

E-516

▲ Who should attend?

Any person who would like to acquire technical information concerning Natural Gas transportation by pipeline, particularly those, who supply products and services to the natural gas transporter, for a better understanding of the framework of their customer requests.

▲ Duration

2 days

▲ Sessions in English

Not scheduled in english.

Upon request, this course may be organized for a single company, and tailored to its specific requirements.

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French sessions: F-516

▲ Course Coordinator

Frank BEIJER

Ref. **PROD / TRANSGB**

NATURAL GAS: TRANSPORT BY PIPELINE

OBJECTIVES

To provide a technical knowledge concerning natural gas transportation by pipeline.

Upon completion of the course, participants know the:

- main gas transport networks worldwide, as well as the existing (and planned) ones in Europe,
- design rules of sales gas transport pipe: transport by pipeline versus naval transportation, routing selection, material and size selection. Positioning and design of compression stations...
- organisation and management of pipe laying works, constraints, planning, applied techniques,
- operation of a gas transportation network: maintenance and daily operations,
- regulations,
- main economical aspects of natural gas transportation, and the conditions for the access of third parties.

COURSE CONTENT

INTRODUCTION TO NATURAL GAS

0.25 day

From reservoir to end user

Chemical composition and properties of natural gas. Comparison to other combustible gases

World reserves

Panorama of offer, demand and movements

TRANSPORT NETWORK

0.25 day

Overview of networks worldwide, in Europe and particularly in France

Perspectives of the development of European network

Interaction with the other blocks of the natural gas chain: storage, LNG terminals, compression stations, network interconnections, delivery to the client

Economical and technical comparison between transport by pipeline and LNG carriers

DESIGN AND CONSTRUCTION OF A GAS PIPE

0.50 day

Design standards: pressure, length, volume, diameter

Fundamentals of metallurgy welding techniques, and coating materials

Pipe laying:

Different steps of pipe laying operations

Cost and duration of pipe laying, and compression station construction

COMPRESSION

0.25 day

Characteristics of compressors: compression ratio, run-time frequency, environment related issues (exhaust gases, noise...), power types...

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

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

OPERATION OF A NETWORK

0.50 day

Maintenance, monitoring and technical management, risk prevention, safety regulations (law of august 4 2006), cathodic protection, equipment maintenance, monitoring and controls, metering

Network operation management: planning, execution, allocations and accounts

ECONOMICAL ASPECTS OF GAS TRANSPORT BY PIPELINE

0.25 day

Investment costs (CAPEX)

Life time of a gas pipe

Operation costs (OPEX)

Pricing for access of third parties to the gas transport network in France: analysis of the price breakdown

Simulations of cost price per kWh delivered, for some typical cases