
(Sample)

Huidian Research

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6. Specific Analysis of China’s Communication High Voltage DC Power Supply

6.4 Market Scale and Main Consumers of Communication Field HVDC

6.4.1 Current Market Scale and Future Market Capacity Forecast of China’s Communication Field HVDC

The survey of Huidian Research shows that the market scale of HVDC in China was about CNY 100 million in 2012. At present, only Emerson, Delta, Dynamic Power, and Zhongheng can enter China Telecom HVDC central purchasing; Zhongheng accounts for 25% of market share.

In 2012, the purchasing amount of China’s communication UPS was about CNY 5 billion, if 80% UPS was substituted by HVDC; market capacity of HVDC will be about CNY 4 billion in the future.

According to the national promotion plan of key energy-saving products, the investment of CNY 7.5 billion will make the proportion of HVDC be 80%; the current proportion is 3%. If implemented as planned, the development of the industry will rapidly enter the “fast lane”. The market of HVDC will be CNY 4 billion in 2015 (National Development and Reform Commission’s promotion directory has no mandatory nature, it also does not issue the implementation details; whether the HVDC products can be promoted as planed or not still needs observation).

6.4.2 China’s Communication Field HVDC Consumer Application

The demand of HVDC comes from two aspects: communication industry and social data group explored by companies. At present, the application of telecommunications accounts for 80% of the total application.

Application Situation of China Telecom

China Telecom Group data shows that as of the end of June 2012, the number of China Telecom network DC power supply (240V) system had been 450; the total DC capacity is more than 240,000 amps which is equivalent to the power supply capacity of AC UPS capacity 85000KVA. More than 80,000 units of IT devices have used DC power supply (240V); the application range is distributed in more than 20 provinces (districts, cities), 74 regions.

Nearly 100 trial system data of Jiangsu Telecom shows that the average load rate of the 240V system is about 54% which is 15% higher than AC UPS system; the
electricity saving rate is 24%, saving investment by 19%.

HVDC operating efficiency is 20% at least higher than that of traditional UPS, so, HVDC has become an effective means of saving energy for operators.

**Tab.5 Investment Comparison of HVDC Power Supply and Traditional UPS**

<table>
<thead>
<tr>
<th>Order number</th>
<th>Item</th>
<th>Newly built UPS system (two parallel machine redundancy)</th>
<th>Newly built HVDC system</th>
<th>Comparison result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cost of construction</td>
<td>Host machine 4 units of 400 KVA UPS CNY 1.6 million</td>
<td>6 sets of 148 KW power CNY 1.44 million</td>
<td>Compared with UPS system, HVDC system can save 34.7% of investment</td>
</tr>
<tr>
<td>2</td>
<td>Battery configuration (1 hour)</td>
<td>Battery 8 groups of 1200 Ah CNY 2.92 million</td>
<td>Battery 12 groups of 600 Ah CNY 1.51 million</td>
<td>Compared with UPS system, HVDC system can save 34.7% of investment</td>
</tr>
<tr>
<td>3</td>
<td>Transformer (estimate price)</td>
<td>Transformer 1600 KVA CNY 300,000</td>
<td>Transformer 1100KV A CNY 210,000</td>
<td>Compared with UPS system, HVDC system can save 37% of indirect investment and save 85 square meters</td>
</tr>
<tr>
<td>4</td>
<td>Generator (estimate price)</td>
<td>Generator 1600 KVA CNY 2.4 million</td>
<td>Generator 1100KV A CNY 1.5 million</td>
<td>Compared with UPS system, HVDC system can save 37% of indirect investment and save 85 square meters</td>
</tr>
<tr>
<td>5</td>
<td>Air conditioning (estimate price)</td>
<td>Air conditioning 100 KW CNY 50,000</td>
<td>Air conditioning 40KW CNY 20,000</td>
<td>Compared with UPS system, HVDC system can save 37% of indirect investment and save 85 square meters</td>
</tr>
<tr>
<td>6</td>
<td>Machine room area</td>
<td>Machine room area 183.6 square</td>
<td>Machine room area 98.6 square</td>
<td>Compared with UPS system, HVDC system can save 37% of indirect investment and save 85 square meters</td>
</tr>
<tr>
<td>7</td>
<td>Operating cost</td>
<td>Operating cost energy cost</td>
<td>Operating cost energy cost</td>
<td>Compared with UPS system, HVDC system can reduce the operating cost.</td>
</tr>
</tbody>
</table>

Compared with UPS system, HVDC system can save power by 10-15% or so; the efficiency is improved by 10% or so; Air-conditioning power consumption is saved by 2-3%; the total saved electricity is about 13%. Calculated at CNY 0.85/KWh, the annual electricity charge would be saved by CNY 500,000 or so.
Table of Contents

1. Overview of High Voltage DC Power Supply Products in China
   1.1 Products Definition, Performance and Application Characteristics
     1.1.1 Definition
     1.1.2 Performance and Application Characteristics
     1.1.3 Application Fields
     1.2 Development History

2. Development Overview of High Voltage DC Power Supply in Foreign Countries
   2.1 Overview
   2.2 Japan
   2.3 U.S.
   2.4 Germany
   2.5 Britain

3. Environment of High Voltage DC Power Supply in China
   3.1 Economic Development Environment in China
     3.1.1 Macroeconomy
     3.1.2 GDP
     3.1.3 Fixed Asset Investment
     3.1.4 Total Import and Export Amount and Growth Rate
     3.2 Industry Related Policy, Laws and Regulations and Standard

4. Characteristics of High Voltage DC Power Supply
   4.1 Concentration Ratio of High Voltage DC Power Supply
   4.2 SWOT
     4.2.1 Strength
4.2.2 Weakness
4.2.3 Opportunity
4.2.4 Threat
4.3 Entrance and Withdrawal of High Voltage DC Power Supply
4.4 Substitute

5. Development of High Voltage DC Power Supply in China
5.1 Market Status Quo of High Voltage DC Power Supply in China
5.1.1 Market Status Quo
5.1.2 Production and Management Features of Switching Power Supply Industry
5.2 Output of High Voltage DC Power Supply Products in China
5.2.1 Overall Production Capacity of High Voltage DC Power Supply Industry
5.2.2 Production Area of High Voltage DC Power Supply
5.2.3 Output, 2008-2012
5.3 Market Demand Analysis and Forecast of High Voltage DC Power Supply in China
5.3.1 Characteristics of Demand
5.3.2 Distribution of Main Customer Fields
5.4 Consumption Analysis and Forecast of High Voltage DC Power Supply in China
5.5 Price Trend of High Voltage DC Power Supply in China
5.5.1 Price Trend, 2008-2012
5.5.2 Current Market Price and Analysis
5.5.3 Factors Affecting Price
5.5.4 Price Trend Forecast 2013-2017

6. Specific Analysis of China’s Communication High Voltage DC Power Supply
6.1 China’s Communication High Voltage DC Power Supply Is Mature
6.1.1 240V Standard Has Been Basically Established and Perfected in China
6.1.2 Equipment Manufacturers Are Developing Rapidly
6.1.3 Guidance of Communications Operator, Remarkable Result of Practical Use
6.2 IT Overall Response from Load Equipments
6.3 Result of Energy Conservation and Emission Reduction is Notable
6.4 Market Scale and Main Consumers of Communication Field HVDC
6.5 Development Forecast of Communication Field HVDC

7. Import and Export of High Voltage DC Power Supply in China
7.1 Import
7.2 Export
7.3 Source of Import and Export Destinations

8. Technology Development Environment of High Voltage DC Power Supply Products in China
8.1 Status Quo of Technology Development
8.2 Technical Maturity Ratio
8.3 Technological Gap between China and Foreign Countries and the Main Reasons
8.4 Strategy to Improve China’s HVDC Power Supply Technology

9. Key HVDC Power Supply Enterprises and Competitive Landscape
9.1 Wisman High Voltage Power Supplies Corporation
9.2 Tianjin Dongwen High Voltage Power Supply Co., Ltd.
9.3 Boher High Voltage Power Supplies
9.4 Sipaiman
9.5 Hangzhou Zhongheng Electric Co., Ltd.

10. Investment Advice of HVDC Power Supply
10.1 Investment Environment
10.2 Investment Risk
10.3 Investment Advice

11. Development Forecast and Investment Prospect of HVDC Power Supply in China
11.1 Industry Development Trend
11.1.1 Technology Development Direction in the Future
11.1.2 Industry Planning and Forecast during “12th Five-Year” Period
11.2 Industry Performance Forecast, 2013-2017

12. Investment Advice from Experts
12.1 Investment Opportunity
12.2 Investment Risk
12.2.1 Intra-industry Competition Risk
12.2.2 Market Trade Risk
12.2.3 Industry Policy Risk
12.3 Countermeasures
12.3.1 Grasp the Opportunity of National Investment
12.3.2 Implementation of the Competitive Strategic Alliance