November 2003

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Norway

Norway is a major non-OPEC source of oil and was the world's third largest net oil exporter in 2002. Norway is the second-largest natural gas exporter to western Europe.

Note: Information contained in this report is the best available as of November 2003 and is subject to change.

BACKGROUND

Norway's economy is largely linked to its offshore oil and natural gas sector, which provides the government with the largest single source of revenue, as well as the largest contributor to gross domestic product (GDP). Norway's oil and natural gas extraction sector represented about 18% of the country's GDP in 2002. Over the past years, high oil prices have made for government budget and current account surpluses, as well as for rising disposable income. In 2002, the country enjoys one of the highest levels of GDP per capita in the world, at around $42,000.

Despite relatively high oil prices, Norway's economy has struggled somewhat over the past few years, falling into a technical recession during the first half of 2003. In 2002, real gross domestic (GDP) growth was 1.0%, with 2003 growth estimated at –0.1%. In 2002, total exports contracted 0.5% over 2001, with crude oil and natural gas exports growing only 0.2%.

The importance of petroleum in the Norwegian economy presents long-term challenges to the country, as it is difficult to predict when reserves will run out. Associated with declines in production is a loss of petroleum revenues flowing into the country. In response, the Norwegian government created the Petroleum Fund in 1990. The Fund serves two purposes: 1) to act as a buffer to smooth short-term variations in the oil revenues (a means of reducing the inflationary impact of oil revenues); and 2) to serve as a tool for coping with the financial challenges connected to an ageing population and the eventual decline in oil revenues, by transferring wealth to future generations. In 1996, the government made its first contribution to the Fund. Revenue from the Fund is also expected to be phased in through additional government spending and reduced

taxation, which is expected to stimulate consumer spending.

A center-right coalition took power in October 2001 after the Labor Party lost seats in parliamentary elections. The coalition consists of Prime Minister Kjell Magne Bondevik's Christian People's Party, the Conservative Party, and the Liberal Party. The government has sought to lessen government involvement in business and to lower taxes, though it remains quite involved in social and environmental policy. The government currently does not have plans to seek membership in the European Union (EU).

Norway is part of the European Economic Area (EEA). Norwegians have voted in two referenda against joining the EU, despite recent polls sharing some increase in support for membership. Norway has a history of state control over major industry, but this is beginning to change. Norway's reliance on oil revenues in the past resulted in a government preference for keeping Norwegian businesses under Norwegian control.

North Sea Oil and Natural Gas

North Sea oil and natural gas were first discovered in the 1960s. The North Sea did not emerge immediately as a key non-OPEC oil producing area, rather production grew as major discoveries were made throughout the 1980s and the 1990s. Although the region is a relatively high cost oil producer (break even is about $12-$14 per barrel, vs. $3-$4 per barrel in Iran, for example), its political stability and proximity to major European consumer markets have allowed it to play a major role in world oil and natural gas markets.

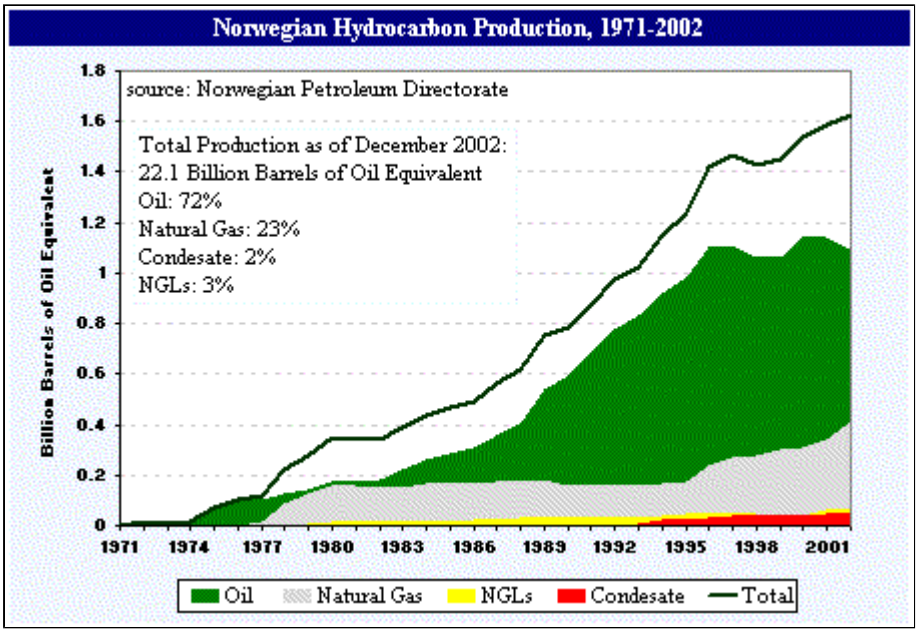
A key feature of North Sea oil is its role as one of the major "benchmark" crude oils, the Brent price marker. Because Brent crude is traded on the International Petroleum Exchange (IPE) in London, fluctuations in the market are reflected in the price of Brent. Therefore, the many other crude oils linked to Brent can be priced according to the latest market conditions. However, with production in the UK North Sea Brent system declining to only around 350,000-400,000 barrels per day in 2002, many felt that such low output was too small for a benchmark against which a large portion of the world's internationally traded crude oil was directly or indirectly priced. In order to address the issue of declining Brent production, the industry price assessor Platts widened the assessment definition of dated Brent by including two similar North Sea crude oils - North Sea Forties (UK) and Oseberg (Norway). According to Platts, the new method of calculating dated Brent would more accurately reflect the North Sea oil market conditions. The change took effect on July 10, 2002, and initially got off to an uneven start, with Royal-Dutch Shell (co-operator of the Brent system) opposed to the change, and BP (operator of the 750,000 barrels per day Forties system) in favor. The IPE began using the Platt's Brent formulation (BFO, or Brent-Forties-Oseberg) with its October contract on September 13, 2002.

Maturing Region

The North Sea area is considered to be increasingly "mature," with few additional large discoveries likely to be made. Over the last few years, for instance, Norway has produced more oil and natural gas than new finds have increased reserves, due to decreased exploration activities and smaller finds. In 1999, North Sea offshore crude oil production, which includes Norway, the United Kingdom, Denmark, the Netherlands, and Germany, reached new heights, averaging 5.94 million barrels per day (bbl/d). But production declined in both 2001 and 2002, to about 5.72 million bbl/d and 5.66 million bbl/d of crude oil, respectively. Total offshore oil production (includes all liquids) averaged 6.21 million bbl/d in 2002, about a 1% decrease over the previous year. In contrast, natural gas production, including onshore production, has steadily increased, reaching 9.5 trillion cubic feet (Tcf) in 2001. In the near term, improved recovery technologies and higher oil prices are expected to boost briefly North Sea oil production, halting the decline, which began in 1999.

Although the region will continue to be a sizable producer of oil and natural gas for the foreseeable future, oil production in the UK and Norwegian sectors has reached a plateau and is expected to begin a long-term decline.

Reassessment



In June 2003, the Norwegian Petroleum Directorate (NPD) released a reassessment of undiscovered hydrocarbon resources (oil and natural gas) on the continental shelf. The overall report decreased projections from December 13, 2002 by 7.6% to 81 billion barrels of oil equivalent. The largest change came in Norwegian Sea, where undiscovered estimates had been reduced by 30% over the previous report, and by 13% for the entire continental shelf. NPD attributed the drop to new information collected from discoveries and fields, and recent drilling. According to the new assessment, Norway has produced 40% of its total liquid reserves (crude oil, condensate and NGLs) and 16% of its total natural gas reserves (Total means ultimately recoverable including undiscovered resources from when production first began). As oil production decreases, natural gas production is likely to increase due to new fields and substantial undeveloped reserves. Moreover, natural gas is expected to displace oil as Norway's energy export mainstay in the future. Whether Norway's natural gas and oil production continue at the present rate or increase is contingent upon many factors, such as access to new, unexplored, albeit environmental sensitive, acreage, continued investment, increased field recovery, which currently stands at 45%, and development of smaller fields – if commercially viable.

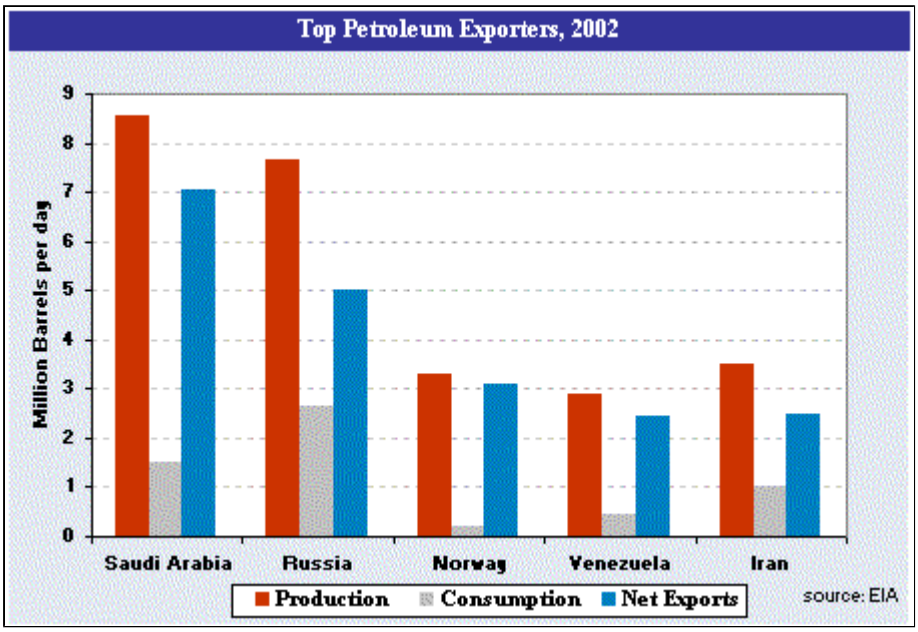
Overall, oil production is expected to increase significantly in the fourth quarter of 2003, with annual summer maintenance completed and a host of new fields coming on stream, namely Grane, Fram Vest and Mikkel. Moreover, new techniques to increase oil recovery rate in mature fields will likely help sustain current production in the short term. A case in point is Norway's state-owned oil company Statoil's Tampen 2020 field life extension project. In August 2003, Gullfaks, a field located in the Tampen area, reached an output of 1.88 billion barrels, 570 million barrels above its original production forecast.

Nonetheless, prospects of discovering additional large fields remain pessimistic. Exxon Mobil's recent unsuccessful deepwater drilling venture at Hvitveis (Vøring Basin) supports this speculation. With new prospects in the North Sea, the pressure on the government to open new acreage in the Barents Sea and the nearby Lofoten area will most likely increase. Norway and Russia have already begun working on ways to share potential resources in the Barents Sea.

OIL

Norway has proven oil reserves of 10.2 billion barrels as of January 2003. The country's oil reserves are located exclusively offshore on the Norwegian Continental Shelf (NCS) in three petroleum zones: the North Sea; the Norwegian Sea; and the Barents Sea. The North Sea region

accounts for 90% of all liquid production (crude oil, condensates and natural gas liquids) since 1971, as well as remaining recoverable liquid reserves at 74%, followed by the Norwegian Sea 25% and the Barents Sea 1%. As of January 2003, Norway had produced an estimated 17.1 billion barrels of oil equivalent (liquids) from the NCS, or an estimated 62% of remaining recoverable liquids. (Note: these estimates do not included undiscovered resources).



During the first eight months of 2003, Norway's total oil output (includes all liquids) averaged 3.25 million barrels per day (bbl/d), a decrease of about 100,000 bbl/d over the same period in 2002. The country consumes very little of the oil it produces, an estimated 250,000 bbl/d in the first eight months of 2003. The remaining 3 million bbl/d of production is exported, making Norway the third largest net exporter in the world. In 2002, the United Kingdom imported the largest amount of Norwegian crude oil, followed by the Netherlands, the United States, France and Canada. Net crude oil exports reached their highest level in 2001, averaging an estimated 2.91 million bbl/d, according Norwegian government statistics.

OPEC

Norway is one of the largest non-OPEC oil producers in the world. In the past, Norway, in cooperation with OPEC, has cut output in order to stabilize prices. For instance, Norway reduced its crude oil output by 150,000 bbl/d from January 1 to June 30, 2002, cutting the country's production from 3.17 million bbl/d to 3.02 million bbl/d, as part of a plan by OPEC and major non-OPEC producers to bolster oil prices in the face of weak world oil demand.

After OPEC's decision to cut output by 900,000 bbl/d on September 24, 2003, some cartel members suggested that non-OPEC members, such as Norway, Mexico and Russia, should also cut production. In this case, however, Norway announced that it would not cut its oil production in response to an OPEC call for non-members to do so because prices were already high. (at the time, the price for Brent Blend was hovering around $30 per barrel). Norway's Minister for Petroleum and Energy, Einar Steensnaes, added that Norway would consider a production cut only in a similar situation to 2002 when prices fell below $20 per barrel.

Oil Sector Restructuring

Prior to 1999, the Norwegian government owned 100% of the country's largest oil company, **Statoil** and a majority stake in the second largest oil company, **Norsk Hydro**. Statoil also managed the State Direct Financial Interest (SDFI), which represented the state's holdings in 150 offshore oil and natural gas fields, as well as about 40% of total production.

In 1999, Norsk Hydro acquired Saga Petroleum, previously the only privately-held Norwegian oil company. In order to finance the $2.6 billion purchase, Norsk Hydro issued shares, which reduced

the Norwegian government's stake from 51% to 44%.

In 2001, the Norwegian parliament (the Storting) approved plans to sell 21.5% of SDFI's assets. Statoil initially acquired 15% of SDFI. The Norwegian government auctioned off the remaining 6.5% of SDFI offshore assets (stakes in 30 licenses) in March 2002. The biggest buyer was Norsk Hydro, increasing its stake in the Grane field to 38%, in Oseberg to 34% and in Tune to 40%. Total equity production sold by the state was 130,000 barrels of oil equivalent per day, with smaller stakes allocated to TotalFinaElf, Royal Dutch/Shell, and others.

Along with selling stakes in the SDFI, the Storting also approved in 2001 a plan to privatize a small percentage of Statoil. On June 18, 2001, Statoil was listed on the New York and Oslo stock exchanges. Private shareholders acquired 18.2% of the company.

In regards to SDFI, the government decided to create a new state oil company, Petoro, to manage the remainder of SDFI's (78.5%) oil and natural gas assets, as well as pipelines and land-based facilities. Petoro functions entirely as a management company, having no operations itself. However, unlike SDFI, Petoro is allowed to participate and bid in any future licensing rounds.

In 2002, Petoro's production from assets was 1.415 million barrels of oil equivalent per day (Mmboe/d) of which 949,000 boe/d was oil production. As of December 2002, Petoro's total reserves stood 8.48 billion barrels of oil equivalent (Bboe), a 9.5% decline over 2001. In comparison, Statoil produced 1.074 (Mmboe/d) and total reserves stood at 4.3 Bboe as of December 2002, followed by Norsk Hydro with 0.480 Mmboe/d of production and total reserves of 2.2 Bboe.

Investment

Norwegian oil investment was about NKr 54 billion ($7.7 billion) in 2002, a decrease from the $8.2 billion invested in 2001, and down from the peak of NKr 79 billion ($11.3 billion) in 1998. The Norwegian National Statistical Office estimated that investment would increase to NKr 65 billion in 2003 and NKr 67 billion in 2004 and 2005. Investment would follow a downward trend, decreasing to NKr 46 billion in 2006 and averaging NKr 30 billion from 2007 onwards.

New Production

In 2003, the following fields have already or are expected to come onstream: Fram Vest; Grane; Mikkel; and the Valhall South Flank. The most significant is Norsk Hydro's Grane, which began production in September 2003. Grane, with its 700 million barrels of recoverable oil, is expected to reach production of 214,000 bbl/d, to be sustained until 2010. Fram Vest began production in October 2003. The low-volume reservoir, with recoverable reserves of 100 million barrels of oil and 124 billion cubic feet (Bcf) of natural gas, is projected to reach production of 60,000 bbl/d by January 2004. Other fields that are under development include Skirne (2004), Kvitbjørn (2004), Kristin (2005) and Snøhvit (2006).

Discoveries

In 2002, petroleum was discovered at 9 of the 15 exploration wells drilled (7 in the North Sea and 2 in the Norwegian Sea). The overall increase of resources was estimated between 62.9 and 81.8 million barrels of oil and 353 Bcf of natural gas. The volume of oil and natural gas were considerably less than production, 1.3 billion barrels of oil and 2.3 trillion cubic feet (Tcf) of natural gas in 2002, according to Norwegian government statistics.

Licensing Rounds

Norway's Ministry of Petroleum and Energy (MPE) is expected to announce available blocks for

the 18th licensing in late 2003, with bids being awarded in the summer of 2004. In August 2003, MPE received nominations for 43 blocks from oil companies to be included in the country's 18th licensing round. The round will most likely included frontier acreage, which is deemed as an important step in boosting exploration activities.

Oil Production

Norway's major Norwegian North Sea production areas include: Ekofisk, Friggs, Sleipner, Statfjord, Oseberg and Troll Vest, Troll C, Gullfaks and Snorre. There are also five fields (Draugen, Heidrun, Njord, Norne and Åsgard) producing in the Norwegian Sea. (The 62nd line of latitude separates the North Sea and the Norwegian Sea.)

Southern North Sea Sector

Ekofisk was the first North Sea oil field to be discovered in 1969, and began production in 1971. There are currently four fields producing in the greater Ekofisk area: Ekofisk; Eldfisk; Embla; and Tor. Four other fields ceased production in 1998: Albuskjell; Cod; Edda; and Vest-Ekofisk. Within the Ekofisk area, there are 29 platforms, of which 15 are supposed to be removed by 2013. In June 2003, the Norwegian Oil ministry supported a plan by ConocoPhillips to expand the Ekofisk oil field in order to support production until 2028. The project includes a new wellhead platform and drilling of 25 wells.

Since coming onstream in 1971, the Ekofisk field alone has produced an estimated 2.17 billion barrels of oil (including NGLs) and 4.3 Tcf of natural gas. As of 2002, 68% of Ekofisk's recoverable reserves had been produced – Eldfisk (76%), Embla (60%) and Tor (86%). According to ConocoPhillips, current rate of recovery for the Ekofisk region was estimated at 46% and could be increased to 50%. The following fields are also tied back to Ekofisk center: Hod; Valhall; Gyda; Tambar; and Ula. Future fields for development in this region include: Trym (Norsk Shell – total reserves of 3 Mmboe, 80% natural gas and 20% condensate) and Freja (Amerada Hess Norge – total reserves of 3 Mmboe, 80% oil, 18% natural gas and 2% NGLs). Both of these fields border on the Danish continental shelf.

Sleipner area contains two main fields West and East, with them being discovered in 1974 and 1981 respectively. Sleipner East first began production in 1993. Sleipner West is tied back into Sleipner East, with the fields sharing the same operations organization. Sleipner produces only natural gas, NGLs and condensate. In 2002, joint condensate and NGLs production was estimated at 45.3 Mmboe and 476 Bcf of natural gas (only from Sleipner East). Statoil, which is the operator the area, is in the process of developing the Alpha North field, which is a satellite to Sleipner West. The field will produce natural gas and condensate and is expected to begin operations on October 1, 2004. Natural gas from the region is piped to continental Europe while its condensate is landed at Kårstø, Norway. The Loke, Gunge and Sigyn satellites fields are tied back to Sleipner East.

The **Glitne** and **Sigyn** are the newest fields to come onstream in region, August 2001 and December 2002 respectively. Glitne, however, has been developed independently of the Sleipner system,with the *Petrojarl 1* ship producing and processing oil output before being shipped on shuttle tankers. Natural gas output is used to run the operations and is also reinjected to boost production. The field's total recoverable reserves are 37.1 million barrels of oil. The Sigyn field has total recoverable reserves at 69 Mmboe (natural gas-47%, NGLs-27% and condensate-26%). Future fields for development in the region include: S Volve (Statoil – total reserves 89 Mmboe, 82% oil, 14% natural gas and 6% NGLs) and Dagny (Statoil – total reserves 5 Mmboe, 71% natural gas, 22% condensate and 7% NGLs).

Northern North Sea Sector

The **Frigg and Heimdal** fields, both of which have been primarily natural gas producing areas, are expected to cease production in 2003 and 2004. Heimdal will remain as natural gas and processing center until 2010. The Balder (includes Ringhorne) and Jotun (includes Elli, Elli South and Tau West) fields remain significant producers in the region, averaging a combined crude oil output of 108,370 bbl/d during the first eight months of 2003 (Note: average production will likely increase as summer maintenance reduces production at many fields). Floating production ships are used to produce and process oil and natural gas from the fields. From 2004, Jotun will receive oil and natural gas from the Balder region for processing and transporting. East of Balder lies the Grane field, which came onstream in September 2003. Oil from the field will be transported to the Sture storage and processing plant on the Norwegian coast. Fields for future development include: Gekko (Marathon – total reserves of 56 Mmboe, 85% natural gas and 15% condensate); 25/5-5 (TotalFinaElf – total reserves of 27 million barrels of oil); and 25/11-16 (Norsk Hydro – total reserves of 22.6 million barrels of oil).

The **Tampen region**, north of Frigg, includes some the Norway's largest oil fields. The Statfjord area is one of the largest oil producing areas in the North Sea. The Statfjord field itself, discovered by Mobil in 1974, partly extends (14.5%) into the British North Sea. Statfjord's crude oil production peaked in 1992 at an estimated 637,413 bbl/d. Since then, the field's output has declined, averaging 152,882 bbl/d in 2002. As of January 2003, only 6.1% of the original recoverable oil reserves remain. Other fields that are tied into the main Statfjord installation include Statfjord East and North, Synga and Snorre fields.

The **Snorre** field is the only one in the area with considerable reserves and production. As of January 2003, the field held an estimated 804 million barrels of oil and 152 Bcf of natural gas of reserves. In 2002, crude production averaged 217,824 bbl/d, a 9.5% increase over 2001. During the first eight months of 2003, the field has averaged about 228,000 bbl/d in the first 8 months of 2003.

Norway's third largest field is **Gullfaks**, which, including West and South, produced 223,000 bbl/d in 2002. Gullfaks crude oil production (including West) has declined, however, by 70% since its peak in 1994, while Gullfaks South (including Rimfaks and Gullveig) has increased production since coming onstream in 1998. Crude oil production at Gullfaks South averaged 64,241 bbl/d in 2002. Other fields in the region include Murchison, Tordis (including Tordis East and Borg), Visund and Vigdis. The Kvitebjørn field, southeast of Gullfaks, is currently under development, with production expected to begin in October 2004.

The **Troll/Oseberg** region is the largest oil and natural gas producing area on the Norwegian Continental Shelf. Oseberg began production in 1988 and peaked at about 500,000 bbl/d in 1996, declining to about 174,263 bbl/d in 2002. The surrounding East and South Oseberg fields came online in 1999 and 2000, respectively, supplementing the declining production at Oseberg with 128,773 bbl/d in 2002. In the first eight months of 2003, the fields combined averaged an estimated 284,899 bbl/d. Brage, Velsefrikk, Tune and Huldra fields are also located in the Oseberg region and use its infrastructure to transport and process output. Two fields in the Oseberg region, Kappa and Gamma West, are under consideration for development.

The **Troll** field holds a massive reserve of natural gas (46 Tcf as January 2003), as well as substantial oil reserves. The field is being developed in three stages, with phase I developing natural gas reserves in the eastern section, phase II is developing oil reserves in the western region and phase III will eventually develop natural gas reserves in the western region. In 2002, the Troll West produced an estimated 365,227 bbl/d of crude oil. The Fram field, north of the Troll region, is the newest field to come on stream. North of the Fram is the undeveloped Gjøa prospect, with reserves of 243 Mmboe.

Norwegian Sea

The Norwegian Sea has seen production increase at a higher rate than North Sea production in recent years, though it is in an earlier stage of development (The first field came onstream in 1993). In 2002, however, crude oil production for the area decreased 10%, to 717,755 bbl/d, compared to 2001 levels. The Norwegian Petroleum Directorate (NPD) predicted that crude production will decrease further in 2003 to an estimated 670,000 bbl/d. During the first eight months of 2003, the region has produced 610,109 bbl/d. This average will likely increase, as production is lower due to annual summer maintenance. Shuttle tankers are used to take oil from the platforms or production ships, as there is currently not an oil pipeline from the Norwegian Sea.

Mikkel is the newest field to come onstream in the region. The field holds considerable natural gas reserves (699 Bcf), as well as NGLs and condensate but no oil. Kristin is another field under development but, similar to Mikkel, it contains natural gas, NGLs and condensate reserves. It is expected to come onstream in 2005. Future fields include Lavrans, Tyrihans South and North Idun, Skarv, Stær, and Ormen Lange. These fields mainly contain natural gas reserves.

Norwegian Crude Oil Production and Reserves of Major Fields

Fields	2002 bbl/d	2001 bbl/d	Diff% +/-	Peak bbl/d	Peak Year	Initial Recoverable Reserves mill/b	Remaining Recoverable Reserves mill/b	Remaining Recoverable Reserves %
Troll	365,227	336,081	8.7	365,227	2002	1410.8	671.1	47.6
Ekofisk	296,964	285,447	4.0	296,964	2002	2942.4	979.3	33.3
Snorre	217,825	198,950	9.5	217,825	2002	1459.2	803.8	55.1
Draugen*	190,714	204,362	-6.7	209,183	1999	846.0	293.1	34.6
Norne*	176,972	194,679	-9.1	194,679	2001	549.7	254.1	46.2
Heidrun*	174,590	176,217	-0.9	231,887	1997	1133.4	618.3	54.6
Oseberg	174,263	189,044	-7.8	500,717	1994	2195.1	295.6	13.5
Gullfaks	158,722	181,505	-12.6	181,505	2001	2109.0	252.9	12.0
Statfjord	152,882	174,499	-12.4	637,414	1992	3531.1	217.0	6.1
Åsgard**	141,852	143,373	-1.1	143,373	2001	427.1	249.1	58.3
Sub-Total	**2,050,011**	**2,084,155**	**-1.6**			**16603.8**	**4634.3**	**27.9**
Other Fields Total	942,371	1,033,867	-8.8			7599.3	4018.0	52.9
Total	**2,992,382**	**3,118,022**	**-4.0**			**24203.1**	**8652.3**	**35.7**

Source: *Norwegian Petroleum Directorate*
Notes: These numbers are as of (12/31/02). Production is equal to net production of saleable product. Calculations do not include condensate or NGLs.
*Located in Norwegian Sea
**Production does not include the U.K. section

NATURAL GAS

Norway's natural gas reserves stood at 77.4 trillion cubic feet (Tcf) as of January 2003. According to the Norwegian Petroleum Directorate (NPD), an estimated 16% of Norway's natural gas reserves have been extracted since output began in 1977. As in the case with oil, Norway has produced more natural gas than it has discovered for the past two years. In 2002, the NPD reported that new exploration activities added an estimated 353 billion cubic feet (Bcf) to reserves while natural gas production reached 2.43 Tcf. Natural gas accounts for about 56% of Norway's overall offshore hydrocarbon reserves and is expected to account for an increasing portion of Norway's energy exports

Norway only consumes a small portion of the natural gas it produces, an estimated 145 billion cubic feet (Bcf) in 2001. The country's consumption has the potential to increase if new natural gas-fired power plants come online.

Natural Gas Production

Natural gas production increased 135% between 1995 and 2002, according to NPD data. The Troll field (East and West) contains over half of Norwegian recoverable natural gas reserves. In 2002, Troll averaged 2.47 Bcf per day of natural gas production and accounted for nearly 40% of the country's production. Natural gas from the field is transported through the Zeepipe to Zeebrügge and Statpipe/Norpipe to Emden.

Natural gas sales began in 1977 from **Ekofisk** and **Frigg**. Ekofisk (alone) has steadily declined from its production peak in 1984, though it still produced 97 Bcf in 2002. Frigg and Heimdal have declined to the point that production is expected to cease sometime this year or next (see chart below).

Huldra, which commenced production in November 2001, has increased natural gas production substantially from 2.89 Bcf in 2001 to 92.35 Bcf in 2002. Huldra also produces condensate and crude oil.

The **Åsgard** field in the Norwegian Sea has become a significant producer of natural gas. Natural gas production began in October 2000 and has increased steadily, accounting for 256 Bcf, or 11% of the country's production, in 2002.

New Developments

The **Ormen Lange** field in the Norwegian Sea is the country's second largest natural gas discovery, with estimated recoverable reserves of 13.3 Tcf. Norsk Hydro is the operator in the development phase, and Norsk Shell will be the operator in the production phase. Natural gas production is scheduled to start in October 2007, at an annual rate of 706 Bcf.

Norwegian Natural Gas Production of Major Fields

Fields	2002 Production Bcf	2001 Production Bcf	Peak Production Bcf	Peak Year
Troll	903.41	756.91	903.41	2002
Sleipner East	476.07	411.01	476.07	2002
Åsgard	255.94	137.03	255.94	2002
Oseberg	105.12	129.00	129.00	2001
Ekofisk	96.87	101.62	232.92	1984
Huldra	92.35	2.89	92.35	2002
Statfjord	53.46	50.67	115.13	1987
Frigg*	25.32	26.04	385.91	1981
Heimdal*	19.31	8.04	161.37	1996
Sub-Total	**2027.87**	**1623.23**		
Other Fields	285.30	279.47		
Total	**2313.17**	**1902.70**		

Source: *Norwegian Petroleum Directorate*
Note: Production is equal to net production of saleable product.
* These fields are no longer major producers and are shown to show their decline.

The United Kingdom is expected to be the main recipient of the natural gas from Ormen Lange. Critical to the realization of this project is the construction of a 750-mile pipeline (Britpipe), linking the Ormen Lange field to the Easington terminal in the United Kingdom. The entire project includes building a short line from the field to the Norwegian shore at Nyhamma, from where the main line, via the Sleipner complex, will connect to the United Kingdom.

Since 2000, British and Norwegian governments have been trying to establish a treaty to allow the construction of the pipeline. On October 2, 2003, however, the two sides agreed on the treaty principles for a cross-border pipeline. The respective governments will now have to approve the project before a final treaty can be signed.

The U.K.'s Centrica has signed a 10-year contract with Statoil to receive 176.5 Bcf per year, beginning in 2005. On October 1, 2003, Centrica began receiving natural gas imports from Norway under a recently signed agreement with Statoil. Centrica will receive 71 Bcf per year. Norway had once supplied up to a quarter of British demand in the 1980s, but this dwindled as the Frigg field that supplied the gas was depleted.

LNG - *Snøhvit project*
In March 2002, the Norwegian parliament approved Statoil's plans to develop the $5 billion Snøhvit project. If it is completed, Snøhvit will be the largest sub-sea liquefied natural gas (LNG) project in the world, as well as the most northerly, as it is located in the Barents Sea. In November 2002, Statoil bought El Paso's LNG capacity rights at the import terminal Cove Point, Maryland. Statoil now has 20-year access to one-third of the terminal's capacity.

In September 2003, Statoil concluded its first LNG contract with Tractebel to deliver annually 35.3 Bcf over three years. The deal started on Oct. 1, 2003. After Fall 2006, Statoil plans to begin supplying LNG from Snøhvit – 250 Mmcf/d until 2023. Statoil's first LNG delivery arrived on September 2 from Repsol-YPF (Trinidad). Alongside Statoil, BP and Royal Dutch/Shell have leased capacity at Cove Point.

Restructuring
In June 2001, the Norwegian government eliminated the GFU (gas sales negotiating committee), allowing each company with natural gas production to market and administer its own deliveries. Previously, the GFU, which Statoil and Norsk Hydro administered, set the price for all Norwegian gas available for purchase, instead of letting the various producers compete against each other. Before eliminating the GFU, the Norwegian government came under repeated pressure from the EU commission to disband the pricing mechanism. The Commission claimed that the GFU was a barrier to competition. Norway, as a member of the European Economic Area, is subject to the EU's competition regulations.

In 2001, the Norwegian government also created a separate 100% state-owned company for the transportation of natural gas, **Gassco**. Before creating this company, transportation of natural gas was carried out by a number of companies, with Statoil having the biggest share. Gassco, as neutral operator of the infrastructure, is expected to improve the interdependence of the different pipelines and treatment facilities. On January 1, 2002, Gassco took charge of administering the system. In January 2003, **Gassled** was created to unify ownership of Norwegian natural gas export trunklines and their reception terminals on the continent, and other facilities.

Initial Interests in Gassled January 1, 2003	
Petoro	38.293%
Statoil	20.379%
Norsk Hydro	11.134%
TotalFinaElf	9.038%
Esso	5.179%
Shell	4.681%
Mobil	4.576%
Norsea Gas	3.018%
Conoco	2.033%
Agip (Eni)	0.862%
Fortum	0.807%

Gassled incorporates Zeepipe, Europipe, Europipe II, Franpipe, Statpipe (including onshore natural gas processing facility Kårstø) Vesterled, Oseberg Gas Transport, Åsgard Transport and Norpipe, along with interests in North Sea landing terminals at St. Fergus in Scotland, Zeebrügge in Belgium, Dunkerque in France

and Dornum and Emden in Germany. The company is also responsible for the following riser platforms: Draupner S/E; Sleipner; and Heimdal. (Note: Riser platforms are hubs for the different pipeline systems in Norway. Their most important function is to control pressure, quantity and quality of natural gas exports).

Natural Gas Exports

Norway continues to be the second-largest natural gas exporter in Europe after Russia. According to the Norwegian Ministry of Petroleum and Energy, Norway exported an estimated 2.27 Tcf of dry natural gas in 2002. With an export capacity over 3 Tcf per year, Norway has sufficient room to increase exports. Export capacity will also increase by 706 Bcf if the Britpipe linking Ormen Lange to the United Kingdom is realized.

Marathon has also been exploring the potential demand for a proposed natural gas pipeline (Symphony), which would bring additional Norwegian natural gas to the UK through a link between the Heimdal complex and the Brae/Miller complex in the UK sector. However, it seems unlikely that the project will materialize, as Marathon has yet to attract sufficient interest in it. Germany is the largest consumer of Norwegian natural gas, followed by France, the Netherlands, Belgium, Italy, Czech Republic, Spain, U.K., Austria and Poland.

Natural Gas Export Pipeline Capacity

Name	Bcf/year	Terminus
Franpipe	600	Dunkerque
Zeepipe I	459	Zeebrügge
Europipe	530	Dornum/Emden
Europipe II	706	Dornum/Emden
Norpipe	459	Dornum/Emden
Vesterland	283-388	St.Fergus
Total	**3,037-3,142**	

Source: *Statoil*

Poland Exports

Norway began piping a relatively small amount of natural gas through Germany in October 2000, based on an earlier contract signed in May 1999, for the delivery of 17.7 Bcf annually. In a separate agreement, Norwegian natural gas suppliers Statoil, Norsk Hydro and TotalFinaElf were to deliver a total of 2.6 Tcf of natural gas to Poland over 16 years. However, existing infrastructure could not support such a large increase of imports into Poland, so plans for building a pipeline across the Baltic began. Poland has been trying to renegotiate the agreement because of insufficient domestic demand. Norway and Poland expect to reach an agreement by December 2003

COAL

Norway's coal production occurs on Spitsbergen of the Svalbard Islands, off the country's northern coast. This island also has Norway's only coal-fired power plant, the *Longyearbyen Energiverk*. In December 2001, the Norwegian Parliament voted to give a $16.9 million subsidy to state-owned coal monopoly *Store Norske Spitsbergen Kulkompani* to help expand mining operations in Svalbard. The company is in the process of developing the Svea Nord mine, which has expected recoverable reserves of 79 million short tons. Norway is currently a net importer of coal, although overall consumption is small at 2.57 million short tons in 2001.

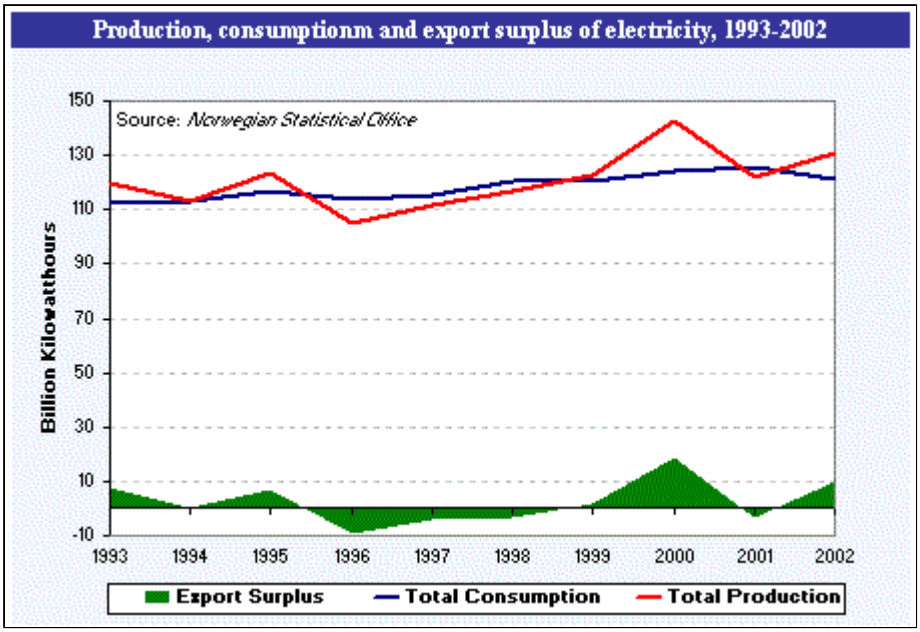
ELECTRICITY

Nearly all of Norway’s electricity is generated from hydropower. As of January 2002, installed generation capacity reached 27.9 million kilowatts, of which 98.5% was hydro, 1.1% thermal and 0.4% wind. According to Norwegian government statistics, the country generated 130.6 billion kilowatthours (Bkwh) of power in 2002, from which it exported 15 Bkwh. Norway aslo imported 5.3 Bkwh, of which 2.7 Bkwh was from Sweden, 2.2 Bkwh from Denmark, 0.16 Bkwh from Finland and 0.22 Bkwh from Russia. Norways total consumption of electricity in 2002 was 121

Bkwh, of which hydro accounted for 99.3%, thermal 0.6% and wind 0.06%. Also in 2002, 81 MW of capacity were decommissioned while a total of 194 MW came onstream, in the form of various small hydro projects and two 40-MW wind projects, Smøla and Havøygaulen.

According to Norway's Statistical Office, electricity production for the first 8 months of 2003 was down 21.3% in comparison to the same period in 2002. The statistical office cited low reservoir levels, resulting in a 21.6% decrease in hydro-generated power compared to last year. Subsequently, imports have increased 212% to meet Norway's electricity demand.

Since Norway generates most of its electricity from hydropower, the country's energy supply security is contingent upon weather conditions. In drier seasons, Norway imports more electricity from its neighbors to meet demand while the contrary applies when there is more rain. Shortfalls in hydropower can be critical in Norway, as peak consumption takes place during winter months and electricity is the main source used to generate heat for homes.



The Norwegian government has made attempts to diversify its power sector by awarding concessions to build natural gas–fired power plants. However, many Norwegians remain opposed to thermal plants for environmental reasons, stalling the construction of the plants.

New Power Plants

Two new **hydro** plants are expected to come on stream in 2003 and 2004, the 15-MW-Bjølvo and 168-MW Tyin facilities. Norway still has the potential to increase hydro-generated power. As of January 2002, an additional 23.9 Bkwh of production could be developed from the country's waterways.

Norway's plans to construct three new **natural gas-fired** power plants have yet to materialize. In 1997, the Norwegian government granted Naturkraft (partners: Statoil, Norsk Hydro and Statkraft) concessions to build two 400-MW natural gas-fired plants, one at Kårstø and the other at Kollsnes. In 2001, IMN, owned jointly by Mirant, Statoil, Norsk Skog, Elkem and a local electricity utility) received a concession to build a 800-MW natural gas-fired facility at Skogn. It currently remains unclear whether these projects will materialize. In March 2002, Naturkraft applied for an extension of the construction licenses.

Wind is slowly becoming a more important, albeit small, component of the Norwegian energy mix. In June 2001, the government created Enova to help promote energy efficiency and renewables. One of the organization's goals is to help the country to increase wind capacity in order to produce 3 Bkwh by 2010. Between 1999-2001, the Norwegian Water Resources and Energy Directorate approved six wind projects, with a combined installed capacity of 248 MW and production capacity

of 725 million kilowatthours per year. In 2002, installed capacity for wind power increased from 17 MW to 97 MW, after the Smøla I (Statkraft) and Havøygavlen (Norsk Hydro) wind parks began operations.

New Wind Capacity
In October 2003, state-owned utility, Statkraft, announced that it has plans to expand its current Smøla wind park by up to 55 additional turbines. The expansion plan would increase the park's installed capacity to 150 MW, with an estimated yearly production rate of 450 million kilowatthours. Completion of the project is expected in 2005. Statkraft is currently completing its Hitra wind park (56-MW) and was granted in summer 2003 a license for the 40-MW Kjollefjord wind park in the region of Finnmark.

Sector Organization
In keeping with deregulation of the energy sector in the European Union, Norway's electricity sector has also been going through a process of restructuring. Nevertheless, the public sector still controls most of the electricity sector. As of January 2002, municipalities and counties owned around 55% of Norway's electricity generation capacity, followed by the state with 30% and private companies with 15%. A majority of power companies have changed their status from municipal to limited, and on a whole, over 70% of all power companies have changed their status to limited in order to reduce individual financial responsibility. Other changes included the establishment of larger regional power companies through mergers and acquisitions, a trend that has also been taking place in many EU countries.

Production
Statkraft is the largest power producer in Norway. The company owns wholly or partly 91 power plants, including the largest plant, the 1,240-MW Kvilldal plant. In total, Statkraft owns 8.9 million kilowatts, or over 30%, of the country's electric power installed capacity. Other large companies include Norsk Hydro, BKK, E-CO Vannkraft, Agder Energi and Lyse Energi.

Grid
Norway's grid is divided into three levels: central; regional; and local. The main grid transports electricity from one area of the country to another; regional grids transport power from the main grid up to the local area's distribution grids; and the local distribution grids distribute the power over the last stretch to the consumers. State-owned Statnett is responsible for the construction and operations of the central grid, of which it owns over 80%. Statnett is also the Norwegian transmission system operator, ensuring that the amount of electricity generated meets demand. The company is also responsible for interconnectors with neighboring countries. Other large distributors include Viken Energinett AS, BKK Nett AS, Lyse Nett AS and Østfold Energi Nett AS.

Interconnectors
Norway has transmission lines that connect its grid to Sweden, Finland Russia and Denmark. Currently Norway can only import electricity from Russia while it can import and export with the other countries. The Norway-Sweden lines have the most capacity - 2,800 MW.

Potential interconnectors under development include the 600-MW NorNed Cable, which would link Norway to the Netherlands. A second proposed line, North Sea Interconnector, would connect Norway to the United Kingdom. In September 2003, the Norwegian government, however, rejected an application by grid operator Statnett to build the interconnector, on the basis that the economics of the project were too uncertain.

Power Exchange
The Nordic power exchange, Nord Pool, has two marketplace - Elspot and Eltermin. Elspot is a market where physical kilowatt hours are traded while Elspot is the spot market for power. Eltermin is also the marketplace for financial futures trading.

ENVIRONMENT

Norway is a proponent of "green power" from renewable sources and has made efforts to make its oil sector as environmentally friendly as possible. Under its Kyoto Protocol commitment, Norway has agreed to limit its carbon emissions to a 1% increase from 1990 levels by the 2008-2012 commitment period. In a dual effort to meet its Kyoto target and to further develop technologies to make oil and gas production less environmentally damaging, Norway has been a leader in alternatives for reducing carbon emissions. As a result of high activity in the oil and gas extraction sectors, Norway is relatively more energy-intensive than most OECD countries, and possesses one of the highest per capita energy consumption levels in the world. Air pollution in Oslo is not as severe as in other major world cities.

Sources for this report include: CIA Factbook; ConocoPhillips; Economist Intelligence Unit; Energy Information Adminstration; Eni; Financial Times; Gassco; Global Insight; Hart's European Petroleum Finance Week; International Energy Agency; International Monetary Fund (IMF); Marathon; Nordel; Norsk Hydro; Norwegian Ministry of Oil and Energy, Norwegian Petroleum Directorate; Oil Daily; Petroleum Economist, Petroleum Intelligence Weekly, Platt's Oilgram News; Reuters; Statistics Norway; Statoil; World Gas Intelligence; World Markets Energy.

COUNTRY OVERVIEW

Head of State: King Harald V
Prime Minister: Kjell Magne Bondevik (since October 2001)
Independence: October 26, 1905 (from Sweden)
Population (2002E): 4.45 million
Location/Size: Northern Europe, bordering the North Sea and the North Atlantic Ocean, west of Sweden/123,843 square miles (slightly larger than New Mexico)
Capital City: Oslo
Language: Norwegian (small Lapp- and Finnish-speaking minorities)
Ethnic Groups: Germanic (Nordic, Alpine, Baltic), Lapps (Sami) 20,000
Religions: Evangelical Lutheran 87.8% (state church), other Protestant and Roman Catholic 3.8%, none 3.2%, unknown 5.2%

ECONOMIC OVERVIEW

Finance Minister: Per-Kristian Foss
Minister of Trade and Industry: Ansgar Gabrielsen
Currency: Norwegian Krone (NKr)
Exchange Rate (11/10/03): 1 US Dollar = 7.16 Kroner
Gross Domestic Product (GDP, 2002E): $190.7 billion **(2003F):** $221.8 billion
Real GDP Growth Rate (2002E): 1.0% **(2003F):** -0.1%
Inflation Rate (consumer prices, 2002E): 1.3% **(2003F):** 2.6%
Unemployment Rate (2002E): 3.9% **(2003F):** 4.6%
Merchandise Exports (2002E): $58.7 billion
Merchandise Imports (2001E): $33.9 billion
Merchandise Trade Surplus (2002E): $24.8 billion
Destination of Exports (2002 according to Value): U.K.(19.3%), Germany (12.7%), U.S.(8.7%), Sweden (7.5%) and Denmark (4.0%)

Origin of Imports (2002 according to Value): Sweden (15.3%), Germany (13.1%), Denmark (7.9%), U.K. (7.3%), and U.S. (6.1%)
Major Exports: Fuels and other energy products; food and beverages; manufactured materials
Major Imports: Machinery and transport equipment, miscellaneous manufactures, food, beverages, and tobacco

ENERGY PROFILE
Minister of Petroleum and Energy: Einar Steensnaes
Proven Oil Reserves (1/1/03E): 10.2 billion barrels
Oil Production (2003E Jan.-Aug.): 3.25 million barrels per day (bbl/d), of which 2.84 million bbl/d was crude oil
Oil Consumption (2003E Jan.-Aug.): 250,000 bbl/d
Net Oil Exports (2003E Jan.-Aug.): 3 million bbl/d
Crude Oil Refining Capacity (1/1/03E): 310,000 bbl/d
Natural Gas Reserves (1/1/03E): 77.4 trillion cubic feet (Tcf)
Natural Gas Production (2001E): 1.93 Tcf
Natural Gas Consumption (2001E): 0.145 Tcf
Net Natural Gas Exports (2001E): 1.79 Tcf
Electrical Generation Capacity (2001E): 27.9 gigawatts
Electricity Generation (2001E): 120 billion kilowatthours (bkwh)
Electricity Consumption (2001E): 115 bkwh
Recoverable Coal Reserves (2001E): 1 million short tons (Mmst)
Coal Production (2001E): 1.66 Mmst
Coal Consumption (2001E): 2.57 Mmst
Major Systems: Statfjord, Oseberg, Gullfaks, Ekofisk
Major Companies: BP, ConocoPhillips, ExxonMobil, TotalFinaElf, Norsk Hydro, Shell, Statoil, Chevron, Petoro

ENVIRONMENTAL OVERVIEW
Minister of Environment: Borge Brende
Total Energy Consumption (2001E): 1.8 quadrillion Btu* (0.5% of world total energy consumption)
Energy-Related Carbon Emissions (2001E): 10.3 million metric tons of carbon (0.2% of world total carbon emissions)
Per Capita Energy Consumption (2001E): 399.6 million Btu (vs. U.S. value of 348.9 million Btu)
Per Capita Carbon Emissions (2001E): 2.3 metric tons of carbon (vs. U.S. value of 5.7 metric tons of carbon)
Energy Intensity (2001E): 15,374 Btu/$1995 (vs U.S. value of 10,809 Btu/$1995)**
Carbon Intensity (2001E): 0.08 metric tons of carbon/thousand $1995 (vs U.S. value of 0.17 metric tons/thousand $1995)**
Fuel Share of Energy Consumption (2001E): Oil (21.1%), Natural Gas (8.4%), Coal (3.7%)
Fuel Share of Carbon Emissions (2001E): Oil (63.8%), Natural Gas (22.1%), Coal (14.1%)
Status in Climate Change Negotiations: Annex I country under the United Nations Framework Convention on Climate Change (July 9th, 1993). Signatory to the Kyoto Protocol (signed April 29th, 1998- not yet ratified). Under the Protocol, Norway has agreed to a 1% increase from 1990 emissions levels of a basket of greenhouse gases.
Major Environmental Issues: Water pollution; acid rain damaging forests and adversely affecting lakes, threatening fish stocks; air pollution from vehicle emissions.
Major International Environmental Agreements: A party to Conventions on Air Pollution, Air Pollution-Nitrogen Oxides, Air Pollution-Sulphur 85, Air Pollution-Sulphur 94, Air Pollution-

Volatile Organic Compounds, Antarctic-Environmental Protocol, Antarctic Treaty, Biodiversity, Climate Change, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Marine Dumping, Nuclear Test Ban, Ozone Layer Protection, Ship Pollution, Tropical Timber 83, Tropical Timber 94, Wetlands and Whaling. Has signed, but not ratified: Air Pollution-Persistent Organic Pollutants.

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP figures based from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links

For more information from EIA on North Sea, please see:
EIA - Country Information on Norway

Links to other U.S. government sites:
CIA World Factbook - Norway
U.S. Department of Energy's Office of Fossil Energy's International section - Norway
U.S. State Department Consular Information Sheet - Norway
U.S. State Department Background Notes - Norway
U.S. Embassy in Oslo

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