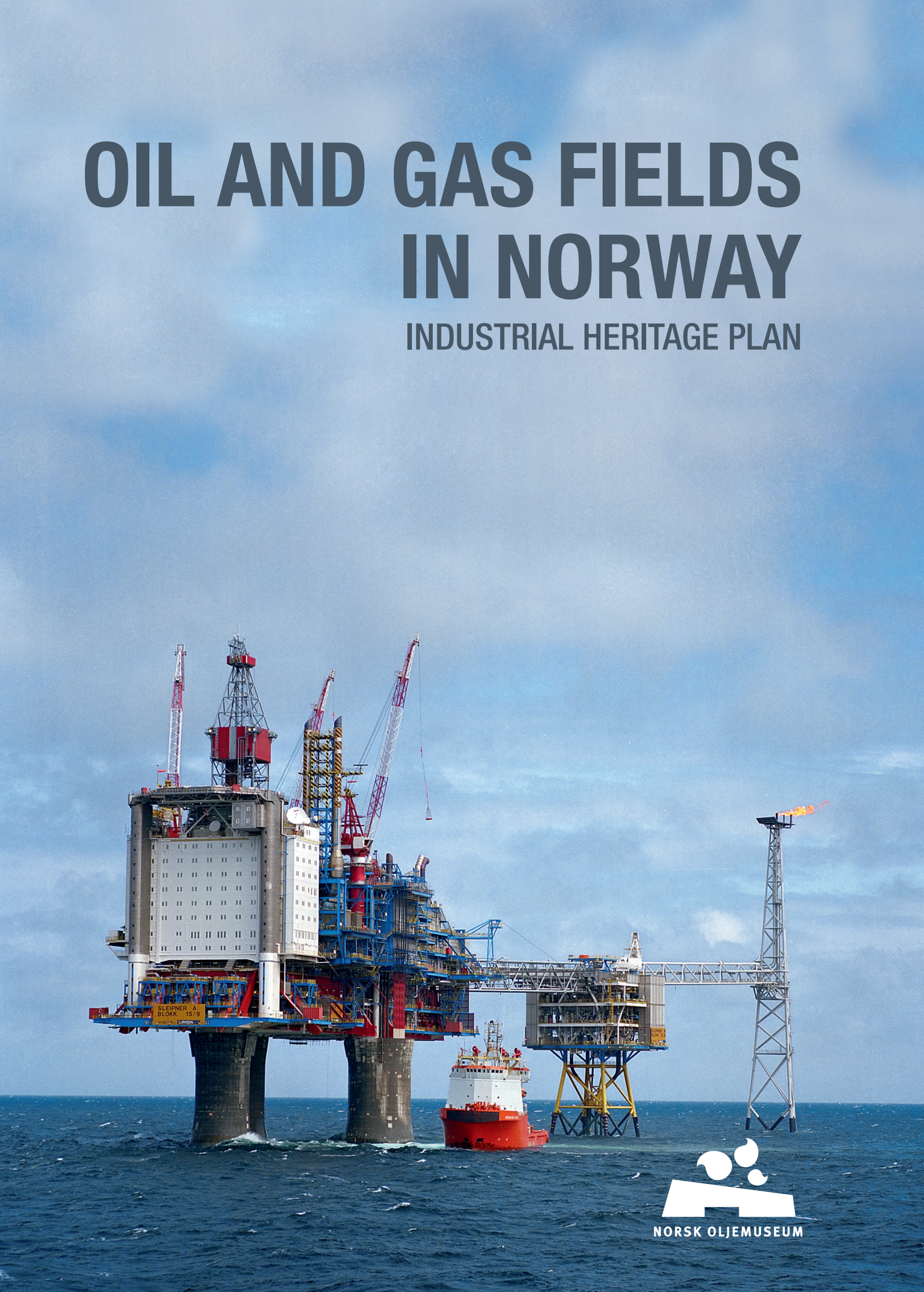
# OIL AND GAS FIELDS IN NORWAY

## INDUSTRIAL HERITAGE PLAN




NORSK OLJEMUSEUM

# Glossary

## Hydrocarbons

This is a collective term for organic chemical compounds composed solely of carbon and hydrogen. They exist in a number of variants (fractions), depending on the hydrogen content and chemical bonds in the molecules.

The number of carbon atoms in a molecule determine its weight. The four simplest and lightest compounds – methane, ethane, propane and butane – form the principal constituents of natural gas and natural gas liquids (NGL). They have a boiling point which makes them gaseous at normal pressure and temperature. The next group of fractions condense from gas to liquid when they emerge from the well and are cooled down by ambient temperatures. These are known as condensate. Then come various forms of oil, and ultimately asphalt.

### Crude oil

Liquid petroleum in its unrefined condition.

### Methane

Chemical formula $CH_4$. This colourless, odourless gas is the main constituent in natural gas (usually 85 per cent). It is the simplest and lightest of the hydrocarbon gases, and liquefies at -161.5°C or a pressure of 200 bar.

### Ethane

Chemical formula $C_2H_4$. A colourless, non-toxic and odourless gas at normal atmospheric pressure and temperature, which liquefies at -88°C.

### Propane

Chemical formula $C_3H_8$. A colourless, non-toxic and odourless gas at normal atmospheric pressure and temperature, which liquefies at -42°C or six-eight bar of pressure.

### Butane

Chemical formula $C_4H_{10}$. Butane comprises two gases, normal butane and isobutane, which liquefy at -0.6°C and -10.2°C respectively.

### Naphtha

This petroleum fraction is obtained from distillation of crude oil. It covers the boiling point range from 70-140°C – in other words, the petrol/paraffin area. Naphtha provides a starting point for producing petrol (gasoline) through reforming, and is also the most important feedstock for petrochemical production.

## Gas terms

### Natural gas

This term has two senses. (1) It designates a colourless flammable gas found in porous rocks in the Earth's crust, often together with crude oil. In this context, it consists primarily of methane, ethane, propane, butane and condensate but may also have a varying content of carbon dioxide, nitrogen, helium, hydrogen sulphide and water. Its composition varies from field to field. (2) Natural (dry) gas is also used as the name for the end product of gas processing, after the heavier components have been removed, and consists almost entirely of methane.

**Sour gas**
Natural gas (sense 1) containing acidic components such as carbon dioxide and/or hydrogen sulphide.

**Rich gas**
Rich gas is natural gas (sense 1) after the removal of any water. A blend of methane, ethane, propane, butane and so forth, it is carried as a single stream through a pipeline. Both Statpipe from Statfjord to Kårstø and Åsgard Transport are rich gas pipelines.

**Wet gas**
This is largely the same as rich gas, but also contains some condensate or light oil.

**Dry gas**
Dry gas is the designation for natural gas which contains no liquid hydrocarbons under pressure. Comprising methane and some ethane, it is synonymous with natural gas (sense 2) and is the product piped through Norway's export pipelines to Britain and continental Europe.

**Natural gas liquids (NGL)**
These usually refer to hydrocarbons extracted from rich gas which are gaseous at normal atmospheric pressure and temperature, but which liquefy under relatively small rises in pressure or reductions in temperature. This definition embraces ethane, propane and butane. However, the definition of NGL is often extended to include condensate.

**Condensate**
Condensate may contain pentane, hexane, heptane and octane. These petroleum fractions are gaseous in the reservoir but liquefy under normal atmospheric pressure and temperature. They are often called light oil, C5+, naphtha or natural gasoline.

## Gas products

**Liquefied natural gas (LNG)**
Dry gas which has been liquefied by cooling it to 163°C. This reduces its volume about 600 times, and allows it to be shipped by special carriers from liquefaction plants like Melkøya in northern Norway.

**Compressed natural gas (CNG)**
Dry gas which has been liquefied by compression to more than 200 bar. Usually used as a fuel for buses and so forth.

**Liquefied petroleum gases (LPG)**
The designation for NGL (propane and butanes) after fractionation into sales products. Propane liquefies at a pressure of seven-eight bar or under moderate cooling. LPG is shipped in special carriers.

## Conversion factors

**Standard cubic metre (scm)**
A cubic metre at standard conditions, defined as one atmosphere of pressure (1.01325 bar) and 15°C. This term is used to specify the volume of gas. Oil is specified internationally in barrels, but also in scm. One scm = 6.29 barrels.

**Barrel**
Unit of measurement for crude oil. One barrel equals 158.984 litres. One tonne of crude is 7.3 barrels. A cubic metre of crude is 6.29 barrels.

## Abbreviations

**GBS**
Gravity base structure. Concrete or steel platform held to the seabed by its own weight.

**FPSO**
Floating production, storage and offloading. A production unit with storage tanks for oil and equipment to discharge directly into shuttle tankers.

**HP/HT**
High pressure/high temperature. A designation for reservoirs with such conditions. Often applies to formations which lie deeper than 3 000 metres below sea level.

**PIO**
Plan for installation and operation.

**PDO**
Plan for development and operation

**TSP**
Technical service provider.