Annex F

United Kingdom oil and gas resources

Introduction
F.1 This section provides background information on the United Kingdom’s oil [or crude oil, natural gas liquid] and natural gas reserves, production, disposal and operations. This information is intended as a supplement to that in the commodity balances included in Chapter 3. Most of the data (including those on gas) are obtained from the Department for Business, Enterprise & Regulatory Reform’s Petroleum Production Reporting System. Further information can be obtained from BERR’s oil and gas website at www.og.berr.gov.uk/

F.2 The annual statistics relate to calendar years, or the ends of calendar years, and the data cover the United Kingdom Continental Shelf (onshore and offshore). Annual data for production, imports and exports of crude oil during the period 1970 to 2007 are given in Chapter 3, long term trends, Table 3.1.1 (www.berr.gov.uk/energy/statistics/source/oil/page18470.html).

Oil and gas reserves
F.3 Information on oil and gas reserves can be found on BERR’s oil and gas website at www.og.berr.gov.uk/information/bb_updates/chapters/reserves_index.htm

Offshore oil and gas fields and associated facilities
F.4 Table F.A below shows that the number of offshore oil fields in production and under development rose from 157 at the end of 2002 to 188 at the end of 2007. For offshore gas fields the equivalent increase has been from 103 to 129; most oil fields also produce gas: these are not double-counted. The increases in fields in production are shown in Chart F.1 (offshore fields in production).

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<thead>
<tr>
<th>Table F.A: Offshore oil and gas fields and facilities</th>
<th>2002</th>
<th>2003</th>
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<th>2006</th>
<th>2007</th>
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<td>Offshore oil fields in production</td>
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<td>Offshore gas fields in production</td>
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F.5 The average size of fields commencing production in 2006 and 2007 was 5.6 million tonnes of oil equivalent (see Chart F.2). This reflects a decline in the size of fields discovered compared with the early period of the development of the North Sea and the effect of improved technology providing cost-effective means of extracting oil and gas from smaller fields and hitherto unpromising locations. The Cost Reduction in the New Era (CRINE) initiative was initiated in the early 1990s to help reduce industry production costs. Industry co-operation can allow the joint development of smaller fields that individually would not otherwise be economic. CRINE was followed by the establishment of the Oil and Gas Industry Task Force, whose main objective was to create a climate for the UKCS to retain its position as a pre-eminent active centre for oil and gas exploration, development and production. One of its aims was to keep the UK contracting and supplies industry at the leading edge in terms of overall competitiveness. In September 1999, the Task Force announced a number of targets for the UKCS in 2010 including: investment in UKCS activity sustained at £3 billion per annum; total production (of oil and gas) maintained at 3 million barrels of oil equivalent per day; and prolonged self-sufficiency in oil and gas. The job of turning these targets into reality now rests in the hands of the Task Force's successor, PILOT, whose remit is to ensure that the recommendations and initiatives established by the Task Force are brought forward and to give the industry every opportunity to address any relevant future issues. For more information visit the PILOT web site at www.pilottaskforce.co.uk/

Chart F.2: Average size** of oil and gas fields commencing production

(1) Recoverable reserves originally present based on operators’ estimate at the time production commenced.
Production of oil and gas (Table F.1, F.2 and F.3)

F.6 These tables show production of crude oil, natural gas (mainly methane) and natural gas liquids. Before 2001, oil and gas production were shown by field but are now based on terminal receipts rather than well-head production following the introduction in January 2001 of a simplified Petroleum Production Reporting System and subsequent in-house changes to the data collection system. These new data are more accurate measures of production because the oil that leaves a terminal has been stabilised (that is any water, natural gas liquids or other organic compounds have been removed from the crude oil) and gross gas production includes gas used at terminals but excludes any flaring or venting at the terminals (not previously available). Except for associated gas fields, field level data can still be found at BERR’s oil and gas website at: www.og.berr.gov.uk/information/index.htm

F.7 Chart F.3 shows the recent trend in total oil production from 1998 to 2007. After reaching a record level of 137 million tonnes in 1999, production declined by 2007 to 44 per cent lower than that peak. Gross natural gas production (mainly methane) grew to a peak in 2000 of 115 billion cubic metres but declined to 76 billion cubic metres in 2007.
Production of crude oil

F.8 Production from established oil fields has fallen in recent years. This is illustrated in Chart F.4 below, where oil production in each year for the years 1997 to 2007 is broken down by the age group of the fields in production during that year. Two charts are shown, the first with the actual amounts of crude oil produced during the year for each age group and the second with the same data transformed to show what percentage of total annual production comes from each field age group. The data used to produce these charts can be found on BERR’s oil and gas website at www.og.berr.gov.uk/prrs/full_production/annual+oil+production+sorted+by+field+(tonnes)/0.htm

F.9 It can be seen from the production chart that during the last decade the amount of oil produced from older fields that first started production prior to 1990 has been in decline. Indeed, it is noticeable how, even with those fields that started production in the period 1990 to 1994, a clear steady decline in production volumes is visible during the second half of the 1990s. This is due to the nature of more recent developments where, with the use of new technology, the crude oil can be extracted at a relatively greater rate than in the past, leading to a quicker exhaustion of the reserves in newer fields which are also, on average, much smaller and have shorter producing lives. The
contribution from newer fields, ie those that have come into production since the start of 1995, is also clearly a significant factor in the high level of production seen in the second half of the 1990s. In 2007, these newer (post 1994) fields accounted for 59 per cent of the UK’s oil production (less than they accounted for in 2003).

**Chart F.4: Age profile of UK oil production**

**Production in year**

![Chart showing the age profile of UK oil production with data from 1997 to 2007. The chart indicates the production in millions of tonnes for each year and the percentage of production in each year.]

**Production as a percentage of total**

![Chart showing the percentage of production in each year from 1997 to 2007. The chart indicates the percentage of production in each year and the year the production began.]

**Production of gas**

F.10 The charts below represent gross gas production reported at field/system level and include gas used for drilling, production and pumping operations, but excludes gas flared, vented and re-injected.
Table F.4 and Chart F.6 show the destination of crude oil split between amounts to UK refineries and exports (see technical notes, paragraphs F.16 to F.25) by country of destination (from which it may be transhipped elsewhere). The figures are obtained from returns made to BERR by operators of oil fields and onshore terminals under the Petroleum Production Reporting System (see paragraphs F.16 to F.18).
Chart F.6: UKCS disposals of crude oil 2007

Total disposals: 71 million tonnes

- To UK refineries: 36.4% (26 million tonnes)
- USA: 13.8%
- Netherlands: 15.8%
- France: 7.3%
- Germany: 14.5%
- Other (1): 12.2%

Exports: 63.6% (45 million tonnes)

(1) Of which: Canada 1.7%, Finland 2.3% and Norway 1.3%.

F.13 The exports figures in Table F.4 may differ from those compiled by the United Kingdom Petroleum Industry Association (UKPIA) and published in Chapter 3. UKPIA figures also include re-exports. These are products that have been imported into the UK and stored before being exported from the UK, and were never part of UK production.

F.14 Exports of crude oil in 2007 were about 0.5 per cent higher than in 2006.
F.15 Chart F.7 shows the proportion of the total amount of crude oil imported by the USA, France, the Netherlands and Germany supplied by the UK. Whilst the USA represents a significant market for UK exports of crude oil, only 1 per cent of total crude oil imports into the USA in 2007 were from the UK. The UK is a significant contributor to other European countries, as shown by the data for trade with France, Germany and the Netherlands given in the chart. However, much of the oil exported to the Netherlands is not actually consumed there, but is sold on to other countries via the Rotterdam spot market.

Technical notes and definitions

Petroleum Production Reporting System
F.16 Licensees operating on the UK Continental Shelf are required to make monthly returns on their production of hydrocarbons to the Department for Business, Enterprise & Regulatory Reform (BERR). BERR compiles this information in the Petroleum Production Reporting System (PPRS). The PPRS is used to report flows, stocks and uses of hydrocarbon from the well-head through to final disposals from a pipeline or terminal and is the major source of the information presented in this chapter.

F.17 Returns are collected covering field and terminal data compiled by relevant reporting units. Each type of return is provided by a single operator, but usually covers the production of a number of companies, since frequently operations carried out on the Continental Shelf involve several companies working together in joint ventures.

F.18 Every production system has one or more sets of certified meters to measure oil, gas or condensate production. The flows measured by the meters are used to check the consistency of returns and are therefore used to assure the accuracy of the PPRS.

Sales and expenditure by operators and other production licensees
F.19 Data are compiled from the Inquiry into Oil and Natural Gas (PQ1100) carried out by BERR. This inquiry collects information from all operators. The information collected covers all income and expenditure directly related to the production of oil and natural gas, including exploration, development and other capital expenditures together with operating costs and the value of sales.
F.20 These data can be found on BERR’s oil and gas website at

Exports
F.21 The term exports used in Table F.4 refers to figures recorded by producers of oil and gas for their exports. These figures may differ from the figures for exports compiled by HM Revenue and Customs (HMRC) and given in Annex G. In addition, HMRC now differentiate between EU and non-EU trade by using the term dispatches for trade going to other EU countries, with exports retained for trade going to non-EU countries. The differences can occur between results from the two sources of information because, whilst the trader’s figures are a record of actual shipments in the period, for non-EU trade HMRC figures show the trade as declared by exporters on documents received during the period stated.

F.22 In addition, trade in oil frequently involves a “string” of transactions, which can result in the actual destination of the exports changing several times even after the goods have been dispatched. As such, differences can arise between the final country of destination of the exports as recorded by the producers themselves and in the HMRC figures. The HMRC figures also include re-exports. These are products that might originally have been imported into the UK and stored before being exported back out of the UK, as opposed to actually having been produced in the UK.

F.23 In editions of the Digest before 1997, these exports were called “shipments” in an attempt to highlight their difference from the other sources of trade data.

Units of measurement for gas
F.24 The basic unit of measurement for quantities of flows and stocks is volume in cubic metres at a temperature of 15°C and a pressure of 1.01325 bars pressure.

Monthly and Quarterly data
F.25 Monthly and quarterly data on the production of crude oil and natural gas from the UKCS, along with details of imports and exports of oil, oil products and gas are available. This information can be obtained free of charge by following the links given at the Energy Statistics section of the BERR web site at: www.berr.gov.uk/energy/statistics/source/index.html.

Annex F United Kingdom oil and gas resources main tables

Chapter 3 Petroleum main text

Contact: Martin Young (Statistician)
  martin.young@berr.gsi.gov.uk
  020 7215 5184

Clive Evans
  clive.evans@berr.gsi.gov.uk
  020 7215 5189