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**Solar thermal electric plant - Creation of annual solar radiation  
data set**

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## Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

The translation method used in this document is equivalent to the adoption of IEC TS62862-1-2:2017 "Solar Thermal Power Station Part 1-2. Establishing a New Year Tai Steps for Sun Radiation Data.

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 12936-2007 solar thermal utilization term (ISO 9488.1999, NEQ).

This document has made the following editorial changes.

---In order to be consistent with the existing standard series, the standard name is changed to "Generation of Solar Radiation Data Sets for the Representative Year of Solar Thermal Power Stations"

method";

---Replace the references [18] in the international documents with applicable Chinese documents and adjust them to [1], the international documents [1]~[17] follow the sequence

The order was adjusted to [2]~[18], and the reference numbers mentioned in the main text of the international documents were also revised accordingly;

---The formula (A.5) in Appendix A adds a note to illustrate the meaning of the formula symbols.

## 1 Scope

This document specifies the components, procedures and methods for generating solar radiation data sets for the representative year of solar thermal power plants.

The representative year solar radiation data set generated by this document is suitable for the performance simulation of the solar thermal power station project.

## 2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to This document.

ISO 9488.1999 Solar energy term (Solarenergy-Vocabulary)

### 3 Terms and definitions

The following terms and definitions apply to this document.

#### 3.1

Representative year solar radiation data set annualsolarradiationdataset; ASR

A complete and standardized solar radiation data set can include a variety of relevant meteorological variables, which can be used to characterize annual changes in solar radiation in a specific area.

Note. This data set has universal applicability and reflects the changing characteristics of historical data over a long period of time.

#### 3.2

Direct measurement

The method of obtaining variable values by measuring instruments on the surface of a specific location.

Example. In a given time period, any statistical data that meets the same variable defined above should be regarded as direct measurement data. For example, the measuring device (pass

Sensor or data acquisition system) in a given period of time to record the arithmetic average of the data.

#### 3.3

Indirect measurement

Integrate other methods of direct measurement to get the value of the variable.

Example. Observing direct irradiance using a direct pyranometer is a direct measurement process. Utilize two direct measurement data---total irradiance and scattered irradiance

The calculation of direct irradiance is an indirect measurement process.

Note. The use of numerical models such as regression equations to solve direct irradiance is neither a direct measurement nor an indirect measurement.

#### 3.4

#### Derived data

Data obtained by combining statistical functions of multiple simultaneous variables in the same place.

Example. Direct insolation irradiance derived from full irradiance using regression models or related models is derived data.

#### 3.5

#### Synthetic data

Interpolated data of the same variable recorded in different spatial and/or temporal frequencies.