

ICS 29.020
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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 44185.1-2024

**Guidelines for construction of shore-to-ship power supply
system - Part 1: Power grid side**

港口岸电系统建设导则 第1部分：电网侧

Issued on: July 24, 2024

Implemented on: July 24, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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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 for standardization documents" Drafting is required. This document is part 1 of GB/T 44185 "Guidelines for the Construction of Port Shore Power Systems". GB/T 44185 has issued the following parts. point. Part

1. Grid side. - Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document is proposed and coordinated by the China Electricity Council. This document was drafted by: China National Grid Corporation, State Grid Corporation of China, Water Transport Research Institute of the Ministry of Transport, Xiamen Free Trade Zone Area Port Power Co., Ltd., State Grid Hunan Electric Power Co., Ltd. Electric Power Research Institute, State Grid Chongqing Electric Power Co., Ltd. Electric Power Research Institute, NARI Electric Power Design Co., Ltd., Nanjing NARI Relay Protection Electric Co., Ltd., Wolong Electric Drive Group Co., Ltd., Shanghai Electric TOOLS RESEARCH INSTITUTE (GROUP) LIMITED. The main drafters of this document are. Zhu Jinda, Huang Kun, Wen Dianguo, Zhang Xinghua, Yang Bo, Yang Rui, Tang Zhongda, Lai Yanhong, Xu Xianrong, Wu Yuming, Li Zhe, Yang Wen, Wang Xin, Cui Zhiguo, Zhang Rutong, Wang Bingwen, Deng Renren, Wei Min, Xie Yeyuan, Wu Gaoxiang, Chi Fuhai, Wang, Weiquan, Wang, Hailong, and Liu, Guangcai.

In order to implement the national port energy conservation and emission reduction goals, reduce environmental pollution in the port area, and promote the development of shore power technology for ships at berth To standardize the technical requirements for port shore power, the Energy Industry Shore Power Facilities Standardization Technical Committee

has carried out the construction of a port shore power technical standard system. It is used to support the promotion of electric energy substitution in port areas. GB/T 44185 "Guidelines for the Construction of Port Shore Power Systems" is formulated to standardize and unify port The technical requirements for the construction of port power systems are planned to consist of three parts. Part

1.Grid side. The purpose is to provide an overview of the grid side of the port shore power system, site selection of the total step-down substation, The requirements for the plane layout, transmission part and transformation part of the substation. Part

2.Port side. The purpose is to specify the general provisions, site selection, layout, transmission and distribution of the port side of the port shore power system. Electricity, substation, distribution, fire protection, civil engineering and other requirements. Part

3.Ship side. The purpose is to specify the general provisions, equipment layout, power distribution, power connection, etc. of the ship side of the port shore power system Require. Guidelines for the Construction of Port Shore Power Systems Part

1 Scope

GB/T 44185.1-2024 is the grid-side part of the Chinese guidelines for building shore power systems at ports. Shore power lets a berthed ship shut down its auxiliary engines and take electricity from land, which removes the emissions from a port's most polluted point, and China has mandated its installation and use across major ports. The grid side is where the engineering difficulty sits: a large container or cruise vessel presents a multi-megawatt load that appears and disappears in minutes, at a frequency that may not be the grid's, in a location at the end of a distribution network that was never sized for it. The standard sets the construction guidelines for that side: the load assessment and the planning of the supply, the connection point and voltage level selection, the substation and distribution arrangement, the frequency conversion where required, the protection, earthing and safety interlocking, the metering and the power quality requirements, the monitoring and control, and the construction and acceptance. It took effect on 24 July 2024.

This document specifies the site selection, layout, transmission part, Requirements for the substation section. This document applies to the construction of port shore power system access to power system facilities.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 2887 General Specification for Computer Sites

GB 8702 Electromagnetic environment control limits

GB/T 9361 Computer Site Safety Requirements

GB/T 14285 Technical specification for relay protection and safety automatic devices

GB/T 15707 Limits of radio interference for high voltage AC overhead transmission lines

GB/T 17467 High-voltage/low-voltage prefabricated substation

GB/T 19963.1 Technical regulations for connecting wind farms to power systems Part

3 Terms and definitions

The terms and definitions defined in GB/T 41999 apply to this document.