Coal statistics: Technical information & methodologies

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1. Introduction

UK coal statistics can be separated into three groups, the supply and demand of coal in its natural form, supply and demand of solid fuels derived from coal (manufactured solid fuels), and the supply and demand of gases derived from the processing of the solid fuels.

Coal in its natural form can be classified into three grades, steam coal, coking coal and anthracite. Manufactured solid fuels is made up of coke & breeze and patent fuel. Benzole and tars, coke oven gas and blast furnace gas are types of derived gases.

2. Technical Notes and Definitions

These notes and definitions are in addition to the technical notes and definitions covering all fuels and energy as a whole in Chapter 1. Additional guidance on the compilation of the solid fuels and derived gases statistics can be found in the document 'Data Sources and Methodologies', available on the DESNZ section of the GOV.UK website at: https://www.gov.uk/government/collections/coal-statistics For notes on the commodity balances and definitions of the terms used in the row headings see Annex A.

2.1 Coal Production

Deep mined: The statistics cover saleable output from deep mines including coal obtained from working on both revenue and capital accounts. All licensed collieries (and British Coal collieries prior to 1995) are included, even where coal is only a subsidiary product.

Surface mines: The figures cover saleable output and include the output of sites worked by operators under agency agreements and licences, as well as the output of sites licensed for the production of coal as a subsidiary to the production of other minerals. The term 'surface mining' has now replaced opencast production as defined in DUKES pre-2011. Opencast production is a particular type of surface mining technique.

Other sources/ slurry: Estimates of slurry etc recovered and disposed of from dumps, ponds, rivers, etc.

2.2 Steam Coal, Coking Coal and Anthracite

Steam coal is coal classified as such by UK coal producers and by importers of coal. It tends to have calorific values at the lower end of the range.

Coking coal is coal sold by producers for use in coke ovens and similar carbonising processes. The definition is not therefore determined by the calorific value or caking qualities of each batch of coal sold, although calorific values tend to be higher than for steam coal.

Anthracite is coal classified as such by UK coal producers and importers of coal. Typically it has a high heat content making it particularly suitable for certain industrial processes and for use as a domestic fuel. Some UK anthracite producers have found a market for their lower calorific value output at power stations.

2.3 Allocation of Imported Coal

Although data are available on consumption of home-produced coal, and also on consumption of imported coal by secondary fuel producers, there is only very limited direct information on consumption of imported coal by final users. Guidance on how DESNZ allocate imports to final users is outlined in paragraph 3.2.5 of the 'Data Sources and Methodologies' document. This guidance can be found on the DESNZ section of the GOV.UK website at: www.gov.uk/government/collections/coal-statistics.

2.4 Coal Consumption

Figures for actual consumption of coal are available for all fuels and power producers and for final use by the iron and steel industry. The remaining final users' consumption figures are based on information on disposals to consumers by producers and on imports.

Annex A of this Digest outlines the principles of energy and commodity balances and defines the activities that fall within these parts of the balances. However, the following additional notes relevant to solid fuels are given below:

Transformation: Blast furnaces: Coking coal injected into blast furnaces is shown separately within the balance tables.

Transformation: Low temperature carbonisation plants and patent fuel plants: Coal used at these plants for the manufacture of domestic coke such as Coalite and of briquetted fuels such as Phurnacite and Homefire.

Consumption: Industry: The statistics comprise sales of coal by the six main coal producers and a few small producers to the iron and steel industry (excluding those used at coke ovens and blast furnaces) and to other industrial sectors, estimated proportions of anthracite and steam coal imports, and submission made to the EU Emissions Trading Scheme. The figures exclude coal used for industries' own generation of electricity, which appear separately under transformation.

Consumption: Domestic: Some coal is supplied free of charge to retired miners and other retired eligible employees through the National Concessionary Fuel Scheme (NCFS). The concessionary fuel provided in 2019 is estimated at 22.9 thousand tonnes. This estimate is included in the domestic steam coal and domestic anthracite figures.

2.5 Stocks of Coal

Undistributed stocks are those held at collieries and surface mine sites. It is not possible to distinguish these two locations in the stock figures. Distributed stocks are those held at power stations and stocking grounds of the major power producing companies (as defined in Chapter 5), coke ovens, low temperature carbonisation plants and patent fuel plants.

2.6 Coke oven coke (hard coke), hard coke breeze and other manufactured fuels

The statistics cover coke produced at coke ovens owned by Corus plc, Coal Products Ltd and other producers. Low temperature carbonisation plants are not included. Breeze (as defined below) is excluded from the figures for coke oven coke.

Breeze can generally be described as coke screened below 19 mm (¾ inch) with no fines removed, but the screen size may vary in different areas and to meet the requirements of particular markets. Coke that has been transported from one location to another is usually re-screened before use to remove smaller sizes, giving rise to further breeze.

The coke screened out by producers as breeze and fines appears as transfers in the coke breeze column of the balances. Transfers out of coke oven coke have not always been equal to transfers into coke oven breeze. This was due to differences arising from the timing, location of measurement and the practice adopted by the iron and steel works. Since 2000, however, the Iron and Steel Statistics Bureau (ISSB) have been able to reconcile these data. Since 2007, most of the supply of coke breeze was reclassified to coke oven coke following better information received by the Iron and Steel Statistics Bureau.

Figures are derived from returns made to HM Revenue and Customs and are broken down in greater detail in Annex G on the DESNZ section of the GOV.UK website at:
www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

In Table 2.5, the export figures used for hard coke, coke breeze and other manufactured solid fuels for the years before 1998 (as reported on the DESNZ web site) are quantities of fuel exported as reported to DESNZ or its predecessor Departments by the companies concerned, rather than quantities recorded by HM Revenue and Customs in their Trade Statistics. A long-term trend commentary and tables on exports are on the DESNZ section of the GOV.UK website at:
www.gov.uk/government/collections/digest-of-uk-energy-statistics-dukes

In 1998, an assessment using industry data showed that on average over the previous five years 91 per cent of imports had been coke and 9 per cent breeze and it is these proportions that have been used for 1998 and subsequent years in Table 2.5.

The calorific value for coke breeze has been set the same as for coke oven coke. This is following information from the iron and steel industry on the similarities between the two types of manufactured fuels.

Imports and exports of manufactured smokeless fuels can contain small quantities of non-smokeless fuels.

Other manufactured solid fuels are mainly solid smokeless fuels for the domestic market for use in both open fires and in boilers. A smaller quantity is exported (although exports are largely offset by similar quantities of imports in most years). Manufacture takes place in patented fuel plants and low-temperature carbonisation plants. The brand names used for these fuels include Homefire, Phurnacite, Ancit and Coalite.

Consumption of coke and other manufactured solid fuels: These are disposals from coke ovens to merchants. The figures also include estimated proportions of coke imports.

2.7 Blast furnace gas, coke oven gas, benzole and tars

The following definitions are used in the tables that include these fuels:

(a) Blast furnace gas: includes Basic Oxygen Steel furnace (BOS) gas. Blast furnace gas is the gas produced during iron ore smelting when hot air passes over coke within the blast ovens. It contains carbon monoxide, carbon dioxide, hydrogen and nitrogen. In a BOS furnace the aim is not to introduce nitrogen or hydrogen into the steel making process, so pure oxygen gas and suitable fluxes are used to remove the carbon and phosphorous from the molten pig iron and steel scrap. A similar fuel gas is thus produced.

(b) Coke oven gas: is a gas produced during the carbonisation of coal to form coke at coke ovens. In 2009, some coke oven gas was produced using a combination of gases other than natural gas and blast furnace gas. This total has been added to the production of coke oven gas rather than transfers because it is specifically defined as the mixture of natural gas, blast furnace gas and BOS gas. See the paragraph below on synthetic coke oven gas for a complete definition of this.

(c) Synthetic coke oven gas: is mainly natural gas that is mixed with smaller amounts of blast furnace and BOS gas to produce a gas with almost the same qualities as coke oven gas. The transfers row of Table 2.6 shows the quantities of blast furnace gas used for this purpose and the total input of gases to the synthetic coke oven gas process. There is a corresponding outward transfer from natural gas in Chapter 4, Table 4.1.

(d) Benzole: a colourless, liquid, flammable, aromatic hydrocarbon by-product of the iron and steel making process. It is used in the UK as a solvent in the manufacture of styrenes and phenols. All consumption of benzole has been allocated to non-energy use from 2009 onwards.

(e) Tars: viscous materials usually derived from the destructive distillation of coal, which are by-products of the coke and iron making processes. All consumption of tars has been allocated to non-energy use from 2009 onwards.

3. Publications

The Department for Energy Security & Net Zero (DESNZ) produces energy statistics tables on a monthly, quarterly and annual basis. All figures are published on a calendar period. Unless stated, all coal and manufactured solid fuels are published in thousand tonnes and derived gases in Giga Watt hours (GWh).

3.1 Monthly Statistics

Coal statistics are published on a monthly basis on the DESNZ website https://www.gov.uk/government/collections/coal-statistics#energy-trends:-quarterly-and-monthly-data on the last Thursday of each month. The figures are published two months in arrears, so, for example, in April 20**22**, the latest set of figures to be published are for February 20**22**. Table 1 shows the content of monthly tables. All statistics shown in these tables are aggregated and do not show the split between the grades of coal mentioned in the introduction. DESNZ do**es** not publish monthly statistics on manufactured solid fuels and derived gases.

The data is lagged by 2 months to give data providers enough time to collate and process the data in the format that DESNZ require. Once the data has been submitted, DESNZ then have the around two weeks at the start of publication month to check, validate and process the data. The final two weeks before publication are used to compile the overall energy balances - which coal statistics feeds into, and to also quality assure all the tables before they are published on the last Thursday of publication month.

3.2 Quarterly Statistics

These statistics are published on the last Thursday of March, June, September and December of each year in Energy Trends (ET). They are published in hard copy but are also available on the DESNZ website https://www.gov.uk/government/collections/coal-statistics#energy-trends:-quarterly-and-monthly-data The figures are published a quarter in arrears, so, for example, in ET June 2022, the latest set of figures to be published are for Quarter 1 2022. Quarterly statistics on coal, manufactured solid fuels and derived gases are published in the form of commodity balances, Table 2.1, Table 2.2 and Table 2.3. Commodity balances present these statistics as a breakdown of sources of supply (i.e. production, imports, stocks) and the demand of these fuels by energy producers and final consumers. For a fuller information on commodity balances, see the methodology note on energy balances

https://www.gov.uk/government/publications/energy-balance-methodology-note

Also in the commodity balance is a term referred to as a ‘Statistical Difference’. This is the difference between supply and demand and provides a high-level measure of the accuracy and consistency of the data. This difference arises because the data within each table are taken from varied sources, coal producers, coal distributors, electricity generators, the Coal Authority, HM Revenue and Customs (HMRC) and the Iron and Steel Statistics Bureau (ISSB). In general, supply data are easier to collect as the sources of supply are far fewer than the sources of demand.

The total demand figure should be within +/-0.5% of the total supply figure. Coal stocks in transit are adjusted to bring down the statistical difference.

In addition to the commodity balance, Table 2.1 and Table 2.2 shows stock levels at the end of each quarter. There are no stocks levels for derived gases in Table 2.3.

The March 2010 edition of ET publication introduced a new quarterly Table 2.4, showing coal imports by grade of coal and country. A special feature article was published with this edition explaining the reasons for producing this table. This table is available on the DESNZ website

https://www.gov.uk/government/statistics/solid-fuels-and-derived-gases-section-2-energy-trends

Table 1: Published Monthly and Quarterly Coal Statistics Tables

Frequency	Table Number	Name of Table
Monthly	Table 2.5	Coal Production and Foreign Trade
	Table 2.6	Coal Consumption and Coal Stocks
Quarterly	Table 2.1	Supply and Consumption of Coal
	Table 2.2	Supply and Consumption of Coke Oven Coke, Coke Breeze and Other Manufactured Solid Fuels
	Table 2.3	Supply and Consumption of Coke Oven Gas, Blast Furnace Gas, Benzole and Tars
	Table 2.4	Coal Imports by Country

3.3 Annual Statistics

Annual statistics are published in the Digest of United Kingdom Energy Statistics (DUKES) on the last Thursday in July of each year. The figures are published one year in arrears, so, for example, in DUKES 2020, the latest set of figures to be published are for 2019. Table 2 shows a list of all tables currently published on coal, manufactured solid fuels and derived gases.

Tables 2.1 to 2.3 shows the commodity balances (as explained for the quarterly statistics) for coal for the last three years. These, balances are shown separately for steam coal, coking coal and anthracite. Before 2008 primary cell suppression had been used for the anthracite column since very few companies produce and use anthracite in the UK. As a result, DESNZ have also had to use secondary cell suppression on some of the steam coal statistics so that the anthracite cannot be calculated. However, since DUKES 2010 DESNZ has made these figures available for 2008 data onwards, following written consent from the anthracite producers. These balances also give greater detail on where coal is being consumed.

All tables contained in DUKES are listed in Table 2.

Table 2: Published Annual Coal Statistics Tables

Table Number	Name of Table
Table 2.1	Coal Commodity Balance *Year*
Table 2.2	Coal Commodity Balance *Year -1*
Table 2.3	Coal Commodity Balance *Year -2*
Table 2.4	Supply and consumption of coal
Table 2.5	Supply and consumption of coke oven coke, coke breeze and other manufactured solid fuels
Table 2.6	Supply and consumption of coke oven gas, blast furnace gas, benzole and tars
Table 2.7	Deep mines and surface mines in production at year end
Table 2.8	Identified GB coal resource assessment
Table 2.9	Imports of coal

Further annual tables, 2.1.1. Coal production and stocks, and 2.1.2 Inland consumption of solid fuels show data over a longer time span – this is not in energy balance format but uses some of the same information as in tables 2.1 to 2.5.

Additional annual coal statistics are published in Energy Sector indicators and UK Energy in Brief.

4. Monthly and Quarterly Coal Statistics

4.1 Data Sources

The data sources for both the monthly and quarterly statistics are the same, they are just presented in a slightly different format in the published tables.

4.1.1 Monthly Returns

- Coal production figures are provided by the Coal Authority. Production statistics are provided for each licensed mine and split between deep mined and opencast mines on a calendar period.
- Trade data from HMRC. Imports and exports data are broken down by country of origin and commodity code for each calendar month. The commodity codes which are used are shown in the table below:

Commodity codes	
Steam Coal	27011290 27011900
Anthracite	27011110 27011190
Coking Coal Coke & Breeze	27011210 27040010 27040030 27040090
Briquettes	27012000

- Coal consumed in the Iron and Steel Industry provided by the ISSB - a template of this return is provided at the end of this guidance. ISSB also provide data on coking coal imports, which are the preferred source of coking coal imports. This is because there is sometimes a lag between the shipment papers ISSB receive and the point at which trade is declared and inter-company transfers may not be declared but picked in the ISSB data.
- Generation data from major power producers who use coal to generate electricity is obtained through DESNZ run surveys, see the methodology note on electricity https://www.gov.uk/government/collections/electricity-statistics
  Data on UK purchases, imports, UK sales, exports, consumption and stocks gathered from major coal producers and distributors all feed into the production of monthly coal statistics.

4.1.2 Quarterly Returns

- Production, stocks, trade and sales data from major coal producers - a template of this return is provided at the end of this guidance. This data is then weighted using coal production figures (The Coal Authority) so that we have estimates of this data for all UK coal producers. This is based on a coal production survey requesting the breakdown of coal production by type of coal, i.e. steam coal, coking coal and anthracite. Before 2016 this was done by giving proportions to the data for the three types of coal recorded – 92% to steam coal, 1.5% to coking coal and 6.5 to anthracite. Therefore, data is multiplied by 0.92, 0.15 and 0.65 for the three types of coal respectively and then multiplied by coal production from the Coal Authority.
- Production, stocks, trade and consumption data from major coal distributors - a template of this return is provided at the end of this guidance. This is not weighted to represent all UK coal distributors since DESNZ do not have information on this sector as a whole to do so.

Since January 2010 data from the major coal producers are submitted on a quarterly basis; some data on coal consumption and stocks are still required to produce the monthly coal statistics. As these returns only contribute a small percentage of all final coal consumption, estimates are used. This includes coal consumption by low carbonisation and patent fuel plants (other conversion industries), collieries, final users (including industry, domestic, public administration, commerce and agriculture), and a small proportion of consumption at coke ovens and blast furnaces. For coal stocks, this will include a small proportion of coke oven stocks, undistributed stocks, stocks held at other conversion industries and stocks in transit.

To estimate these figures we use the trends seen in historical coal statistics and looking at the previous relationship between the data that we are still collecting monthly and that which we will need to estimate. Once quarterly data is submitted and quality assured, the monthly estimates are revised to take account of the quarterly figures.

4.2 Methodology

4.2.1 Data Collection & Validation

Data is collected from data providers and stored securely on the DESNZ records management system. The monthly and quarterly data go through several validation checks before they are used to produce coal statistics as they are published. Each return is checked:

- To ensure it balances out correctly, i.e. supply equals demand.
- For data anomalies, for example, there should be no negative figures, except for stock adjustments, the opening stocks in a return are checked against closing stocks in the return for the previous month/quarter.
- Against historical returns.

Where there are discrepancies in the data these are investigated with the data suppliers. In circumstances where data providers are not able to provide an immediate answer, DESNZ work with the data suppliers to provide an estimate until data issues are resolved.

In addition to this, manual and automatic checks are carried out to also ensure all spreadsheets are linked correctly.

4.2.2 Monthly Adjustments

Beginning with December 2008 a change was made to the reporting period for coal statistics to bring them into line with the reporting periods used for other major fuels. Previously a statistical reporting period (SRP) of 4 or 5 weeks was used giving an annual period of exactly 52 weeks. December 2008 was extended by 4 days to be a period of 39 days rather than 35, and now ends on 31 December. January 2009 and all subsequent months are calendar months. The effect of this change was to add about 30 thousand tonnes to coal production in December 2008, equivalent to 1.5 per cent of December's total. As a result of this change DESNZ requested data providers to submit returns based on a calendar month.

4.2.3 Production

Monthly UK production statistics are produced solely from data obtained from the Coal Authority. All coal producers with a licence from the Coal Authority have a legal obligation to declare their production. Coal producers cannot legally mine coal without a licence. As such these data are a census of coal production.

4.2.4 Slurry

The total production figures in Table 2.5 also includes an estimate for slurry (in 2009 slurry was 2.8% of production. The figure includes slurry production data provided for companies in the quarterly major coal producers survey, with an estimate factored in for small companies who are not covered by the survey. For major coal producers, the percentage of slurry within their total reported coal supply is first calculated; this percentage is then applied to the total coal production figure reported by the Coal Authority (which covers all coal producers) to obtain the overall slurry figure. However, it was highlighted by companies responding to the

coal statistics consultation that this estimate looks high for the activity known to be taking place. DESNZ will be investigating the methodology to derive these estimates. Quarterly slurry estimates are shown as 'Other Sources' in Table 2.1. After further investigation and consultation, it was decided that this is no longer applied considering the sole producer of slurry has now closed.

4.2.5 Imports and Exports

Coal imports and exports statistics published by DESNZ primarily use trade data from HMRC. The HMRC dataset is an administrative source of monthly trade data and provides a detailed breakdown by commodity code and country. DESNZ also receives more timely data on steam coal imports from coal-fired power stations in the UK (not split by country) and coking coal imports from ISSB. These totals are cross checked with the data received by HMRC and any differences are investigated.

Although data are available on consumption of home-produced coal, and also on consumption of imported coal by secondary fuel producers, there is only very limited direct information on consumption of imported coal by final users (e.g. industries other than the iron and steel industry, domestic users and public admin).

Surveys of the destination of steam coal imports (excluding those used by electricity generators) used to be carried out from time to time. HMRC imports that have not been reconciled with imports from other data sources are re-allocated as an estimate of consumption of imported coal by final users. The most recent was in 1998 and concluded that it was appropriate to re-allocate 60 per cent of such imports each year to industry, 15 per cent to the public administration sector and 25 per cent to the domestic sector. Over the years this has been revised and the proportions are now 82.5 per cent to industry, 15 per cent to domestic and 2.5 per cent to public administration. In addition, 10 per cent of anthracite imports, excluding cleaned smalls, are allocated to industry, with 90 per cent to the domestic sector in all years shown in the tables. From 2000, imports have been allocated within the overall industry sector using the results of the Office for National Statistics Purchases Inquiry (until ONS stopped this survey for a period from the 2006 data), and information derived from the EU Emissions Trading Scheme submissions (subsequently the UK ETS from 2021 onwards).

All imports of coking coal and cleaned anthracite smalls are allocated to coke and other solid fuel producers. The very distributed nature of coal supply means that although these approaches are valid, some care should still be taken with using the consumption data.

4.2.6 Electricity Generation

The consumption of coal by for electricity generation are as reported by a census of the major coal-fired power stations and quarterly autogenerators survey. Monthly figures for autogenerators are estimated by dividing the quarterly figure by the number of days in the quarter and then multiplying by the number of days in the month. This ensures consistency with electricity statistics. Provisional figures for 2009 show that 80 per cent of total demand for coal comes from electricity generators. This figure also includes coal consumed by autogenerators which comes from the autogenerators survey. The figure for coal consumed for electricity generation in Table 2.6 does not match coal consumed for electricity generation in Table 5.3 because Table 5.3 does not include coal consumed by autogenerators.

https://www.gov.uk/government/statistics/electricity-section-5-energy-trends

4.2.7 Coke Ovens & Blast Furnaces

This is the consumption of coal in coke ovens and blast furnaces, as reported ISSB. Up to 2014 consumption was also reported by Monckton Coke and Chemicals, the only dedicated coke plant, but this closed in December 2014. This data is adjusted to calendar months because ISSB were unable to provide the data in this form. The totals for coke ovens and blast furnaces are shown separately in Table 2.1.

4.2.8 Industry

This is consumption of coal by industries other than the Iron and Steel industry. It is calculated as other industry estimated sales by UK coal producers plus 92.5 per cent of unallocated steam coal imports and 10

per cent of unallocated anthracite imports (see imports and exports section for details on unallocated imports). From this total coal used by autogenerators and for heat generation in the industrial sector is deducted since this has already been included in the autogeneration and heat generation figures. This is shown as 'Other Industries' in Table 2.1.

4.2.9 Other Conversion Industries

Consumption by other conversion industries is calculated using sales made to other fuel producers by major producers of anthracite. The figure is adjusted to calendar months because the companies providing this data are unable to provide it in this form. It is then grossed up using UK coal production figures (provided by the Coal Authority) and added to anthracite imports by other fuel producers to provide an estimate for total UK coal consumption by other conversion industries. This is shown as 'Patent Fuel Manufacture' in Table 2.1.

4.2.10 Other Consumers

In the monthly coal Table 2.5, other consumers is represented as the sum of the categories below.

Collieries consumption is coal used directly by the coal producers. This is shown as 'Energy Industry Use' in Table 2.1.

Heat Generation The quantities of fuel burned to generate heat that is sold under the provision of a contract to a third party are shown in their commodity balances under this heading. It includes heat that is generated and sold by combined heat and power plants and by community heating schemes (also called district heating). The figure for heat generation is only available and updated on an annual basis and is then split over four quarters, based on seasonal heat patterns and then divided to give a monthly figure. This is done by dividing the quarterly heat generation total by the number of days in a quarter and then multiplying by the number of days in each month. This is shown separately in Table 2.1 under then 'Transformation' heading. These figures are used for the following year until the next set of annual heat generation figures are produced. The supply of heat from coal use is small and whilst this methodology provides a good estimate it is not as accurate as data for electricity generation.

Domestic consumption is derived using the estimates of UK coal sales by coal producers. It is calculated as domestic sales plus 75 per cent of sales to traders plus 15 per cent of unallocated steam coal imports and 90 per cent of unallocated anthracite imports (see section 3.2.5 Imports and Exports, for details on unallocated imports).

Other Final Users consumption includes consumption by the agriculture, transport, commercial sectors and public admin sectors. Public admin consumption is derived in a similar way as domestic consumption. It is calculated as other final users estimated sales by UK coal producers plus 25 per cent of sales to traders plus 2.5 per cent of unallocated steam coal imports (see section 3.2.5 on Imports and Exports for details on unallocated imports). From this total deduct autogeneration and heat generation in the commercial sector (obtained from the autogenerators survey) since this has already been included in the autogeneration and heat generation figures.

Adjustments are made to consumption data, so that the figures are in line with trends. For domestic consumption seasonal trends and temperatures are considered when making adjustments.

4.2.11 Stocks

Figures for 2016 show that around 84 per cent of total coal stocks are those held by the major power producers being surveyed by DESNZ. The stocks are as reported by these power producers. The rest of the coal stocks are made up of coal held at coke ovens, by coal producers, by other conversion industries and stocks in transit.

Note, stock change is only published on a quarterly basis. However, for any given month this is simply the difference between opening stock (this should be equivalent to the closing stock of the previous month) and

the closing stock. A positive stock change means a fall in stock levels, therefore, increases total UK coal supply. A negative stock change indicates a rise in stock levels, therefore, decreases total UK coal supply.

5. Quarterly Manufactured Solid Fuels and Derived Gases Statistics

5.1 Data Sources & Methodology

See sections 3.1.1 to 3.2.2 for the data sources used, method of data collection and validation. Some manufactured solid fuels and derived gases data are received monthly but are only published on a quarterly basis.

The commodity balances presented for these two series are compiled using similar methodology to coal statistics. Therefore, the rest of this section provides some information where methods are different or clarification needs to be given on definitions.

5.1.1 Imports

The ISSB are the preferred source of data for coke and breeze imports since ISSB receive more timely shipment papers from the ports compared to HMRC. However, the HMRC data is useful when DESNZ need to split these imports between EU and Non-EU, which the ISSB data currently does not provide.

5.1.2 Transfers

Transfers are synthetic coke oven gas, which is natural gas that is mixed with smaller amounts of blast furnaces to produce a gas with almost the same qualities as coke oven gas. Since some blast furnace gas is used to make synthetic coke oven gas, it will always be shown as a negative transfer in the blast furnace balance and a positive transfer in the coke oven gas balance. This is not visible in quarterly balance of derived gases (Table 2.3) since the figures are aggregated but it can be seen in the annual balances in Table 2.5 and 2.6.

5.1.3 Consumption in the Iron & Steel Industry

This is the sum of coke consumed in arc furnaces and breeze consumed in sinter plants in the Iron and Steel Industry. Arc furnaces are a type of electric furnace in which heat is generated by an arc between carbon electrodes above the surface of the metal being heated. Sinter plants are used to process coke plus other fine grain raw material (limestone and iron ore) into coarse grained iron ore sinter to be charged in blast furnaces. These data are sourced via a census run by ISSB.

5.1.4 Reallocated Imports to Other Industries & Domestic Sector

See section 3.2.5 Imports and Exports, to explain the reasons for re-allocated coke and breeze imports. Of the total re-allocated coke and breeze imports, 33 per cent goes to the industrial sector and 67 per cent is allocated to the domestic sector.

5.1.5 Production of Coke and Breeze, and Patent Fuel

The energy content of coke and breeze, and patent fuel being produced should be less than the energy content on the coal being used in the transformation process. To obtain the energy content multiply the figure by the GCV (Gross Calorific Value) and then multiply by 0.023885, which is the conversion factor to ttoe (thousands of tonnes of oil equivalent). Adjustments are made to the transformation if the coke and breeze, and patent fuel production are higher than the transformation.

6. Annual Statistics

Annual coal statistics are largely based on the same data as the monthly and quarterly statistics. However, separate annual returns are collected from the major coal producers, since the annual returns provide a more detailed breakdown of sales (using the standard industrial classification 2003), which feed into the annual commodity balances in Tables 2.1, 2.2 and 2.3 – these are different to the quarterly Tables 2.1, 2.2 and 2.3. These are reconciled with the monthly returns and where there are differences these are investigated with the data providers.

Monthly and quarterly data are reconciled with the annual data. Adjustments are made to monthly and quarterly data where there are small differences.

DESNZ also receive annual gross calorific values against each of the sales figures from the major coal producers. Calorific values represent the total energy content of a fuel. These are aggregated and weighted to obtain Net and Gross Average CVs. Gross CVs are 95 per cent of Net CVs. These are published in Annex A in DUKES and can be used to convert solid fuel and derived gases statistics into a measure of energy content rather than a physical quantity.

Data on coal consumption by sector based on the UK Emissions Trading Scheme (UK ETS) is also used as an additional source of final consumption. However, this data is only available two years in arrears. For example, for DUKES 2022, the latest annual statistics DESNZ publish are for 2021, however, the latest UK ETS data available is for 2015. This is added to the consumption data that comes from the returns. Adjustments are made where necessary so that the consumption data is in line with the trends.

7. Users of the data

DESNZ itself is one of the main users of the solid fuel and derived gases statistics as these figures are included in some of the electricity and energy tables in DUKES to help provide the complete energy picture. In addition, the figures are also used to help inform DESNZ's coal policy and when DESNZ makes projections of energy demand, fuel mix and resulting CO2 emissions. Outside DESNZ, the statistics are used by other government departments, academics and other organisations such as CoalImp and CoalPro. There is also international interest in these statistics as we are required to submit coal information to the International Energy Agency on an annual basis.

8. Useful Sources of Information

The Coal Authority: http://www.coal.gov.uk/

Iron and Steel Statistics Bureau: http://www.issb.co.uk/home#welcome_to_issb_-_iron_and_steel_statistics_bureau

HM Revenue and Customs: http://customs.hmrc.gov.uk/channelsPortalWebApp/channelsPortalWebApp.portal?_nfpb=true&_pageLabel=pageImport_Home

The Solid Fuel Association: http://www.solidfuel.co.uk/frame/main.html

CoalImp (Association of UK Coal Importers): http://www.coalimp.org.uk/OaOInternal/DefaultWebs/SedoCurrent/Sedo.aspx

CoalPro (Confederation of UK Coal Producers): http://www.coalpro.co.uk/index.shtml

9. Data Return Templates

9.1 Major Coal Producers Quarterly Template

Quarter 1

Please complete and return this form by: 19 April 2010

Period covered by this return: From 1-Jan-10 To 31-Mar-10

			Bituminous Coal ('000 tonnes)	Value of sales of all coal (excl VAT) (£'000)	Value of Climate Change levy collected (£'000)
Opening Stocks					
Production		Deep-mined coal			
		Opencast coal			
		Other			
		Total Production (calculated)			
Trade		Purchases from other main UK coal producing companies			
		Purchases from other UK sources			
		Imports			
		Total Trade (calculated)			
Sales	Own consumption	Direct consumption			
		Energy Production			
		Total own consumption (calculated)			
	Energy producers	Major electricity generators			
		Other electricity generators			
		Coke ovens			
		Other fuel producers			
		Total energy producers (calculated)			
	Final users	Iron and steel			
		Other industry			
		Transport			
		Domestic			
		Traders other than those selling to the domestic sector			
		Other final users			
		Total final users (calculated)			
	Exports				
		Total sales (calculated)			
Stock adjustment (see guidance notes page)					
Closing stocks					
Stock change (calculated) (see guidance notes page)					
Validation (opening stocks+total production+total trade-total sales-closing stocks)					
Notes:					

9.2 Major Coal Producers Annual Template

Annual questionnaire for coal producers: 2010
Please complete and return this form by: 25 February 2011
Period covered by this return: From 1-Jan-10 To 31-Dec-10

				Bituminous Coal ('000 tonnes)	Coking Coal ('000 tonnes)	Value of sales of all coal (excl VAT) (£'000)	Value of Climate Change levy collected (£'000)
Opening Stocks (brought forward from closing stocks of previous year)				0			
Production			Deep-mined coal				
			Opencast coal				
			Other				
			Total Production (calculated)	0			
Trade			Purchases from other main UK coal producing companies				
			Purchases from other UK sources				
			Imports				
			Total Trade (calculated)	0			
Sales	Own consumption		Direct consumption				
			Energy Production				
			Total own consumption (calculated)	0			
	Energy producers		Major electricity generators				
			Coke ovens				
			Patent fuel plants				
			Low temperature carbonisation				
			Total energy producers (calculated)	0	0		
	Final energy users	***SIC codes***	**Industrial sector:**				
		27 (excl 27.4, 27.53, 27.54)	Iron and steel (excluding coke ovens)				
		24	Chemicals and petrochemicals				
		27.4, 27.53, 27.54	Non-ferrous metals				
		14, 26	Mineral Products				
		34, 35	Transport equipment				
		28, 29	Mechanical engineering and metal products				
		30-33	Electrical and instrument engineering				
		15,016	Food, Beverages and tobacco				
		21, 22	Pulp, paper, printing and publishing				
		45	Construction				
		17-19	Textiles, clothing, leather and footwear				
		13, 20, 25, 36, 37, 41	Other industry (please specify):				
			Total final users (calculated)	0	0		
			Transport				
		60.1	Rail				
		61	Inland Waterways				
			Total transport (calculated)	0			
			Domestic				
			Other sectors				
		50-52, 55, 64-67, 70-74	Commercial				
		75, 80, 85	Public Services				
		01, 02, 05	Agriculture				
			Traders other than those selling to the domestic sector				
			Other (please specify):				
			Total other sectors (calculated)	0			
	Exports						
			Total sales	0			
Stock adjustment (see guidance notes page)							
Closing stocks							
Stock change (calculated) (see guidance notes page)				0			
Validation (opening stocks+total production+total trade-total sales-closing stocks)				0			
Notes:							

		GWh
Colliery methane	Sales to electricity generators	
	Use at collieries	
	Sales to other industries	

9.3 Major Coal Distributors Quarterly Template

Quarter 1

Period covered by this return: From To

	Steam Coal (tonnes)	Anthracite (tonnes)	Coking Coal (tonnes)	Total (tonnes)	Comments
Opening Stocks					
Receipts					
Inland					
Imported					
Sales					
Industry:	0	0	0	0	Equals sum of sales to industry
Unclassified / Unknown				0	
Iron and steel and Non-ferrous metals				0	
Mineral products				0	
Chemicals				0	
Metal products, machinery and equipment				0	
Food, beverages etc				0	
Other industries (including construction)				0	
Other:					
Transport				0	
Domestic				0	
Traders other than those selling to the domestic sector				0	
Other final users				0	
Exports				0	
Total Sales	0	0	0	0	Equals Industry+Transport+Domestic+Other Traders+ Other final users + Exports
Stock adjustments					
Closing Stocks	0	0	0	0	Equals opening stocks+receipts-sales+stock adjustment

10. Glossary and Acronyms

Anthracite – a compact hard type of coal. Because of its high calorific value, it is particularly suitable for certain industrial processes and for use as a domestic fuel

Benzole – a colourless, flammable, hydrocarbon, a liquid by-product of the iron and steel making process

Blast furnace gas – residual gas from blast furnaces (used for steel production), used to generate electricity on-site.

Breeze – coke screened below 19 mm (3/4 inch) but the size may vary in different areas and to meet the requirements of particular markets

Calorific Values – amount of energy stored in a fuel, measured in joules per tonne (or joules per cubic metre for natural gas)

Coke oven coke – the solid product obtained from the carbonisation of coal, principally coking coal, at high temperature. It is low in moisture and volatile matter. Used mainly in the iron and steel industry

Coke oven gas – residual gas from coke ovens (used to create coke, for iron smelting), used to generate electricity on-site

Coking coal – coal sold by producers for use in coke ovens and similar carbonising processes. The classification is determined by intended use rather than calorific value or caking qualities, although calorific values tend to be higher than for steam coal.

Commodity codes – reference numbers used to classify traded products (commodities)

DESNZ – Department for Energy Security & Net Zero

DUKES – Digest of United Kingdom Energy Statistics

ET – Energy Trends

EU-ETS – European Union Emissions Trading System (UK-ETS from 2021 onwards)

GW – Gigawatt – Rate of energy consumption or production, in joules per second. 1 GW = 1000 MW

GWh – Gigawatt-hour – Quantity of energy consumed or produced, in one hour. 1 GWh = 1000 MWh

HMRC – HM Revenue and Customs

ISSB – Iron and Steel Statistics Bureau

Patent fuels – composition fuels manufactured from coal fines (i.e. pieces of coal less than 0.5 mm in diameter) by shaping with the addition of a binding agent (typically pitch)

SD – Statistical Difference – the difference between total demand and total supply

Slurry – a mixture of coal waste and water, or crushed coal and water

SRP – Statistical reporting period

Steam coal – Steam coal is coal classified as such by UK coal producers and by importers. It tends to have low calorific values; it is also the type of coal that is typically used for steam raising

Tars – Viscous materials usually derived from the destructive distillation of coal; by-products of the coke and iron making-processes

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