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**Technical guide for synergistic dispatch of electric vehicles  
charging with intermittent power integrated**  
电动汽车充电与间歇性电源协同调度技术导则

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# Technical guide for synergistic dispatch of electric vehicles charging with intermittent power integrated

## 1 Scope

This Standard specifies technical framework and technical requirements for synergistic dispatch of electric vehicles charging with intermittent power integrated.

This Standard is applicable to electric vehicle charging and swapping facilities and intermittent power sources of 10MW and above that are connected to the power grid and have various charging power adjustment capabilities.

## 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/T 19963, *Technical specification for connecting wind farm to power system - Part 1: On shore wind power*

GB/T 19964, *Technical requirements for connecting photovoltaic power station to power system*

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

NB/T 32015, *Technical rule for distributed resources connected to distribution network*

## 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 intermittent power

The power that the power generation output is greatly affected by natural factors, and has volatility, randomness and incomplete controllability.

**NOTE:** It mainly includes wind power generation and photovoltaic power generation.

### **3.2 synergistic dispatch**

Through scheduling or guidance, the electric vehicle charging and swapping facilities and intermittent power sources can independently adjust power within a certain range to meet the charging needs of electric vehicles, improve the utilization rate of intermittent power generation, and reduce the peak-to-valley difference rate of the power grid.

## **4 General requirements**

**4.1** Synergistic dispatch shall take advantage of the complementarity of EV charging and intermittent power generation. It shall give full play to the synergy between intermittent power supply connected to the grid and electricity load. On the power grid platform, the optimal utilization of multiple resources is realized.

**4.2** Intermittent power operators, electric vehicle charging and swap facility operators, and power dispatching agencies shall actively participate in collaborative dispatching and use necessary technical means to meet the requirements of synergistic dispatch.

**4.3** The data communication network of intermittent power, electric vehicle charging and swapping facilities and power dispatching agency shall comply with the safety protection regulations of the power secondary system. Ensure system and information security.

**4.4** Synergistic dispatch shall ensure the safety of electric vehicle charging as well as the safe and reliable operation of power grid and intermittent power.

## **5 Technical framework**

**5.1** Synergistic dispatch involves intermittent power, electric vehicle charging and swapping facilities, and power dispatching agencies. The hierarchical partition control mode shall be adopted. See Annex A for the technical framework of synergistic dispatch.

**5.2** The power dispatching agency shall comprehensively process the operation information of intermittent power, charging and replacing facilities. Develop a synergistic control strategy. Issue dispatch instructions or guidance information to lower-level responders.

**5.3** Intermittent power and electric vehicle charging and swapping facilities shall upload operating information. Device control policies are generated and executed according to dispatch instructions or guidance information.

decentralized charging and swapping facilities managed by operators, shall have the ability to exchange information with the power dispatching agency.

**6.2.1.2** The communication method, transmission channel and information transmission between charging and swapping stations or distributed charging and swapping facilities and power dispatching agencies, shall be determined by the power dispatching agency in consultation with the operator.

## **6.2.2 Load prediction**

**6.2.2.1** The charging and swapping station with monitoring system shall have various load prediction functions. Upload the load prediction curve of this charging and swapping station according to the requirements of the power dispatching agency.

**6.2.2.2** Within the jurisdiction of the same power dispatching agency, the distributed charging and swapping facilities managed by operators shall have load prediction functions. Upload the total load prediction curve of the organization's charging and swapping facilities in the area according to the requirements of the power dispatching agency.

## **6.2.3 Power regulation**

**6.2.3.1** The charging and swapping station with a monitoring system shall have the ability to adjust charging power. Directly receive the guidance information issued by the power dispatching agency. Control the total charging power of the charging station.

**6.2.3.2** Within the jurisdiction of the same power dispatching agency, the decentralized charging and swapping facilities managed by the operator shall have the ability to adjust the charging power. Receive the guidance information issued by the power dispatching agency. Control the total charging power of the organization's charging and swapping facilities.

## **6.3 Power dispatch**

### **6.3.1 General requirements**

**6.3.1.1** The power dispatching agency shall summarize the operation data of intermittent power and electric vehicle charging and swapping facilities. Analyze intermittent power output and charging needs of electric vehicles. Develop a synergistic dispatch strategy. Combining with the actual operation of the power grid, synergistic dispatch instructions or guidance information are issued to intermittent power operators and charging and swapping facility operators.

### **6.3.2 Synergistic dispatch strategy**

**6.3.2.1** The synergistic dispatch strategy shall be formulated according to the composition structure of intermittent power and charging and swapping facilities in different regions, the predicted output of intermittent power and the predicted load of

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Contact: Wayne Zheng, [Sales@ChineseStandard.net](mailto:Sales@ChineseStandard.net)

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