Methodology of Renewable Energy Statistics
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Introduction:

One of the key elements of preserving the natural environment is achieving balance in the process of exploiting its resources to meet the requirements of life for future generations and achieve economic development. The Kingdom is not excluded from others in its vision and orientation towards finding alternative energy sources, as it works hard to keep pace with Vision 2030 in the production of electricity using renewable energy sources. The National Renewable Energy Program was launched, which is a strategic initiative that falls under the umbrella of Vision 2030 and the National Transformation Program. The program aims to realize the sustainable increase of renewable energy share out of KSA’s total energy resources to reach 3.45 GW in 2020, which equals to 4% of KSA’s total energy production and 9.5 GW by 2023, which equals to 10% of the KSA’s total energy production.

Renewable energy is energy derived from sources that nature can continuously regenerate, such as solar energy, wind energy, water, geothermal energy, and biomass. Renewable energy is distinguished from fossil energy (oil, natural gas, coal) as it is natural and continuously renewable sources. In addition, it is clean and environment friendly energy, as its production does not cause environmental pollution. KSA is characterized by an abundance of renewable energy sources, especially solar and wind energy.

Allah is the Grantor of Success.
Methodology adopted in preparation of Renewable Energy Statistics

- **Data Sources and Coverage**
  Renewable Energy Statistics relies on administrative records-based data from its main sources: government and related bodies that provide GASTAT with data, as well as some data obtained through the Household Energy Survey. Accordingly, the Renewable Energy Statistics is issued.

  The bodies that provide GASTAT with data are as follows:
  - Ministry of Energy.
  - Water & Electricity Regulatory Authority.
  - King Abdullah City for Atomic and Renewable Energy

- **Mechanism of collecting and handling data of renewable energy statistics:**
  Data is collected through official communications with data owners, where data is transferred through data transfer media and e-mail, as well as data available at GASTAT on some indicators.

- **Period**
  Data published in this version represents a time series as follows:

  Data of solar energy monitoring plants is available in a time series from 2013-2020, while wind power plants are available in a time series from 2013-2016. Data from the Water and Electricity Regulatory Authority is also available in a time series from 2010-2020.

  Data of renewable energy projects is available according to the time plan for stages of the national renewable energy project, so that the periodicity of publication of this Statistics is annual.
**Objectives**

- Support decision and policy makers, researchers and those concerned with updated and comprehensive statistics related to renewable energy in KSA.
- Develop a database that can be used as a reliable source for supporting those concerned and competent in the field of renewable energy statistics.
- Use such data for the purposes of domestic, regional and international benchmarking.

**Indicators**

Renewable Energy Statistics include the following Indicators:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average daily Global Horizontal Irradiance (GHI).</td>
<td>Percentage of Global Horizontal Irradiance (GHI) at level of regions.</td>
</tr>
<tr>
<td>Average daily Direct Normal Irradiance (DNI)</td>
<td>Percentage of Direct Normal Irradiance (DNI) at level of regions.</td>
</tr>
<tr>
<td>Average daily Diffused Horizontal Irradiance (DHI).</td>
<td>Percentage of Diffused Horizontal Irradiance (DHI) at level of regions.</td>
</tr>
<tr>
<td>Average annual wind speed at height of 40 meters.</td>
<td>Average annual wind speed at height of 60 meters.</td>
</tr>
<tr>
<td>Average annual wind speed at height of 80 meters.</td>
<td>Average annual wind speed at height of 98 meters.</td>
</tr>
<tr>
<td>Average annual wind speed at height of 100 meters.</td>
<td>Plans of the National Renewable Energy Program.</td>
</tr>
<tr>
<td>Type of projects of the National Renewable Energy Program</td>
<td>Capacity of projects of the National Renewable Energy Program.</td>
</tr>
<tr>
<td>Electrical energy expected to be generated through renewable energy projects.</td>
<td>Number of houses expected to be supplied with energy through renewable energy projects.</td>
</tr>
<tr>
<td>Influence of renewable energy projects on fossil fuel consumption.</td>
<td>Influence of renewable energy projects on fossil fuel consumption.</td>
</tr>
<tr>
<td>Number of jobs expected to be created from renewable energy projects.</td>
<td>Expected runtime of Renewable Energy Projects.</td>
</tr>
</tbody>
</table>
Quality of Used Data Sources:
Used data sources are data contained in records at the related data owners. On a regular and continuous basis, quality of data is evaluated, data sources are verified, values that are provided to GASTAT are verified, and the extent to which the data is compatible with previous products is considered according to the indicators, definitions, classifications and adopted international standards.

Publishing
After GASTAT had announced, at the beginning of the Gregorian year, the date of issuing the Statistics on its official website, it prepared media materials to announce its issuance through the media in addition to its various platforms on social media sites. GASTAT announces it on the day set for publication. GASTAT initially publishes the Statistics on the official website with different templates such as open data in Excel format; in order to ensure its dissemination and availability for all customers and those interested in renewable energy statistics. In addition, GASTAT inserts it in the statistical library on the site, communicates with the customers and provides them with the Publication, receives the customers’ questions and inquiries about the Statistics and its results via communication channels, so that its customers can contact it to request data. The requests and inquiries are received via:

- GASTAT’s Official Website: www.stats.gov.sa
- GASTAT’s Official E-mail: info@stats.gov.sa
- Customer Support E-mail: cs@stats.gov.sa
- The official visit to GASTAT’s headquarters in Riyadh or one of its branches across KSA’s regions.
- Official Letters.
- Statistical Phone by calling (920020081).

Beneficiaries:
Researchers and government and private agencies interested in renewable energy sector, including:

- Ministry of Energy.
• Water & Electricity Regulatory Authority.
• King Abdullah City for Atomic and Renewable Energy