
EC006: Monitoring CO2 Storage

Format and Duration

Self-Paced - 4 Hours

Summary

The course considers the range of potential leakage mechanisms that need to be assessed. It will include a detailed consideration of the monitoring strategies available to assure the safety and integrity of the CO2 storage site.

Learning Outcomes

Participants will learn to

1. Understand the key issues relating to the monitoring of CO2 storage sites.
2. Appreciate the causes of leakage and how they may be monitored.
3. Understand the principles of risk assessment in CCS projects.

Training Method

This is a self-paced e-learning course. Learning materials are structured into short sections, each including interactive text and image content, animations, video, and audio. An end of course quiz is scored to provide the learner with their learning progress. Approximately 4 hours learning time.

Who Should Attend

This course is designed for scientists and engineers working in the energy industry and provides a foundation in key aspects of carbon capture and storage. It forms part of a foundation programme of 4 courses: Fundamentals of CCS (EC003), Geological Storage of CO2 (EC004), Behaviour of CO2 in Reservoirs (EC005) and Monitoring CO2 Storage (EC006).

Course Content

CO2 risk of leakage from CCS sites and borehole issues

In this module, you will learn about CO2 leakage risks from CCS sites, focussing initially on generalities, then moving on to leakages through intact-top seals and then leakage via old wells. Appreciate that loss of CO2 to atmosphere and understand that top seal effects, well effects, and fault and fracture effects can conceivably all lead to escape of CO2.

CO2 leakage associated with geomechanical issues

In this module, you will learn about the negative impacts associated with a pressure increase from CO2 injection, including the fracturing of a caprock or top-seal, reactivation of faults and induced seismicity as well as ground surface deformation and uplift.

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Monitoring and risk assessment of CCS projects

In this module, you will learn about various monitoring techniques for CCS projects along with the benefits and drawbacks of each. This module will also cover multiple case studies that have implemented these techniques along with risk assessment factors that need to be considered for any CCS project.