الهيئة العامة للإحصاء
General Authority for Statistics

65 عاماً
YEARS

Methodology and Quality Report for Renewable Energy Statistics

V - 4.0

Quality management

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1. Contact

1.1. Contact organization	General Authority for Statistics
1.2. Contact organization unit	Environment, Agriculture, and Energy Statistics
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1.6. Contact phone number	199009

2. Methodology and Quality Update

2.1. Latest Update on Methodology and Quality	13/07/2025

3. Statistical Presentation

3.1. Data description
The Renewable Energy Statistics Publication in the Kingdom of Saudi Arabia presents recent data on renewable energy projects launched in the Kingdom. **Renewable Energy Statistics are data collected on the main characteristics as follows:** • Project capacity. • Investment size. • Levelized cost of energy (LCOE).

- Estimated number of housing units that can be supplied with electricity.

3.2. Classifications

- **The National Classification for Economic Activities (ISIC4):**

It is a statistical classification based on the International Standard Industrial Classification of All Economic Activities (ISIC4), used to describe the productive activities of an establishment.

- **International Recommendations for Energy Statistics (IRES):**

Concepts, definitions, issues, and classifications aligned with the international recommendations for energy statistics adopted by the United Nations Statistics Division.

https://unstats.un.org/unsd/energystats/methodology/ires/

3.3. Statistical concepts and definitions

Terms and concepts of renewable energy statistics:

- Solar energy:

It is the utilization of solar radiation to generate electricity using solar panels, which convert the sunlight into electrical energy, or by using reflective systems to direct the solar radiation to a receiver that converts concentrated sunlight into thermal energy.

- Wind energy:

It is the energy generated from wind movement by converting kinetic energy into electrical energy, using wind turbines to produce electricity.

- Levelized cost of energy (LCOE):

It is the average cost of generating electricity for an energy project over its lifetime, taking into account all costs (construction, operation, maintenance, fuel, and financing), divided by the total electricity produced.

3.4. Data sources

The primary source of Renewable Energy Statistics data is administrative records.

The data is collected from the following government entities:

- Ministry of Energy

The main published variables from the administrative data source are:

- Operated renewable energy projects.
- Capacity of operated renewable energy projects.
- Total investment in operated renewable energy projects.
- Levelized cost of energy (LCOE) for operated renewable energy projects.
- Estimated number of housing units to be supplied with electricity.

3.5. Designing the data collection tool

Not applicable.

3.6. Questionnaire test (cognitive test)

Not applicable.

3.7. Statistical population

The statistical population targeted in this report consists of all registered entities and projects producing energy from renewable sources, as documented in the official records of relevant authorities such as the Ministry of Energy.

3.8. Sample Design

Not applicable.

3.9. Statistical unit (sampling unit)

Not applicable.

3.10. Data collection

Data collection from administrative records:

Data is collected from administrative records in coordination with the Authority's departments responsible for managing and collecting administrative data. The administrative data for the Renewable Energy Statistics Publication is obtained from the Ministry of Energy and includes the following: operated renewable energy projects, capacity of operated renewable energy projects, total investment in operated renewable energy projects, levelized cost of energy (LCOE) for operated renewable energy projects, and the estimated number of housing units to be supplied with electricity.

3.11. Data collection frequency

Annual.

3.12. Reference area

The Renewable Energy Statistics Publication covers data at the level of Saudi Arabia.

3.13. Reference period (time reference)

References period to the variables or dataset as following:

Renewable Energy Statistics data from administrative records are based on the last day of the year in each calendar year.

3.14. Base period

Not applicable.

3.15. Measurement unit

- Most indicators are measured in megawatts (e.g., Project capacity).
- Some are measured in billion Saudi riyals (e.g., investment size).
- Some are measured in US cents per kilowatt-hour, Saudi riyals per kilowatt-hour, or Saudi halalas per kilowatt-hour (e.g., Levelized cost of energy (LCOE)).

3.16. Time coverage

Data is available for some indicators on an annual basis from 2017 to 2024.

3.17. Publication frequency

Annual.

4. Statistical processing

4.1. Error detection

The data is reviewed and validated to ensure its accuracy according to its nature, to enhance the quality and precision of the presented statistics.

The data for the current year publication are compared with the data of the previous year to ensure their integrity and consistency in preparation for processing data and extracting and reviewing results.

In addition to the data processing and tabulation to check their accuracy, all the outputs are stored and uploaded to the database after being calculated by GASTAT to be reviewed and

processed by specialists in the renewable energy statistics team through modern technologies and software designed for this purpose.

4.2. Data integration and matching from multiple sources

Specialists of the Energy Statistics team have processed and analyzed data in this stage, and this step was based on the following measures:

- Sorting and arranging data in groups or different categories in a serial order.
- Summarizing detailed data into key points or main data.
- Combining many data segments and ensuring their interconnection.
- Converting data into statistically significant data.
- Organizing, presenting, and interpreting the data.

4.3. Imputation and calibration

Not applicable.

4.4. Seasonal adjustments

Not applicable.

4.5. Adjustment of preliminary results

Not applicable, only final results will be published.

5. Quality dimensions

5.1. Relevance

A criterion that indicates the extent to which the product meets users' needs.

5.1.1. User needs

GASTAT's internal users of the Renewable Energy Statistics data:

- International Indicators Department.
- Strategic Communication and Client Support Department

Several external users and beneficiaries who greatly rely on the Renewable Energy Statistics data, including:

- Government entities.
- Regional and international organizations.
- Research institutions.
- Media.
- Individuals.

The disseminated key variables used by external users:

GCC Statistical Center	Renewable energy data from: Renewable energy projects that have been operated, capacity of the operated renewable energy projects, investment size in the operated renewable energy projects, levelized cost of energy (LCOE) for the operated renewable energy projects, and estimated number of housing units supplied with electricity.
International Renewable Energy Agency IRENA	
The United Nations Statistics Division	
Private sector	

5.1.2. Completeness

The Renewable Energy Statistics data are based on administrative records data from renewable energy-related entities, in order to provide a comprehensive and integrated picture of the renewable energy sector in Saudi Arabia, and the status of the data is complete.

5.2. Accuracy and reliability

A criterion that indicates the extent to which calculations or estimates are close to the precise or true values that reflect reality.

5.2.1. Overall accuracy

- Data is checked with previous years to identify any significant changes in the data.
- The internal consistency of the data is checked before it is finalized.
- The links between variables are checked and coherence between different data series is confirmed.

5.3. Timeliness and punctuality

Timeliness is a criterion that indicates the time lag between the availability of information and the occurrence of the event.

Punctuality reflects the time gap between the actual publication date and the target date when the data is effectively released.

5.3.1. Timeliness

The General Authority for Statistics is committed to applying internationally recognized standards regarding the announcement, clarification of the time of publishing statistics on its official website, as outlined in the statistical calendar, as well as adhering to the announced time of publication. In the event of any delay, updates will be provided accordingly.

5.3.2. Punctuality

The publication takes place according to the published release dates on the statistical calendar for the Renewable Energy Statistics on the website of the General Authority for Statistics. The data are available at the expected time, as scheduled in the statistical release calendar, If the publication is delayed, reasons shall be provided.

5.4. Coherence and comparability

A criterion that emphasizes the need for statistics to be internally and temporally consistent, logically connected, and comparable and integrable across regions and different sources.

5.4.1. Comparability - geographical

Data are fully comparable.

5.4.2. Comparability - over time

Data is fully comparable.

5.4.3. Coherence- Cross domain

Not applicable.

5.4.4. Coherence- Sub-annual and annual statistics

Not applicable.

5.4.5. Coherence- National Accounts

Not applicable.

5.4.6. Coherence- Internal

Renewable energy statistics data have complete internal consistency.

5.5. Accessibility and clarity

The accessibility of data to users, the availability of accurate or aggregate data, and the availability of a methodology and quality report.

5.5.1. Press releases

The announcements for each publication are available on the statistical calendar as mentioned in 10.1. The press releases can be viewed on the website of GASTAT on the link:

Press release

5.5.2. Publications

GASTAT issues Renewable energy statistics Publications and Reports on a regular basis within a pre-prepared dissemination plan and are published on GASTAT's website. GASTAT is keen to publish its results in a way that serves all types of users, including publications in various formats that contain (publication tables, data charts, indicators, and the methodology and quality report) in both English and Arabic.

The results of the Renewable energy statistics are available at:

Statistics

5.5.3. On-line database

Not available.

5.5.4. Microdata accessibility

Not available.

5.5.5. References and standards

Electrical Energy Statistics Framework:

The General Authority for Statistics conducts all its statistical activities according to a unified methodology that aligns with the nature of each statistical product. It relies on a Statistical Business Procedures Manual that is consistent with the work procedures adopted by international organizations, in coordination with the relevant authorities.

For more details, you can refer to the attachment:

Generic Statistical Business Process Model (GSBPM)

6. Quality assurance

GASTAT considers the following principles: Impartiality, ensuring that the statistical product is user-oriented, maintaining the quality of processes and outputs, enhancing the effectiveness of statistical operations, and reducing the burden on respondents.

Data is validated through procedures and quality controls that are applied during the process at various stages, such as: (data entry, data collection, and other final controls).

7. Quality assessment

GASTAT performs all statistical activities according to a national model (Generic Statistical Business Process Model - GSBPM). According to the GSBPM, the final stage of statistical activities is overall evaluation using information gathered in each stage or sub-process. This information is used to prepare the evaluation report, which outlines all the quality issues related to the specific statistical activity and serves as input for improvement actions.

8. Confidentiality

8.1. Confidentiality - Policy

According to Royal Decree No. 23 dated 07/12/1379, data must always be kept confidential and must be used by GASTAT for statistical purposes only.

Therefore, the data is protected in the data servers of GASTAT.

8.2. Confidentiality - Data Treatment

Data were displayed in appropriate tables to facilitate their summarization, comprehension, and results extraction. Also, to compare data with other data and extract statistical meanings for the study community. It is also easier to check tables without the need to see any sensitive or confidential data, which violates the confidentiality of statistical data.

9. Publishing policy

9.1. Statistical calendar

Renewable energy statistics are included in the statistical calendar.

Statistical Calendar

9.2. User access

One of GASTAT's objectives is to better meet its clients' needs, so it immediately provides them with the results of the publication once the Renewable Energy Statistics publication is published.

It also receives questions and inquiries from clients about the publication and its results through various communication channels, such as:

- GASTAT official website: www.stats.gov.sa
- GASTAT official e-mail address: info@stats.gov.sa
- Client support e-mail address: info@stats.gov.sa
- Official visits to GASTAT's official head office in Riyadh or one of its branches in Saudi Arabia.
- Official letters.
- Statistical telephone: (199009).

10. Comments