

Training - Natural Gas Storage



NGSTOCK-EN-P



Face-to-face only



2 days

This course provides an overview of the technical issues of various natural gas storage facilities

Level

Knowledge

Public

Professionals interested in natural gas storage: engineers, technical managers, technicians, operators

Objectives

Attendees will be able to implement the following skills:

- Review features and operating conditions of natural gas storage facilities
- Learn about gas storage equipment specificities: wells, manifolds, compression, auxiliary equipment, etc.
- Understand gas treatment techniques applied to extraction from storage in order to conform to specifications
- Grasp fundamental issues of natural gas storage economics and third-party access

Pedagogical & technical resources

- Highly interactive training by industry-specialist lecturers
- Numerous applications and illustrations

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

Responsible

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

NATURAL GAS: AS A STORABLE ENERGY

0.25 day

Why store natural gas? Needs expressed by suppliers, administration and network operators.

How? Summary presentation of the different storage systems: depleted reservoirs, aquifers, salt domes.

LNG storage tanks, etc.

Where? History of underground gas storage, storage sites in Europe and worldwide. Maps and tables by types of storage, per country and stored volumes.

Gas storage and its environment: noise, exhaust, surface footprints, landscape integration, local taxes,

workforce.

STORAGE TYPES

0.5 day

Fluid flow in porous media. Reservoir modeling.

Depleted reservoirs, aquifers, salt domes, LNG storage tanks.

For each type of storage, presentation of development conditions, geological and structural characteristics, their specificities, the inherent hazards, the operational constraints, the repartition of sites throughout the world, etc.

STORAGE EQUIPMENT

0.25 day

Wells: drilling specificities, downhole and surface equipment.

Gathering network.

Gas compression: why, when and how?

Extracted gas treatment: dehydration, sweetening, odorization.

Auxiliary equipment: manifolds, instrumentation and control system, safety, treatment of effluents.

Metering: primary meter, correctors, data processing.

COMPRESSION

0.25 day

Characteristics of compressors specific to natural gas storage sites: compression ratio, runtime frequency, environment related issues (exhaust gases, noise, etc.), power types.

Types of compressor units: driver type (engine, electrical motor, gas turbine, etc.), reciprocating or centrifugal compressor, etc.

Comparison between gas turbine and motor drivers, fuel gas and electricity power.

GAS TREATMENT

0.25 day

At the wellhead: hydrate prevention by heating or methanol injection.

In the station: dehydration, sweetening, odorization.

For each treatment, presentation of the treatment target, risks, regulation aspects, treatment techniques, common processes used for gas treatment and product regeneration, effluent treatment.

ECONOMICAL ASPECT OF GAS STORAGE

0.5 day

Life cycle of a gas storage site.

Estimated values for CAPEX and OPEX for each storage type.

Pricing of access of third parties to storage facilities in France: analysis of the price breakdown, taking into account constraints and specificities of the storage.

Simulation of cost price per kWh, stored or delivered, for common site configurations.

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