - Note: in some structures, the retention is already covered by commercial arrangements with capped indemnities
- **Time to bind:** at financial close or COD?
- **Payment terms:** aligned with the project timeline
- **Equity risks:** will not cover loss of 45Q credits due to lower than expected injection level due to lower captured emissions

# 45Q Tax Credit Insurance

## Market Overview and Process

### Market for 45Q Tax Credit Insurance

- **Innovation:** 45Q insurance is new
  - No policy has bound to date
- **Steep learning curve:** for the transactional risk underwriters
  - Each has leveraged in-house and external experts
  - Disconnect between recapture/leakage pricing and rhetoric on historic storage performance and expectations
  - Retention is a key variable that needs to be defined
- **Market capacity:**
  - For tax in general exceeds $1bn per risk
  - For 45Q, we estimate $500mm to $600mm available currently with a careful positioning of excess layers
  - Potential to expand capacity with traditional energy reinsurers, specialist energy MGUs, insurers and mutuals.

### Underwriting

- **Eligibility and structural risk:** written tax advice
- **Leakage/recapture:** piggy-back off information required by investors such as:
  - Permitting information and supporting information
  - MRV plan approved by EPA or State
  - Independent engineering report or studies for asset, pipeline and well integrity
  - Well design details
  - Complete engineering and geological design
  - Stress testing (i.e., to demonstrate non-catastrophic scenarios) and mitigants
  - Storage operator historical performance
  - Other insurances in place during operations
  - Term sheets or draft documents (including the scope of all indemnities and caps thereto (if any))
  - Project timeline (i.e., Gantt chart)
  - Expected injection volumes annually
  - Amount of 45Q tax credit insurance sought and the methodology for such amount

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