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**Technical specification for operation and
monitoring system of electric vehicle smart
charging/battery swap service network**

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Technical specification for operation and monitoring system of electric vehicle smart charging/battery swap service network

1 Scope

This Specification specifies the system composition, system function, coding specification, communication network, system interface, information security protection and main technical indicators for operation and monitoring system electric vehicle smart charging/battery swap service network.

This Specification is applicable to the design, construction, operation and maintenance of operation and monitoring system electric vehicle smart charging/battery swap service network (hereinafter referred to as the operation and monitoring system).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB 50174-2008, *Code for Design of Electronic Information System Room*

GB/T 2887-2011, *General specification for computer field*

GB/T 22240-2008, *Information security technology - Classification guide for classified protection of information systems security*

GB/T 29317-2012, *Terminology of electric vehicle charging/battery swap infrastructure*

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 29317 as well as the followings apply.

3.1 operation and monitoring system

It shall have the function of verifying, classifying, reconciling, statistics and clearing settlement between all relevant organizations.

5.1.5 Asset management

It shall have the function of standardizing and managing various business links of battery and equipment status, and realize the management of asset life cycle, including battery management, equipment management, etc.

5.1.6 Distribution management

It shall have the functions from the distribution center warehouse, the lower level warehouse, site distribution management, emergency battery distribution service, cross-regional distribution management, including vehicle management, distribution application, distribution plan, delivery execution, distribution transfer and distribution quality management.

5.1.7 Operation management

It shall have the functions of on-site inspection, inspection and periodic verification management of facilities, batteries and electric vehicles on a regular basis, and determine the operation status of the equipment, judge the hidden troubles of the equipment and perform corresponding treatment according to the verification results, including periodic inspection, temporary inspection and overhaul management, on-site inspection, commissioning management, equipment maintenance, daily shift change management.

5.1.8 Centralized monitoring

It shall have real-time status and video information such as charging stations, battery exchange stations, vehicles, batteries, etc., to achieve remote monitoring functions, including business supervision, operation monitoring, video monitoring, vehicle monitoring and battery monitoring.

5.1.9 Comprehensive statistical analysis

It shall have the functions of statistics, query and output of various data of the system through the customization and execution of the report subject, row, column and statistical scheme, including report template maintenance, report statistics and report query.

5.1.10 System management

It shall have the functions of configuring organization, personnel, authority, system parameters and business processes. It shall have functions of log management, message service, document management.

5.2 Extensions

8.2 Interface security requirements

Special security technology implementation strategies shall be developed to ensure the security of interface data transmission and data processing. Interface security controls include: security assessment, access control, intrusion detection, password authentication, security auditing, anti-malware, encryption, etc.

9 Information security protection

9.1 Overall objective

- a) Prevent system crash or vandalism from affecting normal charging and replacing services.
- b) Resist the internal and external personnel's information attacks on operational monitoring systems and charging/battery swap service facilities.
- c) Prevent unauthorized operations and damage to unauthorized systems.
- d) Prevent computer viruses from infecting and invading the system.
- e) Ensure the safety of the generation, storage, transmission and use of monitoring data.

9.2 Protection requirements

The information security protection of the operation and monitoring system refers to the third-level standard in GB/T 22240-2008. According to the degree of infringement of the object and the object infringed when the information system is damaged, it is designed for security protection from five levels (physical, network, host, application, data).

10 Main technical indicators

10.1 System response speed

- a) System query response time (simple query, small number) $\leq 3s$.
- b) System query response time (complex multiple queries, small number) $\leq 5s$.
- c) System query response time (simple query, batch data) $\leq 10s$.
- d) System query response time (complex statistical query) $\leq 15s$.

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