

COUNTRY PRACTICE IN ENERGY STATISTICS

Topic/Statistics: Annual Energy Balances

Institution/Organization: Statistical Office of the Republic of Serbia (SORS)

Country: Serbia

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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	Annual energy balances
Background and purpose of the statistics	Unit for energy statistics in SORS was established in 2005. Purpose was implementation IEA/Eurostat methodology for computing annual energy balances.
Population, sample and data sources	Data sources are specific statistical questionnaires for energy producers, energy distributors, trade, industrial, transport, agriculture and construction enterprises.
Main users	Ministries of Republic of Serbia, IEA, Eurostat, UN
Important contribution or issue addressed	SORS applies IEA/Eurostat methodology. Serbian annual energy balances are comparable to statistics published by other countries and international organisations which apply IEA/Eurostat methodology.
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.

Annual energy balances

1.2. History and purpose

State when the statistics were first published.

The first National annual energy balances SORS did for electricity and heat. The balances were published for 2004.

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

The main purpose is implementation of Regulation (EC) 1099/2008

1.3. Reference period

State the time period the data are collected for.

SORS made annual energy balances in the current year for the previous 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.

Online publication www.stat.gov.rs

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.

No regional level

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.

Ministries of Republic of Serbia, IEA, Eurostat, UN

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 main responsible institution for national annual energy balances - SORS, Department for Industry, Energy and Construction Statistics, Unit for Energy Statistics

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).

Official Statistic Law (*OG, No. 104/2009*)

http://webrzs.stat.gov.rs/WebSite/userFiles/file/O%20nama/Dokumenti/Zakon_o_statisticiE.pdf

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

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

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

Over the ordinary 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).

Five workers

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.).

IEA, Eurostat, UN - annual energy balances for electricity, heat, coal, oil and oil products, natural gas, geothermal energy and fire-wood

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).

Cover supply and use of electricity, heat, coal, oil and oil products, natural gas, geothermal energy and fire-wood in Serbia, according Regulation (EC) 1099/2008

2.2. Definitions of main concepts and variables

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

The concept is fully in accordance with Regulation (EC) 1099/2008

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?).

Methodology solutions and terminology for all annual balances are based on explanations of Annex A and Annex B of Regulation (EC) 1099/2008. The main variables are: primary production, import, export, stock changes, marine bunkers, statistical difference, gross inland consumption, transformation input, transformation output, product transferred, interproduct transfers, backflow from petrochemical industry, consumption in the energy sector, losses, final non-energy consumption and final energy 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.

Physical unit and calorific values, as required by Regulation (EC) 1099/2008

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).

Annex A and Annex B of Regulation (EC) 1099/2008

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.

Specific statistical questionnaires created for energy producers, energy distributors, trade enterprises and industrial enterprises, data collected by other SORS departments within their statistical surveys (Department of Transport, Department of Agriculture and Group of Construction) and foreign trade statistics.

2.6. Population

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

Energy producers, energy distributors, trade, industrial, transport, agriculture and construction enterprises.

Specify the following statistical units:

- Reporting unit - enterprise or KAU
- Observational unit - enterprise or KAU
- Analytical unit –reporting unit - for each energy commodity that shows the reporting unit we achieve energy balance. In this way we achieved that the total energy balance for the observed energy commodity, is obtained by summing up the energy balances of the reporting units that have displayed the data on the observed energy commodity.

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.

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.

Coverage of energy producers and energy distributors is 100%. Coverage of trade enterprises is from 85% to 100%, depending on the type of energy commodities. Industrial enterprises, that we provide data on energy, achieve 85% of value added in industry. We include 95% of construction enterprises, 90% transport enterprises and 100% agriculture cooperatives.

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*.

SORS applies cut off method.

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).

Paper questionnaire, face-to-face, telephone and administrative data.

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.

Response rates for specific surveys are 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).

Paper questionnaire responses are keyed manually 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

Manual routines for detecting and correcting errors, automatic error-detection, data validation procedures.

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*

Imputation is not necessary

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.

SORS estimates final energy consumption base on data from the reporting units and expert knowledge of colleagues from different areas of final consumption.

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.

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.

Online publication www.stat.gov.rs

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

The first National annual energy balances: electricity and heat for 2004; solid fossil fuels and manufactured gases for 2005; oil and oil products, natural gas and geothermal energy for 2007; fire-wood for 2008. www.stat.gov.rs

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

SORS does not charge users for access to the annual energy balances.

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.)?

Ministry of Mining and Energy is in charge of preparing a new Energy Strategy up to 2030. A part of the project will be dedicated to the revision of the Serbian energy balances for the period from 1990 till 2007 and their publish and deliver to the IEA.

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

4.3. Microdata

Describe how microdata are stored.

Received data are transferred to the production database

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

Microdata are available for scientific and/or public use only under the conditions specified in Official Statistic Law (*OG, No. 104/2009*)
http://webrzs.stat.gov.rs/WebSite/userFiles/file/O%20nama/Dokumenti/Zakon_o_statisticiE.pdf

4.4. Confidentiality

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

The standards of confidentiality are in Official Statistic Law (*OG, No. 104/2009*)
http://webrzs.stat.gov.rs/WebSite/userFiles/file/O%20nama/Dokumenti/Zakon_o_statisticiE.pdf

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

Criteria contained in Official Statistic Law (*OG, No. 104/2009*)

Describe how confidential data are handled.

Handling of confidential data described in Official Statistic Law (*OG, No. 104/2009*)

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

Annual energy balances do not have confidentiality standards that go beyond what is legally required.

5. Quality

5.1. Relevance

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

Annual energy balances are in accordance with Regulation (EC) 1099/2008 and fully satisfy user needs

5.2. Accuracy

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

SORS estimates only data for final energy consumption. Estimations are based on data from the reporting units and expert knowledge of colleagues from different areas of final consumption. Estimations are high quality. All other data are exact values.

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.

The basic principle when designing the questionnaire was to be at the level of reporting unit achieve energy balance for each energy commodity that shows the reporting unit. In this way we achieved that the total energy balance for the observed energy commodity, is obtained by summing up the energy balances of the reporting units that have displayed the data on the observed energy commodity. When adjusting the energy balance the first correction is done at the level of reporting units. After these adjustments, we made re-aggregation of data to obtain the energy balance for the observed energy commodity.

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.

Response rate is 100%.

Sampling errors

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

SORS applies cut off method.

Other sources of error

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

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).

10 months.

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.

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)?

SORS has Publications calendar, metadata are easily available, all groups have access to the published statistics.

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.

SORS applies IEA/Eurostat methodology since 2004, and data are comparability over time.

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.

SORS applies IEA/Eurostat methodology. Serbian annual energy balances are comparable to statistics published by other countries and/or international organisations which apply IEA/Eurostat methodology.

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.

Comparability is determined by the IEA/Eurostat methodology that we apply.

5.6. Coherence and consistency

Discuss the coherence/consistency between preliminary and final figures.

Coherence/consistency between preliminary and final figures is very satisfactory (97%)

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?

SORS compiles annual energy balances.

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

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.?

Complete annual energy balances for all renewable energy.

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.