

# Regional Details: Norway

In this appendix, we describe the methods the government uses to obtain revenues from oil and gas production in Norway. We present quantitative estimates of revenues as well as cost and resource value figures over the study period and discuss environmental impacts associated with oil and gas production in the country. We begin with background information on oil and gas production in Norway.

## Background

Below we identify the government authorities that play a role in regulating, managing and/or facilitating oil and gas production in Norway. For each authority, we provide a brief description of its relevant responsibilities. We also present background information on the oil and gas sector, with figures for oil and gas production, employment in the oil and gas sector, and gross domestic product associated with oil and gas production in Norway.

### *Responsible Authorities*

Several government authorities in Norway have responsibilities related to oil and gas production in the country. Those most relevant to oil and gas developments are the following:

1. The **Ministry of Petroleum and Energy** has primary responsibility for implementing energy policy. It is supported by the Norwegian Petroleum Directorate and the Norwegian Energy and Water Administration.
2. The **Norwegian Petroleum Directorate** is responsible for the administrative and supervisory control of oil and gas activities.
3. The **Norwegian Energy and Water Administration** is responsible for regulation and monitoring of the electricity industry.
4. The **Ministry of Local Government and Labour** has overall responsibility for the working environmental, emergency preparedness and safety aspects of the petroleum industry.
5. The **Research Council of Norway** is responsible for public funding of energy research and development.

### *Oil and Gas Production in Norway*

Norway has been producing oil and gas since the early 1970s and is now the largest offshore oil producer in the world and the third-largest offshore gas producer (behind the United States and the United Kingdom).<sup>1</sup> There are currently 40 oilfields and 40 gas fields in production in Norway, divided into three main areas: the North Sea, the Norwegian Sea and the Barents Sea. The current focus of activity is the North Sea, which has the largest reserves and results in the majority of production. The largest undeveloped resources are in the Norwegian Sea and Barents Sea. Table 1 shows oil and gas production from 1995 to 2002, inclusive. As the figures indicate, Norway has experienced a fairly significant increase in oil and gas production since 1995. Indeed, over the study period, natural gas production increased by 135 percent, while oil production increased by 15 percent.

---

<sup>1</sup> Norway's oil and gas reserves are all offshore.

**Table 1 Oil and gas production, Norway, 1995 to 2002 (million BOE)**

<b>PRODUCTION</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Oil	1,059	1,184	1,198	1,147	1,145	1,225	1,247	1,216
Natural gas	175	235	270	278	304	313	335	412
<b>Total</b>	<b>1,234</b>	<b>1,420</b>	<b>1,468</b>	<b>1,425</b>	<b>1,449</b>	<b>1,538</b>	<b>1,581</b>	<b>1,628</b>

*Source: 2003 Norwegian Petroleum Activity Fact Sheet*

At current extraction rates and with current technology, oil reserves in Norway could be exhausted in the next 20 years, while gas reserves are likely to last much longer (more than 80 years).<sup>2</sup> Indeed, the Norwegian Ministry of Petroleum and Energy has estimated that recoverable reserves are more than four times the level already recovered.

#### ***Oil and Gas Employment in Norway***

Table 2 presents direct employment figures for oil and gas production in Norway. The table also presents total employment figures for the country, as well as the share of total employment attributable to oil and gas production. The figures indicate that, while total employment in the country has increased (by 10 percent between 1995 and 2002), employment associated with oil and gas production has declined by 7%. As a result, the portion of total employment attributable to oil and gas has also declined (by 16 percent between 1995 and 2002).

**Table 2 Employment associated with oil and gas production and total employment, Norway, 1995 to 2002, thousands**

<b>EMPLOY'T</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Oil and Gas	18	17	16	16	16	17	16	16
Total	2,113	2,156	2,220	2,276	2,294	2,304	2,316	2,321
% of Total	1%	1%	1%	1%	1%	1%	1%	1%

*Source: 2003 Norwegian Petroleum Activity Fact Sheet*

#### ***Oil and Gas Gross Domestic Product in Norway***

Table 3 presents gross domestic product (GDP) associated with oil and gas production, total state GDP, and oil and gas GDP as a percentage of GDP generated by all industries. The figures in the table demonstrate that the growth of the oil and gas sector has outpaced the growth of the total economy. While GDP associated with oil and gas production increased by 78 percent between 1995 and 2002, total GDP increased 39 percent over the same period. Oil and gas GDP as a percentage of total GDP also increased between 1995 and 2002. It is worth noting that the oil and gas sector comprises a fairly significant portion of the total economy, accounting for 17 percent of total GDP in 2002.

<sup>2</sup> Norway Ministry of Finance.

**Table 3 GDP associated with oil and gas production and national GDP, Norway, 1995 to 2002 (million 2000\$)**

<b>GDP</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>
Oil and Gas	28,245	40,034	42,446	26,935	39,042	61,590	54,072	50,163
All Industries	212,080	229,641	242,167	241,269	256,865	296,753	299,295	294,353
% of Total	13%	17%	18%	11%	15%	21%	18%	17%

Source: 2003 Norwegian Petroleum Activity Fact Sheet and [www.ssb.no/english/subjects/09/01](http://www.ssb.no/english/subjects/09/01)

## Oil and Gas Revenue Generation

In Norway, production licences give companies the right to explore, drill, produce and sell oil and gas in the country for a certain period of time. Production licences are awarded to individual companies or groups of companies. Unlike in Canada and the United States, in Norway licences are not auctioned off. Instead, they are awarded to oil and gas companies and revenue is obtained mainly through a system of taxes and direct ownership of resources. The rationale behind Norway's use of taxes and ownership is that it disperses exploration risks over a large number of wells and companies, rather than just those companies willing to place significant bids in an auction.<sup>3</sup> Once licences are conveyed and production begins, the Norwegian government collects revenues from oil and gas producers through royalties, area fees and a carbon dioxide tax, among other taxes (see Table 4).

<sup>3</sup> Norway Ministry of Finance. *Ministry of Finance Long-term Programme, 1998-2001*.

**Table 4 Key means of revenue generation, Norway**

<b>COMPONENT</b>	<b>KEY ATTRIBUTES</b>
State Directed Financial Interest (SDFI)	The SDFI was established in 1985, and an SDFI interest is incorporated into most licences awarded after that year. Under the SDFI arrangement, the state pays a share of all investment and operating costs in a project, corresponding to its direct interest. It also receives a corresponding proportion of production and other revenues on the same terms as other licences. In the spring of 2001, Petoro AS was established as a state-owned company to manage SDFI.
Statoil Dividends	In the hydrocarbon sector, the government has the largest presence on the Norwegian continental shelf through ownership of Statoil, majority shares in Norsk Hydro and its explicit participation through the State Directed Financial Interest.
CO <sub>2</sub> Tax	A carbon dioxide tax is levied at a rate per standard cubic metre (scm) of gas burned. The rate for 2003 is NOK 0.75 per litre of oil/scm of gas.
Royalties	Royalties are being phased out and are paid today by two fields, Gullfaks and Oseberg.
Income and Special Taxes	The corporate income tax rate in Norway is 28%. A special tax of 50% is also levied on the petroleum industry. When calculating taxable income, investment is subject to depreciation on a straight-line basis over six years from the date it is made. Companies can also deduct costs associated with land and offshore operations.
Production Licence	The production licence regulates the rights and duties of licencees in relation to the state. A production licence grants an exclusive right to explore for and produce petroleum within its specified geographic area.

Several deductions and credits are available to oil and gas producers in Norway. These are briefly described in Table 5.

**Table 5 Key deductions and credits related to oil and gas, Norway**

COMPONENT	KEY ATTRIBUTES
Accelerated Investment Depreciation	Investment is subject to depreciation on a straight-line basis over six years from the date the investment took place.
Expenditure Deduction	Expenditure related to oil and gas operations can be deducted based on the value of the assets. An uplift of 5% of investment is deductible from the income base to determine the special tax over a six-year period from the date of investment.
Exploration Costs	Exploration costs are fully deductible in the year they are incurred.

## Quantitative Results of Revenue Generation

Table 6 demonstrates the trend in revenue generation from oil and gas producers in Norway. The major sources of revenue are funds from the State Directed Financial Interest, the corporate income tax and the special tax. Total revenues increased by a significant 200 percent between 1995 and 2002 in Norway.

**Table 6 Revenue from oil and gas production, Norway, 1995 to 2002 (million 2000\$)**

REVENUE SOURCE	1995	1996	1997	1998	1999	2000	2001	2002
SDFI	2,392	9,250	10,177	3,213	5,661	18,463	21,393	12,912
Statoil	375	442	371	602	28	307	941	860
CO <sub>2</sub> Tax	650	717	742	696	708	559	481	512
Royalties	1,533	1,673	1,576	819	687	649	415	239
Corporate Tax	2,044	2,605	3,895	1,985	1,228	4,129	7,070	5,697
Special Tax	2,811	3,418	4,915	2,415	1,353	6,184	10,970	9,176
<b>TOTAL</b>	<b>9,805</b>	<b>18,105</b>	<b>21,675</b>	<b>9,730</b>	<b>9,664</b>	<b>30,291</b>	<b>41,270</b>	<b>29,396</b>

Table 7 compares trends in revenue generation with production to determine if the Norwegian government is capturing relatively more or less revenue today than in 1995. The figures in the table show that both revenue and production increased between 1995 and 2002. More specifically, between 1995 and 2002, revenue increased by 200 percent and oil and gas production increased by 32 percent. Over the same time, revenue per unit of production increased by 127 percent, from \$7.9/BOE to \$18.1/BOE between 1995 and 2002.

**Table 7 Revenue generation and oil and gas production, Norway, 1995 to 2002**

SUMMARY	1995	1996	1997	1998	1999	2000	2001	2002
Revenue (million 2000\$)	9,805	18,105	21,675	9,730	9,664	30,291	41,270	29,396
Production (million BOE)	1,234	1,420	1,468	1,425	1,449	1,538	1,581	1,628
<b>Revenue/Production (2000\$/BOE)</b>	<b>7.9</b>	<b>12.8</b>	<b>14.8</b>	<b>6.8</b>	<b>6.7</b>	<b>19.7</b>	<b>26.1</b>	<b>18.1</b>

## Economic Rent in Norway

Table 8 presents data for the value of oil and gas resources and the cost of oil and gas production annually for Norway. Figures are shown as 2000\$/BOE, like the revenue figures in the previous section. The value of oil and gas resources in Norway increased by 47 percent between 1995 and 2002. At the same time, the cost of production increased significantly. In three years over the study period the cost of production exceeded the value of oil and gas resources leaving no economic rent available to government. In other years, the value of the oil and gas exceeded the cost of production leaving substantial economic rent for the government to capture. In general, a fairly high portion of economic rent was captured by the government of Norway over the study period, exceptional years are 1995 and 2000.

**Table 8 Resource value, production costs and economic rent (2000\$/BOE), Norway, 1995 to 2002**

	1995	1996	1997	1998	1999	2000	2001	2002
Resource Value	24.8	30.1	30.1	19.9	26.9	42.8	35.3	36.3
Production Cost	12.4	14.3	14.6	29.0	59.7	12.8	12.0	118.2
Economic Rent	12.4	15.9	15.4	0.0	0.0	30.1	23.4	0.0
<b>Rent Capture</b>	<b>64%</b>	<b>80%</b>	<b>96%</b>	<b>100%</b>	<b>100%</b>	<b>65%</b>	<b>100%</b>	<b>100%</b>

*Source: Cost figures from the 2003 Resource Report from the Norwegian Petroleum Directorate and the BP Statistical Review of World Energy; value figures from Norway's 2003 Statistical Handbook*

## Summary

Norway has a unique system to capture rent from oil and gas production. In contrast to the Canadian jurisdictions and Alaska, which collect the majority of oil and gas revenues from royalties, the major sources of revenue in Norway are revenues associated with the partial ownership of oil and gas resources, a special tax on oil and gas company profits and the corporate income tax. The special tax on profits, in particular, allows the Norwegian government to capture significant revenues and a high portion of economic rent.

Also unique to Norway is the existence of a carbon dioxide tax. This tax provides incentive to oil and gas companies to reduce greenhouse gas emissions and is one of the main tools used by the Norwegian government to achieve commitments for greenhouse gas emission reductions as established in the Kyoto Protocol. The carbon dioxide tax is part of the country's long-term plan to reduce greenhouse gas emissions and is an important part of the country's rent capture regime.