

COUNTRY PRACTICE IN ENERGY STATISTICS

Topic/Statistics: Energy Statistics

Institution/Organization: Statistics and Census Service

Country: Macao, China

Date: 12/04/2012

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Abstract

Write a short abstract of the statistics, and try to limit it to one page. The purpose of the abstract is to give the reader a general overview of the statistics/topic. It should therefore include a brief overview of the background and the purpose of the statistics, the population, the sample (if relevant), the main data sources, and the main users of the statistics. The abstract should also mention what is the most important contribution or issue addressed in the country practice (e.g. the practice deals with challenges of using administrative data, using of estimation, quality control, etc.). If there are other elements that are considered important, please feel free to include them in the abstract.

Keep in mind that all relevant aspects of the statistical production will be covered in more detail under the different chapters in the template. Therefore, the abstract should be short and focused on the key elements. What the most important elements are can vary from statistics to statistics, but as a help to write an abstract you can use the table below. The table can either replace a text or can be filled out in addition to writing a short text.

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Key elements	
Name of the statistics	Energy Statistics
Background and purpose of the statistics	Importers and distributors of fuels, and enterprise engages in generation, transmission, import, distribution and sales of electricity. The main objective is to provide data on the input, supply and consumption of fuels and electricity of Macao, China.
Population, sample and data sources	Full enumeration on 23 enterprises filling monthly questionnaires
Main users	Estimation of GDP and Government departments
Important contribution or issue addressed	
Other remarks	

1. General information

1.1. Name of the statistics/topic

The statistics/topic could either be a specific energy statistics (e.g. electricity production) or a topic within energy statistics (e.g. energy balances). For more information, please see Section III of the Instructions.

Energy statistics

1.2. History and purpose

State when the statistics were first published.

1988

Describe briefly the main purpose of producing the statistics and why it is relevant.

Provide data on the input, supply and consumption of fuels and electricity of Macao, China.

1.3. Reference period

State the time period the data are collected for.

Calendar month

1.4. Frequency

Specify how often the statistics are disseminated (e.g. annually, monthly, quarterly, etc.). If the statistics are not produced at regular intervals, state at what times they have been produced in the past and the main reasons behind the irregularities.

Monthly, quarterly, annually

1.5. Dissemination

Describe how the statistics are published (e.g. printed publications, online publications, online databases, etc.). If applicable, include the web address to the main website of the statistics.

monthly in the Monthly Bulletin of Statistics
<http://www.dsec.gov.mo/statistic/general/MonthlyBulletinOfStatistics>
quarterly in the Energy Statistics
<http://www.dsec.gov.mo/statistic/IndustrialAndEnergy/BalanceOfEnergy>
annually in the Yearbook of Statistics
<http://www.dsec.gov.mo/statistic/general/YearbookOfStatistics>

1.6. Regional level

State the lowest geographical level (e.g. administrative regions, municipalities, etc.) for which the statistics are made available to the public.

Macao, China

1.7. Main users

Identify the key users of the data and the main applications. Include both internal and external users, and if possible try to distinguish between end users and others.

Statistics and Census Service: Internal reference for GDP estimates
Government departments: Meteorological and Geophysics Bureau, Office for the Development of the Energy Sector, Environmental Protection Bureau, Consumer Council

1.8. Responsible authority

Write the name of the institution and department/office with the main responsibility for disseminating the statistics (e.g.: Statistics Norway, Department of Economics, Energy and the Environment).

Statistics and Census Service

1.9. Legal basis and legally binding commitments

State the national legal basis for the data collection. Include a complete reference to the constitutional basis, and web address to an electronic version (e.g.: The Statistics Act of 16 June 1989 No. 54, §§2-2 and 2-3, http://www.ssb.no/english/about_ssb/statlaw/forskrift_en.html).

Decree Law 62/96/M (October 14, 1996) stipulates the Statistical Information System of Macao (SIEM) and the Dispatch 242/GM/99 (November 1, 1999) regulating statistical confidentiality
<http://www.dsec.gov.mo/AboutUs.aspx#d>

If the data collection is not based on a legal basis, give a short description of other agreements or volunteer arrangements.

Not relevant

If applicable, give reference to national and international commitments that are legally binding (e.g. EU statistical legal acts).

Not relevant

1.10. Resource requirements

Specify how the production of the statistics is financed (e.g. over the ordinary budget, project based support, financial support from other institutions or organization). If applicable, state the contracting entity (e.g.: Ministry, EU Commission, OECD). A contracting entity is any entity which is ordering a survey or the compilation of a statistics, and paying for it

Ordinary budget of the Statistics and Census Service.

Specify the resource requirements for producing the statistics (e.g. man-labour days, number of workers involved in the statistical production process of the statistics/topic in question).

1 clerical staff with 15 man-labour days, 1 senior staff with 6 man-labour days involved in the statistical production process of Energy Statistics each month.

1.11. International reporting

List any international organizations and names of reporting schemes that the statistics are reported to. If available, also include the website where the reported data are published (e.g. International Energy Agency, Monthly Oil Statistics, UNSD, etc.).

UNSD, BP Statistical Review of World Energy

2. Statistical concepts, methodology, variables and classifications

2.1. Scope

Describe the scope of the statistics (e.g. the statistics cover supply and use of all energy products in Norway, classified according to International Standard Industrial Classification of All Economic Activities – ISIC).

Importers and distributors of fuels, and enterprise engages in generation, transmission, import, distribution and sales of electricity. The main objective is to provide data on the input, supply and consumption of fuels and electricity of Macao, China.

2.2. Definitions of main concepts and variables

Describe the main concepts (e.g.: territory principle, resident principle, net calorific value, gross calorific value).

Main concepts are based on UN references:

- Energy statistics: Definitions, units of measurement and conversion factors, Series F No.44, 1991
- Energy statistics: A manual for developing countries, Series F No.56, 1992

Describe the main variables (e.g. how are the different energy products defined in the statistics? How are production, intermediate consumption, final consumption, transformation, feed stock, the energy sector, etc. defined?).

Definition of energy products are with reference of UN.

Available supply of fuels = Net imports + Opening stock

Available supply of electricity = Gross production – Plant consumption and losses + Net imports

Consumption of fuels = Local sales (excluding sales to energy distributors)

Consumption of electricity = Electricity sold + Free supply of electricity + Own consumption

Days off-take refer to the number of days of reserve in closing stock under normal consumption

2.3. Measurement units

Describe in what unit the data is collected (e.g. physical unit (m³, metric tons), monetary unit (basic prices, market prices)). Describe in what unit the data is presented. Describe if the calorific values are collected (e.g. on a net vs. gross basis) and how they are used.

If applicable, describe the density of the energy product(s) and the estimated *thermal efficiency coefficients* of different energy products and consumer groups or by appliance. Thermal efficiency coefficient indicates the share of the energy products which is actually usable for end consumption. Descriptions of density and thermal efficiency coefficient could alternatively be put in an annex.

Data is collected in physical unit (M³, metric tons, million kWh) for import of fuels and electricity generation. Import is valued at CIF (cost, insurance and freight). Density of the products and all relevant conversion factors are based on the reference of UN.

2.4. Classification scheme

Include references to relevant international and national standard classifications. If national, give a brief description of the standards. If available, include web addresses to the electronic version of the standards).

2.5. Data sources

Give an overview of the different data sources used in the collection and compilation of the statistics/topic (e.g. household survey, enterprise/establishment survey, administrative data/registers, foreign trade statistics, production statistics and other primary/secondary data sources).

Examples of administrative sources/registers are: business register for enterprises and establishments, population register, land register, housing and building registers, tax registers, international trade registers, etc.

Monthly Survey of Electricity Generation, Monthly Survey of Fuels, External Merchandise Trade Statistics

2.6. Population

Describe the entire group of units which is the focus of the statistics (the population).

Importers and distributors of fuels, and enterprise engaging in generation, transmission, import, distribution and sales of electricity.

Specify the following statistical units:

- Reporting unit
- Observational unit
- Analytical unit

Examples of different kind of statistical units include: enterprise, enterprise group, kind-of-activity unit (KAU), local unit, establishment, homogeneous unit of production.

In most cases the reporting unit, observational unit and analytical unit are identical, but there are examples where this is not the case. In electricity statistics, you may find that energy companies (the reporting unit) provide data about different consumers like the individual household or manufacturing company (the observational unit). The analytical unit may be a group of energy consumers, defined by the ISIC.

Reporting unit: enterprise of fuel import or electricity generation
 Observational unit: enterprise of fuel import or electricity generation
 Analytical unit: energy consumers by industry ISIC, Rev. 3

2.7. Sampling frame and sample characteristics

Describe the type of *sampling frame* used in the collection and compilation of the statistics (e.g. list, area or multiple frames). A sampling frame is the source material or device from which a sample is drawn. Note that the sampling frame might differ from the population.

Not relevant

For each survey(s) used for the compilation of the statistics, specify the *sampling design* (e.g. random, stratified, etc.). Describe the routines employed for updating the sample. Include information about the sample size, and discuss to what extent the sample covers the population (e.g. energy consumption in the sample compared to total energy use by the population).

Note that chapter 2.7: *Sample frame and sample characteristics* may overlap with chapter 3.4: *Grossing up procedures*.

Not relevant

2.8. Collection method

For each survey used for the compilation of the statistics/topic, describe how the data are collected (e.g. face-to-face, telephone, self-administered, paper and internet-based questionnaires, or administrative data and registers).

Questionnaires are mailed to the enterprises, and the completed questionnaires can be returned to Statistics and Census Service in person, by post or submitting to a visiting enumerator. Alternatively, respondents may fill in the electronic questionnaire and mail the completed form for submission.

2.9. Survey participation/response rate

For each survey used for the compilation of the statistics/topic, specify the average response rate, or refer to response rates for specific surveys conducted.

100%

3. The statistical production process

3.1. Data capture and storage

Describe how the data is captured and stored (e.g. if the respondent replies using Internet-based questionnaire, the received data are electronically transferred to the production database. Paper questionnaire responses are keyed manually to the production database).

Data on paper questionnaire are keyed manually and data of e-questionnaire are transferred directly to the database.

3.2. Data editing

Describe the regular routines employed for detecting and correcting errors. This may include:

- Manual routines for detecting and correcting errors
- Automatic error-detection (and correction)
- Micro- and macro editing procedures
- Data validation procedures
- Outlier identification
- Processes and sources used for quality controls

Data on paper questionnaires are checked for omissions and errors with validation programme in the database. Data on imports are crossed checked with External Merchandise Trade Statistics on enterprise level.

3.3. Imputation

Describe the principles for imputation and the assumptions that these principles are based on. Note that this chapter may overlap with chapter 3.2: *Data editing* and chapter 5.2: *Accuracy*

Not relevant

3.4. Grossing up procedures

Describe how the population is divided into strata and what statistical models the estimations in the strata are based on. Describe how sub-indices are combined into aggregate indices and how uncertainty is estimated.

Not relevant

3.5. Analytical methods

Give a description of any analytical methods used to adjust the data (e.g.: seasonal adjustment and temperature adjustment). A more detailed description of the analytical method can also be included as an annex.

Not relevant

4. Dissemination

4.1. Publications and additional documentation

Describe the form of dissemination of the statistics/topics in question (e.g. printed publications, website, etc.). Please provide relevant website link(s) if available.

monthly in the Monthly Bulletin of Statistics
<http://www.dsec.gov.mo/statistic/general/MonthlyBulletinOfStatistics>
quarterly in the Energy Statistics
<http://www.dsec.gov.mo/statistic/IndustrialAndEnergy/BalanceOfEnergy>
annually in the Yearbook of Statistics
<http://www.dsec.gov.mo/statistic/general/YearbookOfStatistics>

Give a complete reference to publicly available statistics databases where data from the statistics can be extracted. Include web addresses if available online.

Time series data are available www.dsec.gov.mo/TimeSeriesDatabase.aspx

Indicate whether you charge users for access to the statistics at any level of aggregation.

Free of charge

4.2. Revisions

Describe the current revision policies. E.g.: Is historical data revised when new methodology, new definitions, new classifications etc. are taken into use? Is the data continuously revised, or is the data revised at certain points in times (e.g. every third year, annually, etc.)?

Whenever necessary

If applicable, describe any major conceptual or methodological revisions that have been carried out for this statistic/topic in the past.

Not relevant

4.3. Microdata

Describe how microdata are stored.

Questionnaires are destroyed 6 months after publication.

Specify if microdata are available for scientific and/or public use. If so, describe under what conditions these are made available.

Not available

4.4. Confidentiality

Describe the legal authority that regulates confidentiality, and what restrictions are applied to the publication of the statistics.

The Statistics and Census Service is responsible to regulate statistical confidentiality where data pertaining to individual shall be kept in strict confidence.

Describe the criteria used to suppress sensitive data in statistical tables (cell suppression).

Cell suppression when the total number of observation unit is less than 3, except with written consent of the respondent.

Describe how confidential data are handled.

Only the staff of the Statistics and Census Service can access the data and each staff has to make a written declaration of compliance of professional statistical confidentiality rules, which if violate, commit criminal offence.

Describe any confidentiality standards that go beyond what is legally required.

Not relevant

5. Quality

5.1. Relevance

State to which degree the statistical information meet the real needs of clients/users.

Satisfactory

5.2. Accuracy

State the closeness of computations or estimates to the exact or true values that the statistics were intended to measure.

Not relevant

Measurement and processing errors

Discuss the measurement and processing errors that are relevant for the statistics. Try as far as possible to give an estimation of the size and scope of the errors.

Not relevant

Non-response errors

State the size of the unit non-response and the item non-response, distributed by important variables in the population (e.g. region, industry). Consider if the non-response errors are systematic, and if so, describe the methods used to correct it. Indicate whether the effects of correcting non-response errors on the results have been analysed, and, if so, describe them.

Not relevant

Sampling errors

Discuss the size of the sampling errors. Compare the population and sample with regards to important properties (e.g. coefficient of variance).

Not relevant

Other sources of error

Discuss other sources of errors that might be relevant for the statistics. E.g.: Model assumption errors, coverage errors

Not relevant

5.3. Timeliness and punctuality

Specify the time between the end of the reference period and publication.

If the statistics are published both as preliminary and final figures, specify the time between publication of preliminary and final figures. You should also point out whether the publication date is set according to certain rules (e.g. advance release calendar, a specific day or prior to other publications).

Monthly data are published on the 6th day of the third month following the reference month. Quarterly data are available on the 29th day of the second month following the reference quarter.

Point out if there have been any major discrepancies between the planned publication date and the actual publication date in recent years. If so, state the length of this discrepancy and its cause.

There is no any delay in publication of energy statistics in recent 5 years.

5.4. Accessibility

Describe how easily accessible the statistics are. In particular, is there an advance release calendar to inform the users about when and where the data will be available and how to access them?

Are metadata and other user support services easily available? Are there particular groups that don't have access to the published statistics (e.g.: visually disadvantaged)?

There is advance release calendar to inform the users when the data will be available. Printed publication can be obtained from the Documentation and Information Centre of DSEC. E-publication can be downloaded directly from the DSEC website <http://www.dsec.gov.mo>

5.5. Comparability

Discuss the comparability of the statistics over time, geographical areas and other domains.

Comparability over time

Discuss comparability over time and include information about whether there have been any breaks in the time series of the statistics and why. Also describe any major changes in the statistical methodology that may have had an impact on comparability over time.

Time series data on consumption of fuels and electricity since 1990 are available from the DSEC website. No major changes in methodology that have had an impact on comparability. In 2003, coverage of electricity consumption includes electricity generated for self consumption that accounts for 1% of the total electricity consumption.

Comparability over region

Discuss comparability over geographical areas, and include information about whether the statistics are comparable to relevant statistics published by other countries and/or international organisations.

Not relevant

Comparability over other domains

Discuss comparability over domains, and include information about whether the statistics are comparable between different industries, different types of households etc.

Data are cross-checked with other sources, namely External Merchandise Trade, Annual Survey on Economic Activities, etc.

5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

Not relevant

Discuss the coherence/consistency between monthly, quarterly or yearly statistics within the same subject area. Can the results of different frequencies for the same reference period be combined in a reliable manner?

Not relevant

Discuss the coherence/consistency with other related statistics (also those produced by other institutions/organisations on the same subject).

Not relevant

6. Future plans

Are there any current or emerging issues that will need to be addressed in the future? These could include gaps in collection, timeliness issues, data quality concerns, funding risks, confidentiality concerns, simplifications to reduce respondents' burden etc.?

Improvement in timeliness of publication and simplification of questionnaire to reduce respondents' burden are the issues to be addressed in the future.

Annexes

Illustrations and flowcharts

Illustrations and flowcharts are useful to summarize information and to get a better overview of the statistical production process. Illustrations and flowcharts can either be placed in annexes or be included under relevant paragraphs in the template.

E.g.:

- A conceptual flowchart which illustrates the flow of data in the production of the statistics.
- A flowchart which illustrates the main tasks in the production process and the dependency between them.

Time schedule

Include a time schedule for the different phases of the statistical production process. The statistical production process *may* be divided into the following phases. Phase 1-3 may only be relevant for when a new statistics/survey is set up.

1. **Clarify needs** (e.g. map users needs, identify data sources)
2. **Plan and design** (e.g. plan and design population, sample size, how to analyze and edit data)
3. **Build** (e.g. build and maintain production system, test production system)
4. **Collect** (e.g. Establish a frame, draw the sample, collect data)
5. **Edit** (e.g. identify and code micro data, edit data, imputation)
6. **Analyse** (e.g. quality evaluation, interpret, analyse)
7. **Disseminate** (e.g. publish data, user contact)

Questionnaires

Include the complete questionnaire(s)/survey form(s) used

Example of publication tables

Include an example of a typical table published for the statistics. Include web addresses if available online.

Detailed description on analytical methods

If relevant, a detailed description of analytical methods used in the statistical production (like seasonal adjustment, temperature adjustment etc.) may be described in an annex. A short description can also be included in chapter 3.5: Analytical methods or under other suitable chapters.