

CO2 : INTRODUCTION TO CCS (CARBON CAPTURE & STORAGE)

Ref: GEN / CO21A

Dates: 20 - 21 June 2011, 13 – 14 September

Location: Rueil-Malmaison (Paris)

Tuition fees: 1 340 €

Language: French

Course coordinator: Alex CHWETZOFF

DURATION: 2 DAYS

WHO SHOULD ATTEND?

Decision makers, managers, engineers and technicians involved in future CCS projects and studies

COURSE OBJECTIVES

Bring an overall knowledge of the whole Capture, Transport, and Storage (CCS) chain, from environmental, technical, economical, and regulatory standpoints.

At the end of the session, attendees shall:

- Know framework and stakes of a CCS chain implementation, from technical, regulatory, and economical standpoints,
- Know the major capture technologies on combustion fumes and other gas streams,
- Know issues related to acid gas compression and the corresponding compression philosophy,
- Know the key constraints for acid gas geological storage from a reservoir standpoint.

COURSE OBJECTIVES

COURSE CONTENT

INTRODUCTION TO CAPTURE TRANSPORT AND STORAGE

0,5 day

CO₂ from combustion processes (all industries) and native CO₂ (gas industry / exploration-production)
Present GHG regulation : Quotas, Mechanisms, Kyoto protocol projects, ETS directive
Potential evolution: roadmap of certification entities, political wills, potential inclusion of CCS in Kyoto protocol mechanisms.
Introduction and major Pros / Cons of each technology, Present development status and technological gap of each one
Market structuration: Positioning of licensors, power and utilities, oil and gas companies, equipment suppliers, Consortia
Presentation of technical and economic drivers of different technologies for transportation
Presentation of storage options : global storage theoretical capacities, cost and gaps

WORLDWIDE CCS PROJECTS AND REGULATION

0,5 day

Application to Enhanced Oil Recovery (EOR)
Industrial use and valuation of CO₂
Overall status from geographic and technology standpoints
Status of existing laws and regulations

CARBON CAPTURE AND ACID GAS TREATMENT AND COMPRESSION

0,25 day

Physical and chemical properties of acid gases (CO₂ and H₂S)
Effects of CO₂ and H₂S
Acid gas generated in gas treatment process
Capture of CO₂ on combustion fumes (Post-Combustion, Oxy-Combustion, Pre-Combustion)
Issues related to hydrates - Water content – Corrosion, Dehydration Technologies
Influence of contaminants on acid gas properties
Definition of options for compression (before and after dehydration) and Key drivers for layout
Adaptation of rotary equipment technologies to acid gas (compressors and pumps)

RESERVOIR

0,25 day

The concept of capacity and the various calculation ways
Review of worldwide storage theoretical capacities in porous media (depleted fields and aquifer layers)
Dynamic simulations
Injection strategies and short, medium, and long term safety assessment
Typical Project Development Design
Link with regulation
Leakage risk management and Acceptability issues

ECONOMICS AND LIFE CYCLE ANALYSIS (LCA)

0,5 day

Environmental & societal impact
Carbon price evolution and visibility
Links between economics and LCA
Key drivers for CAPEX and OPEX predimensioning

CONCLUSIONS

CCS market perspective