## Pipelines and land facilities

### Gassled pipelines
- Europipe I
- Europipe II
- Franpipe
- Norpipe Gas
- Oseberg Gas Transport (OGT)
- Statpipe
- Vesterled
- Zeepipe
- Åsgard Transport

### Gassled land facilities
- Kollsnes gas processing plant
- Kårstø gas and condensate processing complex

### Other pipelines
- Draugen Gas Export
- Grane Gas Pipeline
- Grane Oil Pipeline
- Haltenpipe
- Heidrun Gas Export
- Kvitebjørn Oil Pipeline
- Langeled
- Norne Gas Transport System (NGTS)
- Norpipe Oil AS
- Oseberg Transport System (OTS)
- Sleipner East condensate
- Troll Oil Pipeline I
- Troll Oil Pipeline II

### Other land facilities
- Mongstad crude oil terminal
- Sture terminal
- Tjeldbergodden industrial complex
- Vestprosess
The map shows existing and planned pipelines in the North and Norwegian Seas. This chapter provides a more detailed description of pipelines on the NCS. The transport capacities given are based on standard assumptions about pressure ratios, energy content of the gas, maintenance periods and operational flexibility.
Gassled pipelines

Operator: Gassco

<table>
<thead>
<tr>
<th>Licensees (rounded off to two decimal places)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petoro AS¹</td>
<td>38.29%</td>
</tr>
<tr>
<td>Statoil ASA</td>
<td>20.38%</td>
</tr>
<tr>
<td>Norsk Hydro Produksjon a.s</td>
<td>11.13%</td>
</tr>
<tr>
<td>Total E&amp;P Norge AS</td>
<td>9.04%</td>
</tr>
<tr>
<td>Esso Expl &amp; Prod Norway AS</td>
<td>5.18%</td>
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<tr>
<td>Norske Shell Pipelines AS</td>
<td>4.68%</td>
</tr>
<tr>
<td>Mobil Development Norway AS</td>
<td>4.58%</td>
</tr>
<tr>
<td>Norske Gas A/S</td>
<td>3.02%</td>
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<tr>
<td>Norske ConocoPhillips AS</td>
<td>2.03%</td>
</tr>
<tr>
<td>Eni Norge AS</td>
<td>1.68%</td>
</tr>
</tbody>
</table>

¹ Petoro AS serves as the licensee for the SDFI.
Petro's interest in Gassled is due to increase by about 9.5 per cent with effect from 1 January 2011, when the interests of the other partners will be reduced proportionately.

The Storting requested in the spring of 2001 that the MPE invite the relevant companies to negotiations on the creation of a unified ownership structure for gas transport. Gassled represents the merger of companies owning nine pipelines between them into a single partnership. The partnership agreement establishing Gassled was signed on 20 December 2002, and came into effect on 1 January 2003. Gassled’s licence runs to 2028.

Gassled embraces the following pipelines: Zeepipe, Europipe I and II, Franpipe, Statpipe (including the transport-related facilities at Kårstø), Vesterled, Oseberg Gas Transport, Åsgard Transport and Norpipe. The Kollsnes gas processing complex also became part on Gassled on 1 February 2004. Gassled is organised in various zones for access and tariffs. For more detailed information on Gassled and the organisation of Norwegian gas transport operations, see the www.gassco.no web site.

Gassco, which serves as operator for Gassled and certain other pipelines, is based at Bygnes north of Stavanger. From here, it coordinates gas deliveries through the pipeline network from fields on the NCS to land facilities in Norway and receiving terminals in continental Europe and the UK. Gassco coordinates and controls the flow of gas through a network about 6 600 kilometres long, and manages all transport of Norwegian gas to market.

The following presentation describes the pipelines owned by Gassled and operated by Gassco.

**Europipe I**

This 40-inch pipeline starts at the Draupner E riser platform and runs for 660 km to terminate at Emden in Germany. Owned by the Zeepipe group, Europipe I came into service in 1995. It has a capacity of about 46-54 mill scm/d, depending on operating mode. The pipeline has been built for an operating life of 50 years and total investment is put at NOK 20.3 bn (2004 value).

(Agreement between Norway and Germany concerning the transmission of gas from the NCS and other areas through a pipeline to the Federal Republic of Germany. See Proposition no 60 (1992-93) and Recom no 164 (1992-93) to the Storting.)

**Europipe II**

This 42-inch pipeline runs for 650 km from Kårstø north of Stavanger to Dornum in Germany, and became operational in 1999. With a capacity of about 71 mill scm/d, Europipe II has been built for an operating life of 50 years. Total investment is put at NOK 9.1 bn (2004 value).
(Supplementary agreement of 19 May 1999 to the Europipe agreement (see Proposition no 60 (1992-93) and Recom no 164 (1992-93) to the Storting,) concerning the transmission of gas from Norway through a new pipeline (Europipe II) to Germany, ratified by Royal Decree of 14 September 2001.)

Franpipe
This 42-inch gas pipeline runs for 840 km from the Draupner E riser platform in the North Sea to a receiving terminal at Dunkerque in France. A separate partnership has been established for the terminal, owned 65 per cent by the Gassled group and 35 per cent by Gaz de France. The pipeline became operational in 1998.

Franpipe has a capacity of about 52 mill scm/d. It has been built for an operating life is 50 years, with the total investment put at NOK 9.4 bn (2004 value).

(Agreement between Norway and France concerning the transmission of gas from the NCS and other areas through a pipeline to France. See Proposition no 44 (1996-97) and Recom no 164 (1996-97) to the Storting.)

Norpipe Gas
This 36-inch line starts at Ekofisk and runs for 440 kilometres to the Norsea Gas terminal in Emden, Germany. Also owned by Gassled, the Emden terminal cleans and dries the gas prior to onward distribution. The line became operational in 1977. It has an annual capacity of about 40 mill scm/d. Two riser platforms, each with three compressors, are positioned on the German continental shelf to pump the gas southwards. The compressors on one of these installations have now been shut down. Norpipe has been built for an operating life of at least 30 years. Its technical life is under constant review. Total investment is likely to be about NOK 25.1 bn (2004 value).

(Agreement between Norway and Germany concerning the transmission of petroleum through a pipeline from the Ekofisk field and adjacent areas to Germany. See Proposition no 88 (1973-74) and Recom no 250 (1993-74) to the Storting.)

Oseberg Gas Transport (OGT)
This 36-inch line starts at Oseberg and runs for roughly 109 km to the Heimdal platform. Becoming operational in 2000, its capacity is about 40 mill scm/day. OGT has been built for an operating life of 50 years, and total investment is NOK 1.8 bn (2004 value).

Statpipe
This 880-km pipeline system includes a riser platform and a gas processing facility at Kårstø north of Stavanger. Becoming operational in 1985, the system’s 30-inch rich gas leg begins at Staffjord and runs for 308 km to Kårstø, with a capacity of about 25 mill scm/d. The dry gas section has three components. One of these comprises a 28-inch pipeline running for about 228 km from Kårstø to the Draupner S riser platform, with a capacity of roughly 20 mill scm/d, depending on operating mode. In addition comes a 36-inch pipeline running for about 155 km from the Heimdal Riser platform to Draupner S, with a capacity of about 30 mill scm/d. The third section is a 36-inch pipeline running for roughly 203 km from Draupner S to Ekofisk, with a capacity of about 30 mill scm/d. The Heimdal-Draupner S and Kårstø-Draupner S pipelines can also be used for reversed flow. Total investment is put at NOK 43.6 bn (2004 value), excluding the gas processing plant at Kårstø.

Vesterled
This 32-inch pipeline runs for about 350 km from the Heimdal Riser platform to St Fergus in the UK and became operational in 1978. It has a capacity of about 38 mill scm/d. Total investment in Vesterled is put at NOK 30.8 bn (2004 value).

(Agreement between Norway and the UK concerning amendments to the Frigg treaty of 10 May 1976. See Proposition no 73 (1998-99) and Recom no 219 (1998-99) to the Storting.)
Zeepipe
Zeepipe I comprises a 40-inch pipeline running for about 814 km from Sleipner Riser to Zeebrugge in Belgium. The gas receiving terminal in Zeebrugge belongs to a separate partnership, with the Gassled partners holding 49 per cent and Fluxys 51 per cent. Zeepipe I became operational in 1993 and has a capacity of roughly 41 mill scm/d.

Zeepipe II A starts at the Kollsnes gas processing plant near Bergen and runs for about 303 km to the Sleipner Riser platform in the North Sea. This 40-inch line became operational in 1996 and has a capacity of 57 mill scm/d.

Zeepipe II B is 40 inches in diameter and runs for roughly 304 km from Kollsnes to the Draupner E riser platform. Becoming operational in 1997, this line has a capacity of 60 mill scm/d.

The Zeepipe system has been built for an operating life of 50 years. Total investment (including the receiving terminal) is put at NOK 23 bn (2004 value).

(Agreement between Norway and Belgium concerning the transmission of gas from the NCS and other areas through a pipeline to Belgium. See Proposition no 148 (1987-88) and Recom no 164 (1988-89) to the Storting.)

Åsgard Transport
This 42-inch pipeline runs for about 707 km from the Åsgard field in the Norwegian Sea to terminate at Kårstø north of Stavanger. It became operational in 2000, with a capacity of about 69 mill scm/d.

Åsgard Transport is built for an operating life of 50 years, with total investment put at NOK 10 bn (2004 value).

Gassled land facilities

Kollsnes gas processing plant
The gas processing plant at Kollsnes near Bergen forms part of Gassled. Construction work began at the site in 1991 and was completed by 1 October 1996, the deadline for starting contractual gas deliveries from Troll.

Wellstreams are separated at Kollsnes into dry gas and NGL. The gas is dried and compressed before being piped to continental Europe. NGL is piped on to the Vestprosess facility at Mongstad.

The plant’s capacity is 120 mill scm of gas and 3 500 scm of NGL per day. Work has started on an NGL extraction facility at Kollsnes. Due to become operational on 1 October 2004, this plant will boost gas processing capacity to just over 140 mill scm per day. NGL production capacity will also increase to 11 000 scm/d.

Kårstø gas and condensate processing complex
The Kårstø gas processing facilities north of Stavanger separate and fractionate rich gas to methane, ethane, propane, iso-butane, normal butane and naphtha. Dry gas – methane and some of the ethane – is piped away. Unstabilised condensate delivered through a pipeline from Sleipner East is stabilised by separating out the lightest components.

The rest of the ethane as well as iso-butane and normal butane are stored in refrigerated tanks, while naphtha and condensate are held in tanks at ambient temperature. Propane is stored in large refrigerated rock caverns. These products are exported from Kårstø in liquid form by ship. The complex received 640 vessel calls in 2003 and shipped out 8.5 mill tonnes of liquids.

Processing facilities at Kårstø comprise four fractionation/distillation trains for methane, ethane, propane, butanes and naphtha, plus a fractionation line for stabilising condensate. The gas processing facilities have a rich-gas capacity of 72 mill scm per day, while the condensate and ethane plants can process roughly 3.6 mill and 620 000 tonnes per year respectively. An expansion of the Kårstø gas processing facilities to 88 mill scm/d has been initiated, and is due to be operational by 1 October 2005.
**Other pipelines**

**Draugen Gas Export**

<table>
<thead>
<tr>
<th>Operator</th>
<th>A/S Norske Shell(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensees</td>
<td>Petoro AS(^1) 47.88%</td>
</tr>
<tr>
<td></td>
<td>BP Norge AS 18.36%</td>
</tr>
<tr>
<td></td>
<td>A/S Norske Shell 26.20%</td>
</tr>
<tr>
<td></td>
<td>ChevronTexaco Norge AS 7.56%</td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td>Total investment is put at roughly NOK 0.4 bn (2004 value)</td>
</tr>
<tr>
<td><strong>Operating life</strong></td>
<td>Technical operating life is 50 years</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>About 2 bn scm/year</td>
</tr>
<tr>
<td><strong>Operating organisation</strong></td>
<td>Kristiansund</td>
</tr>
</tbody>
</table>

\(^1\) Petoro AS serves as the licensee for the SDFI  
\(^2\) The operatorship is due to be transferred to Gassco AS.

A plan for installation and operation of Draugen Gas Export was received by the MPE in May 1999 and approved in April 2000. The 16-inch pipeline from Draugen to Åsgard Transport is roughly 75 km long and provides opportunities for possible tie-ins of other fields in the area. The pipeline started up in November 2000.

**Grane Gas Pipeline**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Norsk HydroProduksjon a.s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensees</td>
<td>As for the Grane field</td>
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<tr>
<td><strong>Investment</strong></td>
<td>Total investment is put at about NOK 0.3 bn (2004 value)</td>
</tr>
<tr>
<td><strong>Operating life</strong></td>
<td>Technical operating life is 30 years</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>About 3.6 bn scm/year</td>
</tr>
</tbody>
</table>

The plan for installation and operation of the Grane Gas Pipeline was approved in June 2000. This 18-inch pipeline from the Heimdal Riser platform to the Grane installation is 50 km long and became operational in September 2003. It carries gas to Grane for injection into the reservoir to improve oil recovery from this field.
Grane Oil Pipeline

**Operator**
Norsk Hydro Produksjon a.s

**Licensees**
<table>
<thead>
<tr>
<th>Licensee</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petoro AS¹</td>
<td>43.60%</td>
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<tr>
<td>Esso Expl &amp; Prod Norway AS</td>
<td>25.60%</td>
</tr>
<tr>
<td>Norsk Hydro Produksjon a.s</td>
<td>24.40%</td>
</tr>
<tr>
<td>Norske ConocoPhillips AS</td>
<td>6.40%</td>
</tr>
</tbody>
</table>

**Investment**
Total investment is put at about NOK 1.5 bn (2004 value)

**Operating life**
Technical operating life is 30 years

**Capacity**
34 000 scm/day of oil

¹ Petoro AS serves as the licensee for the SDFI.

The plan for installation and operation of the Grane Oil Pipeline was approved in June 2000. This 29-inch pipeline from Grane to the Sture terminal is 220 km long. It became operational in September 2003 to coincide with the start of production from Grane.

Haltenpipe

**Operator**
Gassco AS

**Licensees**
<table>
<thead>
<tr>
<th>Licensee</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petoro AS¹</td>
<td>57.81%</td>
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<tr>
<td>Statoil ASA</td>
<td>19.06%</td>
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<tr>
<td>Norske ConocoPhillips AS</td>
<td>18.13%</td>
</tr>
<tr>
<td>Eni Norge AS</td>
<td>5.00%</td>
</tr>
</tbody>
</table>

**Investment**
Total investment in pipeline and terminal is put at NOK 2.7 bn (2004 value)

**Operating life**
The licence expires on 31 December 2020

**Capacity**
2.2 bn scm/year of gas

¹ Petoro AS serves as the licensee for the SDFI.

This 16-inch gas pipeline runs for 250 km from Heidrun on the Halten Bank in the Norwegian Sea to Tjeldbergodden in mid-Norway, where Statoil ASA and Conoco have built a methanol plant close to the receiving terminal. The latter uses Heidrun gas as feedstock. Annual gas supplies to the methanol plant total some 0.7 bn scm.
Heidrun Gas Export

<table>
<thead>
<tr>
<th>Operator</th>
<th>Statoil ASA²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensee</td>
<td>Petoro AS¹</td>
</tr>
<tr>
<td>(rounded off to two decimal places)</td>
<td>Norske ConocoPhillips AS</td>
</tr>
<tr>
<td></td>
<td>Statoil ASA</td>
</tr>
<tr>
<td></td>
<td>Eni Norge AS</td>
</tr>
</tbody>
</table>

Investment
Total investment is put at about NOK 0.9 bn (2004 value)

Operating life
Technical operating life is 50 years

Capacity
About 4 bn scm/year

¹ Petoro AS serves as the licensee for the SDFI.
² The operatorship is due to be transferred to Gassco AS.

The authorities received a plan for installation and operation of Heidrun Gas Export in 1997, plus a supplement to this in March 1999. Approval of the proposals was given by the MPE in the spring of 2000. This 16-inch pipeline runs roughly 37 km from Heidrun to tie into the Åsgard Transport system. It became operational in February 2001.

Kvitebjørn Oil Pipeline (KOR)

<table>
<thead>
<tr>
<th>Operator</th>
<th>Statoil ASA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensees</td>
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</tr>
<tr>
<td></td>
<td>Petoro AS¹</td>
</tr>
<tr>
<td></td>
<td>Norsk Hydro Produksjon a.s</td>
</tr>
<tr>
<td></td>
<td>Eni Norge AS</td>
</tr>
</tbody>
</table>

Investment
Total investment is likely to be NOK 0.5 bn (2004 value)

Operating life
The technical operating life is 25 years

Capacity
About 11 mill scm per year

Operating organisation
Bygnes

¹ Petoro AS serves as the licensee for the SDFI.

Being built to transport condensate from Kvitebjørn to the Mongstad oil terminal, this 16-inch line will run for about 90 km to tie into an existing connection point on Troll Oil Pipeline II. The KOR is due to be ready for making condensate deliveries on 1 October 2004.
**Langeled**

**Investment interests in Langeled**

<table>
<thead>
<tr>
<th>Company</th>
<th>Investment interest (%), rounded off to two decimal places</th>
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<tr>
<td>Petoro AS</td>
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<tr>
<td>Norsk Hydro Produksjon a.s</td>
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<tr>
<td>Norske Shell Pipelines AS</td>
<td>16.50</td>
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<tr>
<td>Statoil ASA</td>
<td>14.99</td>
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<td>BP Norge AS</td>
<td>10.22</td>
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<tr>
<td>Esso Expl &amp; Prod Norway AS</td>
<td>6.95</td>
</tr>
<tr>
<td>Norske ConocoPhillips AS</td>
<td>0.799</td>
</tr>
</tbody>
</table>

Interests in Langeled will be fixed before the line becomes operational on the basis of updated cost estimates for the two legs.

**Investment**

Total investment is likely to be about NOK 19.9 bn (2004 value)

The Langeled system will transport gas from the land facilities for Ormen Lange at Nyhamna in mid-Norway via a tie-in at the Sleipner Riser platform in the North Sea to a new receiving terminal at Easington on the UK east coast. This system will comprise a 42-inch thick-walled pipeline from Nyhamna to Sleipner Riser (the northern leg) and a 44-inch line from Sleipner Riser to Easington (southern leg). Capacity will be just over 80 mill scm/d in the northern leg and about 70 mill scm/d in the southern. The system will have an overall length of roughly 1 200 km. While the southern leg is due to become operational in October 2006, the northern will follow in October 2007.

Norsk Hydro will be the operator for the development phase. Gassco AS will be the operator for the production phase.

**Norne Gas Transport System (NGTS)**

<table>
<thead>
<tr>
<th>Operator</th>
<th>Gassco AS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Licensees</strong></td>
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</tr>
<tr>
<td>Petoro AS¹</td>
<td>54.00%</td>
</tr>
<tr>
<td>Statoil ASA</td>
<td>25.00%</td>
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<tr>
<td>Norsk Hydro Produksjon a.s</td>
<td>8.10%</td>
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<tr>
<td>Eni Norge AS</td>
<td>6.90%</td>
</tr>
<tr>
<td>Enterprise Oil Norge AS</td>
<td>6.00%</td>
</tr>
<tr>
<td><strong>Investment</strong></td>
<td>Total investment is put at roughly NOK 1.1 bn (2004 value)</td>
</tr>
<tr>
<td><strong>Operating life</strong></td>
<td>The technical operating life is 50 years</td>
</tr>
<tr>
<td><strong>Capacity</strong></td>
<td>About 3.6 bn scm/year</td>
</tr>
</tbody>
</table>

¹ Petoro AS serves as the licensee for the SDFI.

The authorities received a plan for installation and operation of the NGTS in 1997, plus a supplement to this in April 1999. Approval of the proposals was given by the MPE in the spring of 2000. This 16-inch pipeline runs roughly 126 km from Norne to tie into the Åsgard Transport system. It became operational in February 2001.
Norpipe: Norpipe Oil AS

<table>
<thead>
<tr>
<th>Operator</th>
<th>ConocoPhillips Skandinavia AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensees</td>
<td></td>
</tr>
<tr>
<td>ConocoPhillips Skandinavia AS</td>
<td>35.05%</td>
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<tr>
<td>Total E&amp;P Norge AS</td>
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<tr>
<td>Statoil ASA</td>
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<td>Eni Norge AS</td>
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</tr>
<tr>
<td>Norsk Hydro Produksjon a.s</td>
<td>3.50%</td>
</tr>
<tr>
<td>Investment</td>
<td>Total investment is likely to be about NOK 15.5 bn (2004 value)</td>
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<tr>
<td>Operating life</td>
<td>The pipeline has been designed for an operating life of at least 30 years. Extending its technical life is under constant review.</td>
</tr>
<tr>
<td>Capacity</td>
<td>Design capacity is about 53 mill scm/year (900 000 b/day), including the use of friction-inhibiting chemicals. The receiving facilities restrict capacity to about 810 000 b/d.</td>
</tr>
<tr>
<td>Operating organisation</td>
<td>Stavanger</td>
</tr>
</tbody>
</table>

The SDFI will receive a five per cent interest in Norpipe Oil AS on 15 October 2005 through a similar reduction in the equity interest held by Statoil ASA in the company.

Owned by Norpipe Oil AS, the 34-inch Norpipe oil pipeline is about 354 km long and starts at the Ekofisk Centre, where three pumps have been placed. It crosses the UK continental shelf to come ashore at Teesside. A tie-in point for UK fields is located about 50 km downstream of Ekofisk. Two riser platforms, each with three pumps, were previously tied to the pipeline, but were bypassed in 1991 and 1994 respectively.

Two British-registered companies, Norsea Pipeline Ltd and Norpipe Petroleum UK Ltd, own the oil export port and fractionation plant for extracting NGL in Teesside, and are operated by Phillips Petroleum Company UK. The oil pipeline carries crude from the Ekofisk, Eldfisk, Embla and Tor fields as well as from Valhall, Hod, Ula, Gyda and Tambar. It also transports production from Britain’s Fulmar, J block, Gannet, Auk, Clyde, Janice, Orion, Jade and Halley fields.

(Agreement between Norway and the UK concerning the transmission of petroleum through a pipeline from the Ekofisk field and adjacent areas to the UK. See Proposition no 110 (1972-73) and Recom no 262 (1972-73) to the Storting.)
**Oseberg Transport System (OTS)**

**Operator**  
Norsk Hydro Produksjon a.s

**Licensees**  
- Petoro AS\(^1\) 84.40%  
- Norsk Hydro Produksjon a.s 22.20%  
- Statoil ASA 14.00%  
- Total E&P Norge AS 8.70%  
- Mobil Development Norway AS 4.30%  
- Norske ConocoPhillips AS 2.40%

**Investment**  
Total investment is likely to be about NOK 9.3 bn (2004 value)

**Capacity**  
121 000 scm/day (technical), 990 000 scm (storage)

**Operating life**  
The pipeline is designed to operate for 40 years.  
This may be extended.

**Operating organisation**  
Bergen

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1 Petoro AS serves as the licensee for the SDFI.

Oseberg oil is piped for 115 km through a 28-inch line from the field’s A platform to the terminal at Sture near Bergen. The Oseberg group has established a separate joint venture to operate the line.

This partnership has concluded agreements with the licensees for Veslefrikk, Brage, Oseberg South, Oseberg East, Tune and Huldra to transport oil from these fields via Oseberg A and the OTS to the Sture terminal. Oil and NGL from Frøy were piped through Frostpipe from the TCP2 platform on Frigg to Oseberg A.

After Frøy was shut down in March 2001, Frostpipe was filled with inhibited seawater and preserved for reuse by 2005. The OTS partnership has concluded an agreement with the Grane shippers to receive, store and export oil from this field.

**Sleipner East condensate**

**Operator**  
Statoil ASA

**Licensees**  
- Statoil ASA 49.60%  
- Esso Expl & Prod Norway AS 30.40%  
- Norsk Hydro Produksjon a.s 10.00%  
- Total E&P Norge AS 10.00%

**Investment**  
Total investment is likely to be about NOK 1.5 bn (2004 value)

**Capacity**  
200 000 b/d

**Operating organisation**  
Bygnes and Kårstø

The decision to land condensate from Sleipner East at Kårstø north of Stavanger rather than at Teesside in the UK meant that the field’s licensees had to lay a 20-inch pipeline to the Norwegian coast and organise the required expansion of the Kårstø complex. The Storting approved the construction of this line in December 1989. Unprocessed condensate from Sleipner East began to flow through the 245-km pipeline in 1993. At Kårstø, it is fractionated into NGL and stabilised condensate for the market. This line also began carrying condensate from Sleipner West, Loke and Gungne in 1997.
### Troll Oil Pipeline I

<table>
<thead>
<tr>
<th><strong>Operator</strong></th>
<th>Statoil ASA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Licensees</strong></td>
<td>Statoil ASA 20.85%</td>
</tr>
<tr>
<td>(rounded off to two decimal places)</td>
<td>Norsk Hydro Produksjon a.s 9.73%</td>
</tr>
<tr>
<td></td>
<td>A/S Norske Shell 8.29%</td>
</tr>
<tr>
<td></td>
<td>Total E&amp;P Norge AS 3.70%</td>
</tr>
<tr>
<td></td>
<td>Norske ConocoPhillips AS 1.66%</td>
</tr>
</tbody>
</table>

| **Investment** | Total investment is likely to be about NOK 1.1 bn (2004 value) |
| **Operating life** | Troll Oil Pipeline I is designed to operate for 35 years |
| **Capacity** | 42,500 scm/day of oil with the use of friction inhibitors |
| **Operating organisation** | Bygnes and Kårstø |

1 Petoro AS serves as the licensee for the SDFI.

This 85-km facility transports oil from the Troll B platform to the terminal at Mongstad near Bergen. With its plan for installation and operation approved in December 1993, the 16-inch line was ready in September 1995 and is licensed to 2023. The Troll licensees have established a separate partnership to handle operation of the line.

### Troll Oil Pipeline II

<table>
<thead>
<tr>
<th><strong>Operator</strong></th>
<th>Statoil ASA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Licensees</strong></td>
<td>Statoil ASA 20.85%</td>
</tr>
<tr>
<td>(rounded off to two decimal places)</td>
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<td></td>
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<td>Total E&amp;P Norge AS 3.70%</td>
</tr>
<tr>
<td></td>
<td>Norske ConocoPhillips AS 1.66%</td>
</tr>
</tbody>
</table>

| **Investment** | About NOK 1 bn (2004 value) |
| **Operating life** | Troll Oil Pipeline II is designed for a lifetime of 35 years |
| **Capacity** | Current capacity is 40,000 scm/day of oil. The hydraulic capacity of the line is 47,500 scm/d (without the use of friction inhibitors) |
| **Operating organisation** | Bygnes and Kårstø |

1 Petoro AS serves as the licensee for the SDFI.

This 20-inch pipeline has been built to carry oil over the 80 km from Troll C to the terminal at Mongstad near Bergen. The plan for installation and operation received government approval in March 1998, and Troll Oil Pipeline II was ready to begin operation when Troll C started production on 1 November 1999. This line is licensed to 2023, and oil from Fram West is also being piped through it.
Other land facilities

Mongstad crude oil terminal

Ownership

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Statoil ASA</th>
<th>65.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petoro AS¹</td>
<td></td>
<td>35.00%</td>
</tr>
</tbody>
</table>

¹ Petoro AS serves as the licensee for the SDFI.

The terminal at Mongstad embraces three jetties able to accept vessels up to 440,000 tonnes, as well as six caverns excavated from the bedrock 50 metres below ground. These caverns have a total storage capacity of 1.5 million cubic metres of oil. About 500 calls by crude oil carriers are handled annually.

This facility was constructed to support the marketing of crude oil loaded offshore on Gullfaks, Draugen, Norne, Åsgard, Heidrun and other fields. These consignments are loaded into shuttle tankers, which have a sailing range confined to north-west Europe. By storing and transhipping crude at Mongstad, however, Statoil can sell the oil to more distant destinations. Mongstad is also the receiving terminal for the oil pipelines from Troll B, C and Troll Blend (Fram) as well as shuttle tankers from Heidrun.

Sture crude oil terminal

Interests

| Interests | The Sture terminal forms part of the joint venture for the Oseberg Transport System (OTS), with the same ownership interests. The exception is the LPG export facilities, which are owned by Norsk Hydro Produksjon a.s (the refrigerated LPG store and transfer system to ships) and Vestprosess DA (the transfer system to the Vestprosess pipeline). |

The crude oil terminal at Sture near Bergen receives production via the OTS pipeline from the Oseberg A platform as well as the Veslefrikk, Brage, Oseberg South, Oseberg East, Tune and Huldra fields. Since the autumn of 2003, the terminal has also received Grane oil through the Grane Oil Pipeline.

The terminal began operating in December 1988. It incorporates two jetties able to berth oil tankers up to 300,000 tonnes, five rock caverns stores for crude oil with a combined capacity of one million cubic metres, a 60,000-cu.m rock cavern store for LPG and a 200,000-cu.m ballast water cavern. A separate unit for recovering volatile organic compounds given off from tankers has been installed.

The MPE approved an upgrading of the facility in March 1998. A fractionation plant which came on line in December 1999 processes unstationed crude from Oseberg into stabilised oil and an LPG mix. The latter can either be exported by ship or piped through the Vestprosess line to the Mongstad refinery.
**Tjeldbergodden industrial complex**

**Ownership of the Statoil Metanol ANS:**

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tjeldbergodden plants Statoil ASA</td>
<td>81.70%</td>
</tr>
<tr>
<td>Norske ConocoPhillips AS</td>
<td>18.30%</td>
</tr>
</tbody>
</table>

Plans to utilise gas from Heidrun as feedstock for methanol production at Tjeldbergodden in mid-Norway were approved by the Storting in 1992. The methanol plant began production on 5 June 1997. Gas deliveries through the Haltenpipe line total 700 mill scm per year, which yields 830 000 tonnes of methanol.

An air separation plant - Tjeldbergodden Luftgassfabrikk DA - has been built in association with the methanol facility. This partnership has also constructed a small gas fractionation and liquefaction plant with an annual capacity of 35 mill scm.

Norferm a.s, owned by Statoil ASA and DuPont, produces bioproteins at Tjeldbergodden. With an annual design capacity of 10 000 tonnes, this plant can consume up to 25 mill scm of methane per year. That corresponds to three per cent of the gas received from Heidrun.

**Vestprosess**

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petoro AS¹</td>
<td>41.00%</td>
</tr>
<tr>
<td>Statoil ASA</td>
<td>17.00%</td>
</tr>
<tr>
<td>Norsk Hydro Produksjon a.s</td>
<td>17.00%</td>
</tr>
<tr>
<td>Mobil Exploration Norway AS</td>
<td>10.00%</td>
</tr>
<tr>
<td>A/S Norske Shell</td>
<td>8.00%</td>
</tr>
<tr>
<td>Total E&amp;P Norge AS</td>
<td>5.00%</td>
</tr>
<tr>
<td>Norske ConocoPhillips AS</td>
<td>2.00%</td>
</tr>
</tbody>
</table>

¹ Petoro AS manages the SDFI holding.

The Vestprosess DA partnership owns and operates a system to transport and process NGL. These facilities came on stream in December 1999. A 56-kilometre pipeline carries unprocessed NGL from the Kollsnes gas terminal, via the Sture oil terminal, to Mongstad.

At the Mongstad, processing starts by separating out naphtha and LPG. The naphtha serves as refinery feedstock, while the LPG is fractionated in a dedicated process into propane and butane. The latter are stored in rock caverns before export. The Vestprosess plant utilises waste energy and utilities from the refinery.