

Carbon Capture and Storage (CCS)

Where does it start?

Where does it end?

What's the full story?

How would you design a solution?

The increasingly clear message we can read from the geological record is that we are causing significant disruption of Earth's carbon cycle. The rocks tell us how, with the help of an enlightened oil industry, we can manage the transition to a low carbon economy; an endeavour the scale of which is comparable to that of the oil & gas industry which preceded it.

This event follows the path of the Carbon from its underground source, to post-industrial capture and sequestration back into the ground.

Using rock outcrops, oil field reservoir data, engineering data and legal & commercial framing, supported by tuition in the technical essentials, course attendees will work through the logic of a full CCS scheme.

Course Content

There are few active CCS projects globally, industry experience is limited, and many topics are still subjects of active research. As a result, no single person can claim omniscience in all fields of CCS. Considerable domain expertise is available, however, and this course therefore aims to bring multiple

Day 1 The carbon challenge

The evidence for anthropomorphic impact on the carbon cycle; the planet's likely response given the evidence from the geological record; the transition to a low carbon future and the potential role for the oil and gas sector; carbon at source.

Day 2 Facilities issues

– Regional infrastructure; capture options at power stations; transportation; economics of CCS; building a local case for CCS.

Day 3 Wells issues

The mechanics of recycling; adaptability of existing surface facilities; re-use of the existing well stock; well and completion implications; equipment integrity.

Day 4 Reservoir issues

The subsurface options for CO₂ storage, the suitability of depleted fields; the phase behaviour of CO₂; top seal and repressurisation; timing and the EOR upside; modelling the response of the reservoir, monitoring using 4D seismic.

Duration

Full day

Up to 4 days

residential, classroom course or online VILT. Core content can also be distilled into a one or two day **Designed for:**

Anyone working in an asset team designing or evaluating the subsurface aspects of a CCS project: geoscientists, reservoir engineers, well engineers and team leads.

Learning Level

Skills ○○○

Knowledge ●●○

Awareness ●●●



Course Tutors



Arndt Peterhänsel PhD
20+ years – geoscience
Arndt develops and runs courses in the E&P Overview, Reservoir, and Open Air series. He has a career background at University of Cambridge, Universität Potsdam, Saudi Aramco, Lukoil and TRACS. Arndt is a technical author, Global Head of Training (TRACS), and Expert to The European Commission on Horizon Europe 2020 research programme.



Mark Cook BSc, MBA - 40+ years reservoir engineering, economics and risk analysis
Mark develops and runs courses in Early Development, Business and Reservoir Engineering series. A career background at Shell, TRACS, and AGR. Mark is Author of 'Petroleum Economics and Risk Analysis' and of 'Hydrocarbon Exploration and Production', an SPE distinguished lecturer, and guest lecturer at Heriot-Watt University.



Jonathan Bellarby BSc (Hons), MEng
30+ years – wells technology
Jonathan develops and runs courses in the Wells and Early Development series. He has a career background at BP, ICE, AGR and TRACS. Jonathan is the author of 'Well Completion Design'.



Mark Bentley PhD
30+ years - geoscience
Mark develops and runs courses in the Reservoir, E&P Overview, Open Air and Master Class series. He has a career background at Shell, AGR, TRACS and Langdale Geoscience. Mark is co-author of 'Reservoir Model Design', SPE and EAGE distinguished lecturer, Training Director for both AGR and TRACS. He is an Associate Professor Heriot-Watt University



Jerry Hadwin BSc, MEng
35+ years - reservoir engineering
Jerry mainly tutors courses in the Reservoir, Early Development, and Open Air Series. He has a career background at Shell, TRACS and AGR. Jerry is co-author of 'Adventure Trekking in Oman'.

