COUNTRY PRACTICE
IN ENERGY STATISTICS

Topic/Statistics: Electricity

Institution/Organization: TERNA SpA

Country: ITALY

Date: 22_03_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	Statistical data on electricity in Italy
Background and purpose of the statistics	Since the sixties, collection & diffusion of statistical data from the national electricity sector
Population, sample and data sources	The relevant population are 1,841 electricity operators in 2010
Main users	Public and private Institutions in Italy and abroad, Authorities, Terna Company itself, Universities, etc.
Important contribution or issue addressed	Full yearly outlook of the Italian electricity sector and contribution to the National Energy Balance
Other remarks	As many other relevant statistical offices in Italy, statistical office of Terna is a Member of SISTAN (National Statistics Network)

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.

Electricity balance; electricity production & consumption; electricity generation; electricity HV grid; electricity loads, international comparisons

1.2. History and purpose

State when the statistics were first published.

1974

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

The picture of the relevant energy sector of electricity has been taken yearly. In Italy, electricity accounts for a 18,8% of the total final consumption of energy

1.3. Reference period

State the time period the data are collected for.

Annual in general; Monthly for some specific variables

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 publication & online publication   http://www.terna.it/default/home_en/electric_system/statistical_data.aspx

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.

Administrative regions called "Province"

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.

Terna Departments; ISTAT, Banca d'Italia, Regulatory Authority for Electricity and Gas (AEEG); EUROSTAT, IEA, Italian Ministries; Research Institutions; Local Administrations; Universities; Electricity and energy Operators, ENTSO-E

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).

Terna SpA – Regulatory Affairs – Statistics; ISTAT

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).

DPCM (Prime Minister's Decree) of November 25th, 2009; Legislative Decree n.322 September 6th, 1989 and – annually the Prime Minister's Decree for the approval of the National Statistical Program (The latest: DPCM August 3rd, 2009)

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

n.a.

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

n.a.

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

Tariff component for the Statistics Dpt. within the ordinary operational costs of Terna, following Regulation Authority Decrees

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).

1.200 man-labour days/ 6 people

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.).

Joint IEA-Eurostat_UNECE "Electricity and Heat Annual Questionnaire" and "Renewables and Waste Annual Questionnaire"; Eurostat Monthly Energy Statistics (Electricitity); Eurostat Annual Questionnaire on European electricity market indicators; EurObservEr Annual Questionnaires; AEN-NEA Questionnaire on Nuclear Energy Data.

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).

The statistics cover: electricity balance; electricity production & consumption (according NACE Rev. 2, compliant with ISIC); electricity generation; electricity HV grid; electricity loads, international comparisons

2.2. Definitions of main concepts and variables

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

Territory principle (according to "Province"); NCV; GCV; type of electricity operators (producers/auto-producers); Renewable/non renewable;

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?).

Definitions of variables as in: EURELECTRIC Statistical Terminology Employed in the Electricity Supply Industry (1991) and OECD-IEA-EUROSTAT Energy Statistics Manual (2004)

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 are collected and presented in physical units, like: kW (or multiples); kWh (or multiples); MVA; km of lines; m3, metric tons; kcal/kWh.
Net calorific values is collected and shown in tables about fuels.

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).

In general: OECD Glossary of Statistical Terms http://stats.oecd.org/glossary/index.htm ;
ISTAT Glossario dei Termini statistici;
For final electricity consumption: ISTAT - ATECO (compliant to NACE)
http://www.istat.it/it/archivio/17888

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.

enterprise/establishment survey;
administrative data registers on renewable;
administrative data on consumptions;
administrative internal data.

2.6. Population

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

1.841 electricity operators in 2010: as Autoproducers, electricity market operators, Distributors

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 units (eg electricity Distributors) about data of final consumptions;
Observational units for data collection about power plants (installed capacity, annual production,etc.);

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.

n.a. (statistics involve all the universe of the electricity sector)

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.*

n.a.

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).

Both internet-based questionnaires and administrative data, supported by face-to-face and telephone, if necessary

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.

n.a.

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).

Respondent replies using Internet-based questionnaire.
The received data are validated by Terna Statistics personnel electronically and then transferred to the production 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

All the above mentioned procedures have been used.

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*

n.a.

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.

n.a.

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.

Data referred to monthly electricity supply have been subjected to Tramo-Seats methods for season-adjustment.

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.

Both printed publication (Italian and English) and website.

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

http://www.terna.it/default/Home/SISTEMA_ELETTRICO/statistiche/dati_statistici.aspx (in Italian, with a maximum detail)
http://www.terna.it/default/home_en/electric_system/statistical_data.aspx (in English)

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

Free consultation

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.)?

The is not a revision policy. Revision of published data should be considered singularly.

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

In the past, there are been revisions on classification of fuels and classification of consumptions.

4.3. Microdata

Describe how microdata are stored.

Data are electronically stored in databases.

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

Microdata are not available for scientific and public use

4.4. Confidentiality

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

DLGS n.322 / 1989, art. 6 bis and art. 9. Personal data must be diffused only as aggregated.

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

n.a.

Describe how confidential data are handled.

Personal collected data are handled by statisticians subjected to specific confidentialities rules.

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

Within National Statistics Network SISTAN, Del. 9 of COMSTAT is eventually applicable for data exchange

5. Quality

5.1. Relevance

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

A measure of the client satisfaction is not available; a lot of acknowledge letters have been collected.

5.2. Accuracy

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

n.a.

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.

n.a.

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.

n.a.

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

n.a.

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

n.a.

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).

6 month.

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.

Not yet.

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 is available. Metadata have been posted together with data.

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 of fuel consumption and final consumptions have been subjected to breaks. This is related to the upgrading process of classification of the economic activities (lately in 1995).

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.

Our statistics are fully compliant to EUROSTAT standards.

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.

In the domain of energy, our statistics could be compared with other sources (eg. National Balance of Energy)

5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

n.a.

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?

Monthly data are provisional by definition, Yearly data could be different as they rectify monthly data

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

Coherence with statistics on renewable electricity have been guarantee by specific agreement.

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.?

New Archive of Power Plants/Electricity Operators (GAUDI project) should overcome any possible coverage errors.

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.

Annexe 1

A schematic flow of data in the production of the statistics

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   ┌──────────────┐      ┌──────────────┐      ┌──────────────┐
   │  Electricity │      │Administrative│      │     GSE      │
   │  Operators   │      │   Internal   │      │Administrative│
   │    annual    │      │   registers  │      │   registers  │
   │   surveys    │      │              │      │              │
   └──────────────┘      └──────────────┘      └──────────────┘
            │                     │                    │
         ┌──────┐                 │                    │
         │ web  │                 │                    │
         └──────┘                 ▼                    ▼
                        ┌────────────────────┐
                        │       Gstat        │
                        │        Data        │
                        │    Acquisition     │
                        │       system       │
                        └────────────────────┘
                                  │
                                  ▼
                        ┌────────────────────┐
                        │    Data check      │
                        │   and validation   │
                        └────────────────────┘
                                  │
                                  ▼
                        ┌────────────────────┐
                        │   Yearbook of the  │
                        │   statistical data │
                        │  on electricity in │
                        │        Italy       │
                        └────────────────────┘
                                  │
                                  ▼
                        ┌────────────────────┐
                        │   Dissemination:   │
                        │   - Terna website  │
                        │ - printed publications │
                        └────────────────────┘

                        ┌────────────────────┐
                        │  Statistic data are│
                        │   reported to      │
                        │   International     │
                        │   Questionnaires    │
                        └────────────────────┘
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