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

DL/T 1051-2019

**Guide for technology supervision in electrical power system
(English Translation)**

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009 "Guidelines for Standardization Work Part 1: Standard Structure and Compilation".

This standard replaces DL/T 1051-2007 "Guidelines for Electric Power Technology Supervision." Compared with DL/T 1051-2007, the main technical changes such as under.

- The main content of electric power technology supervision has been revised;
- Modified the power technical supervision responsibilities;
- Modified the power technology supervision and management;

This standard was proposed and managed by the China Electricity Council.

Drafting organization of this standard. State Grid Hubei Electric Power Co., Ltd. Electric Power Research Institute

1 Scope

This standard specifies the main content and management requirements of power technical supervision.

This standard applies to the technical supervision of the whole process of power construction and production.

2 Terms and definitions

The following terms and definitions apply to this standard.

Power technology supervision in the whole process of power engineering construction and production and operation, check the implementation of relevant technical standards;

Facility and system safety, quality, environmental protection, and economic operation

related important parameters and performance indicators are tested and evaluated.

3 General

3.1

Power technical supervision shall be managed at different levels, and technical supervision organizations shall be established to clarify the responsibilities of supervision at all levels.

3.2

Electric power technology supervision should be centered on safety and quality, based on technical standards, and testing and inspection as the main means.

Combine the application of new technologies, new equipment, and new processes to carry out work dynamically.

3.3

Electric power technology supervision shall cover the planning and design, construction, production and operation, and decommissioning of power generation, transmission, distribution and use of electricity the whole process of scrapping.

3.4

Power technical supervision mainly focuses on power quality, insulation, electrical testing, relay protection and safety of power equipment and systems.

Fully automatic equipment, dispatch automation, excitation, chemistry, thermal engineering, metal, energy saving, environmental protection and other professional supervision and boilers, gas turbines and other equipment supervision, and conduct investigation and analysis of related professional accidents related to power generation companies, grid companies, and power users, and urge professional the formulation and implementation of accident prevention and control measures. Electric power companies can carry out corresponding supervision work according to their actual conditions and determine internal Content and scope.

3.5

Power generation companies, power grid companies and power users should carry out electrical technology supervision in accordance with national and industry standards, and power users should provide Power grid companies and power generation companies carry out relevant technical supervision work.

4.1.1 Power quality supervision

Power system frequency deviation, voltage deviation, harmonics and inter-harmonics, voltage fluctuations and flicker, three-phase voltage unbalance, electricity Pressure dips and short-term interruptions, etc.

4.1.2 Insulation supervision

High-voltage electrical equipment insulation status, pollution status, grounding device status, overvoltage protection, etc.

4.1.3 Electrical test supervision

All kinds of indicating instruments, measuring instruments, portable instruments, electrical measurement and measurement standard devices, standards, electrical measurement and measurement interaction Sensors and secondary circuits, recording instruments, electrical energy information collection information systems, etc.

4.1.4 Supervision of relay protection

Relay protection devices and safety automatic installations for generators, motors, transformers, switches, buses, transmission lines, etc.

Sets and related secondary circuits, channel equipment and circuits for remote signal transmission of relay protection.

4.1.5 Dispatching automation supervision

Plant station automation monitoring system, remote control unit (RTU), dispatch production management system, real-time power transmission and network management Management system, power secondary system safety protection system and related equipment, etc.

4.1.6 Excitation supervision

Generator excitation system design and selection, installation, testing, handover and acceptance, operation overhaul and equipment management, etc.

4.1.7 Metal supervision

Metal material, welding quality, main steam pipe and reheat steam pipe, heating surface pipe, boiler drum, header and water supply pipe Road, turbine generator rotor, high temperature bolts, large castings, etc.

4.1.8 Chemical supervision

Water vapor chemistry, unit startup, shutdown and overhaul, fuel quality, oil quality, gas quality, etc.

4.1.9 Thermal supervision

Thermal instrument and equipment, thermal control system, design, installation and commissioning phase, trial production phase, operation and maintenance phase, Value transfer, etc.

4.1.10 Energy conservation supervision

The importance of power equipment or facilities related to energy consumption in planning, design and manufacturing, construction, operation, maintenance and technological transformation Performance, parameters, indicators and energy saving management, etc.

4.1.11 Environmental Supervision

Noise, power frequency electromagnetic field, sulfur hexafluoride gas, waste water, waste oil, power generation, transmission, distribution and electrical equipment and systems Solid waste; air pollutants such as smoke, sulfur dioxide, nitrogen oxides, and environmental protection facilities, etc.

4.2.1 Performance supervision of electrical equipment

Generators, transformers,, switchgear, lightning arresters, HVDC converter equipment, thyristors and other electrical Equipment and related online monitoring devices, secondary circuits, etc. that are matched with the above-mentioned electrical equipment.

4.2.2 Steam (water) turbine supervision

Shaft vibration, blades, regulation and security system, thermal system, water turbine control system and hydraulic equipment, water turbine automation Wait.

4.2.3 Boiler supervision

The boiler body and its accessories, the heating surface of the boiler tail (including the exhaust heat recovery and utilization system), the boiler fan and the wind and smoke system System, coal mill, pulverizing and combustion system, ash removal system, etc.

4.2.4 Gas turbine supervision

Shaft vibration, gas turbine body (including compressor, combustion chamber, turbine), fuel supply and processing system, gas turbine Machine auxiliary system (including intake and exhaust system, fuel control module, lubricating oil system, hydraulic oil system, cleaning system, cooling and sealed air system, ventilation and heating system, water/steam system, hazardous gas detection and fire protection system, cranking and start the system, etc.) and so on.