COUNTRY PRACTICE IN ENERGY STATISTICS

Topic/Statistics: Hong Kong Energy End-use Data

Institution/Organization: Electrical and Mechanical Services Department

Country: Hong Kong, China

Date: February 2012

CONTENTS

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.

Key elements	
Name of the statistics	Hong Kong Energy End-use Data 2011
Background and purpose of the statistics	To provide the Government with a multi-sector energy end-use database and so assist the Government in the formulation and evaluation of energy efficiency programs and policies
Population, sample and data sources	Territorial wide random sampling from various databases
Main users	The Government and the public
Important contribution or issue addressed	Establishing a complete set of hierarchy structured energy end-use consumption data
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.

End-use Energy in Hong Kong, China

1.2. History and purpose

State when the statistics were first published.

1997

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

To provide the Government with a multi-sector energy end-use database and assist the Government in formulation and evaluation of energy efficiency programs and policies.

1.3. Reference period

State the time period the data are collected for.

Each calendar year

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.

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.

Printed booklets and publish online at http://www.emsd.gov.hk/emsd/eng/pee/edata_1.shtml

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.

Hong Kong

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.

To provide Government information for evaluation and formulation of energy efficiency programs and policies; compiling energy balance table. To provide the public (including green groups and institutes) energy information, facilitate energy studies and promote energy efficiency awareness.

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).

The Energy Efficiency Office of the Electrical and Mechanical Services Department of the Hong Kong Government

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).

No legal basis

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

Collect data from main utility companies and some major private companies with some prior arrangements/agreements. Conduct surveys to collect end-use data from individuals with voluntary participation. In summary, the provision of data is on a voluntary basis.

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

Nil

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

Departmental budget

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).

Around 1700 man-hours with 3 key staff, not including outsouced services and the staff of neighbouring offices and departments who provide relevant data for consolidation.

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.).

The energy end-use data are used for compiling the annual energy balance table reported as part of the APEC data collection exercise. See http://www.ieej.or.jp/egeda/database/database-top.html

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).

Statistics cover end-use energy consumption data in sector – segment – end-use - technology levels.

2.2. Definitions of main concepts and variables

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

End-use data include energy consumed within the territory for internal civilian usage, not including energy for cross boundary or military purposes.

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?).

Energy products are in line with the APEC Energy Database http://www.ieej.or.jp/egeda/database/database-top.html. Production, intermediate consumption, transformation, feed stock are not reported in the Energy End-use Data.

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.

Primarily in physical units e.g. litres for gasoline/diesel, kWh for electricity.

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).

See Section 2.2

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.

Administrative – directly requesting government bodies; utility and major private companies to submit energy consumption and related data.
Survey – outsourcing services to collect energy consumption and related data from residential households; commercial and industrial establishments; passenger and good vehicle users.

2.6. Population

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

The database is further broken down into segments, which are the groups of units for the purpose of conducting statistical surveys.

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.

Examples of the units are public housing, private housing segment in the Residential sector; restaurant, retail, office segment in the Commercial sector. See http://www.emsd.gov.hk/emsd/eng/pee/edata_1.shtml

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.

Residential sector - Frame/register of (domestic household) quarters/segments
Commercial and industrial sector – Lists of various types of business establishment
Transport sector – List of gas filling stations

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.*

Residential sector/segment – random sampling stratified according to housing type
Commercial; Industrial; Transport sector/segment - random sampling for each segment

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).

Survey - Face-to-face interview

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.

Residential sector – Using "substitution method", response rate to achieve 100%.
Other sectors – response rate not available

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).

Paper questionnaire responses from surveys and administrative data returns (paper and emails) are manually input into 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

Survey - Manual checking; Data double entry system; Computer range, logic, flow checking. Errors flagged to be addressed manually

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*

Incomplete or invalid responses are usually flushed out in section 3.2. They shall be followed up manually. Eventual invalid/unsuccessful responses will be discarded.

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.

The Energy End-use database is base on a sector/segment hierarchy structure with known frame size. Higher level indices can be derived by appropriately applying weighted average.

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.

Nil. Survey results cover the whole calendar year.

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.

Survey results are not published. The " processed/derived" results are published as per section 1.5.

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

Nil

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

Request for further data will be considered according to the availability of data and relevant data release policy for a fee. See http://www.emsd.gov.hk/emsd/eng/pee/edata_2.shtml

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.)?

Current attempt to revise the end-use database to align its segmentation with the Hong Kong Standard Industrial Classification new version. See http://www.censtatd.gov.hk/hong_kong_statistics/sppti/standard_classifications/hong_kong_standard_industrial_classification_versi/index.jsp

Regular updating each segment of the database upon finalising survey results, basically in a three year cyclic manner to cover all sectors/segments.

Updating the database in response to GDP or population revisions.

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

See above

4.3. Microdata

Describe how microdata are stored.

Electronic manner

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

See section 4.1

4.4. Confidentiality

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

Nil

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

Nil

Describe how confidential data are handled.

See below

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

Part 2 of the Code on Access to Information http://www.access.gov.hk/en/code.htm depicts some relevant information.

5. Quality

5.1. Relevance

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

Assessment not made

5.2. Accuracy

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

Assessment not made. End-use data reconciled with utilities energy supply figures.

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.

Assessment not made. See section 3.2.

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.

Assessment not made

Sampling errors

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

Assessment not made

Other sources of error

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

Assessment not made

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).

The data are published two years lagging behind the calendar year. No set date/rule for publishing.

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.

Nil

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)?

No advance release calendar available. No metadata available. Section 1.5 shows the currently available publish format for all users.

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.

As shown in the database, each segment/ sector exhibit consistency in energy consumption trend lines.

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.

The data are not comparable with that of other countries due to the uniqueness of the characteristics of Hong Kong, China.

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.

As shown in the database, different segments within the same sector exhibit different consumption level and patterns.

5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

No preliminary figures are published.

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?

No monthly, quarterly figures are published. The figures in the database are annual data.

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

The database is unique in nature. No other similar database of this nature available locally for comparison.

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.?

Nil

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 places 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.