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GB/T 44883-2024

**Energy efficiency control system in process production -
Design requirements**

流程生产能效管控系统 设计要求

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Table of Contents

1 Scope ...	1
2 Normative references ...	1
3 Terms and Definitions ...	1
4 Abbreviations ...	2
5 Process production energy efficiency control system architecture ...	2
5.1 Positioning of process production energy efficiency control system ...	2
5.2 Overall Architecture of Process Production Energy Efficiency Control System ...	3
6 Network Design Requirements ...	4
7 Functional classification and information flow ...	4
7.1 Functional classification ...	4
7.2 Information Flow ...	5
8 Factors that should be included in the energy efficiency model ...	6
8.1 Factors that should be included in energy forecasting models ...	6
8.2 Factors that should be included in the energy optimization model ...	6
9 Functional design requirements ...	7
9.1 Planning ...	7
9.1.1 Energy Efficiency Prediction ...	7
9.1.2 Energy Plan ...	7
9.2 Execution ...	7
9.2.1 Energy Efficiency Performance Management ...	7
9.2.2 Energy Efficiency Report Management ...	8
9.2.3 Comprehensive monitoring of energy efficiency ...	8
9.2.4 Abnormal alarm ...	8
9.3 Analysis ...	8
9.3.1 Energy efficiency index management ...	8
9.3.2 Energy Efficiency Diagnosis and Analysis ...	8
9.3.3 Energy efficiency benchmarking management ...	9
9.4 Optimization ...	9
9.4.1 Energy Optimization ...	9
9.4.2 Capacity Optimization ...	9
9.4.3 Deployment Optimization ...	9

1 Information flow between various functions of process production energy efficiency control system ...	6
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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. 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 was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Technical Committee for Standardization of Industrial Process Measurement, Control and Automation (SAC/TC 124). This document was drafted by: Mechanical Industry Instrumentation Comprehensive Technical and Economic Research Institute, Metallurgical Automation Research and Design Institute Co., Ltd., MCC CCID Information Technology (Chongqing) Co., Ltd., Henan Pingyuan Intelligent Equipment Co., Ltd., Siemens (China) Co., Ltd., Chongqing Industrial Industry Intelligent Technology Research Institute, Beijing Instrument Measurement Technology Development Co., Ltd., Zhejiang Zhongkong Technology Co., Ltd., TBEA Technology Investment Ltd. The main drafters of this document are: Niu Pengfei, Sun Yanguang, Sheng Gang, Tang Chun'e, Li Zhi, Wang Jing, Shi Chunyan, Zheng Erlei, Cheng Guangqi, Tian Yuanchao, Feng Shangke, Wang Zhou, Guo Zhixi, Guo Junyuan, Shi Luning, Lai Xiao, Yao Hua, and Liu Lihui. Design requirements for process production energy efficiency control system

1 Scope

GB/T 44883-2024 sets the design requirements for energy efficiency management and control systems in process industry production. Steel, chemicals, cement, paper and the other continuous industries are where most Chinese industrial energy is consumed, and the saving available from managing energy as a controlled variable rather than as a monthly bill is large; but it requires a system that sits between the process control layer and the enterprise systems and that most plants have never had. The standard sets the architecture of such a system and its position relative to the existing control and information layers, then the design requirements: the energy metering and data acquisition, the modelling of the energy flows and balances, the monitoring and analysis functions, the energy efficiency indicators and benchmarking, the optimisation and scheduling of energy supply and demand, the alarm and diagnosis, the reporting, and the interfaces, performance, reliability and security of the platform. It takes effect on 1 June 2025.

This document specifies the architecture, network design requirements, functional design requirements and interface design requirements of the process production energy efficiency

control system. The functional classification and information flow of process production energy efficiency management and control systems, and the factors that the energy efficiency model should involve are discussed. This document is applicable to the design of energy efficiency management and control systems for process production enterprises such as metallurgy and petrochemical.

2 Normative references

This document has no normative references.

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Energy Electricity, fuel, steam, heat, compressed air and other similar media. Note

1. In this document, energy includes all forms, including renewable energy, that can be purchased, stored, disposed of, used in equipment or processes, and recycled. Recycling. Note 2 to entry. Energy is also defined as the power a system uses to generate external activity or to perform work. [Source: GB/T 23331-2020, 3.5.1]

3.2 Energy consumption The amount of energy used. [Source: GB/T 23331-2020, 3.5.2, modified]

3.3 Energy efficiency The ratio or other quantitative relationship of output energy, products, services, or performance to input energy. Examples. conversion efficiency, energy demand/energy used, output/input, theoretical energy usage/actual energy usage. NOTE Inputs and outputs need to be specified in terms of quantity and quality and be measurable. [Source: GB/T 23331-2020, 3.5.3, modified]

3.4 Energy efficiency factor Factors or factors that affect energy-saving goals and energy utilization efficiency in process production.

3.5 Benchmarking management The ongoing process by which an organization improves its products, services, and practices by comparing them with those of its strongest competitor or industry leaders.

Note. Benchmarking management is a process of constantly searching for and studying the best practices of first-class companies, and comparing, analyzing, and judging them with our own company, so as to make our own The company is constantly improving and entering a virtuous cycle of catching up with first-class companies and creating outstanding performance. Enterprise energy efficiency benchmarking management involves two basic elements. Best energy-saving practices refer to the most effective measures and