

COUNTRY ANALYSIS BRIEFS

Norway

Last Updated: August 2010

Background

Norway in 2009 was the world's second largest exporter of natural gas and the sixth largest exporter of oil and provides much of Europe's crude oil and natural gas needs.

In 2009, crude oil, natural gas, and pipeline transport services accounted for almost 50 percent of Norway's exports value, 22 percent of GDP, and 27 percent of government revenues according to the Norwegian Petroleum Directorate.

Although Norway's oil production peaked in 2001 at 3.42 million barrels per day (bbl/d) and has declined to reach 2.35 million bbl/d in 2009, natural gas production has been steadily increasing since 1993, reaching 3.65 trillion cubic feet (Tcf) in 2009.

In April 2010, Norway and Russia signed an historic agreement dividing the Barents Sea into 2 equal parts, defining maritime boundaries between Norway and Russia in the Arctic sea and resolving their 40-year old dispute. This agreement followed the June 5, 2009, three-year Memorandum of Understanding between Russia's Gazprom and Norway's Statoil to work together in exploring and developing their Arctic sea regions. The two companies are currently working on development of the Shtokman gas field.

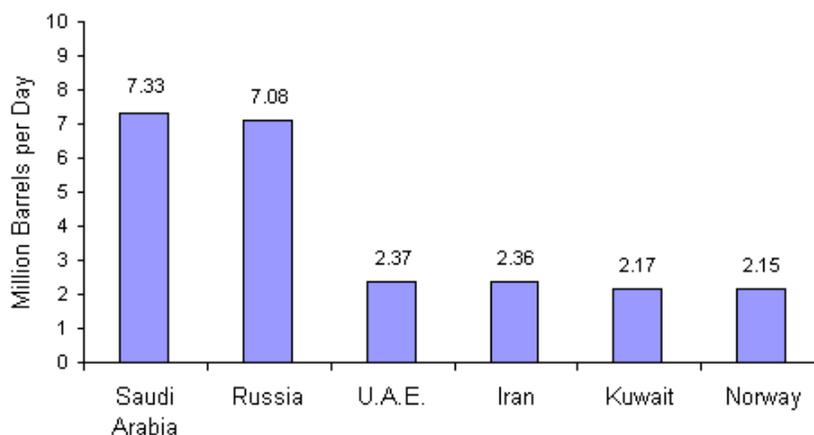


Oil

Norway is the largest oil producer and exporter in western Europe

According to *The Oil and Gas Journal* (OGJ), Norway had 6.68 billion barrels of proven oil reserves as of January 1, 2010, 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.

World's Top Net Oil Exporters, 2009



Source: EIA

Sector Organization

Statoil, created by the merger of Statoil and Norsk Hydro in October 2007, is 67-percent-owned by the Norwegian government and controls 80 percent of Norway's oil and gas production. State-owned Petoro administers these ownership interests and manages the production licenses and companies. International oil majors have a sizable presence in Norway but they must act in partnership with Statoil.

Exploration and Production

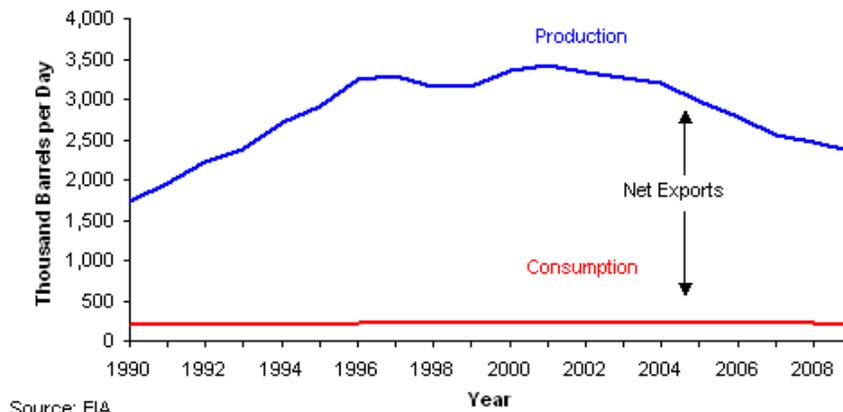
In 2009, Norway produced 2.35 million bbl/d, of which 88 percent was crude oil. Norway's petroleum production has been gradually declining as oil fields have matured. The Norwegian government reportedly expects oil production to average 2.2 million bbl/d in 2010, and estimates that in 2015 production could slip to 1.97 million bbl/d. Although production is projected to remain fairly steady over the next few years, in the longer term the number and size of new discoveries will be a critical factor in maintaining production levels. The Norwegian government is focusing on increasing recovery in producing fields, further exploration in areas that are already open for the petroleum industry, and opening new areas to exploration.

In May 2009, the Norwegian government approved the plan for development and operation of the Goliat oil field by licensees Eni (65%) and Statoil (35%). Goliat is the first oil field in the Barents Sea to be developed and is one of the largest industrial projects ever undertaken in the High North (Northern Norway). In February 2010, Hyundai won a \$1.16 billion contract to build a floating production and storage unit. The field is believed to hold approximately 200 million barrels of oil reserves and will include 22 wells connected to the production unit. Goliat was discovered in 2000 and is about 40 miles offshore of the town of Hammerfest, which will be its land base. The field is expected to reach peak production of about 100,000 bbl/d when it comes onstream in November 2013.

Statoil announced in March 2010 that it is investing US\$3.4 billion aimed at increasing oil recovery in the giant Troll oil and gas field from its current level of 39 percent to 50 percent by the end of 2010. Additional wells are being drilled and new pipelines built. Current production from this field was reported at about 113,000 bbl/d at the beginning of 2010. Ekofisk, Norway's largest oil field, which produces 176,000 bbl/d, and other fields are being developed further by enhanced oil recovery. Continued stable production from these and other oilfields could potentially slow the rate of Norway's oil production decline.

In 2009, a record 65 wells were drilled and a record high of 28 discoveries were made. Continued exploration drilling in frontier areas in the Norwegian Sea and the Barents Sea will be important for the mapping and evaluation of the resource potential in these areas. Exploration interest in the NCS remains strong on the part of major international oil companies despite the global economic downturn. The most recent licensing round was completed in April 2009 with 34 companies being awarded stakes in 21 new oil and gas licenses. In the spring of 2010, Norway's Ministry of Petroleum and Energy announced a new licensing round, comprising 43 blocks in the Norwegian Sea and 51 blocks in the Barents Sea. However, awards will not be made until the spring of 2011 following an evaluation of BP's oil spill in the Gulf of Mexico, according to Norway's Energy Minister. Norway's Prime Minister Stoltenberg said in June 2010 that lessons from BP's oil spill in the Gulf of Mexico will affect Norway's approach to opening more of its Arctic sea for exploration.

Norway Total Oil Production and Consumption, 1990-2009



Oil Exports

Norway exported an estimated 2.15 million bbl/d in 2009, down from 2.25 million bbl/d in 2008, and down from 2.34 million bbl/d in 2007. According to the International Energy Agency (IEA), the 5 top importers of Norwegian oil in 2009 were Sweden (41 percent), Denmark (21 percent), the United Kingdom (12 percent), Ireland (9 percent), and the Netherlands (6 percent).

Pipelines

Norway has an extensive network of subsea oil pipelines, including 8 major domestic oil pipelines with a total capacity of more than 2.20 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 *The Oil and Gas Journal*, Norway had 319,000 bbl/d of crude oil refining capacity in January 2010. 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.

Statoil is building a 280 MW combined heat and power facility at the Mongstad refinery which will supply heat to the refinery and electricity to the Troll field. The project is expected to be online in 2014. It will be built, owned and operated by Denmark's Dong Energy utility. The Norwegian government and Statoil have also agreed to build a full-scale CO₂ capture facility at the plant, which will be powered by natural gas from Troll and fuel gas from the refinery. In 1998, when Norway signed the Kyoto Protocol, it was using hydropower almost exclusively for its electricity generation. The CO₂ emissions from a gas-fired power plant would violate the Protocol, hence the carbon capture. The facility will ensure long-term electricity deliveries to Troll, where demand is set to rise because more compressor capacity will be needed to transport gas as reservoir pressure declines.

Natural Gas

Norway is the world's second largest exporter of natural gas after Russia

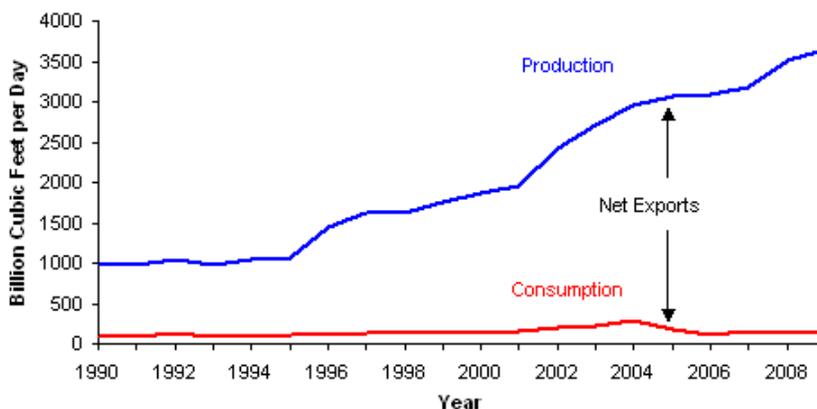
According to *The Oil and Gas Journal (OGJ)*, Norway had 81.7 trillion cubic feet (Tcf) of proven natural gas reserves as of January 2010. Norway is expanding its exploration and development by increasing the number of wells drilled and using enhanced recovery in mature wells.

Production and Development

Norway produced 3.65 Tcf in 2009 and has been increasing its production every year since 1994. Norway's single largest natural gas field is Troll, which is projected to produce 1.09 Tcf in 2010,

according to the Norway Petroleum Directorate, representing about one-third of Norway's total natural gas production. Other important fields include Ormen Lange (0.791 Tcf), and Asgard (0.417 Tcf). These 3 fields account for over 60 percent of Norway's total natural gas production. 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 incorporating new fields.

Norway Natural Gas Production and Consumption, 1990-2009



Source: EIA

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, working 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.

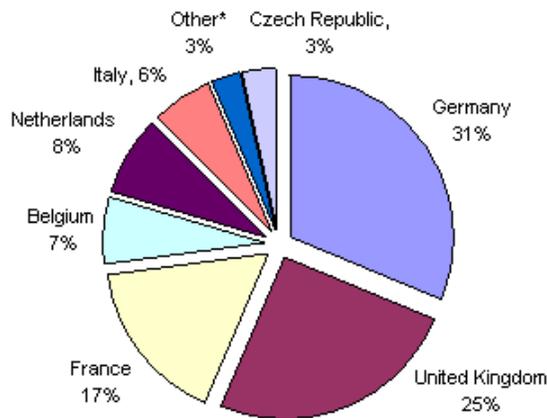
Exports

Norway exported about 3.5 Tcf of natural gas in 2009, 96 percent of its production. Almost all of it went to Europe via pipeline and a small amount via liquefied natural gas (LNG) tanker. The country is the second-largest supplier of natural gas to the European Union, behind Russia. The largest recipients of Norway's natural gas pipeline exports in 2009 were Germany (1,062 Bcf), the United Kingdom (837 Bcf), and France (563 Bcf).

International Gas Pipelines

Norway operates several important natural gas pipelines which connect directly with Europe, 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 Langeled, 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 others connect Norway's onshore processing facilities to European markets.

Norway Natural Gas Pipeline Exports, 2009



Source: Cedigaz

*Other: Spain, Austria, and Switzerland

Liquefied Natural Gas (LNG)

Norway became an LNG exporter in 2007 with the beginning of commercial production from Snohvit gas field. 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, Norway's first natural gas development in the Barents Sea. According to a June 2010 report, the Melkoya facility is currently producing at full capacity and Statoil is studying the feasibility of expanding the Snohvit project by adding a second train. Field development plans are expected to be decided by 2013 and additional LNG production could begin in 2017. The project's expansion would likely be fed by the nearby Askeladd field, which is due onstream in 2014 or 2015.

Much of Melkoya's LNG exports are contracted to Spain's Iberderola. According to Cedigaz estimates, in 2009, shipments of LNG totaling about 112 Bcf were exported, up from 77 Bcf in 2008. The 3 largest importers of Norwegian LNG were Spain (43%), France (14%), and the United Kingdom (8%).

Profile

Energy Overview

Proven Oil Reserves (January 1, 2010E)	6.68 billion barrels
Oil Production (2009E)	2.35 million barrels per day, of which 88% was crude oil.
Oil Consumption (2009E)	204.1 thousand barrels per day
Crude Oil Distillation Capacity (January 1, 2010E)	319 thousand barrels per day
Proven Natural Gas Reserves (January 1, 2010E)	81.7 trillion cubic feet
Natural Gas Production (2009E)	3.65 trillion cubic feet
Natural Gas Consumption (2009E)	163 billion cubic feet
Recoverable Coal Reserves (2009E)	6 million short tons
Coal Production (2009E)	2.9 million short tons
Coal Consumption (2009E)	1.3 million short tons
Electricity Installed Capacity (2007E)	30.3 gigawatts
Electricity Production (2008E)	139.5 billion kilowatt hours
Electricity Consumption (2007E)	114.5 billion kilowatt hours
Total Energy Consumption (2007E)	1.9 quadrillion Btus*, of which Hydroelectricity (69%), Oil (23%), Natural Gas (9%), Coal (2%)
Total Per Capita Energy Consumption (2007E)	414 million Btus
Energy Intensity (2007E)	8,303 Btu per \$2005-PPP**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2008E)	40 million metric tons, of which Oil (70%), Natural Gas (22%), Coal (8%)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2008E)	8.7 metric tons
Carbon Dioxide Intensity (2008E)	0.2 Metric tons per thousand \$2005-PPP**

Oil and Gas Industry

Major Oil/Gas Terminals	Sture, Mongstad, Karsto, Tjeldbergodden, Kollsnes, Melkoya
Foreign Company Involvement	Largest companies include ConocoPhillips, ExxonMobil, Total, Shell, BP, ENI
Major Oil Fields (production, bbl/d) 2008	Ekofisk (198,000), Grane (172,000), Snorre (146,000), Troll (144,000), Asgard (102,000), Heidrun (94,000), Gullfaks (91,000), Oseberg (77,000), Balder (76,000), Kristin (76,000)
Major Natural Gas Fields (production, Bcf/d) 2008	Troll (2.88), Ormen Lange (1.11), Asgard (1.10), Sleipner (1.10), Oseberg (0.54), Kristin (0.38), Gullfaks (0.36), Stadtfjord (0.29), Kvitbjorn (0.29), Snohvit (0.23)
Major International Pipeline Systems (to northwestern Europe)	Franpipe, Zeepipe I, IIA, IIB, Europipe I, II, Norpipe, Vesterled, Langeled
Major Refineries (capacity, bbl/d)2010	Mongstad (203,000), Slagen (116,000)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.

**GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

[EIA - Country Information on Norway](#)

U.S. Government

[CIA World Factbook - Norway](#)

[U.S. Embassy in Oslo](#)

Foreign Government Agencies

[Norwegian Petroleum Directorate \(NPD\)](#)

[Norwegian Ministry of the Environment](#)

[Statistics Norway](#)

Oil and Natural Gas

[BP Norway](#)

[ConocoPhillips Norway](#)

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