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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/Z 40104.103-2023

**Solar thermal electric plants - Part 1-3: General - Data format for
meteorological data sets**

太阳能光热发电站 第1-3部分：通用 气象数据集数据格式

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Table of Contents

1 Scope	1
2 Normative references	1
3 Terms and Definitions	1
4 Data format type	1
3 Timestamp, cumulative and average	2
2 Reference	15

Foreword

This document complies with the provisions of GB/T 1:1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting: This document is Part 1-3 of "Solar Thermal Power Station": "Solar Thermal Power Station" has released the following parts:

---Terminology for solar thermal power stations (GB/T 40104-2021);

---Method for generating representative annual solar radiation data sets for solar thermal power stations (GB/T 40099-2021);

---General requirements and test methods for collector tubes of solar thermal power stations (GB/T 40858-2021): This document is modified using IEC TS62862-1-3:2017 "Solar Thermal Power Stations Part 1-3: General Meteorological Data Sets" data format": The document type was adjusted from IEC technical specifications to my country's guiding technical documents: The technical differences between this document and IEC TS62862-1-3:2017 and their reasons are as follows:

---Changed the requirements for encoded character sets, replacing ANSIINCITS4-1986 (R2007) with GB/T 1988 (see Chapter 4, 5:1 and Table 1, Chapter 4, 5:1 and Table 1 of IEC TS62862-1-3:2017) to adapt to my country's technical conditions;

---Deleted the operating system product name (see 5:2 and Table 1 of IEC TS62862-1-3:2017) to adapt to my country's technology condition: The following editorial changes have been made to this document:

---Deleted two footnotes regarding operating system trade names: Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents: This document is proposed by the China Electricity Council: This document is under the jurisdiction of the National Solar Thermal Power Generation Standardization Technical Committee (SAC/TC565): This document was

drafted by: Datang Renewable Energy Experimental Research Institute Co., Ltd., China
Datang Group New Energy Science and Technology Research Institute Co., Ltd: company:
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"Solar Thermal Power Station" aims to establish technical specifications and standards for solar thermal power stations to provide reference for industry users: To meet the technical and economic analysis needs of solar thermal power stations at different stages such as planning, design and production operation, it is planned to be composed of the following parts constitute:

---Part 1-1: Terminology: The purpose is to specify the main terms and definitions of solar thermal power plants:

---Part 1-2: Method for generating representative annual solar radiation data sets: The purpose is to stipulate that solar thermal power stations represent the The generation components, generation process and method of solar radiation data set:

---Part 1-3: General meteorological data set data format: The purpose is to specify the gas used in the design of solar thermal power stations The data format of the image data set is used to reduce the workload of data exchange and avoid data errors caused by non-standard formats:

---Part 2-1: Characteristics of active sensitive systems for direct and indirect configurations of thermal energy storage systems: The aim is to define thermal energy storage (TES) system characteristics requirements and test methods:

---Part 3-1: General requirements for parabolic trough solar thermal power plant design: The purpose is to specify parabolic trough solar thermal General requirements for power plant design, including power systems, solar resource assessment, site selection, master planning, collector systems, heat transfer systems systems, thermal energy storage systems, steam power generation systems, steam turbine systems, solar field layouts, power block layouts, electrical equipment and systems, Water treatment systems, instrumentation and controls, auxiliary systems and ancillary facilities, and related health and safety considerations:

---Part 3-2: General requirements and test methods for large parabolic trough collectors: The purpose is to specify large parabolic trough sets Heater characteristics and test method requirements:

1 Scope

GB/Z 40104.103-2023 specifies the file format for the meteorological data used to design a concentrating solar power plant. CSP depends on direct normal irradiance - the component of sunlight arriving straight from the sun's disc, which is what a mirror can focus - and unlike

photovoltaics it is highly sensitive to it, so the whole design and the entire financial case rest on a long time series of measured or modelled weather. That data passes between the measurement campaign, the resource assessor, the plant designer, the performance modeller and the lender's technical adviser, each using different software, and when the format is ad hoc the errors introduced in conversion are silent: a shifted time base, a misread time zone, a mistaken unit. A plant sized on corrupted irradiance data is wrong in a way nobody discovers until it operates. This document specifies the data format for meteorological data sets used in the design of solar thermal power plants, to reduce the effort of data exchange and avoid the errors that irregular formats cause. As a GB/Z it is a guiding technical document. Under ICS 27.160 and CCS F12, it is written for resource assessment providers, CSP developers and designers, and modelling software vendors.

This document specifies the data format of meteorological data sets used in the design of solar thermal power stations to reduce the workload of data exchange and avoid data errors caused by irregular formats: The data format specified in this document is suitable for general operating systems, as well as satellite data or model-derived data, measurement data, and combined data: Sets, typical meteorological years and forecast data:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations For undated reference documents, only the version corresponding to the date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 1988 Seven-bit coded character set for information exchange in information technology (GB/T 1988-1998, ISO / IEC 646:1991, eqv)

ISO 8601 Data elements and exchange formats Information exchange date and time representation

GB/T 7408-2005 Data elements and exchange formats Information exchange date and time representation (ISO 8601:2000, IDT)

3 Terms and definitions

There are no terms or definitions to be defined in this document:

4 Data format types

The data format refers to the solar radiation vocabulary proposed by EnvironInfo2007[7]: Following the header containing the data information is the data section, which contains the meteorological data: The data section starts with "

5 General requirements

1 Character set The data format should be based on the encoded character set defined in GB/T 1988: Using only the first 127 characters helps in different operating systems

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