

# RESEARCH ON CURRENT STATUS OF POWER SYSTEM COMMUNICATION POWER SUPPLY TECHNOLOGY AND EMERGENCY PLAN

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**Abstract:** Communication power supply is one of the core equipment of the power system and is the fundamental guarantee for the normal operation of the power system. This article discusses the power system communication power supply The basic concept of technology, analyzes the current status of communication power supply technology in power systems, and proposes an emergency plan to solve communication power supply technical problems.

**Keywords:** Electricity system; Communication power supply; Current situation; Emergency plan

## 1. CURRENT STATUS OF COMMUNICATION POWER SUPPLY TECHNOLOGY IN POWER SYSTEMS

Communication power supply is an electric power system the key link is also the normal operation of the communication system. prerequisite, occupying very important position. In order to better play the role of communication power supply and promote the development of related industries, we must not only be familiar with the current core power supply technology, but more importantly, grasp its future development direction, and at the same time make full preparations and design emergency plans.

Communication power system covers DC combination System, DC secondary module and online inverters, etc. The main technologies focus on intelligent monitoring, soft switching and In terms of electromagnetic compatibility, this is also current market needs. exist Department of Electric Power Tongzhong Communication Power Supply is responsible for providing stable and long-lasting power energy.

### 1.1 Lead-acid batteries

Usually lead-acid storage Batteries are divided into two types: flooded type and valve-controlled type. After long-term practice and verification, flooded lead-acid storage Relatively speaking, batteries have greater advantages, such as long service life and safe and reliable functions, so they are widely used in communication equipment rooms and base stations [1]. Lead-acid batteries have developed rapidly in recent years, the technology has matured, and the battery's energy consumption time and storage capacity have improved. And received good feedback in practical applications [2]. At the same time, cold-pressed pure lead plate fence technology can greatly extend the When using battery time, the battery reaction efficiency has also been effectively improved. It can be seen that lead -acid storage The battery is not only It has obvious advantages in the current period and will also occupy an important position in future development.

### 1.2 Lithium Ion Battery

Lithium-ion batteries are secondary batteries, that is, they have rechargeable functions. The pool has higher performance and is composed of lithium-containing elements The composition of raw materials [3]. Lithium is generally Batteries are divided into lithium batteries and lithium ion battery, its Medium lithium battery in use The process is dangerous and is rarely used in daily life. The battery equipped with other smart mobile terminals is lithium-ion battery, which should be More widely used. lithium ion Battery The advantages are significant, such as for temperature inheritance The scope of reception is wider and full Fast electricity, self-discharging Low power and long service life Long, safe and reliable, with little environmental pollution. Therefore, lithium-ion batteries will For a long time to come, it will still be a hot spot in the development of communication power supply technology.

### 1.3 Flow Batteries and Fuel Cells

Flow battery, also known as redox flow battery, is a chemical The energy storage device separates the electrolyte of the positive electrode and the negative electrode. Recycling is a new battery technology that not only has high capacity but also has a wide range of applications. wide range More importantly, the energy battery eliminates the need for charging. current It has been fully developed in aerospace, power stations, electric vehicles and other fields. hair. A fuel cell operates through a chemical reaction between fuel and oxidant application, converting chemical energy into electrical energy. In essence, the power generation function exceeds the storage equipment function, the nature is closer to that of development power plant. Fuel cells not only work efficiently Extremely high efficiency, and at the same time in line

with the concept of green environmental protection, it has high safety performance and low fuel consumption. It has the characteristics of diversified sources of materials [4]. Fuel cells and flow batteries in technology There is still a big gap in the time, so it is the future development of communication power supply technology. One of the development directions.

#### 1.4 Combined System

Although the process of industrialization has accelerated the development of the world economy, it has Meanwhile also Caused serious environmental pollution. As people's awareness of environmental protection increases, Strong, more and more people are paying attention to saving energy and reducing pollutant emissions Question [5]. Driven by this, more environmentally friendly wind energy, solar energy, etc. can be Biomass energy is widely used and professional technology is increasingly mature. In communication power technology also reflected in. Since power system communication power technology has certain characteristics, special characteristics, which increases the difficulty of power supply, and the use of combined systems can provide effectively alleviate this situation and propose countermeasures based on the characteristics of different regions. The photovoltaic power supply system can be reasonably matched with wind energy, solar energy, etc. configuration to jointly build a combined communication power system.

## 2. ADVANCED COMMUNICATION POWER SYSTEM

### 2.1 AC Power Supply System

The AC power supply system is mainly composed of oil engine generator, distribution panel, transformer and uninterruptible power supply. The AC power supply mainly includes the self-provided AC power of the oil engine generator, the city power supply of the substation, and the back AC power of the uninterruptible power supply [6]. For example, a substation supplies the city with When power is on, once a power interruption occurs, the oil engine generator will start automatically to complete the AC power supply. When the city power supply is operating normally, AC The power supply is usually available in the city It is completed with the support of electricity and inverter. After the mains power is interrupted, the inverter starts to supply power. The AC power distribution panel can distribute a certain amount of power to the AC load. When the mains power supply fails, Alert.

### 2.2 DC Power Supply System

DC supply electricity Tie system Bag include save electricity Pool, DC Change Change device, whole flow device etc., and the main function of the battery is to directly Current power supply ensures the operation of the power system. Therefore, the DC power supply system Relevant facilities must ensure capacity loading Distribute electrical energy and be able to generate Call the police Report reminder.

### 2.3 Surveillance System

The monitoring system is a power system extremely important in It plays a role in supervising and managing the operation of the entire communication power supply. The monitoring system first provides comprehensive and thorough supervision of the operation of the communication power system. Generated when the device is running Relevant data and information, such as battery charge Detailed records of electrical discharge time, etc. [7]. Secondly, once the communication power supply fails, the monitoring system can quickly and accurately locate the specific location of the failure, provide technicians with first-hand information for maintenance, and speed up power supply recovery. In addition, the monitoring system can save manpower and ultimately achieve unattended operation.

## 3. EMERGENCY PLAN FOR POWER SYSTEM COMMUNICATION POWER SUPPLY TECHNOLOGY

Although domestic power system communication power supply technology has made great progress, development, but in practice An unexpected accident occurred in the old meeting. once electricity The communication power supply fails and affects the normal use of the user. If the problem cannot be solved in time, will cause huge economic losses. In order to deal with this situation, on the one hand, we must Do a good job in regular inspection and maintenance of equipment. On the other hand, you must be fully prepared for Develop emergency plans for potential threats. If an accident occurs, respond immediately between Launch plans to reduce power outage duration.

### 3.1 Technicians Should Quickly Enter the Accident Scene and Conduct a Detailed Search for the Power Outage

Reasons: try to restore the AC power supply to normal, and turn off the auxiliary if necessary equipment, after confirming that there is no abnormality in the two-channel microwave channel machine, you can turn off both A party in the directional channel machine towards, thus making Electric load reduction. same Record power equipment

consumption power and Battery capacity, got out When the battery pack is discharged, a diesel generator can be used to temporarily generate electricity when conditions permit. Technicians must prepare the required facilities and master operating techniques [8].

### **3.2 After Inspection, it was Confirmed that the Cause of the Power Failure was a Damaged AC Contactor**

The response strategy is to short-circuit the AC contactor; confirm that all two sets of contactors If a fault occurs, all loads can be transferred to other groups; if there are no abnormalities in the AC and rectifier, adjust the voltage to the appropriate position and follow the principle of restoring normal power supply first and then performing repairs.

### **3.3 If the DC Voltage at the Fault Site Loses Voltage, but no Fault Occurs during the Inspection**

The current voltage has a decreasing trend. At this time, further confirmation of the DC output is required. melt out Check if the circuit breaker is damaged.

## **4. CONCLUSION**

In summary, power system communications Power technology in action International application plays an important role in the process and is related to the long-term development of various industries. Therefore, it is necessary to learn advanced technologies, formulate targeted emergency plans, and solve supply problems. Electricity barrier, And grasp the future development trend of power system communication power supply technology, increase the intensity and depth of technical research, optimize power supply services, and promote the sustainable development of the industry.

## **COMPETING INTERESTS**

The authors have no relevant financial or non-financial interests to disclose.

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