

Energy Statistics

*Department of
Energy and
Climate Change*

Energy Statistics

November 2009

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About the UK Statistics Authority

The UK Statistics Authority is an independent body operating at arm's length from government as a non-ministerial department, directly accountable to Parliament. It was established on 1 April 2008 by the *Statistics and Registration Service Act 2007*.

The Authority's overall objective is to promote and safeguard the production and publication of official statistics that serve the public good. It is also required to promote and safeguard the quality and comprehensiveness of official statistics, and good practice in relation to official statistics.

The Statistics Authority has two main functions:

1. oversight of the Office for National Statistics (ONS) – the executive office of the Authority;
2. independent scrutiny (monitoring and assessment) of all official statistics produced in the UK.

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ASSESSMENT AND DESIGNATION

Under the provisions of the Statistics and Registration Service Act 2007, the UK Statistics Authority has a statutory function to assess sets of statistics against the Code of Practice for Official Statistics, with a view to determining whether it is appropriate for the statistics to be designated, or to retain their designation, as National Statistics.

Designation as National Statistics means that the statistics are deemed to be compliant with the Code of Practice. Whilst the Code is wide-ranging, designation may be broadly interpreted to mean that the statistics meet identified user needs; are produced, managed and disseminated to high standards; and are well explained.

Assessment reports will not normally comment further, for example on the validity of the statistics as a social or economic measure; though reports may point to such questions if the Authority believes that further research would be desirable.

Designation as National Statistics will sometimes be granted in cases where some changes still need to be made to meet fully the requirements of the Code, on condition that steps are taken by the producer body, within a stated timeframe, to address the weaknesses. This is to avoid public confusion and does not reduce the obligation to comply with the Code.

Designation is granted on the basis of the information provided to the Statistics Authority, primarily by the organisation that produces the statistics. The information includes a range of factual evidence and also assurances by senior statisticians in the producer organisation. The views of users are also sought. Should further information come to light subsequently which changes the Authority's analysis, the Assessment report may be withdrawn and revised as necessary.

Once designated as National Statistics, it is a statutory requirement on the producer organisation to ensure that the set of statistics continues to be produced in compliance with the Code of Practice.

1 Introduction

1.1 This is one of a series of reports prepared under the provisions of Section 14 of the *Statistics and Registration Service Act 2007*¹. The report covers the Energy Statistics produced by the Department of Energy and Climate Change (DECC). The relevant publications include the Digest of UK Energy Statistics, Energy Trends and Quarterly Energy prices, Energy Consumption in the UK and Regional Energy Consumption, data tables published on the internet and supplementary publications including the Energy Flowchart and the pocket guide 'Energy in Brief'. The Energy Sector Indicators publication was the subject of Assessment Report 5². This assessment covers all remaining energy statistical outputs.

1.2 The remainder of this report is structured as follows:

Section 2 Summary of findings, highlighting the main strengths and weaknesses in relation to the Code of Practice. This summary includes the UK Statistics Authority's decision in relation to designation as National Statistics.

Section 3 Subject of the assessment, an overview of the statistics and their history.

Section 4 The Assessment team's detailed assessment, providing more details about the assessment of compliance against each principle and protocol of the Code of Practice.

Annex 1 Suggestions for improvement

Annex 2 Summary of the assessment process and users' views.

1.3 This report was prepared by the Authority's Assessment team, and approved by the Board of the Statistics Authority on the advice of the Head of Assessment.

¹ http://www.opsi.gov.uk/Acts/acts2007/pga/ukpga_20070018_en.pdf

² <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>

2 Summary of findings

2.1 Decision concerning designation as National Statistics

- 2.1.1 The Statistics Authority has determined that the statistics detailed in Section 3 are designated as National Statistics, subject to DECC implementing the enhancements listed in section 2.4 below and reporting them to the Authority by June 2010.
- 2.1.2 Designation as National Statistics means that the statistics are deemed to be compliant with the Code of Practice, and thus that they meet identified user needs; are produced, managed and disseminated to high standards; and are well explained.
- 2.1.3 Designation also signifies that, subject to any caveats in this report, the Statistics Authority judges that the statistics are readily accessible, produced according to sound methods and managed impartially and objectively in the public interest.

2.2 Summary of strengths and weaknesses

- 2.2.1 The statisticians within DECC have wide knowledge of the subject area and a good understanding of how the data are used in forming energy policy. The statistics team has been able to influence the development of administrative data collection systems to ensure that the systems collect the information required for statistical purposes. Energy statistics are highly regarded internationally³.
- 2.2.2 All staff in DECC undertake a set of compulsory training courses, which includes training on energy statistics. We regard this as a good way to raise awareness of statistics and improve engagement between statisticians and their departmental colleagues.
- 2.2.3 DECC has good relationships with key users in government and local authorities and across the energy industry. However, DECC has no formal means of engaging with other external users. The commentary and presentation of statistics within publications varies in quality. For example, while the information published about regional energy statistics is helpful to users, elsewhere there is a lack of readily-accessible information on methods and quality.

³ UN Framework on Climate Change report <http://unfccc.int/resource/docs/2007/irr/gbr.pdf>

2.3 Detailed recommendations

2.3.1 The Assessment team identified some areas where it felt that DECC could strengthen its compliance with the Code. Those which the Assessment team considers essential to enable re-designation as National Statistics are listed in section 2.4 below. Other suggestions, which would improve the statistics and the service provided to users but which are not central to their designation, are listed at annex 1.

2.4 Requirements for re-designation as National Statistics

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|----------------------|--|
| Requirement 1 | Take steps to engage more effectively with users outside government and the energy industry, and make those steps known (para 4.4). |
| Requirement 2 | Review the suite of energy statistics outputs, assessing the volume and structure of the suite against users' priorities and the need to serve the public good (para 4.5). |
| Requirement 3 | Improve access to methodological and technical information across publications, including improving links to contractors' websites (para 4.14). |
| Requirement 4 | Provide better metadata and methodological information about all surveys and data processes (whether conducted in-house or by contractors), including explanations of why particular methods are used (para 4.14). |
| Requirement 5 | Provide quality measures for published data, especially estimates of sampling variability for survey data (para 4.15). |
| Requirement 6 | Improve the commentary and presentation in publications to ensure they are impartial and accessible to all users (para 4.27). |

3 Subject of the assessment

- 3.1 This Assessment Report covers DECC's existing National Statistics on energy as detailed in para 3.4 below.
- 3.2 The Department for Energy and Climate Change (DECC) was created in October 2008, bringing together energy policy, previously with the Department for Business, Enterprise and Regulatory Reform (BERR, now the Department for Business, Innovation and Skills) and climate change mitigation policy (previously with the Department for Environment, Food and Rural Affairs). The energy statistics were all previously produced by BERR.
- 3.3 DECC publishes energy statistics annually, quarterly, monthly and weekly. The European Commission requires member states to supply weekly data on road fuel prices. Statistics for other key metrics are produced monthly and quarterly and are available on the DECC website. Revised data are published in the annual publications, reflecting the full annual survey returns.
- 3.4 The following is a summary of the main publications relating to the statistics being assessed and provides an overview of their contents.
- **Digest of UK Energy Statistics (DUKES)**
An annual publication which includes tables, charts and commentary covering all the major aspects of energy. It provides a comprehensive picture of fuel production and consumption during the last three years. Additional time series are available through DECC's website.
 - **UK Energy in Brief**
An annual publication summarising the latest statistics on energy production, consumption and prices in the UK.
 - **UK Energy Flow Chart**
A flow chart which shows in a graphical format the flow of energy from production and imports, via transformation through to exports and final UK use.
 - **Energy Trends**
A quarterly publication which includes tables, charts and commentary covering the major aspects of energy, and providing a picture of energy production and use. Energy Trends also contains articles about energy statistics. DECC uses the publication to disseminate information on planned changes to methods and to seek user input.
 - **Quarterly Energy Prices**
A quarterly publication containing tables, charts and commentary, covering energy prices to domestic and industrial consumers for the major fuels, as well as presenting comparisons of fuel prices in the European Union and G7 countries.
 - **Energy Consumption in the United Kingdom**

An annual internet-only publication, which brings together statistics from a variety of sources to produce a review of energy consumption in the UK since the 1970s. It includes an analysis of the factors driving changes in energy consumption and the impact of structural change in the economy.

- Regional and Local Area Energy Consumption
DECC has developed a suite of regional and local area datasets covering electricity, gas, road transport fuels, residual fuels and total energy consumption. These are produced annually.

3.5 These energy statistics are used within DECC to monitor and guide energy policy. Many of the energy statistics published are used to monitor progress towards specific government targets. For example, one of the government's targets is that by 2020, 15% of final energy consumption should be accounted for by energy from renewable sources. The statistics are also used by international organisations including Eurostat, the Organisation for Economic Co-operation and Development (OECD) and the United Nations through the UN Framework Convention on Climate Change (UNFCCC). Businesses within the energy sector are important users as well as being suppliers of data.

3.6 Wider users might include academia, other research establishments and consultancies. Due to the sporadic dialogue with these users, the knowledge of uses to which these organisations may put these statistics is limited. This shortcoming has been addressed in the requirements detailed in section 2.4.

4 Detailed assessment

Principle 1: Meeting user needs

The production, management and dissemination of official statistics should meet the requirements of informed decision-making by government, public services, business, researchers and the public.

- 4.1 The statistics team told us that the key users of Energy Statistics are internal DECC colleagues developing energy policy, and international organisations such as the OECD's International Energy Agency and Eurostat, with whom the team has regular contact. DECC's statisticians believe that their knowledge of energy markets and policy often allows them to anticipate the future data requirements of these users. An example of this is the current expansion of data on energy from renewable sources in preparation for the changing energy market over the next 20 years.
- 4.2 The other main users include the energy industries, which DECC has built up strong relationships with as data suppliers. Local Authorities are key users of the regional energy consumption statistics. Regular meetings with representatives of some sectors, most notably oil, petroleum and gas, and the Local Authorities help DECC develop a good understanding of how these statistics are used. However, this good practice is not evident across the range of outputs.
- 4.3 There has been formal consultation about some outputs including a review of Quarterly Energy Prices in February 2009. DECC is planning a consultation in the coming months to invite user views on changes to the frequency of the publication of data on coal. However, this engagement with users has been sporadic and the outcomes of the consultations are rarely published. In addition, there is a lack of regular, formal engagement with users outside government and the energy industry.
- 4.4 In order to develop a better understanding of the needs of other users, as part of the designation as National Statistics, DECC should take steps to engage more effectively with users outside government and the energy industry and make those steps known⁴ (Requirement 1).
- 4.5 The range of energy statistics is large and continues to grow with the expansion of statistics on energy from renewable sources. There is no evidence of a dialogue with users about the suite of statistics as a whole, the number and frequency of publications or the relative importance of the outputs. As part of the designation as National Statistics, DECC should review the suite of energy statistics outputs, assessing the volume and structure of the suite against users' priorities and the need to serve the public good⁵ (Requirement 2).

⁴ In relation to Principle 1, Practice 2 of the Code of Practice.

⁵ In relation to Principle 1, Practice 3 of the Code of Practice.

Principle 2: Impartiality and objectivity

Official statistics, and information about statistical processes, should be managed impartially and objectively.

- 4.6 All energy statistics appear to be published in an orderly and timely manner, via the National Statistics Publication Hub and are free-of-charge for all. There are no charges for supplementary analysis.
- 4.7 DECC has published a revisions policy in its flagship publication the Digest of UK Energy Statistics (DUKES). As DUKES is published annually, we suggest that DECC publishes the revisions policy on its website, so that it can be linked to from other publications.
- 4.8 Changes to methods and classifications are pre-announced in the quarterly Energy Trends publication: this is where most of the in-depth detail about methods is published, supplementing information in DUKES.
- 4.9 DECC informed us that all errors are amended as soon as they are identified and corrections published in the next statistical release. Any errors in tables available on the web are corrected immediately. All errors are noted on the DECC website.

Principle 3: Integrity

At all stages in the production, management and dissemination of official statistics, the public interest should prevail over organisational, political or personal interests.

4.10 No incidents of political pressure, abuse of trust or complaints relating to professional integrity, quality or standards were reported to or identified by the Assessment team. All statutory and international obligations are fulfilled.

Principle 4: Sound methods and assured quality

Statistical methods should be consistent with scientific principles and internationally recognised best practices, and be fully documented. Quality should be monitored and assured taking account of internationally agreed practices.

- 4.11 DECC's energy statistics are produced according to international best practice where guidance is available, and the UK is a key collaborator in developing international standards through fora such as the Oslo Group on Energy Statistics⁶. DECC informed us that a recent International Energy Agency review commended the quality of the UK's statistics on oil and gas. A recent UN Framework review audit also noted that "the reporting of the energy sector is transparent, complete, comparable and consistent"⁷.
- 4.12 DUKES is the primary publication containing technical information about the statistics, and in-depth methodological articles are published in Energy Trends. There is little cross-referencing between the two publications making it difficult to know where to find more detailed methodological information. In addition, DECC employs contractors (such as AEA) to carry out some of the technical work. The methods used by these contractors are not always readily available or linked to appropriately.
- 4.13 A good guidance document is published alongside the Regional energy consumption statistics, which contains data collection methods, assessments of data quality and links to in-depth articles in Energy Trends. DECC told us that a similar document is being produced for the Energy Consumption in the UK statistics, a development which we support. However, there is a mixed picture across the range of outputs; users highlighted this as an area of dissatisfaction. For example, DECC publishes weekly fuel prices data tables on the internet with no metadata or explanation of the methods used to produce the statistics. There is also a key adjustment made to the data for each fuel type, to bring energy demand to within 0.5% of supply. The reasons for and means of adjustment are poorly documented and there is little information on the impact this has on data quality.
- 4.14 As part of the designation as National Statistics, DECC should improve access to methodological and technical information across publications, including improving links to contractors' websites⁸ (Requirement 3). In addition, DECC should provide better metadata and methodological information about all surveys and data processes (whether conducted in-house or by contractors) including explanations of why particular methods are used⁹ (Requirement 4).
- 4.15 Many statistics produced by DECC are based on surveys of samples of the relevant populations; however there is little information about the quality of these estimates. As part of the designation as National Statistics, DECC

⁶ Oslo group, 'About'<http://og.ssb.no/about/>

⁷ UN Framework on Climate Change report <http://unfccc.int/resource/docs/2007/irr/gbr.pdf>

⁸ In relation to Principle 4, Practice 1 of the Code of Practice.

⁹ In relation to Principle 4, Practice 1 and Principle 8, Practice 1 of the Code of Practice.

should provide quality measures for all published data, especially estimates of sampling variability for survey data¹⁰ (Requirement 5).

¹⁰ In relation to Principle 4 Practice 2 and Principle 8, Practice 1 of the Code of Practice.

Principle 5: Confidentiality

Private information about individual persons (including bodies corporate) compiled in the production of official statistics is confidential, and should be used for statistical purposes only.

- 4.16 DECC provides its data suppliers with assurances that businesses cannot be identified in the final published data and that no information which could be used to identify them will be made available without their consent. The team carries out disclosure control, including secondary suppression if necessary before releasing data. DECC's data security protocol is made available to data suppliers to assure them of the data confidentiality and security arrangements.
- 4.17 The Downstream Oil Reporting System (DORS) and the Petroleum Production Reporting System (PPRS) are secure systems through which oil and petroleum data suppliers can provide their data. However, not all data suppliers use these systems and not all data collections have secure systems available, with returns often being made via email. We suggest that DECC encourages suppliers to use secure systems where available and investigate the development of secure data transfer for those data collections reliant on returns being emailed.

Principle 6: Proportionate burden

The cost burden on data suppliers should not be excessive and should be assessed relative to the benefits arising from the use of the statistics.

- 4.18 Survey compliance costs are published on DECC's website. Wherever possible, data collected for other primary reasons are reused, for example in the collation of energy consumption statistics. Modelling is also used when appropriate as a means of reducing burdens on data suppliers.
- 4.19 Two data collection systems were developed in collaboration with data suppliers to avoid excessive burden. As noted in para 4.17, the DORS is a secure portal for submitting survey data and the PPRS is an administrative system, developed for reporting oil and gas production for licensing and regulation purposes. DECC statisticians were involved in the development of PPRS to ensure that the information it collected was suitable for statistical purposes, minimising the burden on businesses. Similarly, DECC statisticians were involved in the development of the system to collect information for assessing and certifying Combined Heat and Power schemes through the Combined Heat and Power Quality Assurance programme (CHPQA).

Principle 7: Resources

The resources made available for statistical activities should be sufficient to meet the requirements of this Code and should be used efficiently and effectively.

- 4.20 The production of these statistics appears to be sufficiently resourced.
- 4.21 The allocation of resources has been reorganised recently in order to incorporate the expansion of data on energy from renewable sources, as noted in para 4.1. DECC has anticipated this user need in the light of government targets about the proportion of the UK's energy that should come from renewable sources. However, it is not clear what impact this reallocation has had on other areas of statistics. The review of the suite of publications required under Principle 1 should ensure that user priorities are accounted for in future statistical planning.
- 4.22 The DECC Energy School provides a variety of training courses, which includes training on energy statistics, some of which are compulsory for all staff. The Authority has previously commended this as an example of good practice¹¹.

¹¹ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>
Report 5, para 4.16

Principle 8: Frankness and accessibility

Official statistics, accompanied by full and frank commentary, should be readily accessible to all users.

- 4.23 The quality of the commentary and presentation of statistics varies across the suite of Energy statistics publications. DUKES contains commentary and technical explanations aimed at the expert user, while ECUK tables are published without any commentary. DECC has told us that the ECUK tables have been published without commentary in the light of user consultation. To enable interpretation by expert and non-expert users alike, we suggest that DECC provides commentary on the key points in the statistics, as a minimum.
- 4.24 Quarterly Energy Prices is an example of a publication that would particularly benefit from a detailed review. The commentary alongside graphs does not always explain or draw from the graphs but instead refers to tables at the end of the chapter (while not specifying which table). Headings within tables are inconsistent and some have no footnotes, relying on the footnotes to the preceding table for explanation.
- 4.25 Across all publications, some of the graphical representations of data can be difficult to interpret. DECC frequently uses stacked graphs, dual scales and pie charts. The quality of labelling is variable and, while it is good practice to have historical data available, the scales required on graphs of extensive time series (some go back to 1970) means that series are compressed and unclear.
- 4.26 There are instances where the commentary is not completely impartial. For example, UK Energy in Brief commentary refers to “our energy policy” rather than the more impartial “DECC’s energy policy”¹². Further, commentary relating to the number of vulnerable households in fuel poverty points to the falling trend from 1996 to 2006 but does not adequately highlight that the trend from 2004 has shown an increase.¹³
- 4.27 As part of the designation as National Statistics, DECC should improve the commentary and presentation in publications to ensure they are impartial and accessible to all users¹⁴ (Requirement 6).
- 4.28 The need for additional information on data quality and methods used across the suite of outputs, as well as improving the access to this information, has been noted under Principle 4.
- 4.29 DECC is still developing the content of its website and has already provided a specific link to its statistics publications from the DECC home page as suggested in the Assessment report on UK Energy Sector Indicators¹⁵. Future

¹² <http://www.decc.gov.uk/en/content/cms/statistics/publications/brief/brief.aspx> UK Energy in Brief 2009, pg 5.

¹³ <http://www.decc.gov.uk/en/content/cms/statistics/publications/brief/brief.aspx> UK Energy in Brief 2009, pg 9.

¹⁴ In relation to Principle 8, Practice 2 of the Code of Practice.

¹⁵ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html> Report 5, para 4.18

plans include a 'statistics governance' tab which would include links to the department's revisions policy and other department level documentation.

Protocol 1: User engagement

Effective user engagement is fundamental both to trust in statistics and securing maximum public value. This Protocol draws together the relevant practices set out elsewhere in the Code and expands on the requirements in relation to consultation.

4.30 The requirements of this Protocol are covered elsewhere in this report.

Protocol 2: Release practices

Statistical reports should be released into the public domain in an orderly manner that promotes public confidence and gives equal access to all, subject to relevant legislation.

- 4.31 DECC's release practices comply with the requirements of the Code of Practice. The statistics are pre-announced on the Publication Hub and appear to be published in an orderly and timely manner. Comprehensive contact details for the statistics team are included in each publication, giving the name and telephone number of statisticians responsible for each topic area.
- 4.32 DECC plans to publish a comprehensive statement of compliance with the Pre-Release Access to Official Statistics Order, which will include details of all those with pre-release access to its publications.

Protocol 3: The use of administrative sources for statistical purposes

Administrative sources should be fully exploited for statistical purposes, subject to adherence to appropriate safeguards.

- 4.33 As noted under Principle 6, DECC has a good record of ensuring that administrative systems are developed with statistical purposes in mind.
- 4.34 DECC has already been required to publish a Statement of Administrative Sources, as documented in the Assessment Report on UK Energy Sector Indicators¹⁶. This statement should identify the arrangements for auditing the quality of administrative data used for statistical purposes, further strengthening the information available on data quality.

¹⁶ <http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>
Report 5, para 2.4 and para 4.23

Annex 1: Suggestions for improvement

A1.1 This annex includes some suggestions for improvement to DECC's statistical outputs, in the interest of the public good. These are not formally required for re-designation, but the Assessment team considers that their implementation will improve public confidence in the production, management and dissemination of official statistics.

Suggestion 1 Publish the revisions policy on the DECC website so that it can be linked to other publications (para 4.7).

Suggestion 2 Encourage suppliers to use secure systems where available and investigate the development of secure data transfer for those data collections reliant on returns being emailed (para 4.17).

Suggestion 3 Provide an accompanying explanatory commentary for data tables published on the web to aid interpretation (para 4.23).

Annex 2: Summary of assessment process and users' views

A2.1 This assessment was conducted from July to October 2009.

A2.2 The Assessment team met representatives of the Department of Energy and Climate Change at an initial meeting in August 2009. Some background information was provided by DECC during August 2009, and Written Evidence for Assessment was provided between 26 August and 4 September 2009. The Assessment team subsequently met with DECC statisticians during September 2009 to confirm and clarify the written evidence provided.

Summary of users contacted, and issues raised

A2.3 The Assessment team received 13 responses from the user consultation. The respondents were grouped as follows:

Internal DECC	1
Other government	4
Local government	1
Academic	1
Energy Industry	4
Other	2

A2.4 Overall, the users who responded were satisfied with the statistics. In particular, key users in government and the energy industry who regularly engage with DECC reported that the statistics meet their needs and they have good relationships with DECC statisticians. However, other users were dissatisfied with the engagement with DECC. Some users highlighted the need to improve the availability of documentation, including definitions, methodological and quality information. This is discussed under principle 4 and principle 8. Some users also requested more detailed, local data, something which DECC is actively pursuing.

Key documents/links provided

Written Evidence for Assessment document

DECC publications available through the following link:

<http://www.decc.gov.uk/en/content/cms/statistics/statistics.aspx>

