

# OIL AND GAS FIELDS IN NORWAY

## INDUSTRIAL HERITAGE PLAN



NORSK OLJEMUSEUM



# THE SNORRE AREA

The Snorre area lies in 300–350 metres of water about 140 kilometres west of the Sogne Fjord, in the same region as Statfjord and Gullfaks. It embraces the producing Snorre and Vigdis fields.

## Snorre

This field represented Saga Petroleum's first development as operator, with innovative solutions. Statoil is operator today.

### Reservoir and recovery strategy

Snorre's oil-bearing strata lie some 2 300–2 700 down, and are spread over an area of about 100 square kilometres. The sandstone reservoir is of early Jurassic and Triassic age. It has a complex structure, with many channels and internal flow barriers. Snorre was estimated to contain 1 470 million barrels of recoverable oil.

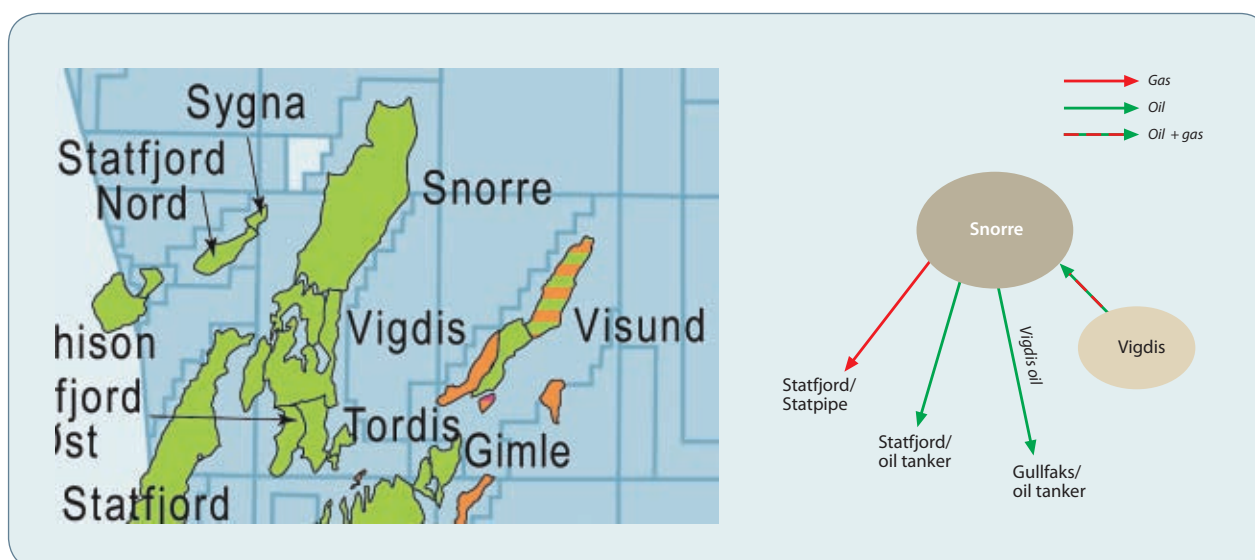
The field produces through pressure maintenance with the aid of water, gas and water alternating gas



(WAG) injection. Surfactant-assisted injection has also been used in parts of the reservoir.

### Transport

Stabilised oil and gas from Snorre A are piped to Statfjord A for final processing. While the oil is loaded into





*Snorre A. Photo: Rune Johansen/Statoil*

shuttle tankers, gas goes through the Statpipe line to Kårstø and on to continental Europe. Oil from Snorre B is piped in a 45-kilometre line to Statfjord B for storage and export. Part of the gas is injected back into the reservoir, with the remainder piped via Statfjord B to Statpipe.

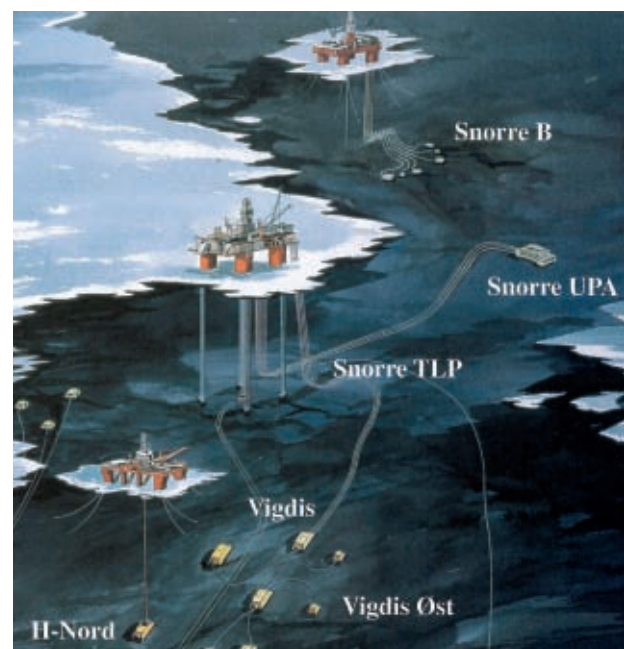
### **Development solution**

#### **Snorre A**

This floating tension-leg platform (TLP) has a steel hull and is tied back to subsea production facilities in 310 metres of water. The platform provides both quarters and processing.

#### **Snorre B**

A semi-submersible integrated production, drilling and quarters installation, Snorre B came on stream in June 2001.



*The Snorre area. Illustration: Saga Petroleum*





Snorre B. Photo: Øyvind Hagen/Statoil

### Snorre

Blocks	34/4 and 34/7
Production licences	057 and 089
Awarded	1979 and 1982

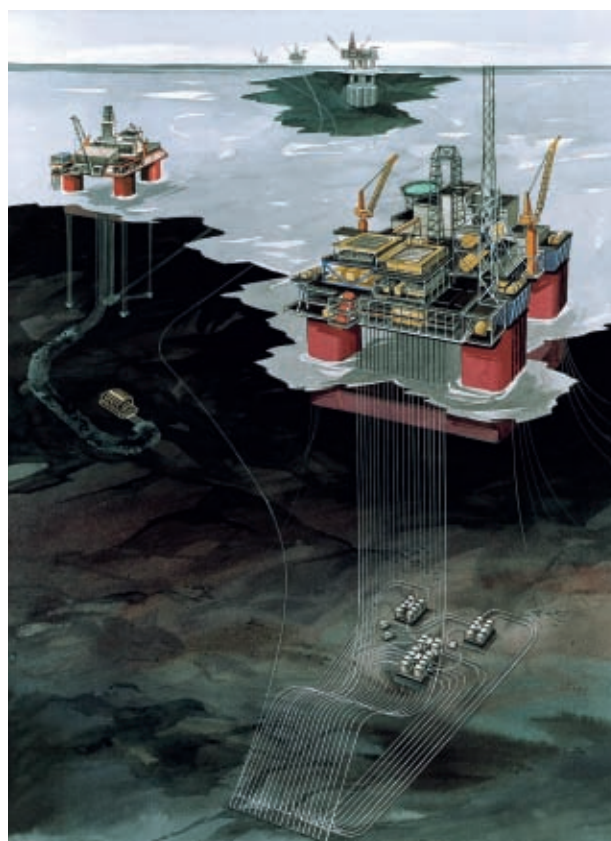
Total recoverable reserves	1 473 mill bbl oil 6.5 bn scm gas 4.6 mill tonnes NGL
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Remaining at 31 Dec 2008	445 mill bbl oil 0.6 bn scm gas 0.1 mill tonnes NGL
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Discovery year	1979
Approved for development	27 May 1988
On stream	3 Aug 1992
Operator	Statoil
Operations organisation	Stavanger
Main supply base	Florø

### Licensees

Statoil	33.30%
Petoro	30.00%
ExxonMobil	11.58%
Idemitsu Petroleum	9.60%
RWE Dea Norge	8.28%
Total E&P Norge	6.18%
Hess Norge	1.03%



The Snorre field. Illustration: Statoil

## Vigdis

This field was proven in 1986 between Snorre and Gullfaks, and has been developed with subsea installations in 280 metres of water.

### Reservoir and recovery strategy

In addition to the main Vigdis reservoir, the field comprises the Borg North-West and Vigdis East structures. These sandstone strata were deposited in the early Jurassic and late Triassic.

### Transport

Oil from Vigdis is piped seven kilometres to Snorre A for processing. Separated gas from the Vigdis structure is injected in Snorre. In addition, the gas from Borg North-West and Vigdis East gets piped via Snorre and Statpipe to Kårstø and on to continental Europe. Stabilised oil is piped from Snorre A to Gullfaks A for storage and export.

### Development solution

Three subsea templates with eight production wells in 280 metres of water are tied back to Snorre A, seven kilometres to the north. Production is remotely controlled from that platform. The Vigdis exten-



*Vigdis subsea installations. Illustration: Statoil*

sion project was approved in December 2002, and came on stream in October 2003. This involves an expansion of the existing Vigdis field. The third template, on Vigdis East, became operational in the spring of 2008.

### Vigdis

Block	34/7	Operator	Statoil
Production licence	089	Operations organisation	Stavanger
Awarded	1984	Main supply base	Florø
Total recoverable reserves	320 mill bbl oil 1.8 bn scm gas 1.6 mill tonnes NGL	Licensees	
Remaining at 31 Dec 2008	100 mill bbl oil 0.7 bn scm gas 0.9 mill tonnes NGL	Statoil	41.5%
Discovery year	1986	Petoro	30.0%
Approved for development	16 Dec 1994	ExxonMobil	10.5%
On stream	28 Jan 1997	Idemitsu Petroleum	9.6%
		Total E&P Norge	5.6%
		RWE Dea Norge	2.8%