

**Documentation of statistics for
Energy Consumption 2016**

1 Introduction

The purpose of energy census for the manufacturing industry is to analyze volume and composition of the energy consumed by the manufacturing industry.

Data on energy consumption by manufacturing industry is provided from 1980 and since then from 1983, 1985, 1988, 1990, 1993, 1995, 1996, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2012, 2014 and 2016.

2 Statistical presentation

The energy census for the manufacturing industry covers all work units in industrial companies with at least 20 employees. That is equivalent to approximately 90 per cent of the energy consumption by manufacturing. It covers in principle the consumption of all energy sources.

2.1 Data description

The statistics cover all production units (local units) within the industrial sector belonging to companies with at least 20 employees. Figures for enterprises with less than 20 employees are not estimated. The statistics is therefore referred to as a cut-off statistic (cut-off limit at 20 employees measured at enterprise level). The target population and the frame population are the same.

The overall objective of the statistic is to measure the energy consumption in connection with manufacturing. Furthermore, it is possible to shed light on the composition of different energy species.

2.2 Classification system

The type of industries follows the European standard, NACE rev. 2, which is comparable with the Danish classification DB07.

2.3 Sector coverage

The statistics mainly cover the manufacturing sector.

2.4 Statistical concepts and definitions

Energy Product by Type: To be reported are total energy consumption by type measured in quantity and the connected value.

2.5 Statistical unit

The unit of measure used for publication is the local unit (/production unit). The different classifications (i.e. type of industry) used for publication are connected to the local units.

2.6 Statistical population

The statistics cover all production units (local units) within the manufacturing sector belonging to companies with at least 20 employees. The type of industry uses the Danish classification DB07, which is comparable with NACE rev. 2, at a 2-digit level.

The population does not only cover the industrial sector (2-digit DB07 10-33), but also include some part of mining and quarrying (2-digit DB07 08-08)

2.7 Reference area

Denmark

2.8 Time coverage

Data on energy consumption by manufacturing industry is provided from 1980 and since then from 1983, 1985, 1988, 1990, 1993, 1995, 1996, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2012, 2014 and 2016. Comparable statistics are not available. Besides the systematic surveys of energy consumption by manufacturing industry Statistics Denmark has carried out test surveys in other areas.

2.9 Base period

Not relevant for these statistics.

2.10 Unit of measure

Energy consumption by energy species are converted to Giga Joule (GJ) for publication.

The statistics contains the following variables:

Solid fuel:

- Hard coal (tonnes)
- Furnace coke, coke and brown coal (tonnes)
- Fuel wood, sawdust, straw inclusive of own production (tonnes)
- Waste, inclusive of paper, cardboard and wood (tonnes)
- Own production of waste (tonnes)

Liquid fuel:

- Motor gasoline for registered vehicles (m³), (NOUSE)
- Other gasoline products, for instance tax free gasoline (m³), (NOUSE)
- Diesel oil for registered vehicles (m³), (NOUSE)
- Gas oil and other diesel oil products (m³)
- Heavy fuel oil (tonnes)
- Petroleum coke (tonnes)
- Waste oil (tonnes)
- Refinery gas (tonnes)

Gas:

- Auto gas for registered vehicles (tonnes), (NOUSE)
- Other liquid gas products (LPG, e.g. bottled gas (tonnes)
- Natural gas (1,000 m³)
- Town gas (1,000 m³)
- Biogas (1,000 m³)

Electricity:

- Purchase of electricity (kWh)
- Own production of electricity (kWh), (NOUSE)
- Own consumption of self-produced electricity (kWh),
- Sale of own production of electricity (kWh), (NOUSE)

District heating:

- Purchase of district heating (GJ/m³/MWh)
- Own production of district heating (GJ/m³/MWh), (NOUSE)
- Own consumption of self-produced district heating (GJ/m³/MWh)
- Sale of own production of district heating (GJ/m³/MWh), (NOUSE)

Information about use of energy sources heavy process, light process and heating is gathered from 1996-2001. Information about prices paid exclusive of taxes and VAT is gathered from 1999-2001.

(NOUSE= no information about use)

Furthermore, information is collected on initiatives taken to use energy more efficiently, etc. This information is primarily used by the Danish Energy Authority.

2.11 Reference period

Purchase in the census year.

2.12 Frequency of dissemination

Consumption of energy by the manufacturing industry is published every two years.

2.13 Legal acts and other agreements

The information is collected in pursuance of the Act on Statistics Denmark (Lov om Danmarks Statistik), cf. Order no. 599 of 22 June 2000 and the Danish Preparedness Act (Beredskabsloven) no. 1054 of 23 December 1992.

Commission Regulation (EU) Nr. 549/2013 of 21 May 2013.

2.14 Cost and burden

Total costs associated with reporting was 784000 Kroner (DKK) in 2016, based on an estimate.

2.15 Comment

Other information is not available.

3 Statistical processing

When the reported data have passed the quality checks, they are prepared for needed imputation. Imputation is only carried out for non-responding units, and uses a stratified approach (nearest neighbor).

The results are compiled by adding up by groups.

The response rate is high - nearly 98-99 percent.

3.1 Source data

The energy census for the manufacturing industry, is a primary source, which means that data is formed in this census.

3.2 Frequency of data collection

Information is collected every two years.

3.3 Data collection

The statistics is conducted as a web-based questionnaire. More information on: [Reporting] (<https://www.dst.dk/da/Statistik/emner/energi/energiforbrug.aspx>)

3.4 Data validation

The two primary sources of inaccuracy in the statistics are:

- Reports containing errors
- Typing mistakes when data are entered

At the time of typing, all data go through liability checks. These consist of comparisons of data with the company's earlier reported data and of checks with predefined numbers.

After that follows a more detailed error-seeking process where data are checked thoroughly by running a number of programmes.

All discovered discrepancies are checked and corrected by calling the involved companies.

3.5 Data compilation

When the reported data have passed the quality checks, they are prepared for needed imputation. Imputation is only carried out for non-responding units, and uses a stratified approach.

The results are compiled by adding up by groups.

The response rate is high - nearly 99 percent.

3.6 Adjustment

The difference between the provisional and final statistics is usually less than 1 per cent based on total energy consumption.

The published statistics for 2016 is final.

4 Relevance

The results from the energy census are used by Statistics Denmark to compile energy balances that are used in the national accounts.

Furthermore, the parties involved in energy planning, for instance municipalities, counties, the Energy Authority and affected supply companies, need the information.

A number of industrial associations, private companies and research institutes have also expressed an interest in the results. Furthermore, the energy census is used for energy statistics compiled by the International Energy Agency (IEA).

4.1 User Needs

The results from the energy census are used by Statistics Denmark to compile energy balances that are used in the national accounts. Furthermore, the parties involved in energy planning, for instance municipalities, counties, the Energy Authority and affected supply companies, need the information. A number of industrial associations, private companies and research institutes have also expressed an interest in the results. Furthermore, the energy census is used for energy statistics compiled by the International Energy Agency (IEA).

4.2 User Satisfaction

In general, public authorities as well as private companies are very satisfied with the statistics on energy consumption.

4.3 Data completeness rate

Results published are in line with guidelines.

5 Accuracy and reliability

In general the quality of the statistics is good - especially main figures which builds on aggregates.

At a more detailed level, the results are more uncertain, mainly due to measurement errors.

5.1 Overall accuracy

Since all units in the population for manufacturing industry is covered by the census the overall reliability of the final results is estimated to be very high and consistent with the actual consumption. For other industries data are based on test sample surveys and a certain possibility of inaccuracy.

5.2 Sampling error

Not relevant, since the reporting units cover all units in the frame.

5.3 Non-sampling error

Uncertainty is mainly connected to measurement errors.

5.4 Quality management

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

5.5 Quality assurance

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

5.6 Quality assessment

In general the quality of the statistics is good.

Since the reporting units cover the entire population frame, the sampling errors are eliminated. On the other hand, the statistics is affected by other errors, mainly measurement errors.

The two primary sources of inaccuracy in the statistics are:

- Reports containing errors
- Typing mistakes when data are entered

Error reporting are addressed in the liability checks, which ensure a good data quality.

5.7 Data revision - policy

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

5.8 Data revision practice

The difference between the provisional and final statistics is usually less than 1 per cent based on total energy consumption.

6 Timeliness and punctuality

Results are published no later than 8 months after the end of the reference period.

6.1 Timeliness and time lag - final results

Results are published no later than 8 months after the end of the reference period in a news article.

6.2 Punctuality

The statistics are usually published without delay in relation to the scheduled data.

7 Comparability

Data on energy consumption by manufacturing industry is provided from 1980 and since then from 1983, 1985, 1988, 1990, 1993, 1995, 1996, 1997, 1999, 2001, 2003, 2005, 2007, 2009, 2012, 2014 and 2016. Besides the systematic surveys of energy consumption by manufacturing industry Statistics Denmark has carried out test samples in other areas.

Time series can be found in Statistikbanken for the years 2012, 2014 and 2016.

7.1 Comparability - geographical

The results from the energy census are used by Statistics Denmark to compile energy balances that are used in the national accounts.

7.2 Comparability over time

The energy census has been carried out since 1980 and has gone through only very few changes. However, new energy sources have been introduced while others are no longer used. In 1995, the energy census was partly based on test samples, which can give problems when comparing the energy consumption over time. Information about use of energy sources heavy process, light process and heating is gathered from 1996-2003. Information about cost for energy exclusive of taxes and VAT is gathered from 1999-2001. For other industries data has been collected for 1997, 2002 and 2004. Data for 2002 and 2004 are comparable, but data for 1997 involve different industries.

7.3 Coherence - cross domain

Comparable statistics are not available.

7.4 Coherence - internal

Not relevant for these statistics.

8 Accessibility and clarity

Results are published in a news article in august every two years.

Furthermore, some figures will be available through the Stat bank at [StatBank](#).

In addition, main figures will be published the Statistical Yearbook.

More information are available on the website: [Subject](#).

By request, Statistics Denmark do client work.

Researchers have the opportunity to get access to anonymised micro-ata.

8.1 Release calendar

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

8.2 Release calendar access

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

8.3 User access

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

8.4 News release

The latest publication can be viewed at: [News](#).

8.5 Publications

The results are only available in a news article.

8.6 On-line database

Total energy consumption by municipality, NACE and energy source for 2012, 2014 and 2016 is available at: se [Municipality](#).

8.7 Micro-data access

Researcher have the opportunity to get access to anonymised micro-data.

8.8 Other

The main figures are important input to the energy balances, which are developed under the national account system.

8.9 Confidentiality - policy

In the compilation of the statistics, the confidentiality policy of Statistics Denmark is followed.

8.10 Confidentiality - data treatment

In the compilation of the statistics, the confidentiality policy of Statistics Denmark is followed.

8.11 Documentation on methodology

Not relevant for these statistics.

8.12 Quality documentation

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

9 Contact

The administrative placement of these statistics are in the division of Business Dynamics. The person responsible is Ole Olsen, tel. +45 39 17 38 63, e-mail: olo@dst.dk

9.1 Contact organisation

Statistics Denmark

9.2 Contact organisation unit

Business Dynamics, Business Statistics

9.3 Contact name

Mr. Ole Olsen

9.4 Contact person function

Responsible for the statistics

9.5 Contact mail address

Sejrøgade 11, 2100 Copenhagen

9.6 Contact email address

olo@dst.dk

9.7 Contact phone number

+45 39 17 38 63

9.8 Contact fax number

+45 39 17 39 99