CCUS and Energy Storage Concepts Training Course

18 – 22 July 2027
Johannesburg

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Ref: 979_174553 **Date:** 18 – 22 July 2027 **Location:** Johannesburg **Fees:** 4500 Euro

Overview

CCUS and Energy Storage Concepts Training Course is a one-week foundation course for professionals who need to distinguish carbon capture, utilization and storage from electrical and other energy-storage technologies. Participants connect value chains, technology families, system services, project boundaries, selection criteria, integration points, risks, and early-stage evidence. The course resolves confusion between CO2 storage and energy storage through separate concept maps and a combined screening file. Agile Leaders Training Center delivers this CCUS and energy storage concepts course.

Who Should Attend

- Energy professionals exploring transition technology opportunities
- Engineers who support early-stage technical screening
- Sustainability teams that compare decarbonization options
- Project analysts who organize technology and interface evidence
- Technical managers who review concept-selection decisions

The course assumes general energy-sector knowledge, while detailed process design, reservoir engineering, storage sizing, financial modelling, and certification preparation remain outside scope.

Departments and Industries

The course supports concept screening across organizations evaluating carbon management and energy-system flexibility.

- Energy strategy and project development in power and industry
- Sustainability and decarbonization teams in process facilities
- Engineering functions in utilities and infrastructure
- Technology assessment groups in manufacturing and transport
- Investment and technical assurance teams reviewing early concepts

Learning Objectives

By the end of this course, participants will be able to:

- Map the CCUS capture, transport, utilization, and storage value chain
- Classify electrical, mechanical, thermal, and chemical energy storage
- Compare technology purposes, system boundaries, and interfaces
- Match storage characteristics to energy-system use cases
- Identify project evidence, risks, dependencies, and screening gaps
- Build a concept screening file for CCUS and energy storage options

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Course Agenda

Day 1: Technology Context and Boundaries

- Energy-System Challenge and Technology Role Map
- CCUS and Energy Storage Boundary Comparison
- Project Objective, Use Case, and Stakeholder Register
- Technology Readiness and Evidence-Level Scale
- Concept Screening Question and Assumption Log

Day 2: CCUS Value Chain Concepts

- Point-Source and Direct-Air Capture Route Map
- CO2 Conditioning, Compression, and Transport Chain
- Utilization Pathway and Product-Destination Matrix
- Geological Storage Site and Containment Concept
- CCUS Chain Interface and Dependency Register

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Day 3: Energy Storage Technology Concepts

- Electrochemical Storage Technology Family Guide
- Mechanical, Thermal, and Chemical Storage Map
- Power Capacity, Energy Capacity, and Duration Model
- Round-Trip Efficiency and Operating Profile Comparison
- Safety, Reliability, and Performance Evidence Matrix

Day 4: Integration and Opportunity Screening

- Energy Storage Service and Use-Case Matching Grid
- CCUS Host Facility and Infrastructure Interface Map
- Site, Resource, Network, and Supply-Chain Constraint Register
- Technical Risk and Evidence Confidence Matrix
- Concept Comparison and Next-Study Decision Table

Day 5: Concept Screening Practice and Capstone

- Exercise on Technology Boundary and Use-Case Definition
- Exercise on CCUS Value-Chain Interface Mapping
- Exercise on Energy Storage Family and Service Matching
- Exercise on Risk, Evidence, and Constraint Screening
- Capstone Exercise: CCUS and Energy Storage Concept Screening File

Practical Exercises

The course uses suggested activities that turn technology information into structured concept comparisons.

- Suggested activity: separate a proposed opportunity into CCUS and energy-storage system boundaries
- Suggested activity: map capture, transport, utilization, and geological storage interfaces
- Suggested activity: match storage technology families to duration and service needs
- Suggested activity: present a screening file with evidence gaps and next-study decisions

FAQs

Who suits CCUS and energy storage concepts, and what does it assume?

Energy professionals, engineers, sustainability teams, analysts, and technical managers suit the course. It assumes general energy-sector knowledge, while detailed design, reservoir engineering, storage sizing, financial modelling, and certification preparation remain outside scope.

How does CCUS differ from energy storage?

CCUS manages carbon dioxide through capture, transport, utilization, and geological storage. Energy storage captures energy for later release or use through electrochemical, mechanical, thermal, or chemical technologies. The two fields have different system boundaries and decision criteria.

What are the main stages in a CCUS value chain?

A CCUS value chain includes capture, conditioning and compression, transport, utilization or injection, geological storage, monitoring, and interface management. A viable chain requires compatible capacities, specifications, timing, infrastructure, and responsibilities across stages.

How are energy storage technologies compared?

Energy storage technologies are compared through power, energy, duration, response, efficiency, life, safety, site needs, reliability, maturity, and service fit. No single measure determines suitability across all use cases.

What evidence is needed for early CCUS and energy storage screening?

Early screening needs a defined objective, system boundary, use case, technology assumptions, site and infrastructure constraints, performance evidence, dependencies, risks, and decision gaps. The output identifies what further technical study is required.

Conclusion

Participants take back a CCUS and Energy Storage Concept Screening File containing boundaries, value chains, technology families, use cases, interfaces, evidence, risks, and next-study decisions. The file changes mixed technology claims into a structured comparison. Teams can update it as evidence improves and use it to govern concept development.