# Carbon Capture and Storage: Legal, Regulatory, Finance and Public Acceptance Aspects (G566)

## Tutor(s)

Mike Stephenson: Director, Stephenson Geoscience Consultancy Ltd.

## Overview

Carbon Capture and Storage (CCS) is a new technology that has a vital place within global efforts to decarbonise. It has a unique set of challenges, opportunities and risks to be understood and accommodated within appropriate legal, regulatory, and social and public licence frameworks. The course will provide up to date and relevant information to help in understanding opportunities and in managing risk. The course will cover: the role of CCS within a decarbonised energy system; risks of capture, transport and storage; aspects of monitoring; the importance of test and demonstration sites; legal and regulatory; finance; and public acceptance and social licence.

## Duration and Logistics

**Classroom version:** A 1-day course comprising a mix of lectures, case studies and exercises. The manual will be provided in digital format and participants will be required to bring a laptop or tablet computer to follow the lectures and exercises.

**Virtual version:** Two 3.5-hour interactive online sessions presented over 2 days. A digital manual will be distributed to participants before the course, which will be a mix of lectures and exercises.

## Level and Audience

**Fundamental**. This course will cater for in-company legal specialists, project managers, marketing and communications specialists; as well as planners and environmental scientists in regulatory roles in regions considering the development of CCS.

## Objectives

You will learn to:

1. Understand the place of CCS within a decarbonized energy system.
2. Demonstrate the basics of the science and risk in capture, transport and storage.
3. Illustrate the role of monitoring and MMV (Measurement, Monitoring and Verification).
4. Examine how legal and regulatory frameworks respond to the challenges of CCS.
5. Establish how CCS could be financed.
6. Relate to and understand public opinion and social licence in relation to CCS.

## Course Content

## 1. CCS global state of play

Lectures

- CCS readiness levels for storage and regulation
- Global overview of CCS projects
- Role of CCS in the energy system

Exercises

- Place of CCS in energy: model your own energy system (using the DECC 2050 calculator: http://2050-calculator-tool.decc.gov.uk/#/home)

## 2. Science and risks of capture, transport and storage

Lectures

- Capture technology, challenges and risks
- Transport (pipelines) challenges, risks and regulation focussing on UK HSE materials
- Storage
    - types
    - depleted fields
    - saline aquifers
    - long-term fate
    - storage space calculation

## 3. Aspects of monitoring and MMV (measurement, monitoring and verification)

Lectures

- How likely is leakage?
- Impacts of leakage
- Detecting leaks
- Remediating leaks

## 4. Importance of test and demonstration sites

Lectures

- Examples of test and demonstration sites
- Uses in regulation and public acceptance

## 5. Legal and regulatory

Lectures

- Characteristics of a good legal / regulatory regime
- Challenges of legal / regulatory in CCS
    - capture
    - transport
    - storage, long-term liability and site closure
- Roles of regulators / authorities in the CCS chain
- Stakeholder maps
- Planning

Exercises

- Building a stakeholder framework / model for a fictitious CCS project.
- Discussion of complex spatial planning for multiple Net Zero uses in the North Sea.

## 6. Finance

Lectures

- Main sources of income
- CCS hub business models

## 7. Public perception and social licence

Lectures

- Public attitudes to subsurface and energy
- Concept of social licence
- Perception of risk and public mental models
- Different publics
- Otway – public perception – what went right?

Exercises

- Barendrecht – what went wrong?