

**Documentation of statistics for  
Oil and natural gas in the North Sea 2020**

## 1 Introduction

The purpose of this natural resource account is to analyze stocks and stock changes in oil and natural gas in the North Sea. The statistics is measured in both physical and monetary units. The physical stocks are comparable from 1990 onwards whereas the monetary stocks are comparable from 2009 onwards.

## 2 Statistical presentation

The physical asset account and the monetary asset account for oil and gas in the North Sea is an annual statistics showing the reserves of oil and natural gas in the North Sea, which may be recovered under the given economic conditions and with known technology measured in cubic meters (m<sup>3</sup>). Both statistics show the reserves of oil and natural gas at the beginning of the year and the changes in the reserves during the year.

### 2.1 Data description

The natural resource account shows the opening stock of the oil and natural gas reserves at the beginning of the year, which corresponds to the end of the previous year. In addition, the physical accounts show changes within the year in the form of extraction, own use and new discoveries and other economic appearance or disappearance.

For gas, the extraction is gross. A portion of the extracted natural gas is pumped back into the reservoir due to technical reasons. Subtracting this so-called re-injection gives the net production. Some of the gas is flared and some go to own use, while the remainder is sold. In the case of oil, the gross extraction during the year is equal to the net production equivalent to sales of oil. The post new discoveries and other economic appearance / disappearance reflects changes in reserve as a result of changing economic and / or technical developments.

The reserves are those quantities of oil and natural gas that can be extracted under the given economic conditions and with known technology. The reserves are divided into the categories: Current, decided, planned and possible recovery. Ongoing extraction includes the reserves that can be recovered using existing production facilities and wells. Approved extraction include reserves where there is an approved development plan. Planned extraction projects which are described in the development plan, which is being handled by the authorities. Possible extraction includes projects where it's expected to be able to use known technology. The Energy Agency changes the estimated size of reserves as of the reserves that can be extracted when new discoveries are made. Moreover, development of new extraction technology as well as changed economic conditions lead to revisions of estimates. The reserves are not a static physical quantity.

The value of oil and gas is added together in the monetary asset account and shows the opening stock, extraction, new discoveries and other economic appearance or disappearance, revaluation as well as the closing stock.

### 2.2 Classification system

The structure of natural resource asset account follows the recommendations of asset accounts outlined in the "System of Environmental-Economic Accounting, Central Framework", Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank (2012). New York.

### **2.3 Sector coverage**

The extraction activity described in the natural resource account is performed by the industries 06.10.00 Extraction of crude petroleum and 06.20.00 Extraction of natural gas, cf. the Danish Industrial Classification of all Economic Activities 2007. In the National Accounts, this activity is included in the 060000 Extraction of Crude Oil and Natural Gas.

### **2.4 Statistical concepts and definitions**

Closing stock: The stock by the end of the year

Economic appearance / disappearance: Other economic appearance / disappearance reflects changes in reserve as a result of changing economic and / or technical conditions. Also referred to as other volume changes.

Extraction: The extraction is the production activity taking place in connection with oil and natural gas drawn from the reserves. For natural gas, the extraction is measured both gross and net, taking into account the amount re-injected.

Natural resource asset accounts for oil and gas: Showing reserves of the quantities of oil and natural gas that can be extracted under the given economic conditions and with known technology.

Opening stock: The stock at the beginning of the year

Revaluation: Changes in the value of the reserves due to changes in the oil or natural gas prices, the resource rent or the expectations about the future extraction of oil and gas. This entry is only relevant for the monetary asset account.

### **2.5 Statistical unit**

The unit in the national accounts industries are basically the local KAU, the workplace, which is the smallest unit for which a production account can be set up.

### **2.6 Statistical population**

Oil and natural gas in the North Sea

### **2.7 Reference area**

Denmark.

### **2.8 Time coverage**

1990-2019 for the physical asset account. 2009-2019 for the monetary asset account.

### **2.9 Base period**

Not relevant for this statistics.

### **2.10 Unit of measure**

The physical balance for oil reserves is measured in m<sup>3</sup>.

The physical balance for gas reserves is measured in Nm<sup>3</sup>.

The monetary balance for the oil and gas reserves is measured in Dkk.

### **2.11 Reference period**

Natural resource account for oil and natural gas refers to the calendar year.

### **2.12 Frequency of dissemination**

Annual.

### **2.13 Legal acts and other agreements**

Not relevant for this statistics.

### **2.14 Cost and burden**

The statistics is based on data collected by other statistics. There is no direct burden related to the compilation of this statistics.

### **2.15 Comment**

Additional information can be obtained from Statistics Denmark.

## **3 Statistical processing**

Data for this statistic is provided annually by the Danish Energy Agency. Additional information is taken from the Energy Agency's publication on the oil and gas production. The collected data have undergone validation in the Energy Agency. The validation done by Statistics Denmark during the compilation of the natural resource accounts deals solely with ensuring consistency between the opening and closing stocks.

### **3.1 Source data**

The natural resource account for oil and natural gas is based on information obtained from the Danish Energy Agency as well as the statistics Energy Accounts for Denmark and the National Accounts.

### **3.2 Frequency of data collection**

Annual.

### **3.3 Data collection**

The data is collected from various internal and external sources by extracting information from databases, Excel sheets, and printed publications.

### **3.4 Data validation**

The natural resource accounts for oil and natural gas are based on information from a variety of data sources. The validation during the compilation of the natural resource accounts ensures consistency between opening and closing stocks.

### **3.5 Data compilation**

The data are prepared and presented in the context of the natural asset accounts.

### **3.6 Adjustment**

No corrections to the data are made except for those mention under Data validation and Data processing.

## **4 Relevance**

The statistics is used for analysis and forecasting by ministries, industry associations, research institutions and consultants and other who want an overview of the relationships between the economy and the environment.

### **4.1 User Needs**

The natural resource accounts for oil and natural gas is part of Statistics Denmark's environmental-economic accounts. The external users of the environmental accounts is comprised of government departments, industry associations, research institutions, consultants and others who want an overview of the relationships between the economy and the environment. Monetary natural resource accounts, where the physical accounts has been valued, can be used in analyzes of sustainability and the wealth of a country's total wealth and is also a first step towards a real 'green' GDP (depletion adjusted GDP).

### **4.2 User Satisfaction**

The user group on environmental-economic accounting and statistics hold at least one meeting per year. All or part of these meetings has a seminar form, where there may be more participants from the institutions represented in the group. The following institutions and organizations have a representative in the group: Statistics Denmark, Business and Growth Ministry of Finance, Ministry of Climate, Energy and Building Department, Ministry of Environment, Ministry of Food, Agriculture and Fisheries, Ministry of Transport, Economic Affairs and the Interior Ministry, the Energy Agency, the Environmental Protection Agency, Danish Industries, the Danish Chamber of Commerce. Information on the user satisfaction is not collected separately but user needs and satisfaction are discussed within the forum of this group.

### **4.3 Data completeness rate**

Natural resource accounts are compiled in accordance with international recommendations from the UN, Eurostat and others and, compared to existing knowledge, covers the amount of oil and natural gas reserves in the North Sea.

## **5 Accuracy and reliability**

Based on the known knowledge and expectations about economic and technological aspects, the natural asset accounts provide an estimate of the size of the reserves of oil and natural gas in the North Sea. The Energy Agency changes the estimate of the reserves as the reserves are extracted and when new discoveries are made. Moreover, development of new extraction technology lead to revisions of estimates. The reserves are not a static physical quantity.

### **5.1 Overall accuracy**

The combination of natural science and social science methods, assumptions and calculations in the compilation of the natural resource accounts means that there will be uncertainties related to the measurements of the physical reserves of oil and natural gas. Uncertainty in the figures is related to the estimation of the size of the reserves that can be extracted under the given economic conditions and with known technology. The consistency over time contribute to a reduction of the uncertainty. Sensitivity analysis has been conducted and is part of a Statistics Denmark Analysis available at: <https://www.dst.dk/da/Statistik/Analyser>

### **5.2 Sampling error**

Not relevant for this statistics.

### **5.3 Non-sampling error**

Uncertainty in the figures is related to the estimation of the reserves that can be extracted under the given economic conditions and with known technology. Sensitivity analysis has been conducted and is part of a Statistics Denmark Analysis available at: <https://www.dst.dk/da/Statistik/Analyser>

### **5.4 Quality management**

Statistics Denmark follows the recommendations on organisation and management of quality given in the Code of Practice for European Statistics (CoP) and the implementation guidelines given in the Quality Assurance Framework of the European Statistical System (QAF). A Working Group on Quality and a central quality assurance function have been established to continuously carry through control of products and processes.

## **5.5 Quality assurance**

Statistics Denmark follows the principles in the Code of Practice for European Statistics (CoP) and uses the Quality Assurance Framework of the European Statistical System (QAF) for the implementation of the principles. This involves continuous decentralized and central control of products and processes based on documentation following international standards. The central quality assurance function reports to the Working Group on Quality. Reports include suggestions for improvement that are assessed, decided and subsequently implemented.

## **5.6 Quality assessment**

There is no estimates of the quality of the statistics. However, it is considered being the best possible given the resources used on the compilation of the natural resource accounts. The natural resource accounts are compiled in line with international recommendations from the UN and Eurostat.

## **5.7 Data revision - policy**

Statistics Denmark revises published figures in accordance with the [Revision Policy for Statistics Denmark](#). The common procedures and principles of the Revision Policy are for some statistics supplemented by a specific revision practice.

## **5.8 Data revision practice**

The final asset accounts for oil and natural gas is about 3 years after the reference year. A preliminary set of accounts for the oil and natural gas are published one to two years after the reference year.

## **6 Timeliness and punctuality**

The statistics is published without delay compared to the planned release times.

### **6.1 Timeliness and time lag - final results**

The statistics are released annually.

### **6.2 Punctuality**

The statistics are published without delay compared to the pre-announced release date.

## **7 Comparability**

The statistics are comparable from 1990 onwards. The statistics follow international standards and are thus comparable with similar statistics from other countries prepared in accordance with applicable international standards.

### **7.1 Comparability - geographical**

The statistics follows agreed international standards and are thus largely comparable with similar statistics from other countries prepared in accordance with applicable international standards.

### **7.2 Comparability over time**

The statistics is available in a comparable form from 1990, which provides good opportunities for consistent analyzes over time.

### **7.3 Coherence - cross domain**

The information on the extraction in the natural resource asset accounts is consistent with the extraction measured in the statistics Energy Accounts for Denmark.

### **7.4 Coherence - internal**

There are internal consistency in the data. The opening and closing stocks are explained by the changes during the period.

## **8 Accessibility and clarity**

The data for the oil and natural gas in the North Sea is published in the Statbank in the tables [OlieRg](#) and [GasRg](#). See more on statistics topic page.

### **8.1 Release calendar**

The publication date appears in the release calendar. The date is confirmed in the weeks before.

### **8.2 Release calendar access**

The Release Calender can be accessed on our English website: [Release Calender](#).

### **8.3 User access**

Statistics are always published at 8:00 a.m. at the day announced in the release calendar. No one outside of Statistics Denmark can access the statistics before they are published.

### **8.4 News release**

No dedicated News from Statistics Denmark release being published for this statistics.

### **8.5 Publications**

The statistics is explained in the publication [Grønne nationalregnskaber og det grønne BNP](#), which is available in the Danish language only.



## **8.6 On-line database**

The statistics is available in the Statbank under the topic Geography, environment and energy, Environmental-Economic Accounts, Natural resources in the tables [OlieRg](#) and [GasRg](#)..

## **8.7 Micro-data access**

Not relevant for this statistics.

## **8.8 Other**

Part of the information in this statistics is also available in the Danish Energy Agency's publication 'Oil and gas production in the North Sea' as well as in the statistics Energy Accounts for Denmark.

## **8.9 Confidentiality - policy**

Statistics Denmark's' Data Privacy Policy.

## **8.10 Confidentiality - data treatment**

The statistics is not published at a level of detail that requires discretion.

## **8.11 Documentation on methodology**

Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, World Bank (2012). "System of Environmental-Economic Accounting, Central Framework". New York.

## **8.12 Quality documentation**

Results from the quality evaluation of products and selected processes are available in detail for each statistics and in summary reports for the Working Group on Quality.

## **9 Contact**

The statistics is located in the National Accounts division. The subject matter statistics responsible is Sara Svantesson, tel. +45 39 17 30 66, mail [srs@dst.dk](mailto:srs@dst.dk).

### **9.1 Contact organisation**

Statistics Denmark

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