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

GB/T 35031.4-2022

**Customer energy management system - Part 4: Specification
for information exchange between host and gateways**

用户端能源管理系统 第4部分：主站与网关信息交互规范

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Foreword

This document was issued on 12 October 2022 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 May 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

It is classified under ICS 29.020, Chinese classification K00.

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.

This document is part 4 of GB/T 35031 "Energy Management System at Customer End". GB/T 35031 has issued the following parts.

- Part 1.Guidelines;
- Part 2.Master station functional specification;
- Part 3-1.General requirements for subsystem interface gateways;
- Part 3-2.Subsystem interface gateway data configuration;
- Part 4.Master station and gateway information interaction specifications;
- Part 6.Management indicator system;
- Part 7.Functional classification and system classification;
- Part 8.Use Cases.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

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Introduction

GB/T 35031 "Energy Management System at Client End" is a recommended standard to guide the standardization of energy management at client end.

Technical requirements, data interface model and evaluation system, to solve the problems that have long plagued different manufacturers and different enterprises in the field of energy management at the user end in my country.

Compatibility between users and different systems is difficult.

Given that the user-side energy management system involves multiple dimensions such as systems and components, hardware and software, communication protocols, data interfaces, monitoring and evaluation, etc.

Its content can be clearly divided into several relatively independent but interrelated parts, so GB/T 35031 is proposed to be composed of eight parts.

--- Part 1.Guidelines. Provide user end energy management system architecture model and general requirements.

--- Part 2.Master functional specifications. Including the functional architecture, function definition and requirements of the main station software of the user-end energy management system.

--- Part 3-1.General requirements for subsystem interface gateways. Contains the subsystem interface gateway functional model, functional requirements and electrical, General requirements for machinery, inspection, etc.

--- Part 3-2.Subsystem interface gateway data configuration. Define the data model of the

subsystem interface gateway and the data that should be configured.

--- Part 4.Master station and gateway information exchange specification. Define the subsystem interface gateway to communicate with the master station through the MQTT protocol

Interactive topics.

--- Part 5.Application side interface specification. Define various application programming interfaces for the application side.

--- Part 6.Indicator system. Provide the user end energy management system technical index system and the definition of each index item.

--- Part 7.Functional classification and system classification. Provides user end energy management system function classification and system grading methods.

--- Part 8.Use Cases. Sorting out and summarizing the forms of user-side energy services, and describing in detail various types of user-side energy management in the form of use cases

and service participants, interactive information and specific processes.

The main purpose of this document is to define various topics for the subsystem interface gateway to exchange information with the master station through the MQTT protocol. host

The information exchange protocol between the station and the gateway runs on top of TCP/IP, and MQTT is used as the application layer protocol. MQTT currently has

There are three versions 3.1, 3.1.1 and 5.0.This document stipulates the use of MQTT3.1.1 version.

Client Energy Management System

Part 4.Specifications for Information Interaction between Master Station and Gateway

1 Scope

GB/T 35031.4-2022 defines how a customer energy management system talks to the gateways in the field. Demand response and distributed generation depend on a utility or an aggregator being able to see and influence what happens behind the customer's meter - the site's load, its storage, its solar - and that reaches them through a gateway at each site. The link is the difficult part: there are very many sites, each on whatever connectivity it happens to have, often behind a domestic router, frequently offline. This part specifies the information exchange between the CEMS master station and the gateway based on MQTT, together with the information model exchanged over it. MQTT is the right choice for exactly these conditions - it was designed for constrained links and intermittent connectivity, it lets the gateway open the connection outward so no inbound firewall rule is needed, and its