
CCUS Leadership Course: Capture Routes, CO2 Storage Risk and Project Finance

21 – 25 June 2027
Cape town





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Programme Summary

CCUS leadership is the subject of this one-week training course for energy, industrial and project leaders at strategic level, ending in a CCUS decision brief for one project. Carbon capture, utilisation and storage carries long-lived capital, subsurface risk and liability. The approach moves from the CO2 source and value chain, through capture and transport choices and storage risk, to project finance and a worked decision. Mars Training Centre UK delivers this programme in CCUS leadership.

The Business Case

A CCUS project commits capital for decades, and weak choices at the start are expensive to reverse. Leaders who compare capture routes on evidence, test storage risk before commitment and price liability openly can take an investment decision that withstands board, lender and partner scrutiny.

- Capital at Risk: Falls as capture routes and storage sites are screened against defined criteria before funds are committed.
- Long-Term Liability Exposure: Becomes visible as monitoring duties and transfer options are priced into the case.
- Decision Cycle Time: Shortens as a standard decision brief replaces repeated ad hoc studies.

Principles and Evidence Base

- ISO 27914: Its requirements for geological storage of CO2 frame the site characterisation and risk work in Session 3.
- ISO 27916: Its requirements for CO2 storage through enhanced oil recovery guide the storage-versus-utilisation comparison in Sessions 1 and 3.
- Discounted cash flow valuation: This economic model underpins the carbon value cases and sensitivity tests in Session 4.

Intended Participants

- Executives accountable for decarbonisation investment in industrial or energy assets.
- Project sponsors who approve capture, transport or storage studies and budgets.
- Commercial and finance leaders who structure funding, offtake and partner terms.
- Policy and sustainability leaders who must justify a CCUS position to boards and regulators.

The programme serves power, cement, steel, refining and chemicals organisations, and public bodies that oversee them.



Learning Outcomes

1. Participants will be able to map a CO₂ source and the links of its CCUS value chain with their costs and energy penalties.
2. Participants will be able to compare capture routes and transport options against the source and stream specification.
3. Participants will be able to evaluate a storage site and a utilisation outlet against the requirements of ISO 27914 and ISO 27916.
4. Participants will be able to construct a monitoring, measurement and verification plan and a leakage scenario register.
5. Participants will be able to diagnose the cost, incentive and liability drivers that decide whether a project is fundable.
6. Participants will be able to justify a CCUS decision brief to an investment committee.

Programme Structure

Day 1: CCUS Value Chain and Carbon Balance

Where does the CO₂ come from, and what does each link of the CCUS chain cost?

- CO₂ Source Inventory and Purity Profile
- Capture, Transport and Storage Value Chain Map
- Mass and Energy Penalty Calculation
- Utilisation Versus Storage Screening Matrix
- Case Review of Two Industrial Capture Sites

Day 2: Capture Routes and Transport Options

Which capture route and transport mode suit a given source?

- Post-Combustion, Pre-Combustion and Oxy-Fuel Comparison
- Solvent and Sorbent Selection Criteria
- Pipeline, Ship and Hub Transport Options
- CO₂ Stream Specification Table
- Capture Route Scoring Model

Day 3: Storage Sites and Risk

How is a storage site judged secure, and how is that shown over time?

- Storage Site Screening Criteria
- ISO 27914 Site Characterisation and Risk Requirements
- ISO 27916 Storage Through CO₂-EOR
- Monitoring, Measurement and Verification Plan
- Leakage Scenario Register



Day 4: Project Finance and Liability

Who pays, who carries long-term liability, and what makes the project fundable?

- Capital and Operating Cost Build-Up
- Discounted Cash Flow and Carbon Value Cases
- Incentive and Carbon Price Sensitivity
- Long-Term Liability and Transfer Options
- Partner and Offtake Risk Allocation

Day 5: Applying CCUS Decisions to One Project

Is the CCUS decision brief ready for an investment committee to approve?

- Applying the Session 1 Source Inventory to the Chosen Project
- Scoring the Session 2 Capture Routes Against the Source
- Testing the Session 3 Storage Risk Register
- Running the Session 4 Cash Flow Cases
- Completing the CCUS Decision Brief

Methodology

The programme is built around case analysis and structured exercises. Participants work with an anonymised industrial source and storage dataset, score options in small teams, challenge one another's assumptions and defend their choices before a simulated investment committee. No engineering software is required.

- Suggested activity: Scoring three capture routes for a cement plant flue gas.
- Suggested activity: Building a leakage scenario register for a depleted reservoir.
- Suggested activity: Testing a cash flow case against a falling carbon price.

Capstone Output

Each participant completes a CCUS decision brief for one project. It contains a source and value chain map, a capture and transport comparison, a storage risk register with a monitoring plan, cost and cash flow cases and a liability position. It is used to brief an investment committee and to open talks with partners and lenders.



Frequently Asked Questions

Is CCUS leadership training suitable for executives without an engineering background?

Yes. CCUS leadership training is set at strategic level and assumes responsibility for investment or project decisions, not process engineering or geoscience skills.

Which standards does CCUS leadership rest on in this programme?

CCUS leadership rests on ISO 27914 for geological storage of CO₂, ISO 27916 for storage through enhanced oil recovery and discounted cash flow valuation for project economics.

How is the CCUS decision brief used at work?

You use the CCUS decision brief to brief an investment committee, open talks with partners and lenders and define the scope of the next study.

How does CCUS leadership differ from a course on renewable energy strategy?

CCUS leadership centres on capturing, moving and storing CO₂ from existing sources and on the liability that follows, while renewable energy strategy centres on generation capacity and grid integration.