Training - Low-carbon fuels and processes

BIOCPP-EN-P | Face-to-face only | 3 days

This session provides general technical information on the characteristics and processes leading to key bio-based products and intermediates: existing and developing biofuels, petrochemicals and chemicals

Level

Expert

Public

Professionals from different technical departments in sectors ranging from refining to petrochemicals or involved in the energy transition

Objectives

Attendees will be able to implement the following skills:
Upon completion of the training, participants will be able to:

- • List the main characteristics of bio-based products on the current market
- • describe the principle of existing and developing processes

Pedagogical & technical resources

- • Interactive course: active participation of the trainees through games and quizzes to grasp the key points of the course.
- • Joint construction of a diagram of all bio-processes.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Meet at least one of the following criteria:
• Have 3 months of proven professional experience in the energy sector, in a technical position.
• Or have followed a training course oriented towards the introduction to refining or petrochemical processes.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CONTEXT AND FEEDSTOCKS — 0.5 day

Challenges of carbon-free energy and bioplastics in the context of climate change.
Associated environmental and regulatory framework.
Process development strategy.
Different types of biomass: sugar biomass, starchy biomass, oilseed biomass, waste.

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Biomass generations: 1G, 2G, 3G
Other feedstocks:

- CO2, low-carbon hydrogen.
- Recycled plastics.

BIOFUELS AND PETROCHEMICAL INTERMEDIATES — 0.5 day

Description of hydrocarbon molecules families: Olefins, Aromatics, Paraffins.
Main characteristics and specificities of the different biofuels and comparison between them:

- For gasoline engine (ETBE, ethanol).
- For diesel Engine (FAME, HVO).
- For Jet (HEFA, FT-SPK, ATJ, DSHC).
- For the maritime sector (Methanol, NH3, GNL).

Other energetic fuels (H2 /e-fuels).
Main intermediates for access to plastics or chemicals: Olefins, Aromatics, Methanol, Syngas.
Main polymers: Bio-based vs. biodegradable, bioplastics, recycled plastics.

LOW CARBON PROCESSES — 2 days

Overview of processes for transforming feeds into intermediate and finished products: feedstocks and treatments, process diagrams, different technologies when relevant, typical operating conditions, advantages and drawbacks, comparison and maturity.
Current processes:

- ethanol by fermentation.
- ETBE by etherification.
- FAME by transesterification.
- HVO-HEFA by hydrotreatment.
- Co-processing.

Advanced processes:

- Biogas by digestion
- Biomethane by digestion or methanation.
- Different routes to syngas.
- Methanol and Ammonia via Syngas.
- Fuels by Fischer-Tropsch via syngas.
- Olefins by dehydration of alcools (ethanol and methanol).
- Different routes for SAF by ATJ, DSHC.
- Bio-crude /Py-oil by pyrolysis of biomass, wastes or plastics.
- Bio-oil by hydrothermal liquefaction.
- E-fuels production.

Sessions

To French entities : IFP Training is referenced to DataDock ; you may contact your OPCO about potential funding.
Please contact our disabled persons referent to check the accessibility of this training program : referent.handicap@ifptraining.com

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Training - Financial Management in the Energy Business

AGFE-EN-P | Face-to-face only | 3 days

The energy sector is changing. The energy transition is increasing the pressure on traditional Oil & Gas activities' profitability. Renewable energy value levers are changing rapidly. In this context it is important for managers of these activities to understand the stakes of the firm's financial management and its key tools in order to better contribute to the performance of their organization

Level

Knowledge

Public

Technical, business development executives, economists and young high-potential executives of Oil & Gas and renewable energy companies, as well as public administration decision makers and staff (industry, finance, energy, environment)

Objectives

Attendees will be able to implement the following skills:

- Interpret the main financial indicators of their organization to better contribute to value creation,
- Evaluate the expected profitability of investment projects,
- Understand the criteria for selecting a company's financial structure

Pedagogical & technical resources

- Exercises.
- Case studies: financial analysis of a company, evaluation of an investment project (offshore Wind farm)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

DEFINITIONS — 0.6 day

Financial management objectives. Key performance indicators in the energy sector.
Understanding financial statements. Fundamental accounting principles. Difference between income statement and cash flow.

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VALUE MANAGEMENT — 1.7 days

Analyzing and managing the financial performance of operations. Energy companies management targets/objectives: "Total Shareholder Return", ROCE, ROE). Cost of capital. Financial analysis ratios. Dashboards. Assessing the profitability of an investment project: discounting methodology and economic indicators (NPV, IRR, Payback time...), sensitivities.

OPTIMIZING THE FINANCIAL STRUCTURE OF THE FIRM — 0.7 day

Choosing the financial structure of the firm. Gearing.
Solvability, borrowing capacity.
Examples of typical energy financing methods: project financing, green bonds.

Sessions

Rueil-Malmaison - From 10/13/2026 to 10/15/2026 **2970 €/HT**

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Training - Introduction to petroleum geology: Alès basin fieldtrip

ALES-EN-P

Face-to-face only

4 days

4 days over 5 calendar days

This course allows to acquire a basic knowledge in geology, especially geology applied to petroleum sciences, using field observation and analysis alternating with theoretical knowledge via daily classes

Level

Knowledge

Public

Non-geologists or geologist trainers/juniors who want to acquire basic knowledge in petroleum sciences

Objectives

Attendees will be able to implement the following skills:

- Identify main characteristics of a petroleum system
- Analyze and describe workflow and tools used by geoscientists (geological maps, sections, seismic profiles, logs)

Pedagogical & technical resources

- Daily theoretical courses and field observations
- Description and study of worldwide petroleum systems through field analogues
- Correlation between field observations and geotools (seismic and logs)

Assessment of achievements

Knowledge assessment with multiple choice questions and open explanatory questions

Prerequisites

No pre-requisites are necessary to follow this course

Complementary informations

Subscription fees include accommodation and daily field transportation fees. Participants remain responsible for their own travel to/from fieldtrip location (Gard, France; to be confirmed)

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

BASIN HISTORY — 0.5 day

Sedimentology and stratigraphy concepts.
Structural network – Folds – Faults.
Rock identification.

CARBONIFEROUS COAL SYSTEM AND TRIASSIC UNCONFORMITY — 1 day

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Fluvial deposits.
Sequence stratigraphy – A/S concept.
Continental source rock.
Reservoir analogues.

JURASSIC AND CRETACEOUS CARBONATE PLATFORMS — 1 day

Analogy with carbonate platforms of the Middle East.
Marine source rock.
Porous and fractured reservoirs.
Outcrops and quarries.

PETROLEUM SYSTEM OF THE ALES BASIN — 1 day

Eocene lacustrine source rock.
Hydrocarbon maturation and migration processes.
Reservoir rock – Types of porosity.
Prospect definition – From prospect to reservoir.

CONCLUSION, PERSPECTIVES AND PREDICTIONS — 0.5 day

Miocene deposits.
Onshore/Offshore transition (Gulf of Lion).
Seismic interpretations.
Main tools of the petroleum geoscientist.

Sessions

Alès - From 10/05/2026 to 10/09/2026 — **3800 €/HT**

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Field Operator

BOINT-EN-P | **Face-to-face only** | **60 days**

This course provides the knowledge and know-how for the specific field operator position. Successful participants will be granted the “Field Operator” IFP Training Vocational Certificate

IFP Training Certificate

Vocational Certificate

Level

Knowledge

Public

Newly recruited operators in the refining, petrochemical and chemical industries

Objectives

Attendees will be able to implement the following skills:

- Monitor the facilities in an autonomous way, in compliance with Safety and Environmental rules
- Safely perform all routine operations related to operator duties, as well as the key non-routine ones
- Identify equipment deficiencies, explain their root causes, and take appropriate action
- Communicate effectively with their colleagues

Pedagogical & technical resources

- The training program is structured by alternating: Classroom training (2-week sessions) including theoretical and practical courses and On-the-Job training (typically 1-month sessions) 100% on-site, in their facilities, with instructors' help
- Even during classroom training, lots of practical exercises and applications
- Instructors having extensive Oil & Gas downstream experience, helped by company mentors
- Continuous assessment completed by a final exam in front of a jury)

Assessment of achievements

Continuous assessment

Prerequisites

Having already been pre-recruited by an Oil & Gas company
Although not mandatory, a technical education is desirable

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

CLASSROOM TRAINING (THEORETICAL & PRACTICAL) — 55 days

Professional basic training:

- Physical parameters; liquid vapor equilibria notions; fluid flow; heat transmission.

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- Chemistry: basic notions, industrial chemical reactions.

Products and processes:

- Quality tests, specifications; sampling safety procedures; refining processes; safety aspects.
- Storage tanks, reception and expedition facilities; utilities; environmental protection; energy.

Equipment operation and safety:

- Pressure vessels (columns, drums, reactors) description and operation.
- Rotating equipment (centrifugal and positive displacement pumps, compressors, steam turbines, electric motors).
- Thermal equipment (heat exchangers, furnaces, boilers).
- Instruments (sensors/actuators), process control.

Safety in plant operation.

ON-THE-JOB TRAINING

Presentation, initial recommendations and safety instructions:

- General technical information: presentation of the refinery, main feeds and products.
- Safety: safety rules, specific instructions, control and protection, prevention, fire extinction exercises.
- Injury and life protection: preparation of rescuer degree.

General training on the job:

- On different production units: equipment identification; operation follow-up.
- Identification of operator tasks, responsibilities of each member on the shift team.

Specific job position study:

- Process, feeds and product characteristics, circuits.
- Equipment field control; safety; operational instructions, procedures.

Controlled practice in job position:

- Achievement of the various tasks involved in the job, under control of the assigned people on the shift team.

KNOWLEDGE ASSESSMENT 5 days

Continuous assessment during training modules. Final written exam at the end of the theoretical training.
Rating of practical exercises and on-the-job trainings, based on presentations and written reports.
Personal job-based final report, describing assigned unit and operator day-to-day activities, rated.
Final examination to confirm proficiency (knowledge of circuits, equipment and processes, job practice).

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Training - Carbon Capture, Utilization and Storage (CCUS)

CCUS-EN-P | Face-to-face only | 3 days

The purpose of this training course is to give to the participants a better understanding of the CCUS technology various aspects from CO2 capture to storage and reuse

Level

Knowledge

Public

Technicians/engineers and decision makers working in industries that target CO2 emissions reduction and CCUS in their road map

Objectives

Attendees will be able to implement the following skills:

- Identify CCUS interest in the energy transition
- Understand the different technical bricks

Pedagogical & technical resources

- Training materials, videos
- Practical exercices ans study case
- Discussions with the audience

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

PRESENTATION OF THE CCUS VALUE CHAIN — 0.25 day

Context: CCUS's share of emissions reductions.
Economics of CCUS projects: cost of each item.
Overview of current achievements.

CO2 TREATMENT AND STORAGE — 0.75 day

Physicochemical properties of CO2.

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CO2 transport: pipeline, truck, sea, train, ...
CO2 compression: by compressor or pump.
Terrestrial and geological storage.

CO2 CAPTURE — 1.5 days

Capture technologies (post-combustion, pre-combustion, oxy-combustion, industrial processes).
Process diagram – main operating conditions.
Comparison of the different technologies.
Project status.

CO2 USES — 0.5 day

Direct use: food.
Syngas production (RWGS) enabling synthesis of:

- Fuels.
- Methanol.
- Petrochemicals intermediates.

Sessions

Rueil-Malmaison - From 11/17/2026 to 11/19/2026 — **3020 €/HT**

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Training - CO2 Geological Storage Overview

CO2-EN-P | Face-to-face only | 3 days

This course provides participants with a global knowledge on what is really CO2 geological storage and also a clear understanding of the concepts and key techniques related to CO2 geological storage

Level

Awareness

Public

Directors, executives, managers or professionals working in administrative offices dealing with CO2 geological storage

Objectives

Attendees will be able to implement the following skills:

- Describe the global concepts of CO2 geological storage
- Examine the criteria to select potential CO2 geological storage
- Integrate key techniques and develop solutions for CO2 geological storage

Pedagogical & technical resources

Interactive presentations, practical exercises and hands-on activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CCS & CO2 GEOLOGICAL STORAGE

Definition of CCS concept.
Norms and future laws regarding CO2.
The CO2 geological storage solution.
Types of geological formations that can store CO2 and their complexities.
Challenges for assessing a potential site.

ISSUES & UNCERTAINTIES FOR CO2 GEOLOGICAL STORAGE

The methodology of evaluation of a potential site.

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Process of decision making regarding the choice of a site.
Characterization and modeling of the CO2 reservoir.
Injection of CO2 and evolution through time.
HSE concepts relative to CO2 geological storage.
Global uncertainties analysis for CO2 geological storage.
Conclusion on the best solution for CO2 geological storage.

LESSONS LEARNED & FUTURE FOR CO2 GEOLOGICAL STORAGE

Examples of worldwide cases CO2 storage and analysis.
How to define cost and budget around CO2 geological storage.
The future for CO2 geological storage.
Wrap-up session.

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Training - CO2 Geological Storage for Geoscientists and Reservoir Engineers

CO2RES-EN-P | Face-to-face only | 3 days

This course provides participants with a practical knowledge on CO2 geological storage and also a clear understanding of the techniques and steps (evaluation, characterization, modeling, injection and evolution) related to CO2 geological storage

Level
Skilled

Public
Geoscientists, geologists, geophysicists, petrophysicists and reservoir engineers

Objectives
Attendees will be able to implement the following skills:

- Understand the techniques relative to CO2 geological storage
- Develop a clear understanding of the evaluation, characterization, modeling and evolution through time of a reservoir for CO2 storage
- Find solutions in assessing a potential reservoir for CO2 geological storage

Pedagogical & technical resources
Interactive presentations, practical exercises and hands-on activities

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites
No prerequisites are necessary to follow this course

Responsable
IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO CO2 GEOLOGICAL STORAGE

Reasons to make a CO2 geological storage.
Types of different reservoirs or geological formations that can store CO2.
Technical barriers for CO2 geological storage.
Issues and concerns in assessing a potential site and reservoir.
Challenges for a stable CO2 storage through time.

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TECHNICAL WORKFLOW FOR CO2 GEOLOGICAL STORAGE

Data gathering and assessment.
Evaluation of parameters to define a potential site.
Characterization of the reservoir for CO2 storage and its uncertainties.
Drivers to define the best geological formation and rock properties needed.
Modeling the geology in a 3D Model for CO2 geological storage.
Modeling the fluids, dynamic interaction and well injection for CO2.
Modeling of the CO2 dynamic evolution through time inside the reservoir & its behaviors change.
Conclusion regarding all these steps for assessment and modeling.

LESSONS LEARNED & FUTURE FOR CO2 GEOLOGICAL STORAGE

Examples of successful and unsuccessful worldwide cases CO2 storage.
Defining conditions and innovative solutions for a successful long-term CO2 storage.
Future improvement for CO2 geological storage.
Others considerations out of geology and engineering.
Wrap-up session.

Sessions

Rueil-Malmaison - From 06/01/2026 to 06/03/2026 **3390 €/HT**

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Training - Energy Transition: Positioning of the Key Players

DETE-EN-P | Face-to-face only | 2 days

As governments and public opinion debate the way forward on the energy transition, companies are trying to position themselves in consequence. The purpose of this course is to cut through the noise and sometime conflicting information to provide a summary of the pros and cons of various alternatives to fossils fuels, the challenges linked to development of these, and of the positioning of key stakeholders from Society to Governments and the incumbent Oil & Gas sector. This to help companies, and or public decision makers adopt the most appropriate strategy for their activities

Level

Awareness

Public

Strategic planning, Business development, Marketing staff, and other staff of various sectors wanting to understand better the potential impact of the energy transition on their business. Public decision makers having to make choices with regards to energy policy, subsidies, and/or promotion

Objectives

Attendees will be able to implement the following skills:

- Understand the impact of energy on greenhouse gas emissions, and analyze the challenges faced by decision-makers in choosing alternatives to fossil fuels
- Appreciate societal, political and individual trends and their ambivalence in the face of the challenge of the energy transition
- Have learned how some Oil & Gas companies are adjusting their activities facing the energy transition challenge

Pedagogical & technical resources

- Self-discovery based on real life documentation
- Exercises in small groups
- Quiz

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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THE NEW ENERGY MIX — 1 day

The role of energy consumption in CO2 emissions.

- Fundamentals of climate change theory.
- Overview of greenhouse gases emissions.
- Energy mix and CO2 intensity.

Energy consumption and CO2 emissions trends:

- Key drivers underpinning energy consumption growth
- Geographic differences.
- Energy consumption growth and energy mix scenarios (IEA, Oil & Gas companies' scenarios): quiz; global energy consumption game (based on a few questions participants in small groups to assess energy demand annual growth % - to better understand key drivers underpinning energy growth).

The energy transition in the transport and power sector:

- Alternatives to fossil fuels in each of these sectors and pros and cons of these.
- What could accelerate the energy transition or slow it down?
- Self-discovery: participants in small groups to identify the pros and cons of various alternatives to fossil fuels in these sectors based on a dossier they will be given by the presenter during the session, containing relevant news articles, Oil & Gas companies' investor presentations and annual reports extracts. Each group to work on a separate theme and brief the others in plenary for debate (e.g. one group to focus on electricity for transport, one group on biofuels, one on Wind for power, one on solar...).

STAKEHOLDERS BEHAVIORS & STRATEGIES — 1 day

Government intervention policies:

- Dealing with a global challenge: regulation international cooperation.
- Status of progress vs. the Paris agreement.
- Positioning of the key players: US, Europe, China and India.

Societal trends and ambivalence:

- Social reactions to climate change.
- Compared analysis of various countries "climate plans" and/or climate initiatives.
- Advocacy against fossil fuels.
- Participants to compare in small groups different approaches to climate change policy from a social acceptability point of view e.g. Dutch climate change plan which strongly influenced subsequent election vs. the carbon dividend plan of the energy council.

Reaction of incumbent Oil & Gas companies:

- How have companies adjusted their strategy?
- Communication and advocacy with governments and society at large.
- Ability to compete with new clean energy small players.
- Participants to debate in small groups on strengths and weaknesses of Oil & Gas companies vs. news smaller players.

Sessions

Rueil-Malmaison - From 05/26/2026 to 06/27/2026 — **1920 €/HT**

Rueil-Malmaison - From 11/26/2026 to 11/27/2026 — **1920 €/HT**

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Training - Energy and Climate Change

ECCL-EN-P | Face-to-face only | 2 days

This training will enable participants to better understand the evolution of the energy mix and the pros and cons of various alternative energies. An overview of the main regulatory and fiscal mechanisms introduced, as well as the evolution of green finance, complete this curriculum in order to address the issue of energy transition from a technical, economic and societal perspective

Level

Knowledge

Public

- Private sector personnel responsible for strategic planning, market analysis (regulation mechanisms and price creation), energy procurement, financing and management of energy projects to anticipate technical constraints, to understand the risks (economic, legal, technical, environmental, geopolitical)
- State organisation in charge of energy policy choices, subsidies and/or promotion, as well as those in charge of missions within administrations and local authorities

Objectives

Attendees will be able to implement the following skills:

- raise awareness of the global challenges of the energy transition and analyse the long-term changes in the energy mix and its impact on climate change
- understand public policies, their impact on the environment and understand the global societal challenges of renewable energies

Pedagogical & technical resources

- Quiz on the different renewable energies
- Videos
- Case study
- Examples of practices in various countries

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WHY MAKE AN ENERGY TRANSITION NOW? 1 day

Evolution of the energy scene: myths and realities:

- Energy as a resource to be shared: the changing energy landscape up to 2050.
- Energy demand and economic growth.
- Theory and threat of global warming, growth of CO2 and GHG emissions.
- Problems of energy access.
- The new geopolitical challenges associated with renewables: emissions reduction, security of supply and competitiveness.

Environmental impacts and climate change challenges:

- International negotiations on climate and the environment: history and prospects.
- Diversity of public action: environmental policy tools.
- Energy demand and economic development: principles of sustainable development and the circular economy.
- Prospects for alternative mobility (electric, gas, hydrogen, biofuels) and challenges of electromobility.

Techno-economic and financial instruments for environmental management:

- The levers of a controlled transition.
- Green finance.
- Energy efficiency.
- Carbon taxation to control CO2 emissions.
- Footprint indicators.

FUTURE SOLUTIONS TO DECARBONATE THE ENERGY MIX 1 day

Overview of renewable energies: solar, wind, hydraulic and marine energy, geothermal, hydrogen, biogas and biomass:

- Technical characteristics of the different energies, advantages and limitations.
- Evolution of production costs.
- New development trends.
- Innovations behind new modes of production and consumption.
- Associated environmental risks.
- Economic challenges - Competitiveness of renewables.

Problems of energy storage:

- Intermittent source management.
- Distributed generation systems.
- Network integration.
- Smart grids.
- Power to gas.

Stakes of the CO2 capture and storage sector.
The place of nuclear power in the energy transition.

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Training - Overview of CO2 Economics

ECO2-EN-P | Face-to-face only | 2 days

As the energy transition accelerates, businesses must adapt to increasingly stringent requirements for reducing carbon emissions—often at a significant cost. This training aims to provide a comprehensive overview of the economic aspects related to CO_2. Participants will gain a deeper understanding of the role of carbon pricing, carbon finance, and government policy in shaping decarbonization strategies, as well as the impact of Carbon Capture, Utilization, and Storage (CCUS) in this evolving landscape

Level

Knowledge

Public

Professionals seeking to broaden their understanding of CO_2 economics and its implications for business and policy

Objectives

Attendees will be able to implement the following skills:

- Explain the carbon pricing mechanisms, their effectiveness in reducing emissions, and key examples of implementation worldwide.
- Assess the cost of carbon abatement associated with Carbon Capture, Utilization, and Storage (CCUS).
- Analyze the influence of regulatory and policy frameworks on carbon pricing, carbon finance, and the deployment of CCUS technologies.

Pedagogical & technical resources

- Quizzes.
- Case Studies.
- Exercises.
- Group discussions.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic understanding of economics and working proficiency in Microsoft Excel.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTRODUCTION — 0.25 day

Carbon emissions and their impact on the environment.
The Paris Agreement and the energy transition.

CARBON PRICING — 0.5 day

Carbon pricing mechanisms: carbon taxes vs. cap-and-trade systems.
Examination of different implementations worldwide, including EU ETS.
Evolution of carbon markets.
Carbon leakage and the Carbon Boarder Adjustment Mechanism (CBAM).
Carbon credits/offsets.
Article 6 of the Paris Agreement.
Group discussion.

CARBON ABATEMENT OPTIONS — 0.75 day

The cost of carbon abatement.
The economics of Carbon, Capture, Utilization and Storage (CCUS).

- CCUS value chain: examining the cost and feasibility of each part of the value chain.
- CCUS business models.
- CCUS projects and development outlook.

Case study and practical exercise.

CARBON FINANCE — 0.25 day

The role of financial institutions in reducing carbon emissions.
Green bonds and green loans.
The role of carbon accounting in financial reporting and strategic decision making.
Case study and practical exercise.

REGULATROY AND POLICY FRAMEWORKS — 0.25 day

Impact on CCUS, carbon pricing mechanisms and carbon finance.
Incentives and penalties.
Review of different approaches taken around the world.

Sessions

Rueil-Malmaison - From 11/17/2026 to 11/18/2026 — **2270 €/HT**

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Training - Energy Efficiency and Low Carbon Strategy, Industrial Solutions

ELCS-EN-P | **Face-to-face only** | **5 days**

As part of adapting their activities to the energy transition, industrial companies, particularly oil and gas firms, will need to manage CO_2 emissions and actively participate in the energy transition. This training focuses on the main challenges industries will face, both in transitioning to low-carbon energy consumption and in increasing energy efficiency. These companies will need to integrate new energies (renewables, hydrogen, etc.) into their energy mix. Furthermore, CO_2 economics must be considered when implementing their low-carbon plans

Level

Knowledge

Public

Industrial operators and national (NOC) or international (IOC) oil and gas companies. It is suitable for technical managers as well as executives and managers at all levels.

Objectives

Attendees will be able to implement the following skills:

- Integrate the new energy landscape with strategies to reduce carbon footprint
- Understand the evolution of the renewable energy sector and opportunities in this field
- Assess energy efficiency and manage its improvement potential
- Develop CCS and CCUS opportunities in future or existing projects
- Implement a roadmap for decarbonizing industrial facilities considering CO2 economics

Pedagogical & technical resources

- Questionnaires
- Team games
- Case studies
- Calculations using economics and KPIs

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

GLOBAL ENERGY LANDSCAPE — 0.5 day

Energy basics: definitions, characteristics, units, conversion factors, orders of magnitude.
Oil chain: technologies, supply and demand, prices, reserves, transition scenarios.
Gas chain: technologies, market players, producing and consuming countries, economic issues.
Case study: crude oil price.

CARBON, CLIMATE AND ENERGY STRATEGY — 0.5 day

Current scientific observations. Evolution of greenhouse gas emissions.
Other planetary environmental limits. Energy mix and CO_2 intensity of energy sources.
Case study: European energy mix. Energy trilemma concept.
Emission distribution by economic and geographic sectors. Oil & gas sector outlook in the energy transition: IEA scenarios, societal pressure, stranded asset risks.
Case study: production decline and oil investment pace.
Public actor mobilization, North-South debate, just transition concept.
Consumer mobilization. Global strategy for decoupling economic growth and carbon emissions. Debate and case study on transition scenarios.

DECARBONIZED INDUSTRIAL SOLUTIONS — 1 day

Global statistics review. Massive rise of renewables. Collapse of solar, wind, and battery costs. Shortened investment cycles, societal barriers, grid transmission impacts. Cross-over of global investment curves: green vs fossil energy.
Mixed results of a two-speed transition versus technologies and geographic sectors.
Overview of solar and wind energy. Presentation of main low-carbon sources: solar, wind, bioenergy, etc.
Case study: comparison of economic models for different electricity sources (solar, wind, gas). Economic concepts: capital cost, key performance criteria : net present value (NPV), internal rate of return (IRR), levelized cost of electricity (LCOE). Growth of competitive renewables without subsidies in the economic landscape. Practical examples.
Intermittency and energy storage: grid balancing constraints, technical and commercial challenges. Emerging solutions: hybrid projects, pumped hydro storage, utility-scale batteries. Emerging economic trends : new business models, emerging technologies, innovations.

CO2 ECONOMICS AND EMISSIVE INDUSTRIES — 1 day

State mobilization, carbon pricing markets (national/regional), European example. International economic implications, carbon market trends.
Industrial and economic actors mobilization. Corporate low-carbon strategies: role of carbon accounting (GHG Protocol). Case study for a SME, utilisation of ADEME database on emission factors in French economy. Key steps after carbon footprint assessment (emission reduction targets, action plan, integration into low-carbon strategy).
Target sectors, “hard-to-abate” industries, persistent supply-demand challenges. CCUS value chain: examples of CCS projects in Europe and the USA, costs trends, sectors applicability, impact of carbon footprint.
Technological and economic barriers to CCUS deployment, industry deployment status in France.
Hydrogen value chain: current supply and demand, hydrogen “colors” (grey, green, blue, etc.), technological and economic barriers to hydrogen economy.

LOW CARBON STRATEGY AND ENERGY EFFICIENCY — 1 day

Electrification of demand. Growth of low-carbon energy supply and electrification of demand across various sectors Case example of Global South and Sun Belt countries. Technological levers for global energy efficiency.
Gas vs renewables: competition and complementarity. Critical minerals challenge for energy transition. Environmental, economic, and geopolitical barriers.
Efficiency levers for residential, commercial, and industrial heat. Heat pump technology: residential, urban, industrial applications, technical limits. Regulatory and economic barriers.
Thermal storage technologies: practical examples and applications.

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LOW CARBON STRATEGY FOR THE OIL & GAS INDUSTRY — 1 day

Energy independence goals of importing countries as a transition driver. Impact of China's electric mobility revolution on fuel demand reduction. Oil & gas sector adaptation: examples from major companies, diverse strategic approaches.
The challenge of methane emissions and flaring reduction: differentiation by actors (majors, independents, NOCs, mining companies, utilities) and countries in their power to influence the outcome.
Emission management systems: typical emission reduction plan format for oil & gas companies.
Technological levers for operational optimization and facility design, flaring reduction, methane elimination, CCUS projects, energy efficiency, renewable energy use.
Examples and case studies with economic calculations.

Sessions

Rueil-Malmaison - From 12/07/2026 to 12/11/2026 — **4470 €/HT**

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Training - Environmental Management

ENVMGT-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of best industry standards and practices for appraising environmental matters throughout the life cycle of a field development, to implement the management of impact and risks throughout the life cycle of a project from exploration up to abandonment

Level

Knowledge

Public

Managers, advisors, engineers, and operations staff involved in management of environmental issues all along the lifetime of a field development

Objectives

Attendees will be able to implement the following skills:

- Explain the fundamentals of environmental management in terms of risks and impacts
- Describe techniques, fundamentals and contents of environmental impact assessments
- Identify mitigation measures
- Select key performance indicators, and set up environmental management plans
- Explain the content of an oil spill contingency plan

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTALS OF ENVIRONMENTAL MANAGEMENT — 0.5 day

Why environmental management is necessary. Concept of sustainability.
Definitions: environmental impact, significance, accidental vs. operational discharges, discharge and pollution.
Legal standards: definition, standard determination. Best available technology. Best environmental practices.

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Environmental Quality Standards (EQS), discharge standards - Regional, international, conventions.
Introduction to social management.

ENVIRONMENTAL, SOCIAL & HEALTH IMPACT ASSESSMENT — 1 day

Risk assessment: concept of hazards, risks, hazard identification and risk assessment process.
Impact assessment throughout the lifecycle of the project.
Aspect and potential impact identification.
Sources of environmental information.
Impacts on atmosphere: air pollution, GHG emissions.
Impacts on aquatic resources: water pollution and water availability.
Impacts on land resources: ground pollution and land use.
Impacts on biodiversity.
Socio-economic and cultural impact.

ENVIRONMENTAL MANAGEMENT PLAN — 0.75 day

Concept and elements.
Control measures to reduce air emissions.
Control measures to reduce water consumption and water pollution.
Control measures to reduce land pollution and use.

MONITORING & REPORTING — 0.5 day

Key performance indicators, Industry performance - Trends.
Environmental monitoring and surveillance.
Green house gases estimation and reporting.

WASTE MANAGEMENT PLAN — 0.5 day

Strategy - Type of waste.
Waste collection.
Transport and storages (primary, final...).
Treatments options (biological, thermal desorption).

MANAGEMENT OF ENVIRONMENTAL EMERGENCIES — 0.75 day

Identification of spill scenarios.
Oil spill contingency planning strategies: onshore and offshore cases.
Typical resources for oil spill contingency plans.

STAKEHOLDERS ENGAGEMENT — 0.25 day

Stakeholders identification.
Engagement and information process.
Stakeholders engagement plan review.

ENVIRONMENTAL MANAGEMENT SYSTEM — 0.5 day

Elements of environmental management systems.
Referentials and certification. ISO 14001.
EMS as part of integrated management systems.
Environmental culture and leadership in the organization.

ENERGY MANAGEMENT — 0.25 day

Introduction to energy sources.
Energy efficiency. Measures for improvement.

Sessions

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Pau - From 11/02/2026 to 11/06/2026 **4360 €/HT**

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Training - Environmental and Social Risk Management

ENVSOC-EN-P | Face-to-face only | 5 days

This course provides a thorough and applied knowledge of best industry standards and practices for appraising environmental and social matters that need to be handled cautiously throughout the life cycle of an upstream project, from design to construction and operation of Oil & Gas processing facilities

Level

Knowledge

Public

Managers, advisors, engineers and operations staff involved in oversight or management of environmental and social issues all along the lifetime of an upstream project

Objectives

Attendees will be able to implement the following skills:

- Understand the global prevailing context for the Oil & Gas industry
- Grasp legal requirements and standards with respect to impact on local environment and populations
- Understand techniques and contents of environmental and social impact assessments
- Identify mitigation measures, perform stakeholders' mapping and build public consultation and disclosure plans
- Select key performance indicators, and set up monitoring with environmental and social management plans

Pedagogical & technical resources

- Several applications and illustrations
- Several case studies and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

ENVIRONMENTAL ISSUES RELATED TO E&P ACTIVITIES — 0.25 day

Historical overview of impact awareness, management.
Definitions: environmental impact, significance, accidental vs. operational discharges, discharge and pollution.

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THE STAKES — 0.75 day

Environmental issues: local, regional, global.
Air, water (availability, pollution), biodiversity, wastes.
Kyoto protocol, carbon dioxide accounting, cap and trade, clean development mechanisms.
Toxicity, ecotoxicity.

ENVIRONMENTAL RISK ASSESSMENT (ERA), LEGAL REQUIREMENTS/LEGAL STANDARDS: NATIONAL, REGIONAL, INTERNATIONAL — 0.25 day

Environmental Risk Assessment (ERA).
Legal standards: definition, standard determination, best available technology, best environmental practices.
Environmental Quality Standards (EQS), discharge standards - Regional, international, conventions.

ENVIRONMENTAL IMPACT ASSESSMENT - PROJECTS — 0.5 day

Environmental impact assessment activities throughout the life cycle of a field, tools used for impact prediction.
The EIA process, scoping an EIA, ENVID (Environmental Hazard Identification), environmental management plan. Case study.

ENVIRONMENTAL RISK MANAGEMENT - PRODUCTION ACTIVITIES — 0.5 day

HSE MS - EMS (ISO 14001), continuous improvement processes.
Key environmental procedures: wastes management, chemical management, monitoring.
Oil spill contingency planning.

MONITORING & REPORTING — 0.5 day

Key performance indicators, industry performance - Trends.
Environmental monitoring & surveillance.
Green house gases estimation and reporting.

ENVIRONMENTAL RISK MANAGEMENT - ABANDONMENT — 0.25 day

SOCIAL ISSUES RELATED TO E&P ACTIVITIES: THE RISKS, THE STAKES & THE STRATEGIES — 0.5 day

The risks and the stakes. Some high profile cases (human rights, NGOs activism, etc.).
Documentary viewing and discussion on social risks in E&P activities.
How to change practices and image?

PARTICIPATIVE SOCIAL IMPACT ASSESSMENT AS A RISK MANAGEMENT TOOL — 0.5 day

Participative social impact assessment: definition, business case and standards, process.
Social management plans and monitoring. Focus on special topics: involuntary resettlement, local communities, business in conflict zones.

STAKEHOLDER ENGAGEMENT — 0.5 day

Stakeholder engagement: definition and business case.
Public consultation and disclosure plan (steps and techniques).
Stakeholder mapping.
Stakeholder engagement: misguiding assumptions and key success drivers.

CASE STUDY: SOCIAL SCREENING OF AN OIL & GAS PROJECT — 0.5 day

Based on a group work, participants should prepare a:

- Stakeholder mapping.
- Social impacts identification and mitigation plan.

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Training - M&A in the Energy World

FAE-EN-P | Face-to-face only | 2 days

Current developments in the energy sector are expected to lead to a new wave of mergers and acquisitions (M&A). Traditional Oil & Gas players will have to adapt (or continue to adapt for the most advanced) their business portfolio to the energy transition, and also to meet the challenges of the recent health crisis. The growth of Renewable Energy could also lead to consolidation amongst the first entrants as the sector matures. The objective of this training is to enable participants to successfully manage their acquisition operations and/or asset sales so that they can best position themselves for the future

Level

Knowledge

Public

Oil & Gas, Renewables companies' commercial, technical, financial managers and support functions staff involved in external growth operations. Public administration decision makers and personnel (industry, finance, energy, environment)

Objectives

Attendees will be able to implement the following skills:

- Lead/contribute to an M&A project through a structured process
- Evaluate assets to buy or sell using different methods (e.g.: multiples, discounted cash flows)

Pedagogical & technical resources

- Exercises
- Analysis of recent transactions
- Case studies: setting the maximum purchase price
- Case study: Critical review of a sale and purchase contract clauses
- Quiz

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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KEY STEPS & RISKS OF M&A TRANSACTIONS — 0.2 day

The various types of transactions: assets/equity.
The main stages of an acquisition/divestment project.
M&A transactions risks: key success factors.
Key participants in the process.

DETERMINING THE PURCHASE/SALE PRICE — 1 day

The different valuation methods: multiples (comparable transactions, EBITDA, PER), discounted cash flows.
Discounted cash flow method and analysis criteria refresher (NPV, IRR, Payback time). Calculating the residual value/terminal value.
Defining the maximum purchase price (or minimum sale price) taking into account synergies/di-synergies and risks.
Price adjustment options to manage uncertainties/close valuation gaps between buyer and seller.
Taking into account debt.

DUE DILIGENCE & DEAL STRUCTURING — 0.4 day

Preparing an information memorandum.
Risk management. The due diligence process and datarooms.
Choosing the legal and tax structure of the transaction.
Assessing the impact of competition laws.

NEGOTIATIONS & KEY CLAUSES OF SALE & PURCHASE AGREEMENTS — 0.4 day

Pros and cons of the various sale methods: auctions, negotiations.
Counterparties' assessment.
Conditions/ precedents.
Commitments and guarantees.
Completion adjustments.

Sessions

Rueil-Malmaison - From 09/08/2026 to 09/09/2026 — **1980 €/HT**

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IFP Training

This training course is offered under the **Alliance4Training** brand

Training - Downstream Panel Operator

FBMOC-EN-P | **Face-to-face only** | **35 days**

This course makes possible a rapid mastery of panelist skills. The facilities are optimized and operated in a pro-active way Successful participants will be granted the “Panel Operator” IFP Training Certificate

IFP Training Certificate

Vocational Certificate

Level

Knowledge

Public

Experienced field operators moving to panel operator positions in refining and petrochemical plants

Objectives

Attendees will be able to implement the following skills:

- Specify the elements of communication that allow you to work effectively in a team
- Explain the process studied
- Identify risks to equipment
- List unit settings to optimize production and product quality
- Identify possible causes of process disruption
- Specify the points to be taken into account in order to prepare, start and stop a unit

Pedagogical & technical resources

- Case studies and applications on generic dynamic simulators: 80% of the time spent in the training center
- Reminding of necessary theoretical and technical fundamentals directly through simulator handlings
- Training involves on-site work and supervision from mentors in the plant
- Permanent interactive delivery method
- Some pedagogical activities of this course can take place in OLEUM's facilities (subject to availability)

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners’ understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

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Program

WELCOME (IF IN OLEUM FACILITIES)

- Welcome/safety. PPE distribution. Presentation of the training.

PANEL OPERATOR DUTIES & CONTROL ROOM ACTIVITIES — 2 days

Panel operator role within the operation team; control room staff. Reporting and handover duties.
Plant documentation: inventory, content, usage, role and duties of the panel operator.

BASIC PROFESSIONAL TRAINING — 2 days

Notions of industrial chemistry. Fluid mechanics: pressure, flowrates, fluid flow, pressure drops.
Heat exchange: exchange mechanisms, resistance to heat transfer.
Liquid-vapor equilibrium of pure substances and mixtures.
Simulators: impact of operating parameters on the chemical reaction performances, heat exchanges through various types of heat exchangers, separation in a flash drum.

PROCESS CONTROL, AUTOMATION & DCS USAGE — 6 days

Process control:

- Constitution of a control loop, symbols used. Sensors and transmitters. Control valves.
- Controllers operating principles, inputs/outputs, internal parameters and tuning.
- Complex control loops (cascade, split range, multiple calculation blocks). Advanced control basics.
- Simulators: Valves characteristic curves. PID parameters tuning. Heat exchanger duty control. Split range configuration. Behavior analysis of complex control loops.

Distributed Control System (DCS):

- Architecture and system components. Man - Machine Interface (MMI). Trends tools. Information flux between site and control room.

Automation:

- Safety instrumented systems: PSS, ESD, HIPPS, EDP; architecture and relationship with DCS. Safety logics and cause & effect matrix.
- PLCs and automation: grafcet analysis, study of specific sequences.
- Simulators: furnace safety logics.

EQUIPMENT OPERATION — 8 days

For each: working principles, technology, ancillary systems, process control scheme monitoring, operation, alarms, safety devices.
Pumps, compressors, drivers:

- Simulators: filters switch, operation of pumps; changes in operating conditions, capacity control of compressors, troubleshooting of a compressor; start-up of a steam turbine driven centrifugal compressor.

Thermal equipment: heat exchangers, air coolers, furnaces, boilers:

- Simulators: fouling of a heat exchanger; changing fuel supplied to burners, coil fouling, start-up and shutdown of a furnace.

Specific equipment for a given assignment unit (gas turbines, solid handling, extruders...).

PRODUCTS & PROCESSES — 8 days

Composition and physico-chemical properties of feeds and products.
Commercial product quality requirements, specification and standard tests. Mixing rules.
Process units: role, principles, main equipment, specific hazards. Influence of the main operating parameters on the operation, consequences on process and products. Material balance.

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Distillation, absorption, stripping.
Utilities: flare systems, air production, effluent treatment units, steam, water treatments...:

- Simulators: start-up and shutdown, operation and control of various process units (for instance: two-product distillation columns, multi draw-off distillation column, amine absorption and regeneration, sulfur recovery unit, hydrotreatment unit).

INTEGRATED PLANT SAFE OPERATION — 6 days

Panel operator safe behavior:

- Radio communication, other communication equipment. Teamwork, responsibility sharing. Transmission of know-how.
- Alertness, forward thinking plant operation. Alarm management.
- Application: role plays using the simulators (with panel operator views and FODs).

HSE in operation:

- Product, equipment and process-related risks; prevention and protection.
- Risks related to operation of equipment, to decommissioning-commissioning and start-up of equipment, specific prevention measures.
- Routine operations. Permit to work, work order, consignations and isolations.
- Special operations: SIMOPS, black start. Emergency operation and crisis management.
- Impact of plant operation on gas release into the atmosphere and on the wastewater treatment unit; minimization of releases.

Integrated plant operation:

- Steady state runs: routine checks, operating windows, integrated plant behavior (inertia, interferences).
- Global performances, margin optimization/impact of quality gaps.
- Identification, analysis and reaction to upsets and equipment failures; stabilization.

Simulators: field round on a running process unit; commissioning, start-up and shutdown procedures, justifications of different steps; inhibition management; operations in downgraded situations; practice of emergency operations.

ASSESSMENT — 3 days

Continuous assessment (including practical exercises on simulators).
Final test with real-life situation simulation exercises to validate objectives.

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Training - Gas chain economics and energy transition

GCEG-EN-P | Face-to-face only | 55 days

The natural gas market, including LNG (liquefied natural gas) in particular, has experienced strong development. This sector is impacted by the energy transition and the development of competing energies The IFP Training Certificate program in gas chain economics in this context of the energy transition provides knowledge and know-how to professionals in key disciplines solicited in upstream to downstream gas marketing development projects. It offers professionals the opportunity to acquire high-level skills in the fields of gas project economics as well as an in-depth understanding of the industrial dynamics observed in this natural gas sector

IFP Training Certificate

Graduate Certificate

Level

Knowledge

Public

All key players, engineers, market analysts, project managers, managers, professionally evolving towards a position requiring in-depth knowledge of the economic and contractual issues of the Gas & LNG chain in this context of energy transition.

Objectives

Attendees will be able to implement the following skills:

- Be aware of the components of the global gas scene
- Specify the characteristics of natural gas and detail the natural gas chain
- Be aware of the technical, operational and commercial conditions concerning shipping
- Make investment profitability analysis in the gas sector
- Identify the main clauses of gas and LNG agreements
- Understand the operational responsibilities of the actors from the chain Front-to-Back

Pedagogical & technical resources

- Highly interactive training with industry expert speakers
- Computer-simulated case studies based on gas projects
- Quizzes, videos and application exercises
- Scenario, negotiation role plays

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

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Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

MODULE 1: ENERGY ISSUES AND IMPACT ON THE GAS MARKET IN THE 21ST CENTURY — 3 days

Climate commitments.
Energy needs and climate change.
Energy transition and geopolitics.
Oil and gas vs electricity.
Oil and gas company strategies.

MODULE 2: SAVING THE GAS CHAIN AND LNG — 4 days

Natural gas in the global energy balance and the strategies of the main players in the industry.
Natural gas opportunities and emerging trends in the gas and LNG industry.
Main technical, economic and contractual characteristics of the natural gas value chain, from the production well to the final consumer.
Gas and LNG markets and their evolution (price, hedging, etc.).

MODULE 3: NATURAL GAS: TYPES, SPECIFICATIONS & PROCESSING TECHNOLOGIES — 5 days

Fundamentals of natural gas composition, characteristics, production and field processing.
Technical issues and specific constraints of natural gas transport and storage.
Review of the different end-user markets available for natural gas upgrading.
Main economic issues of the natural gas chain.

MODULE 4: LNG: RISKS, TECHNOLOGIES, AND OPERATIONS — 5 days

The LNG chain: liquefaction, transport, storage, regasification.
Specific properties of LNG - cryogenics.
Liquefaction and revaporization processes.
Vessel specifications, operation and operations.
Regasification terminals: storage, loading/unloading, regasification.
Operation of LNG facilities.

MODULE 5: ECONOMICS AND MANAGEMENT OF UPSTREAM GAS — 4 days

Key issues and constraints in contract negotiations (government, national and international companies).
Overview and analysis of the different tax systems and contractual frameworks that exist.
Main contractual and tax clauses of E&P contracts.

MODULE 6: CONTRACTUAL FRAMEWORK FOR THE MARKETING OF GAS AND LNG — 4 days

Main articles of long-term agreements on natural gas and LNG.
Key points of the commercial clauses.
Natural gas pricing and transportation principles.
Techniques for negotiating master sales and purchase contracts.

MODULE 7: PROFITABILITY STUDIES OF INVESTMENTS IN THE GAS INDUSTRY — 5 days

Development of advanced computer models for the economic evaluation of gas projects.

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Incorporation of a specific financing plan through the analysis of the return on equity.
Analysis of economic results and conducting sensitivity analyses.
Taking into account risk and uncertainty in the economic evaluation of gas projects.
Government Policies and Support Programs / Investment Incentives and Barriers.

MODULE 8: UNDERGROUND CARBON CAPTURE AND STORAGE (CCUS) AND ITS ECONOMIC IMPACT ON THE GAS CHAIN — 5 days

CCUS technologies: Where do we stand? Synergies with natural gas?
Integration of a CCUS project upstream of a gas project and development cost.
CCUS price vs carbon credit.
Profitability and financing of carbon capture and storage.
Economic impact of CCUS and carbon credits on the profitability of gas projects.

MODULE 9: INVESTMENT AND PROJECT MANAGEMENT THROUGHOUT OF THE GAS CHAIN — 5 days

Preliminary studies, conceptual studies, EPC phase and project implementation plan.
Local content and sustainable development.
Phases of a gas project. Detailed engineering of an LNG project and associated activities.
Technical contracts. Project organization, governance, interface and communication management.
HSE management, quality and risks. Project management: costs and planning.
Case studies.

MODULE 10: DOWNSTREAM GAS MARKET IN EMERGING COUNTRIES AND CONVERGENCE GAS & ELECTRICITY — 5 days

Modern natural gas markets: segmentation and regulation in emerging countries.
Operation of the downstream natural gas market.
Natural gas trading: physical market and financial market.
The role of LNG in the globalization of transactions.
Gas / Electricity: competition and convergence.

MODULE 11: FOCUS ON NATURAL GAS AND ENERGY TRANSITION — 5 days

Future of fossil fuels: Another important role for natural gas.
Natural gas value chain and carbon neutrality.
Sustainable development for gas and LNG.
Gas and LNG saving vs carbon storage.
Natural gas resource for electricity generation.

FINAL PROJECT — 5 days

End-of-study project on a theme specific to the economics of energy transition.

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Training - Geographic Information Systems

GIS-EN-D | Distance only | 5 days

Geographic information systems are used in multiple processes today. The 5 days in Geographic Information Systems training aims at providing a complete spectrum of GIS potential over multiple disciplines dealing with spatial data

Level

Awareness

Public

Graduate from all technical disciplines

Objectives

Attendees will be able to implement the following skills:

- Understand the types of data that GIS supports and how to manipulate them
- Perform spatial analysis
- Create a decision-making model
- Integrate spatial and non-spatial data and integrate, manage and analyze data to produce information for decision-making

Pedagogical & technical resources

- Participative lecturing
- Case studies
- Teamwork/mini project

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION TO GIS

Understand the components, goals, and reasons so many professionals use GIS.

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GIS BASICS

Essential GIS concept and tools and data types; principle of cartographic geo-referencing.

COORDINATES SYSTEMS & PROJECTION

Introduction to principal coordinate system and projections.
Understand the datum and coordinates conversion. Maps classification.

GEOREFERENCING

Theory and practice of georeferencing. Error estimation and maps re-projection.

VECTOR & RASTER MODEL

Definition of raster and vector model. Concept of pixel, resolution and grid model. Definition of point, polyline, polygon. Shapefile model, table of attributes, field definition, records and entities.

DATA EDITING

Shapefile creation, graphic and alphanumeric editing.

GEOPROCESSING OPERATORS

Operators for extraction, selection, proximity and statistics. Data overlaying, intersection and buffering.

NUMERIC CARTOGRAPHY

Digitalization and standardization of cartography. Topographic databases and their characteristics.

GEODATABASE MODEL

Relational and object oriented geodatabase. Normalizations rules, database creation and maintenance.

SQL LANGUAGE

Presentation of SQL language for database interrogation. Usage of SQL syntax to extract data from a database. Definition of logical (AND, OR, NOT, XOR...) and mathematical operators.

TOPOLOGIES

Definition of topologies, relations among points, lines and polygons. Topological rules and their utilization.

RELATIONS, JOIN & SPATIAL JOIN

Creation of join and spatial join among shapefiles and tables. Rules definition and implementation.

RASTER ALGEBRA

Operations among raster data. Zonal and local operations.

SPATIAL DATA ANALYSIS

Performing data analysis on spatial data, criteria, potential and future development. Selecting features; interactive selection; select by attributes; select by location; using the right tool of selection.

DECISION MODEL CREATION

Creation of decisional models, validation and standardization.

GIS PROJECT CREATION

Consolidate all the knowledge with the creation of a complete GIS project.

LAYOUTS PRINTING & REPORTING

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Creation of printing layouts and automatic reporting.

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Training - Overview and Challenges of the Energy Mix

MXE-EN-P | Face-to-face only | 4 days

This course aims to provide an updated overview of the energy sector and the upcoming economic, political and environmental challenges (Covid-19, climate change, supply and demand crisis, unconventional Oil & Gas...). Participants will get a complete overview of both fossil fuels and renewable energy sources, with their respective benefits and burdens

Level

Knowledge

Public

Engineers from the energy sectors (oil, gas, renewables, power), industrial partners, executives (banking, insurance, consulting), public administration staff, PhD and postgraduate students

Objectives

Attendees will be able to implement the following skills:

- Describe the main stages (upstream, downstream, trading) of the oil and gas sectors and understand the technical and economic characteristics of hydrocarbons (production, outlets, availability, market)
- Analyze the advantages and disadvantages of each energy and interpret the evolution of factors affecting the supply and demand of the energy mix
- Identify the actors of the energy scene and their strategic lines (states, international organizations, public and private companies in the sector)
- Understand the role of renewable energies in the energy mix (maturity, intermittency, carbon footprint)

Pedagogical & technical resources

- Quiz and videos on the fundamentals of the energy sector
- Board game about the different steps of an oil or gas project
- Team game on the composition of the energy mix and the role of renewables
- Team game on factors affecting crude prices, the upstream sector and trading

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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INTERNATIONAL ENERGY SCENE — 0.5 day

Energy resources: definition, characteristics, conversion factor.
Climate change & energy transition: supply/demand asymmetry, Kaya's identity analysis.
Short and long-term forecasts (Covid-19 crisis, supply situation, climate change) and IEA scenarios.

OIL SECTOR ISSUES — 1 day

Stakeholder's strategy: NOC, IOC, majors, international organizations.
Upstream: stages and technical-economic aspects of the Exploration-Production.
Oil contracts and principles of oil rent sharing.
Downstream: refining economics and margins, capacity and new projects.

GAS SECTOR ISSUES — 1 day

Structure of the gas value chain: production, treatment, transportation, storage.
Pros and cons: natural gas and LNG in the energy transition.
Markets & grids, introduction to gas contracts.
Focus on current trends: crisis, market, evolutions, technological breaks...

RENEWABLES ISSUES & ENERGY TRANSITION — 1 day

Overview of the main renewables: solar, wind, hydro, bio, geothermal.
Comparison and competition: outputs, costs, availability, pros, limits.
CCUS technology and use of renewables in the Oil & Gas sector.
Stakeholders' strategy and supply chain presentation.

CASE STUDIES — 0.5 day

Economic calculations on Oil & Gas and renewables projects.
Opex, capex, revenues, assumptions, taxable income, cash flows, IRR.

Sessions

Rueil-Malmaison - From 09/29/2026 to 10/02/2026 — **3360 €/HT**

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Training - Practicing Commissioning

PRACOM-EN-P | Face-to-face only | 4 days

This course provides practical knowhow so as to get the participants directly confront the reality of the field

Level

Knowledge

Public

Operating and technical staff in charge of commissioning and start-up operations on field

Objectives

Attendees will be able to implement the following skills:

- Anticipate the risks while commissioning and start-up operations
- Identify the key points of the most current operations
- Proceed to main pre-commissioning and commissioning activities

Pedagogical & technical resources

- Experience sharing through applications and cases studies on Oil & Gas units
- Cases studies on the precommissioning, commissioning and start-up of units
- Analysis of incidents occurred while precommissioning, commissioning or start-up phases

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

COMMISSIONING & START-UP PHASES IN PROJECT CYCLE — 0.5 day

End precommissioning, mechanical completion, commissioning, ready for start-up, start-up permit, performance test runs, temporary and final acceptance.
Commissioning and start-up: a non-linear schedule. SIMOPS. Input data and reference documentation. Punch lists. Management of Change (MOC).

SPECIFIC RISKS TO COMMISSIONING & START UP — 0.5 day

Fluid behavior and energy associated hazards. Chemical and physical hazards. Flammability.

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Main risks induced by equipment, such as rotating, pressure vessels, thermal or naked flame equipment.
Risks related to utilities start-up: inert gas, nitrogen, steam, instrument air, water, fuel gas, diesel.
Risks evolution from construction to start-up. Transient phases. Safety reviews. Managing leaks.

WHAT TO DO BEFORE COMMISSIONING PROCESS UNITS — 1.5 days

End of construction: visual control and checks for static and rotating equipment (no energy, no fluid). Cold clamping. Check of installation standards for piping and instrumentation.
Precommissioning activities: hydraulic tests and process equipment cleaning.
Mechanical completion.
Particular case of Utilities facilities: pre-commissioning, commissioning and start-up (ready for operations).

COMMISSIONING OF PROCESS UNITS & START UP — 1.5 days

Chemical cleaning, flushing and blowing. Equipment drying and dynamic testing.
Particular case of instrumentation - Loops and DCS tests. Synchronization.
Preparation for the start-up of rotating equipment.
Prestart-up checks before oil-in. Plant line-up and test run.
Start-up: leak tests, air removal, oil-in. Heating up and hot bolting.
Update of documentation.

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Training - Reactive transport and geological CO2 Storage

RTCO2-EN-P | Face-to-face only | 5 days

This training focuses on the mechanisms of reactive transport in CO_2 geological storage contexts, combining flow processes, geochemical reactions and rock–fluid interactions. Through practical case studies, participants will analyze CO_2 migration, dissolution and mineralization in subsurface reservoirs to visualize reactive fronts and rigorously assess the performance of CO2 geological storage scenarios

Level

Skilled

Public

Geoscientists, reservoir engineers, petroleum engineers

Objectives

Attendees will be able to implement the following skills:

- Understand mineral reactivity processes in CO2 geological storage contexts
- Review thermodynamics and kinetics concepts
- Analyze case studies using Arxim and Geoxim software
- Interpret results from geochemical and reactive transport simulations

Pedagogical & technical resources

- Presentations
- Interactive discussions
- Case studies using software

Assessment of achievements

Trainees are assessed throughout the training through practical application phases and interactions with the trainer. A final on-the-spot evaluation may also be carried out at the end of the course using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives.

Prerequisites

Basic geology and reservoir engineering knowledge or fundamental knowledge in transport within geological réservoirs.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

FUNDAMENTAL CONCEPTS OF REACTIVE TRANSPORT — 1 day

General presentation of the Sleipner CO_2 storage case.
Thermodynamic basics.
Practical exercises (Arxim).

PHASE DIAGRAMS AND MINERAL STABILITY — 1 day

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Stability ranges.
Phase diagrams.

REACTION KINETICS AND 1D CASE — 1 day

Reaction kinetics, applications to CO2 geological storage.
Challenges of accounting for kinetics in geochemical processes.

INTRODUCTION TO 2D TRANSPORT — 1 day

Geoxim introduction. Sleipner case study.
Practical exercises.

ADVANCED ANALYSIS — 1 day

Advanced analysis and visualization of results (Floviz).
Reactive front mapping.
Conclusion.

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Training - Developing a low Carbon Strategy: From Carbon Footprint Measurement to transition Plan

SBC-EN-P | Face-to-face only | 3 days

Since the Paris Agreement, countries have agreed on a global warming threshold that should not exceed 2°C above 1850 levels by 2100. This implies, first and foremost, reducing anthropogenic GHG emissions, which governments are translating into their own legislation. Companies must therefore transform and act to measure their carbon footprint and build a robust climate strategy

Level

Knowledge

Public

Anyone wishing to discover and/or deepen their knowledge of GHG emissions quantification and reporting methods (GHG Protocol, Bilan Carbone®, ISO 14064/69).
This course is aimed at: company and engineering office staff working as HSE or CSR coordinators, project managers & consultants on sustainability

Objectives

Attendees will be able to implement the following skills:

- Master the main principles of a carbon footprint assessment.
- Differentiate between the different available national & international standards for carrying out your company's carbon footprint (GHG Protocol, Bilan Carbone®, ISO 14064/69).
- Identify the key stages following the completion of a carbon footprint (emissions reduction target, action plan, integration into low-carbon strategy .... etc.).

Pedagogical & technical resources

- Quiz.
- Case studies.

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic knowledge on climate change and MS Office Excel.

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

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WHY TAKE THE DECARBONIZATION ROUTE — 0.5 day

Identify the causes and consequences of climate change.
Understand the nature of climate change.
Climate change and its impact on business.
Identify the challenges raised by the energy transition.

KEY STEPS IN A CARBON FOOTPRINT ASSESSMENT — 1 day

Identify regulatory requirements for carbon footprint.
Carbon accounting standards (GHG Protocol, Bilan Carbone®, ISO 14064/69).
Describe the objectives of a carbon footprint.
Identify the scope of the carbon footprint (organizational, operational and temporal).
Drawing up flow maps.
Data collection and processing.
Handling carbon footprint measurement units.
Interpreting the results of a simple carbon footprint case study.
List existing reporting formats for publishing carbon inventory.
Case study: Evaluating a company's GHG emissions according to carbon accounting standards.

HOW TO SET A GHG REDUCTION TARGETS — 0.5 day

Identify the steps that follow a carbon footprint (emission reduction target, action plan, contribution to carbon sequestration, etc.).
Define the notion of carbon neutrality within the SBTi framework (Science Based Target Initiative).
Setting a science-based GHG reduction targets (commitment timeframe and scope).
Examples of targets setting according to SBTi standards (Absolute Approach ACA and Sector Approach SDA).

HOW TO BUILD A LOW CARBON ROADMAP — 0.5 day

Diagnose the risks and opportunities of the ecological transition.
Diagnose physical risks.
Define a strategy and an ecological transition project.

SETTING A TRANSITION PLAN — 0.5 day

Identification of potential actions to implement the strategic plan.
Selection of the most relevant set of actions for implementation.
Identify the levers for actions within the company, depending on its structure and sector.
Monitoring and guiding the implementation of the action plan.
Case studies: Building a company's transition plan according to international standards.

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Training - Social Risk Management

SOCIAL-EN-P | Face-to-face only | 5 days

This course aims to identify and understand social issues related to Oil & Gas activities

Level

Knowledge

Public

Managers, advisors, engineers, and operations staff involved in oversight or management of operational, environmental and social issues throughout the lifetime of an upstream project

Objectives

Attendees will be able to implement the following skills:

- Identify and understand what constitutes a social risk (non-technical risk), an impact assessment and management
- Understand key concepts related to SIA and Social Impact Management Plans (SIMPs)
- Understand social management methodologies and their appropriate uses
- Design and implement of a stakeholder engagement strategy and plan
- Understand the main components of a Social Impact Management Plan (RAP, local content, etc.), including design and implementation

Pedagogical & technical resources

The training will have an interactive format providing room for practice and discussion. It will involve multimedia presentations, case studies, quizzes and teamwork sessions

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

No prerequisites are necessary to follow this course

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

SOCIAL ISSUES RELATED TO OIL & GAS ACTIVITIES: RISKS, STAKES & STRATEGIES — 1 day

Risk of overlooking non-technical risks.
How to spot non-technical risks?

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How to identify and understand the underlying mechanisms?
How to manage social risks?
Oil & Gas industry reaction to underlying mechanisms.
Why and how should they be managed as a risk and an opportunity?
Key risks areas for Oil & Gas industry and developed standards: transparency and corruption, business and human rights, operations in areas of conflict, etc.

STAKEHOLDER ENGAGEMENT — 1 day

Social License to Operate (SLO).
How to build this SLO?
What is the Free Prior & Informed Consent (FPIC) principle?
Stakeholders-business interactions analysis.
How to do a stakeholder analysis and mapping?
How to design and implement a stakeholder engagement plan?
How to design, implement and monitor a grievance mechanism?
What are the do's and don'ts in stakeholder engagement?

PARTICIPATIVE SOCIAL IMPACT ASSESSMENT AS A RISK MANAGEMENT TOOL — 1 day

Conceptual framework and techniques used for Social Impact Assessment.
International standards.
Definition of a social impact.
Links between environmental and social impacts.
Predict, analyze and assess the likely social impacts pathways and evaluate their significance.
Develop a mitigation strategy for negative impacts and an enhancement strategy for the project-related opportunities.
How to monitor social impacts?
How to assess a SIA quality?
How to achieve the full potential of a SIA?

SOCIAL IMPACT MANAGEMENT PLANS & MONITORING: TOOLS & PROCESSES — 0.5 day

Social Impact Management Plans (SIMP).
The main components of a SIMP.
How can a SIMP be operational?
What are the organizational and institutional arrangements that need to be developed?
The role for the project's stakeholders in a SIMP?
Implementation and results monitoring and reporting.

SOCIAL IMPACT MANAGEMENT PLANS & MONITORING: FOCUS ON SPECIAL TOPICS & ISSUES — 1 day

Depending on the audience's needs and expectations, a focus can be put on specific social issues and how to manage them through specific social impact management plans: Resettlement Action Plan (RAP), Community Development Plan and Social investments, local content, etc.

CASE STUDY: SOCIAL SCREENING OF AN OIL & GAS PROJECT — 0.5 day

Through a work in group, the participants will do a stakeholder mapping, a high level impact assessment with the use of a mind mapping and an identification of potential impacts and mitigation strategies.

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Training - CO2 geological storage: risks and THMC processes

THMC-EN-P | Face-to-face only | 5 days

This training provides participants with a comprehensive and practice-oriented understanding of CO_2 geological storage, with a strong focus on risk assessment and on the role of coupled Thermo–Hydro–Chemical–Mechanical (THMC) processes. The course addresses the full technical workflow of a CO_2 storage project, from fluid properties and injection behavior to long-term containment, seal and fault integrity, pressure management and uncertainty-driven risk evaluation

Level

Skilled

Public

Geoscientists, geologists and reservoir engineers

Objectives

Attendees will be able to implement the following skills:

- Understand CO2 fluid properties, phase behaviour and PVT concepts under subsurface conditions
- Analyse CO2 plume migration, trapping mechanisms and long-term stabilisation
- Understand geochemical reactions and near-well effects impacting injectivity and integrity
- Assess caprock, fault and well integrity risks using THMC concepts
- Apply risk assessment frameworks to CO2 storage projects

Pedagogical & technical resources

Interactive presentations, practical exercises and hands-on activities using Eclipse300 software

Assessment of achievements

- Trainees are assessed throughout the training through practical application phases and interactions with the trainer
- A final on-the-spot evaluation may also be carried out at the end of the course and/or at the end of each module using tests designed to verify the learners' understanding and assimilation of the knowledge linked to the training objectives

Prerequisites

Basic knowledge of subsurface engineering, reservoir geology, or oil & gas / geothermal systems is recommended

Responsable

IFP Training instructors, with expertise in the field and trained in modern teaching methods adapted to the specific needs of learners from the professional world

Program

INTRODUCTION AND CO_2 FLUID BEHAVIOR — 1 day

CO_2 storage in saline aquifers and depleted reservoirs.
CO_2 phase behavior and PVT properties.
Equations of State and simulation approaches.

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CO_2 PLUME MIGRATION AND TRAPPING — 2 days

Injection concepts and plume development.
Buoyancy-driven flow and gravity segregation.
Structural, residual and solubility trapping mechanisms.
Long-term plume evolution after injection shut-in.
Applied workshop.

PRESSURE MANAGEMENT, GEOMECHANICS AND GEOCHEMISTRY — 1 day

Effective stress evolution and fault stability.
CO_2 dissolution in brine and mineral reactions.

INTEGRITY, RISK ASSESSMENT — 1 day

Caprock sealing and leakage mechanisms.
Risk assessment frameworks and uncertainty management.

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