



◀ Countries

Norway



Last Updated: August 28, 2012

Revised: December 17, 2012 ([revision](#))

## Background

*Norway is Europe's largest oil producer, the world's second largest natural gas exporter, and is an important supplier of both oil and natural gas to other European countries.*

Norway, the largest holder of natural gas and oil reserves in Europe, provides much of the oil and gas consumed on the continent. In fact, Norway was the second largest exporter of natural gas in the world after Russia, and the seventh largest exporter of oil.

In 2010, crude oil, natural gas, and pipeline transport services accounted for almost 50 percent of Norway's exports revenues, 21 percent of GDP, and 26 percent of government revenues according to the Norwegian Petroleum Directorate (NPD). Although Norway's oil production peaked in 2001 at 3.4 million barrels per day (bbl/d) and declined to 2.0 million bbl/d in 2011, natural gas production has been steadily increasing since 1993, reaching 3.6 trillion cubic feet (Tcf) in 2011.

Hydropower is the principal source of Norway's electricity supply at 95 percent, while only 4 percent comes from conventional thermal sources, followed by 1 percent from other renewables, namely biomass and waste and wind. In June 2012, government officials from Norway, Germany, and the United Kingdom (UK) confirmed their plans for subsea electric power interconnects between their countries. The Norway-UK cable connection is slated for completion in 2020 while the Norway-Germany cable is to be completed in 2018; their purpose is to strengthen the northern European electricity grid and increase supply security.

The historic agreement between Norway and Russia, which defined their maritime boundaries in the Barents and Arctic Seas and resolved their 40-year old dispute, was fully ratified by both governments in early 2011 and went into effect in July 2011. As a result of the agreement, Norway gained an additional 54,000 square miles of continental shelf, according to the NPD. The agreement requires the two countries to develop jointly oil and gas deposits which cross over their boundaries, a 109,360 square mile maritime area which straddles their economic zones in the Barents and Arctic Seas.

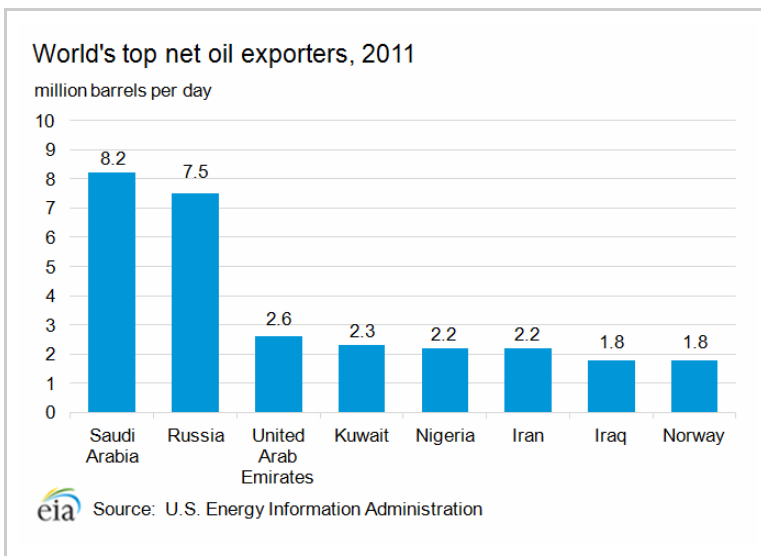


## Oil

*Norway is the largest oil producer and exporter in Western Europe.*

According to The Oil and Gas Journal (OGJ), Norway had 5.32 billion barrels of proven oil reserves as of January 1, 2012, the largest oil reserves in Western Europe. All of Norway's oil reserves are located offshore on the Norwegian Continental Shelf (NCS), which is divided into three sections: the North Sea, the Norwegian Sea and the Barents Sea. The bulk of Norway's oil production occurs in the North Sea, with smaller amounts in the Norwegian Sea and new exploration and production activity occurring in the Barents Sea.

In June 2012, Norway's oil and gas production faced being completely shut-in when an offshore workers strike began over employers' plans to increase the retirement age from 62 to 67. Government intervention stopped the strike, during which cutbacks to the country's production affected 15 percent of oil and 7 percent of gas production, according to Statoil.



## Sector organization

Norway's Ministry of Petroleum and Energy (MPE) is responsible for overseeing the country's petroleum resources. The Norwegian Petroleum Directorate (NPD) works under MPE as manager and advisor. Statoil ASA was created by the merger of Statoil and Norsk Hydro in October 2007. It is an international energy company that is 67-percent-owned by the Norwegian government and is the largest operator in Norway, controlling 80 percent of Norway's oil and gas production. It also has interests in more than 30 other countries. State-owned Petoro manages the commercial aspects of the government's financial interests in petroleum operations and associated activities. It acts as the licensee for production licenses and companies.

International oil majors have a sizable presence in Norway. The Norwegian government's subsidy of oil and gas exploration, introduced in 2005, refunds 78 percent of the exploration costs to the companies. In addition, taxes from onshore oil activities and from liquefied natural gas (LNG) shipped overseas were reduced, which has attracted additional international investment. The Norwegian government is focused on increasing recovery in producing fields, further exploring producing areas, opening new areas to exploration, as well as developing new subsea technology, in which Norway is a global leader.

## Exploration and production

In 2011, Norway produced 2.0 million bbl/d of petroleum and other fuels, of which about 87 percent was crude oil. Norway's petroleum production has been gradually declining since 2001 as oil fields have matured. The NPD expects that production will continue to decline slowly over the next few years, and that in the longer term the number and size of new discoveries will be a critical factor in maintaining production levels. Currently, seventy fields are in production on the NCS. The three largest producing oil fields are Ekofisk, which produced 162,000 bbl/d in 2010; Grane, which produced 166,000 bbl/d; and Troll, which produced 118,000 bbl/d.

Investment of US\$29 billion in oil and gas activity is planned for 2012. Norway's national statistics bureau reported investments of US\$21 billion in 2011, when 45 exploration wells were drilled and 16 discoveries were made.

Four new fields began production in the first six months of 2012: BG-Norge's Gaupe oil and

gas field, Total's Islay gas field, Eni's Marulk gas and condensate field, and Dong's Oselvar oil and gas field. These four fields are each averaging daily production of 15,000 to 20,000 barrels of oil equivalent.

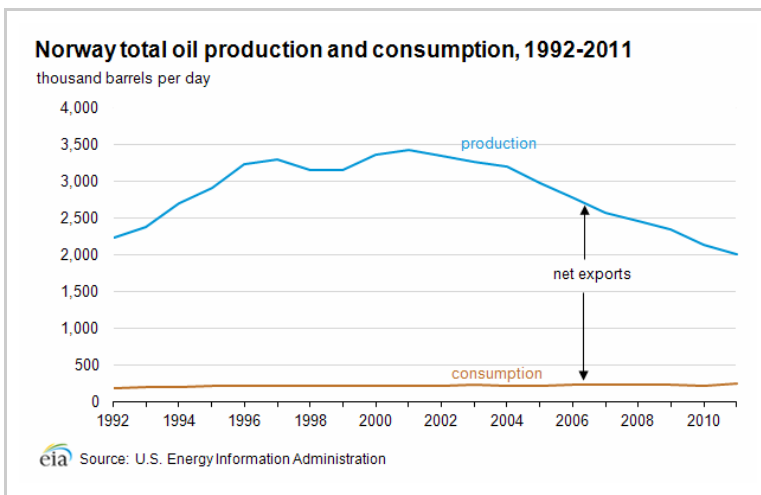
Goliat is the first oil field to be developed in the Barents Sea. Discovered in 2000, it is about 40 miles offshore the town of Hammerfest, which will be its land base. Goliat's reserves are estimated at 240 million barrels in two separate reservoirs, both with an overlying natural gas cap, and low pressures in the reservoirs require that the gas be reinjected. In May 2009, the Norwegian government approved the plan for development and operation of the Goliat oil field by licensees Eni (65 percent) and Statoil (35 percent), and construction is currently in full swing. The field is expected to reach peak production of about 100,000 bbl/d in November 2013, and 45.9 billion cubic feet (Bcf) of natural gas is expected to be produced and reinjected annually starting in 2014.

The Norwegian Parliament approved joint development and operating plans in June 2012 for Lundin's Edvard Grieg (formerly called Luno) oil and gas field and Det Norske's Draupne field. Estimated to hold 186 million barrels of oil equivalent, Edvard Grieg is scheduled to come onstream by late 2015 at 100,000 bbl/d of oil and 53 million cubic feet of gas (MMcf). The nearby Draupne field will be tied into Edvard Grieg, producing 52,000 bbl/d by October 2016, rising to 75,000 bbl/d the following year. Draupne's reserves are estimated at 143 million barrels of recoverable oil.

The Johan Sverdrup oil field was the largest oil discovery in the world in 2011, with reserves estimated at between 1.7 and 3.3 billion barrels of recoverable oil. It is located 140 km west of Stavanger in the North Sea. Johan Sverdrup was initially believed to consist of two fields four miles apart: Avaldnes, discovered by Lundin in 2010, and Aldous, discovered by Statoil in 2011. Further exploration activities revealed they constitute one giant field, renamed Johan Sverdrup in 2012, when a cooperation agreement was signed between the field partners naming Statoil operator. Partners also include Maersk, Petoro, and Det Norske. The field is expected to be a new stand-alone processing and transport hub, producing 120,000-200,000 bbl/d beginning in 2018, and accounting for half of Norway's oil production by 2040.

In April 2011, it was reported that Statoil and its partners Eni Norge and Petoro struck oil and gas at the Skrugard prospect in the Barents Sea, and it is one of Norway's biggest discoveries in ten years. In January 2012, Havis field was discovered in the same license block. Skrugard and Havis together are believed to hold as much as 500 million barrels of recoverable reserves. Statoil announced that it hopes to begin Skrugard production in 5 to 10 years. Skrugard is located 120 miles from the coast and well north of the Goliat and Snovit fields. Statoil plans to make it a production hub for other potential discoveries in the area as more exploration wells are planned to be drilled through mid-2013.

Exploration interest in the NCS remains strong on the part of major international oil companies. The most recent licensing round was announced in June 2012 and will include 86 blocks - 72 in the Barents Sea and 14 in the Norwegian Sea. The application deadline is December 4, 2012 and new production licenses are to be awarded before summer 2013. Several of the blocks in the Barents Sea are in immediate proximity to the Russian border and both Rosneft and Lukoil are expected to take part in the licensing round in accordance with the terms of the Norway-Russia Delimitation Agreement.



## Oil exports

According to the International Energy Agency (IEA), Norway exported an estimated 1.45 million bbl/d of crude oil in 2011, of which 90 percent went to OECD European countries. The top five importers of Norwegian oil (crude plus products) in 2011 were the United Kingdom (52 percent), the Netherlands (18 percent), the United States (10 percent), France (8 percent), and Germany (5 percent).

## Pipelines

Norway has an extensive network of subsea oil pipelines, including 8 major domestic oil pipelines with a total capacity of more than 2.2 million barrels per day which connect offshore oilfields with onshore processing terminals. There are numerous smaller pipelines that connect North Sea fields to either the Oseberg Transport System or the Troll I and II pipeline systems, with the remaining offshore production brought ashore via shuttle tanker.

### International oil pipeline

ConocoPhillips operates the 900,000-bbl/d-capacity subsea Norpipe, which connects Norwegian oil fields in the Ekofisk system, as well as associated fields in both Norwegian and UK waters, to the oil terminal and refinery at Teesside, England. The pipeline is a 50-50 joint venture between ConocoPhillips and Statoil.

## Refining

According to *OGJ*, Norway had 319,000 bbl/d of crude oil refining capacity in January 2012. The country has two major refining facilities: the 116,000-bbl/d Slagen plant, operated by ExxonMobil, and the 203,000-bbl/d Mongstad plant, operated by Statoil. Norway is an important supplier of gasoline and diesel fuel to the European Union, as the production of these fuels at the Mongstad plant complies with stringent EU environmental rules. Statoil dominates the retail products market in Norway and the company has also expanded aggressively into other European markets. The port of Mongstad is the largest in Norway measured by tonnage, and second only to Rotterdam for shipping crude oil and refined products in Europe.

---

## Natural gas

*Norway is the second largest exporter of natural gas after Russia, and ranks fourth in world natural gas production.*

According to O&G, Norway had 71 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2012. Despite the maturation of its major natural gas fields in the North Sea, Norway has been able to sustain annual increases in total natural gas production by continuing to develop new fields.

---

### Sector organization

As is the case with the oil sector, Statoil dominates natural gas production in Norway. A number of international oil and gas companies, including ExxonMobil, ConocoPhillips, Total, Shell, and Eni have a sizable presence in the natural gas and oil sectors in partnership with Statoil. State-owned Gassco is responsible for administering the natural gas pipeline network. The company also manages Gassled, the network of international pipelines and receiving terminals that exports Norway's natural gas production to the United Kingdom and continental Europe.

---

### Production and development

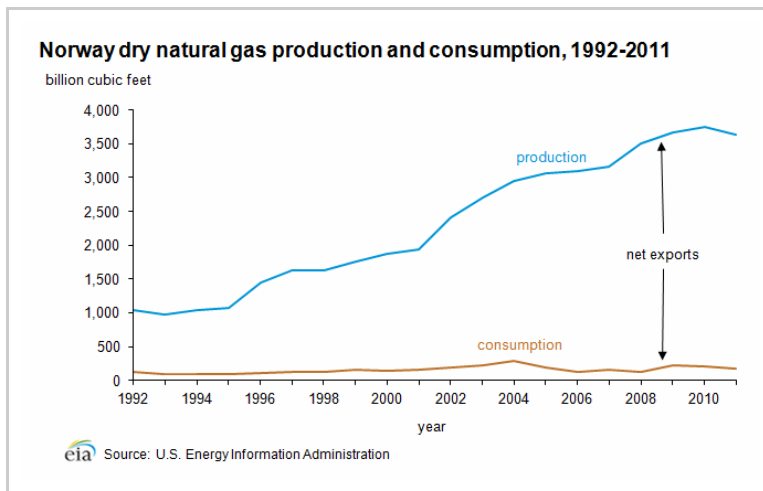
Norway produced 3.64 Tcf of dry natural gas in 2011, down slightly from the 3.76 Tcf produced in 2010. The dip in production level was assessed by NPD to have been largely market-driven. Production has been generally increasing since 1993 and NPD forecasts it will reach 3.96 Tcf in 2015. Total gross natural gas production was 5.25 Tcf in 2011, of which 1.38 Tcf (26 percent) was reinjected to enhance oil production.

Norway's single largest natural gas field is Troll, which produced 0.9 Tcf in 2010, according to NPD, representing about one-quarter of Norway's total natural gas production. The three other largest producing fields in 2010 were Ormen Lange (0.7 Tcf), Asgard (0.4 Tcf), and Sleipner Ost (0.3 Tcf). These 4 fields accounted for about 60 percent of Norway's total natural gas production.

The Gjoa oil and gas field, developed by Statoil and GDF Suez, began production in January 2011. Located in the North Sea, Gjoa daily production is expected to peak at 600 million cubic feet of gas and 87,000 barrels of oil. The gas is transported directly via pipeline to St. Fergus, Scotland, while the oil is transported to the Mongstad refinery through the Troll II pipeline. For the first time in the offshore oil and gas industry, the floating platform is fully powered by electricity from the mainland. The Gjoa platform opens a new area in the North Sea for production, and its infrastructure will be a hub for future developments.

Statoil is a partner with Total in Gazprom's development of the Shtokman natural gas and condensate field in the Barents Sea, 342 miles offshore Russia. Reserves have been estimated at nearly 140 trillion cubic feet and Phase 1 of field development is projected to provide annual production of 837 Bcf/year. However, the project has been repeatedly delayed due largely to the immense technical and cost challenges. Reportedly, under current consideration is a switch to all liquefied natural gas (LNG) production to improve its economic feasibility, as well as a change of partners. A new agreement is now expected in

autumn 2012 following the expiration of the original partners' agreement in June.

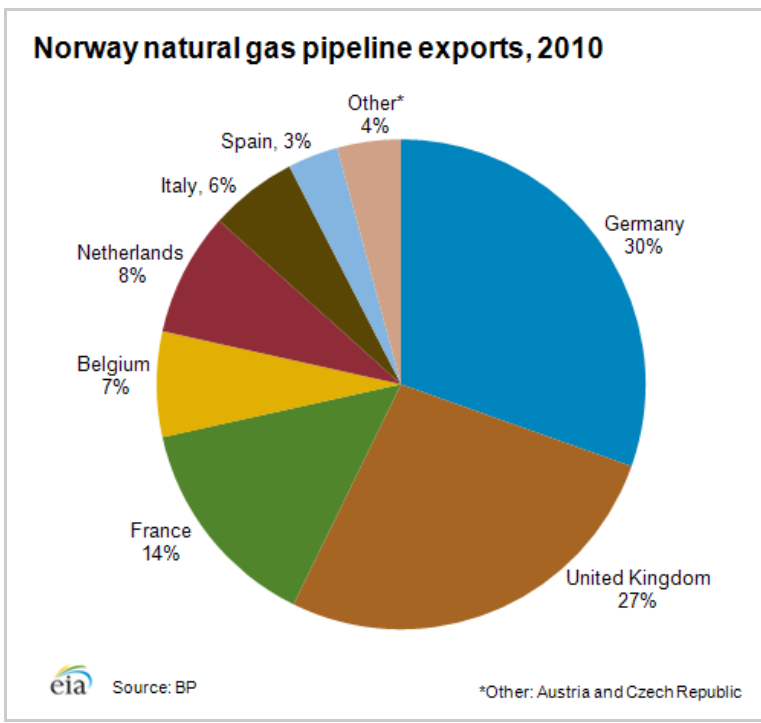


## Exports

Norway exported an estimated 3.5 Tcf of natural gas in 2011, 96 percent of its production, according to NPD. Most of it was transported to Europe via its extensive export pipeline infrastructure and a smaller amount (4.3 percent) via LNG tanker. The country is the second-largest supplier of natural gas to the European Union, behind Russia, supplying about 18 percent of Europe's total gas demand in 2010. The largest outlets for Norway's natural gas pipeline exports in 2010 were Germany, the United Kingdom, France, the Netherlands, and Belgium.

## International gas pipelines

Norway operates several important natural gas pipelines which connect directly with other European countries, specifically France, the United Kingdom, Belgium, and Germany. Franpipe, with a capacity of 692 billion cubic feet per year (Bcf/y), exports gas to Dunkirk, France. Zeepipe I, IIA, and IIB have a total capacity of 2,384 Bcf/y and transport gas to Zeebrugge, Belgium. Europipe I and II, with a total capacity of 1,423 Bcf/y, export to Dornum, Germany, while Norpipe, with a total capacity of 572 Bcf/y, runs to Emden, Germany. Vesterled, capacity 463 Bcf/y, links to St. Fergus, Scotland, while Langedled, capacity 893 Bcf/y, links to Easington on the east coast of England. These pipelines are all operated by Gassco. Some pipelines run directly from Norway's major North Sea production facilities to Gassco-owned processing facilities in the receiving country, while other pipelines connect Norway's onshore processing facilities to other European markets.



## Liquefied natural gas (LNG)

According to NPD estimates, 2011 shipments of Norwegian LNG totaled an estimated 150 Bcf, up from 138 Bcf in 2010. OECD European countries in 2010 received about 74 percent of the total, with Spain importing almost half of that. The United States imported about 5 percent or 26.8 Bcf. Norway has long-term contracts with Spain's Iberderola and the U.S.'s El Paso.

Norway became an LNG exporter in 2007 with the beginning of commercial production from the Snohvit gas field, Norway's first natural gas development in the Barents Sea. Statoil operates an LNG export terminal and liquefaction facility at Melkoya, near Hammerfest. The Melkoya facility, the first large-scale LNG export terminal in Europe, has a capacity of about 200 Bcf/y and is connected by pipeline with the Snohvit gas field. The Snohvit field produced 0.2 Tcf in 2010. The Melkoya facility is producing at full capacity and Statoil is currently studying the expansion possibilities of adding a second train. Field development plans may be decided by the end of 2013, and additional LNG production could begin in 2018. The project's expansion would likely be fed by the nearby Askeladd field, which is due onstream in 2014 or 2015, and other new projects in the area.

## Sources

- Barents Observer
- Cedigaz
- Energy Information Administration (EIA)
- Eni
- Gassco
- GDF Suez
- International Energy Agency (IEA)
- International Oil Daily
- LNG World News



- Norwegian Petroleum Directorate
- Offshore Technology
- Oil and Gas Journal
- Platts Oilgram News
- Reuters
- Rig Zone
- Statistics Norway
- StatoilHydro
- SubseaIQ
- TendersInfo
- World Gas Intelligence