



Gas production and trade – upstream gas methodology note

Scope

1. These notes cover data produced on a monthly and quarterly basis (Energy Trends) and annual basis (the Digest of United Kingdom Energy Statistics (DUKES)). The complete range of information is published at <https://www.gov.uk/government/collections/gas-statistics>
2. This note covers
 - Upstream gas. This is the production of gas from the United Kingdom Continental Shelf (UKCS), both on-shore and off-shore.
 - Trade data. Refers to the imports and exports of gas, either through the pipelines, or shipped as Liquefied Natural Gas (LNG).
3. Not all of the data shown in the annual publication is reflected in the quarterly and monthly publications. The annual publication contains the highest level of detail and represents the final data for the year.

Data collection instruments

4. The data are collected via the following instruments

Primary collections

- The Petroleum Production Reporting System (PPRS). PPRS is an administrative data collection system that requires licensees operating on the UK Continental Shelf to submit monthly details of their hydrocarbon (both oil and gas) production to the Oil and Gas Authority (OGA). PPRS is used to report flows and gas used by the upstream oil and gas industry from field level through to final input to the UK's transmission systems. It is a condition of operation on the UKCS that companies submit monthly returns to government.

Secondary collections and other data sources

- National Grid data are used to supplement information obtained from PPRS on imports and exports and used as a quality control mechanism.
- Monthly data from Gassco and IUK used to supplement import and export information.
- Monthly data returns from Liquefied Natural Gas (LNG) import terminals used to produce LNG import figures.
- Monthly data from Gas Networks Ireland (GNI) for gas sent to Northern Ireland via the Interconnector from Moffat.
- Monthly data returns from Manx Utilities for gas sent to the Isle of Man via the Moffat Interconnector.

- National Grid data are used to obtain data on the transmission of gas through the National Transmission System.
- Monthly data from the Renewable Heat Incentive (RHI) statistics team in BEIS for biomethane injections into the grid.

Data coverage

5. PPRS is a census and covers all companies involved in extracting gas on the UKCS.

Geographical coverage.

6. United Kingdom.

Data frequency

7. PPRS are monthly returns from companies operating on the UKCS. National Grid data are updated on a daily basis during normal operations and all other data sources are provided or updated on a monthly basis.

Data Quality

8. Data are in provisional form until the publication of the annual Digest of UK Energy Statistics.

9. As gas is valuable, the companies involved are subject to high degree of financial regulation and independent auditing to ensure that quantities extracted and input into the National Transmission system are accurately reported. This high level of auditing provides good levels of quality assurance.

10. Additionally, the Department makes significant efforts to ensure that the data provided are fit for purpose. The PPRS system has a number of automated validation rules that display error messages when certain thresholds are passed – e.g. substantial month on month changes. The Department’s processing includes automated checks that ensure that receipts, imports, and exports balance appropriately. These checks are supplemented with a comparison to data held by the National Grid on data received at terminals and input into the National Transmission System. Analysis of discrepancies help improve the quality of both datasets, and further work within the Department’s statistical unit is designed to spot aberrations.

11. Finally, the returns from PPRS system are used to monitor field production by BEIS and OGA engineers and policy makers, and data from the system forms the backdrop to discussions on field by field production. Its use as an ongoing source of information provides good assurance of quality.

Statistical Differences

12. Given the complexity of reporting systems and the number of parties involved, the tables show ‘statistical differences’ where appropriate. Statistical differences reflect reporting differences between the data systems and allow the Department to spot mismatches between the supply and demand of gas. Statistical differences can arise from:

- Limitations in the accuracy of meters used at various points of the supply chain. While standards are in place on the accuracy of meters, there is a degree of error allowed which, when large flows of gas are being recorded, can become significant.
- Differences in the methods used to calculate the flow of gas in energy terms. For example, at the production end, rougher estimates of the calorific value of the gas produced are used which may be revised only periodically, rather than the more accurate and more frequent analyses carried out further down the supply chain. At the supply end, although the calorific value of gas shows day-to-day variations, for the purposes of recording the gas supplied to customers a single calorific value is used.

- Clerical errors that can occur between the various companies involved in Gas production, the National Grid, and within Government.

13. The Department uses statistical differences as a quality assurance tool. Large statistical differences are investigated for data input and other quality issues and referred back to reporting companies where appropriate. The Department has a tolerance of 0.5% for its annual statistical balance.

Revisions

14. Revisions can occur through either re-submitted data from companies, or through clerical errors within the Department. Where these occur, data are revised as soon as possible, usually for the following month's publication and following the revision policy for Energy Trends and DUKES.

Adjustments

15. The data supplied by oil and gas companies are the primary source of data, but individual company returns are adjusted in certain circumstances. Circumstances include:

- Missing data. Where a company has experienced difficulty with data supply in a given month, estimates are used. These estimates will be based on previous data and general market trends and revisions will be published as soon as practicable, usually for the following month. Where PPRS is the principal data source, the Department also uses National Grid data to estimate;
- Erroneous data. Where a company's return is clearly erroneous and there is insufficient time to resolve, estimates are used. These estimates will be based on previous data and general market trends and revisions will be published as soon as practicable, usually for the following month. Again, other data sources including National Grid data will also be used for this;

16. Wherever possible, estimates are based on established statistical methodologies to deliver average values. Adjustments are carried out with consideration of the current economic and energy climate, and past trends of the individual time-series.

Users of the data

18. BEIS itself is one of the main users of the upstream gas figures. These statistics are published in monthly, quarterly and annual publications such as Energy Trends and the Digest of United Kingdom Energy Statistics (DUKES) to help provide a complete picture of the UK's energy mix. In addition, these data are used to help inform BEIS's gas policy and projections including import dependency and CO2 emissions. Outside of BEIS the statistics are used by other government departments, eg Office of National Statistics and Her Majesty's Revenue and Customs, Oil and Gas Authority, academics and a number of other external organisations. There is also an international interest in these statistics as we are required to submit monthly and annual gas information to the International Energy Agency and Eurostat.