Smart energy solutions

Nanjing Bonn Automation Technology Co. LTD

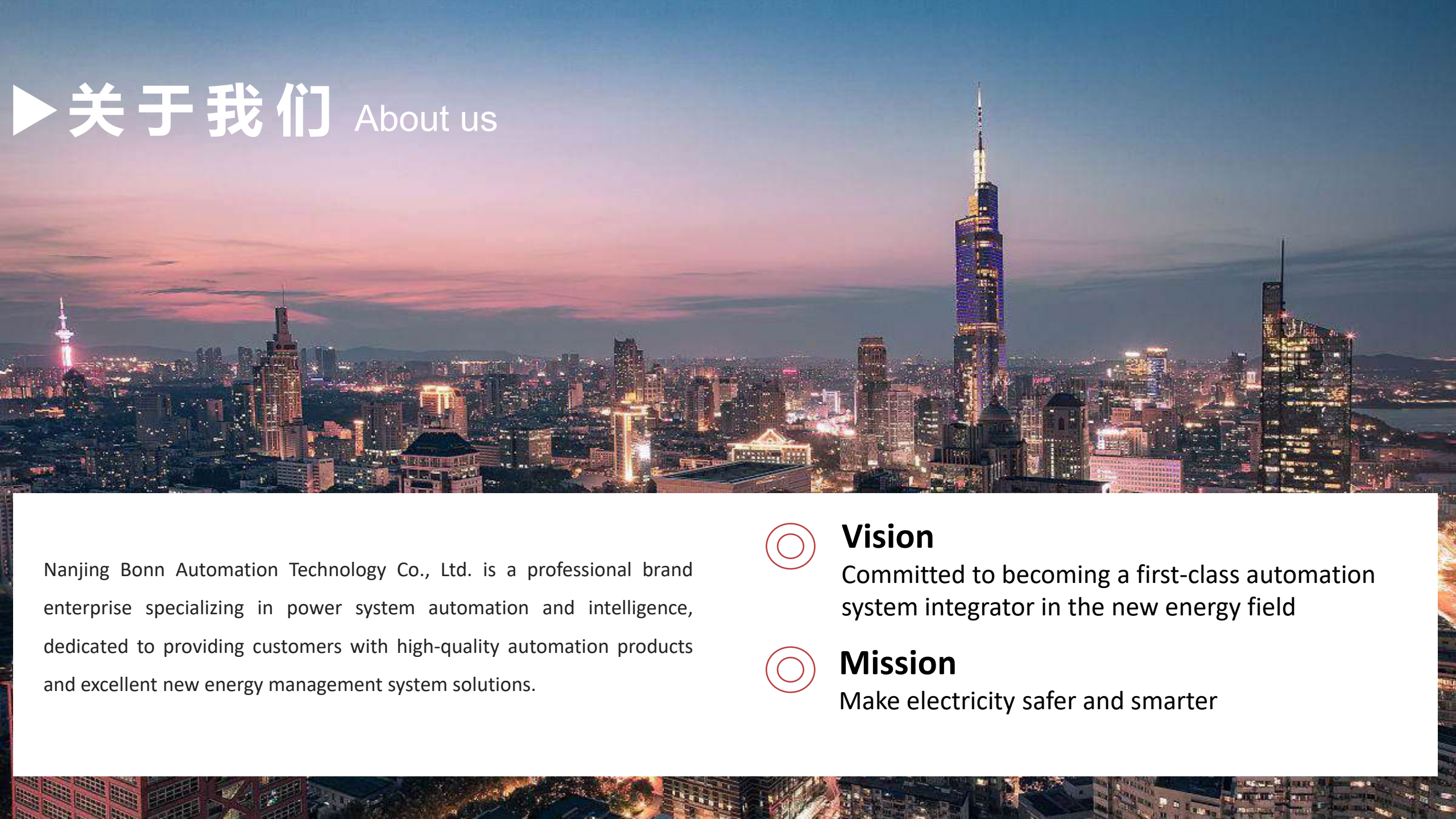
Catalogue

BONN

PART 01

Company Introduction

Nanjing Bonn Automation Technology Co., Ltd., as the production base and promotion center of BONN in China, has consistently provided high-quality products and services to Chinese users.



▶关于我们 About us

Nanjing Bonn Automation Technology Co., Ltd. is a professional brand enterprise specializing in power system automation and intelligence, dedicated to providing customers with high-quality automation products and excellent new energy management system solutions.

Vision

Committed to becoming a first-class automation system integrator in the new energy field

Mission

Make electricity safer and smarter

About Bonn

- Established in 2016
  - ——A domestic power system integration company that integrates R&D, production and sales
- Three major sectors, with a 10% market share
  - ——Intelligent terminals, intelligent transmission, and smart platforms
- More than 10 provinces and over 200 cities
  - ——The products are sold far and wide to over ten provinces
- More than 2,000 new energy, industrial, municipal and State grid customers
  - ——Our services cover the whole country
- Over 100 employees and more than 100 products
  - ——The technical team accounts for 65%

Company strength

Certification

ISO9001 system certificationNational High-tech EnterpriseSoftware Enterprise Certificate

...

Independent research and development capability

98 patentsThere are 96 software CopyrightsThere are 78 software product registration certificates

BONN

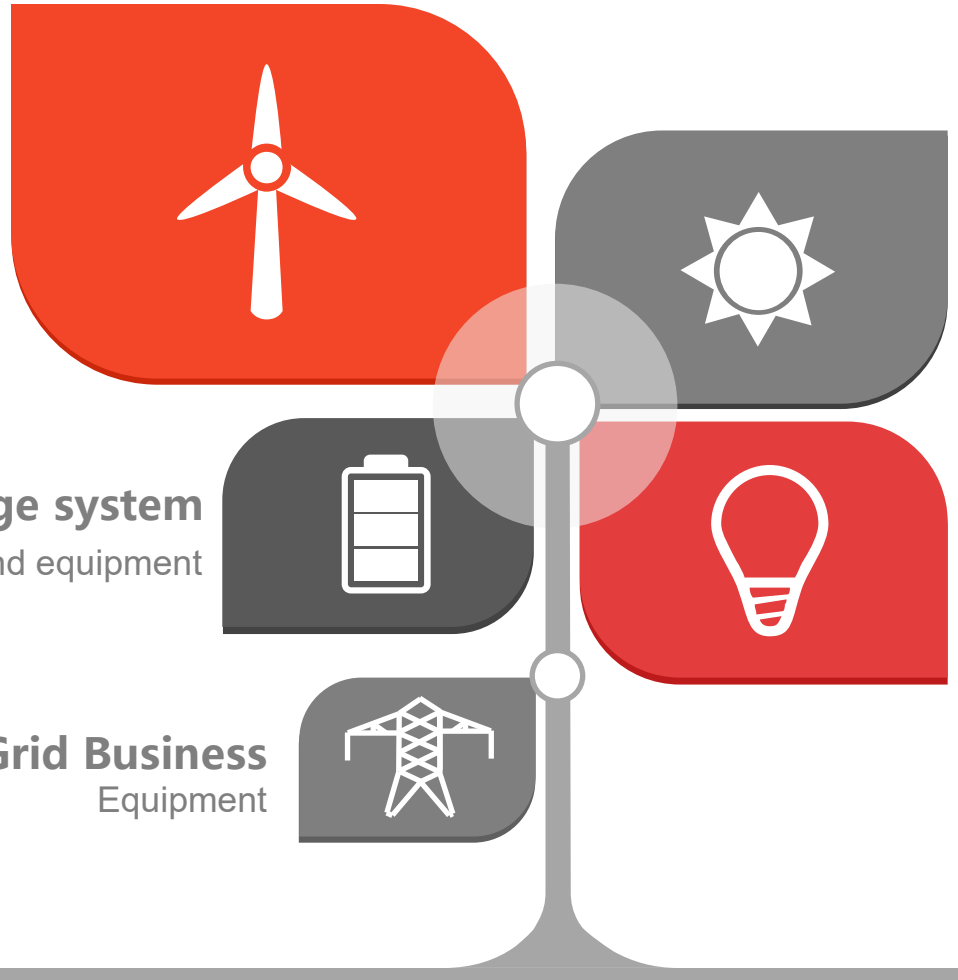
PART 02

Solution

Committed to becoming a first-class automation system integrator in the field of new energy

Bonn Smart Energy - Business Scope

Wind power generation
Secondary system solutions and equipment



Photovoltaic power generation
Secondary system solutions and equipment

Energy storage system
Secondary system solutions and equipment

Distribution automation
Secondary system solutions and equipment

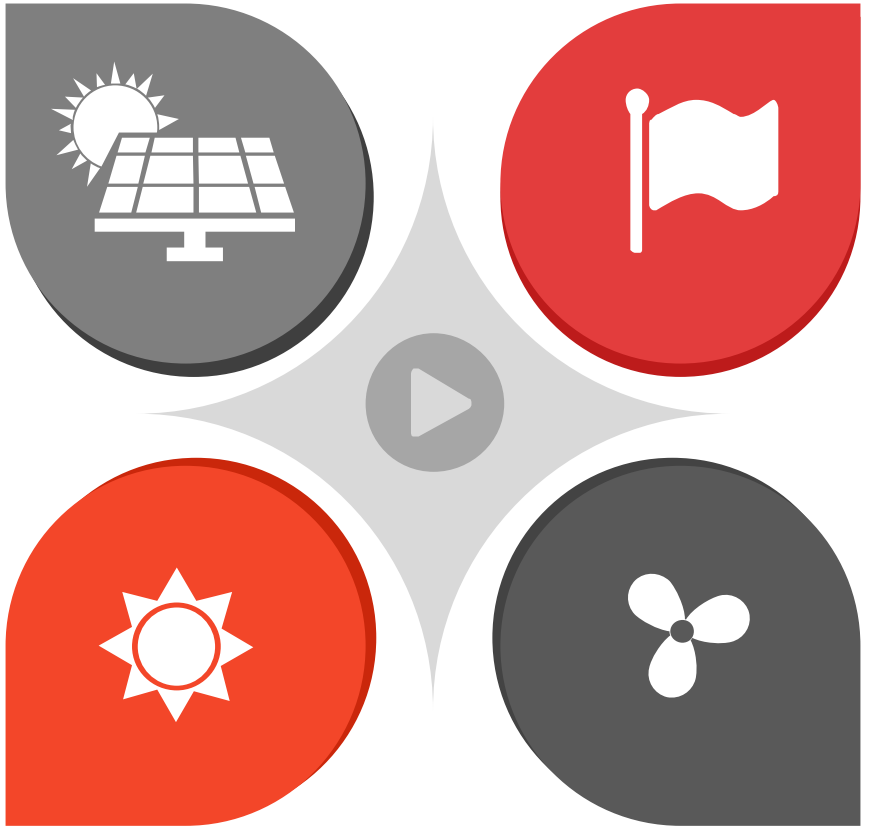
State Grid Business
Equipment

Photovoltaic power station/wind power generation solutions

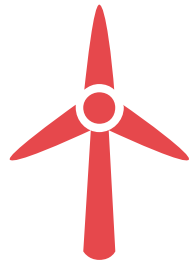
Centralized photovoltaic power station
Equipment as the main focus

Photovoltaic power station

Distributed photovoltaic power station
It is mainly a secondary system



Centralized wind farm station
Equipment as the main focus



Wind farm station

Decentralized wind farm stations
It is mainly a secondary system

Scheme design

One-stop

Provide overall solutions for links such as the station end, centralized control, and grid connection;

Grid connection security

Fully considering the randomness and instability of photovoltaic power generation, grid connection is safer.

Unattended

Realize "unmanned operation" within the station to enhance the capacity for handling accidents and the reliability of operations.

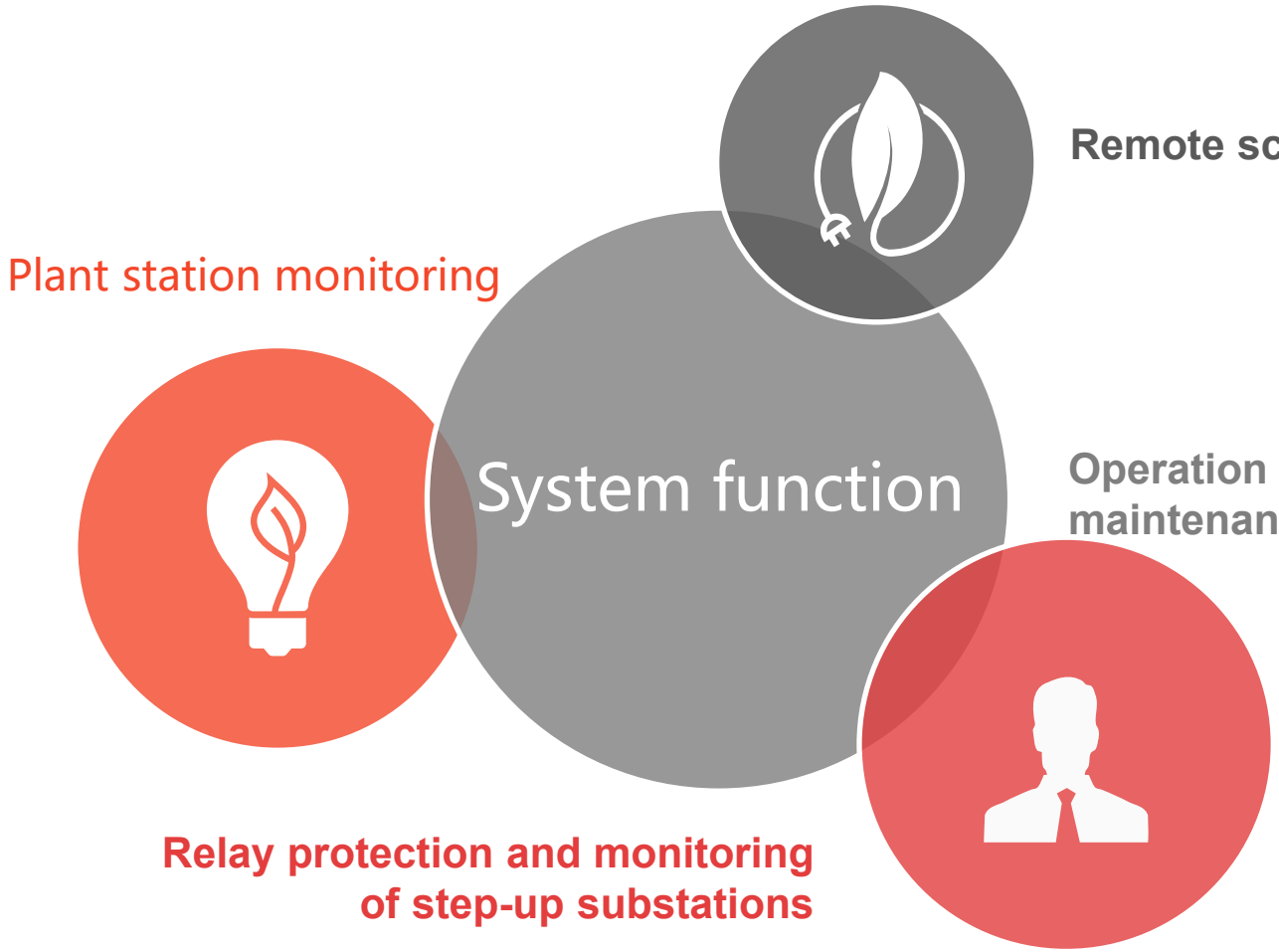
Unified interface

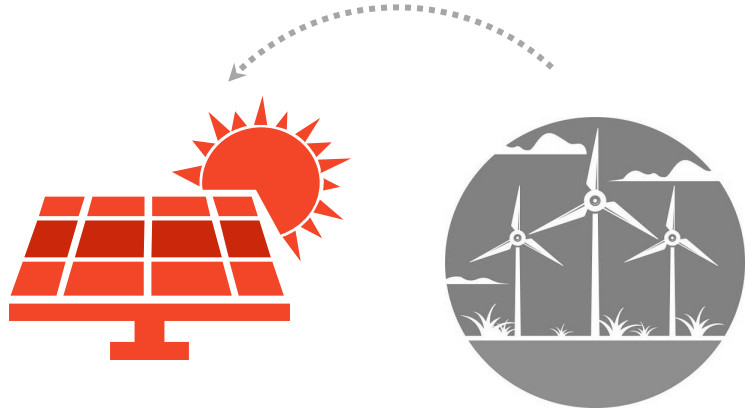
Flexible configuration, unified data collection, processing and interface, seamless integration of subsystems;

System Analysis

Realize power curve, downtime, power generation loss analysis, and horizontal and vertical comparison of various signals;

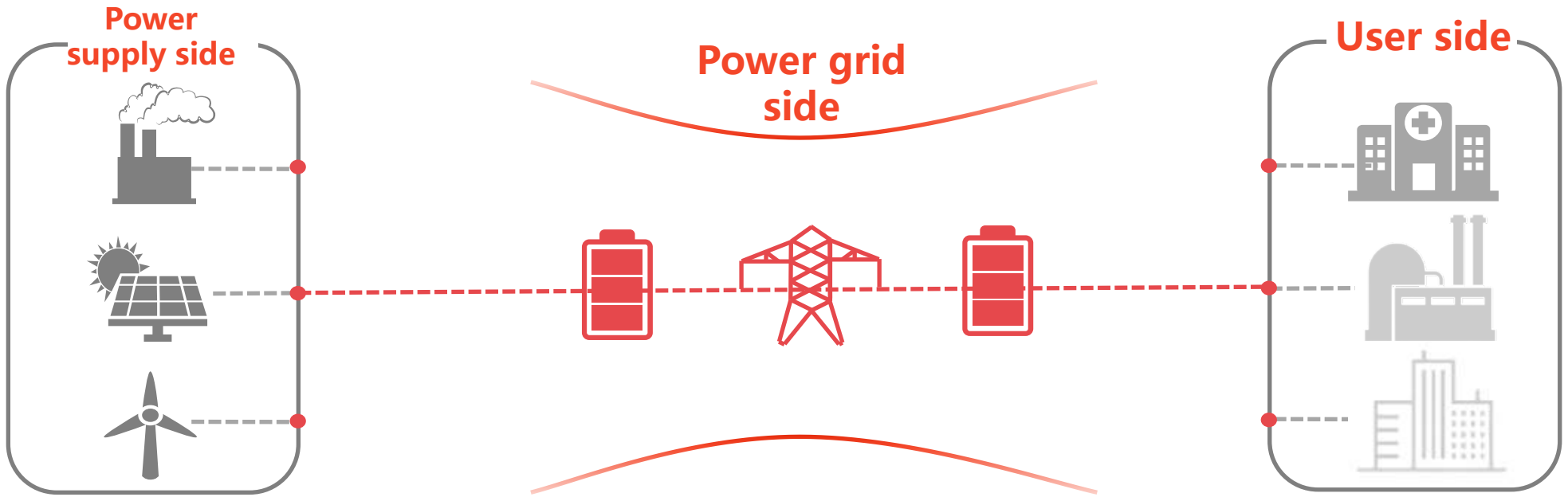
Photovoltaic power station/wind power generation - System functions





Grid connection monitoring of new energy power stations

Energy storage power station solutions



Store excess power generation

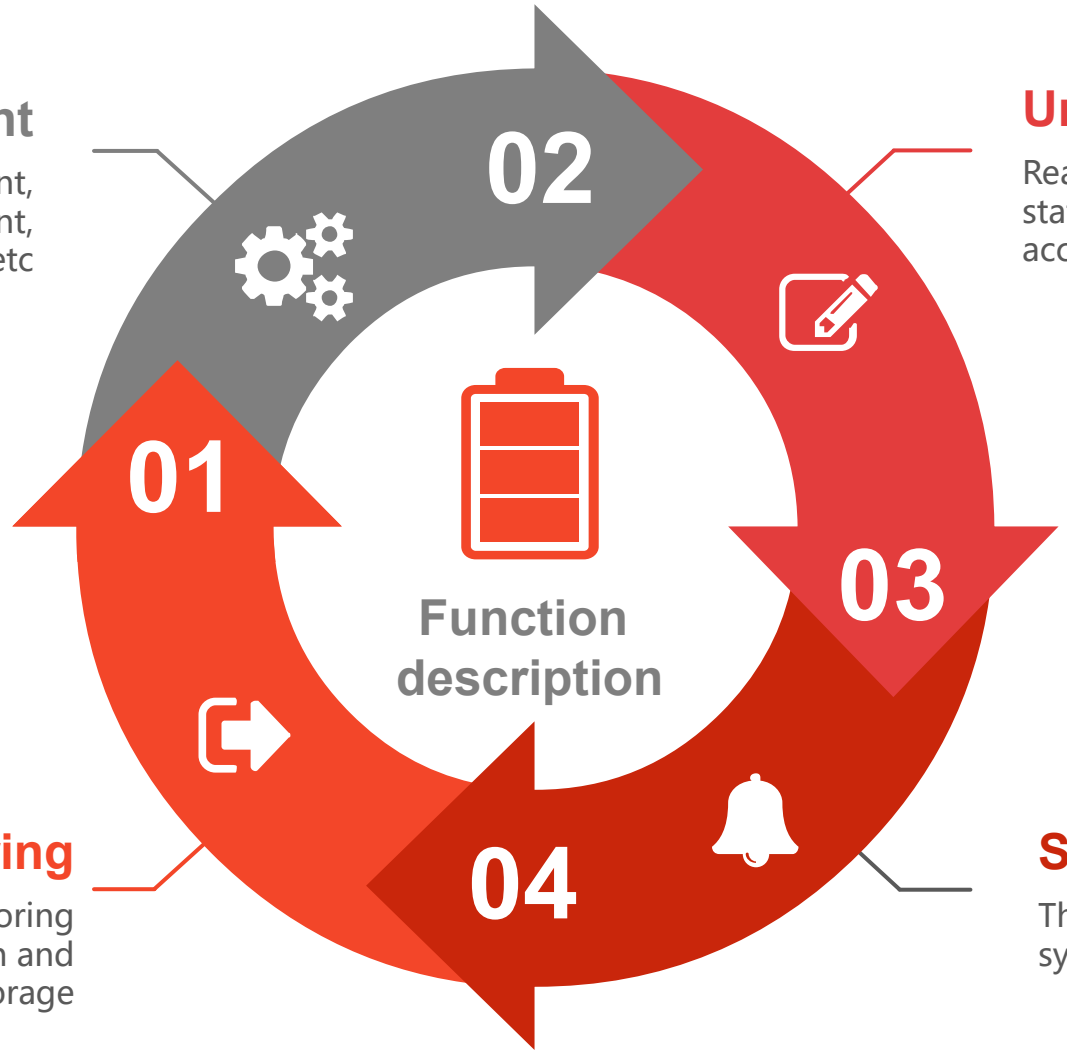
Relieve the pressure of peak shaving

Off-peak electricity usage saves electricity bills

Energy storage power station solutions

Unified management

Unify and integrate equipment management, power management, platform management, etc



Unattended

Realize "unmanned operation" within the station to enhance the capacity for handling accidents and the reliability of operations.

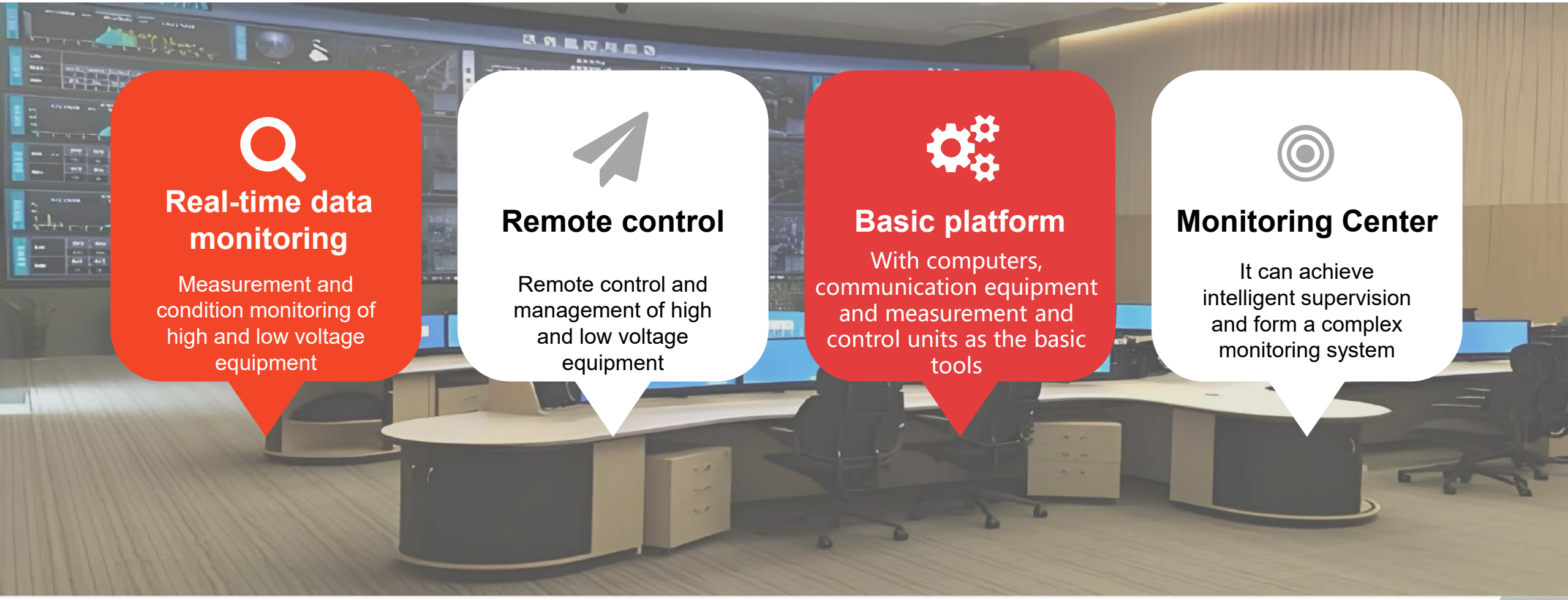
Centralized monitoring

Realize centralized and comprehensive monitoring of energy storage and improve the operation and management level of energy storage

System integration

The integration of data across the entire system provides data support for third parties

Distribution automation solutions



Real-time data monitoring

Measurement and condition monitoring of high and low voltage equipment

Remote control

Remote control and management of high and low voltage equipment

Basic platform

With computers, communication equipment and measurement and control units as the basic tools

Monitoring Center

It can achieve intelligent supervision and form a complex monitoring system

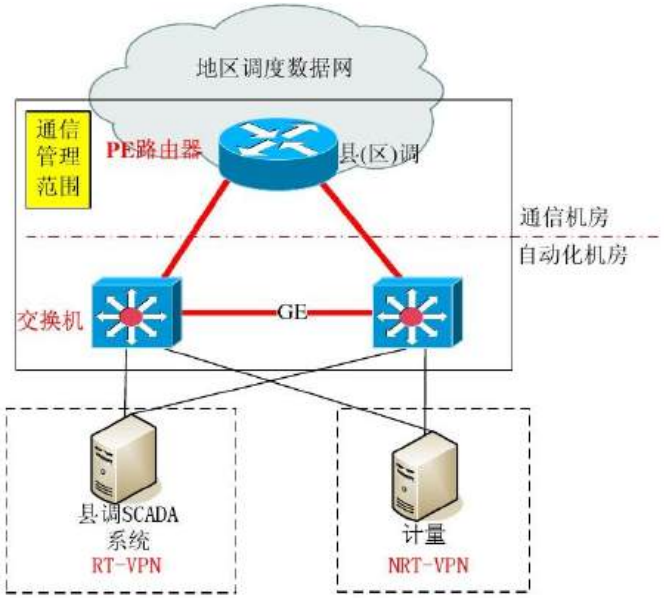
Classification of secondary systems

Integrated Automation

System description

The integrated automation system realizes comprehensive automation functions such as automatic monitoring, measurement, automatic control, microcomputer protection and communication with dispatching for the main equipment and power transmission and distribution lines of the entire substation.

Dispatching and communication



System description

Communication services (including voice communication and data transmission) are adjusted from Line A to Line B through technical means

Software platform

Plant station operation management system

Intelligent power control system

Power prediction

Power monitoring system/five-prevention system

Software platform - Plant station operation management system

Centralized operation and management platform for new energy

The platform integrates intelligent modules such as unified operation monitoring of power stations, production benchmarking, asset management, intelligent cleaning, and work order management, achieving the effect of optimizing the employment structure and control, and enhancing the overall economic benefits and market competitiveness of the group company in power station management.

Distributed monitoring operation management system

Taking data as the core, an overall operation model of cloud, pipe and terminal for power stations is created. A photovoltaic power station management platform integrating power generation data monitoring, photovoltaic resource analysis, data statistics and intelligent operation and maintenance is built to achieve monitoring and management of distributed power stations.

Intelligent power control system

Analysis of Photovoltaic Resources

Data statistics

Intelligent operation and maintenance

Software platform - Intelligent power control system

AGC/AVC

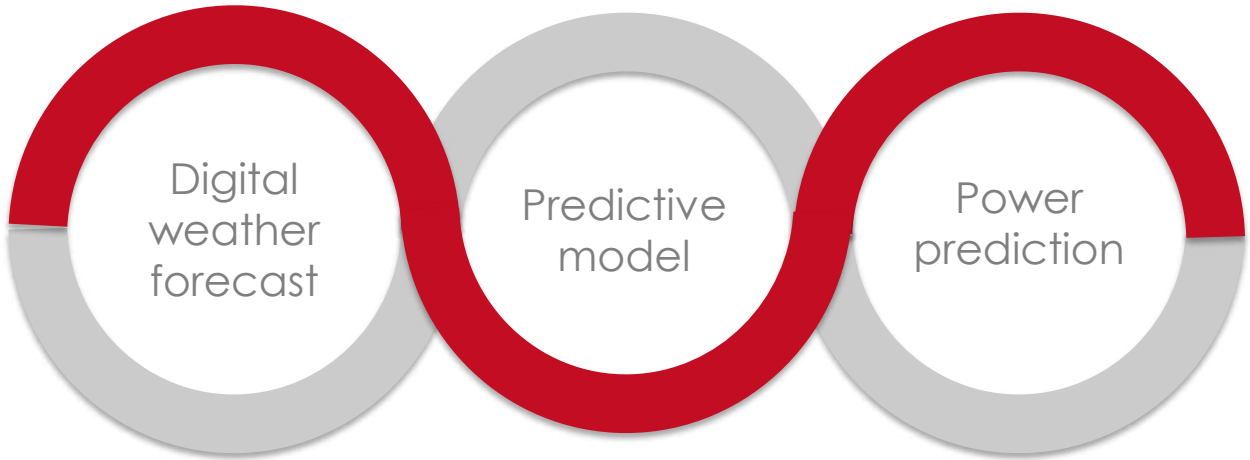
To ensure the balance between power generation and load in new energy stations, the intelligent optimization control system takes the dispatching power generation plan as the target value. By continuously optimizing the control algorithm, it improves accuracy and control rate to meet the demands of the power grid and guarantee that the operation of new energy stations and the power grid is within a safe and controllable range.

Quick response

Precise control

Safe and stable

- Enhance the power generation efficiency and benefits of power stations
- Promote the consumption of new energy
- Facilitate electricity market transactions



Software platformPower prediction

The system enables precise prediction of the power generation capacity of new energy power stations. Based on high-precision numerical weather forecasts, it predicts the output power of individual or multiple wind farms and photovoltaic power stations over a certain period of time in the future, helping the stations reduce the assessed electricity volume and improve the power generation efficiency.

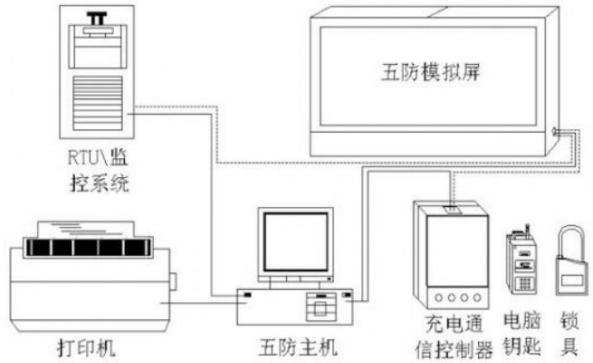
Software platform - Power monitoring/Five-prevention system

Power monitoring system

System description

With computers, communication equipment and measurement and control units as the basic tools, it provides a fundamental platform for real-time data collection, switch status detection and remote control of the power transformation and distribution system. It can form any complex monitoring system with detection and control equipment and plays a core role in the monitoring of power transformation and distribution.

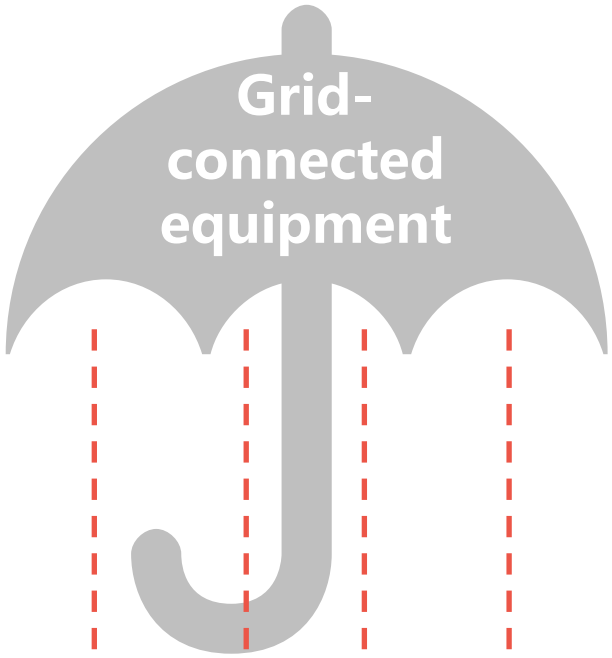
Five-prevention system



System description

The main equipment for preventing misoperation in substations, ensuring the safe operation of substations, and important equipment for preventing human misoperation, any normal switching operation must go through the simulation and logical judgment of the five-prevention system, which can greatly prevent and reduce the occurrence of power grid accidents.

Hardware equipment - Equipment functions



Microcomputer protection

Protect primary transmission lines and equipment

Safety and stability device

Ensure that the power generation end does not affect the power grid

Data processing and transmission

Processing and transmission of data

Auxiliary control system

Manage the environment, security and other aspects of photovoltaic power stations

Hardware equipment - microcomputer protection

Microcomputer protection

Differential protection of line optical fibers

A complete set of line protection devices with optical fiber current differential protection, current and voltage protection, and three-phase reclosing as the basic configuration

Line protection

It is applicable to the protection of power transmission and distribution lines, main equipment protection and measurement control systems, and provides communication interfaces. Through these communication interfaces, an automated system can be formed

Integrated measurement and control device for box-type transformers

Realize real-time monitoring of the electrical parameters and operating status of the box-type substation, and upload the data to the monitoring system

Hardware equipment -BONN-800 series protection devices

- BONN-811 Line Protection and Measurement Control device
- BONN-821 Transformer Protection and Measurement Control device
- BONN-877 transformer differential protection device
- BONN-842 Motor Protection and Measurement Control device
- BONN-873 backup power source transfer device
- BONN-851 Capacitor Protection and Measurement Control device
- BONN-871 PT parallel protection device

BONN-800 series

The BONN-800 series protection and measurement control device is composed of line protection, transformer protection, capacitor protection, PT parallel protection, backup power self-switching, motor protection, anti-islanding protection, etc. It can be used in various industrial and mining enterprises and power industries with voltage levels below 110kV. By integrating high-performance CPU protection, measurement and control, and communication functions into one, it is suitable for the comprehensive automatic system of substations or the electrical automation system of new energy power plants. The device can be installed in a centralized manner on a panel or directly on a switch cabinet for decentralized installation.

Hardware equipment -BONN-812G line optical fiber longitudinal differential protection device

- The current longitudinal difference protection mainly based on optical fiber as the digital transmission channel can quickly identify and isolate faults. By comparing the electrical quantities at both ends of the line to detect faults and promptly cut off the faulty part, it has a wider protection range and higher reliability. It can adapt to complex states such as power system oscillation and non-full-phase operation, and also has good phase selection ability to improve protection accuracy and efficiency.

BONN-812G

Hardware equipment -BONN-823 box-type transformer protection and measurement control device

- The BONN-823 box-type transformer intelligent protection and measurement control device features a large-screen LCD display and a standard aluminum alloy casing. It is designed to resist strong vibration and interference, making it particularly suitable for operation in harsh environments. By connecting to the comprehensive monitoring and management system of the step-up substation through the optical fiber ring network, remote management of photovoltaic power generation units and wind farms by the step-up substation can be achieved, meeting the requirements of the digital and intelligent "few people on duty" operation and management mode for photovoltaic power stations and wind farms.

BONN-823

Hardware equipment - Safety and stability devices

Safety and stability device

Anti-islanding protection

Anti-islanding protection devices suitable for photovoltaic power generation can be installed in a panel or on-site in a switch cabinet.

Fault disconnection device

It is used for disassembling small power supplies and features low-voltage, low-frequency, overvoltage, over-frequency, and zero-sequence overvoltage control functions.

Power quality monitoring device

A power quality monitoring device that combines functions such as high-speed sampling, calculation, analysis, statistics, communication and display.

Hardware equipment - Safety and stability devices

BONN-800 C public measurement and control device

Taking into account the requirements of the substation for data acquisition and processing comprehensively, computer technology is used to realize functions such as data acquisition, control and signaling.

This device is fully in accordance with the design requirements of the distributed system. It comprehensively analyzes the information collection requirements of the substation and installs a small, highly reliable unit measurement and control device at the information source point. It is connected to the central equipment installed in the control room through the on-site measurement and control network to achieve the monitoring of the entire substation.

BONN-921G-N reverse power protection device

A circuit protection device integrating measurement and control, protection and communication

The main method is to determine the direction of the current. When the current flows through the reverse power detection point, it is determined that reverse power has occurred. The reverse power protection device issues an instruction to the circuit breaker to disconnect the grid-connected switch. It is commonly used as secondary equipment in photovoltaic, charging pile systems, energy storage systems, and projects that generate electricity in generator mode.

Hardware equipment - Safety and stability devices

BONN-921G Anti-islanding protection device

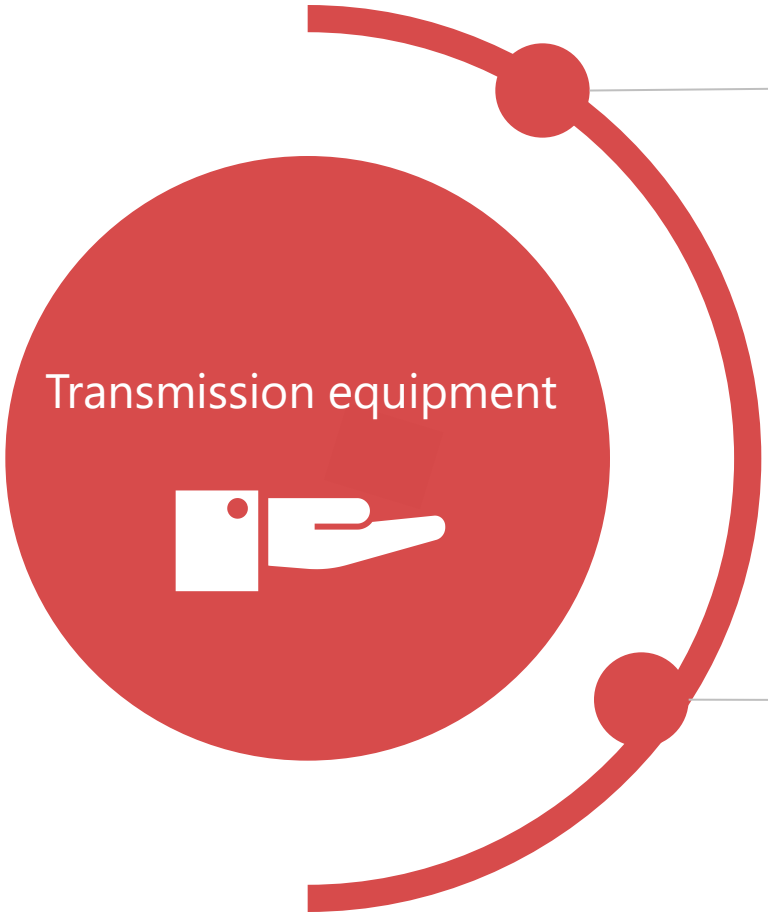
The BONN-921G anti-islanding protection device is suitable for voltage levels below 35kV and small power grid-connected power supply systems such as photovoltaic power stations and wind power stations, in the event of an occurrence

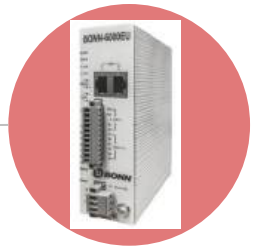
When islanding occurs, it can be used as a backup protection to quickly cut off distributed islanding power sources. This protection device is equipped with protection functions such as low frequency, low voltage, high frequency, high voltage, reverse power, and external tripping.

BONN-921G-D fault disconnection device

The BONN-921G-D fault disconnection device is suitable for small power grid-connected power supply systems of photovoltaic power stations and wind power stations with voltage levels below 35KV. It features protection functions such as low frequency, low voltage, high frequency and high voltage.

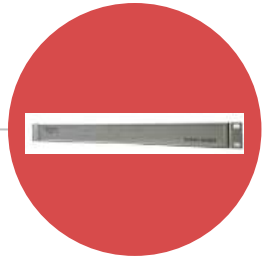
Hardware equipment - transmission equipment





BONN-6000EU communication management machine

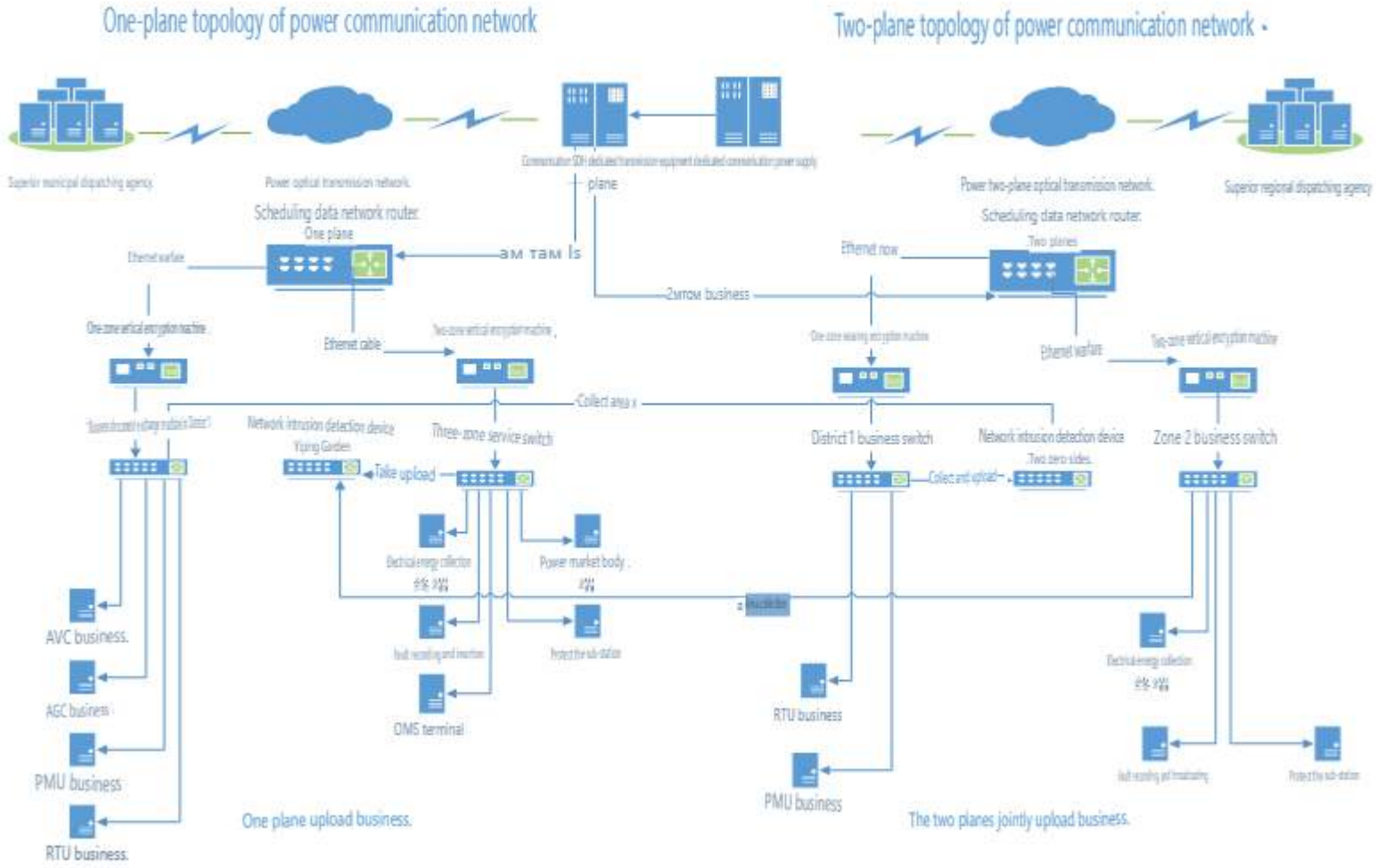
The BONN-6000EU communication management machine is a new type of comprehensive management unit for power system communication information. It is suitable for various voltage levels, different scales, and different functional requirements in substation automation systems, distribution network automation systems, power plant automation systems, photovoltaic automation systems, intelligent Internet of Things, smart cities, smart transportation and other related power communication projects.



BONN-6000E telecontrol terminal equipment

The BONN-6000E telecontrol terminal is equipped with a rich array of communication /IO interface ports and strong computing and processing capabilities, enabling various applications such as communication protocol conversion, remote dispatching, and intelligent monitoring and management. Meanwhile, it adopts mature professional designs in terms of reliability, stability, and EMC protection capabilities, and has broad application prospects in the field of power automation.

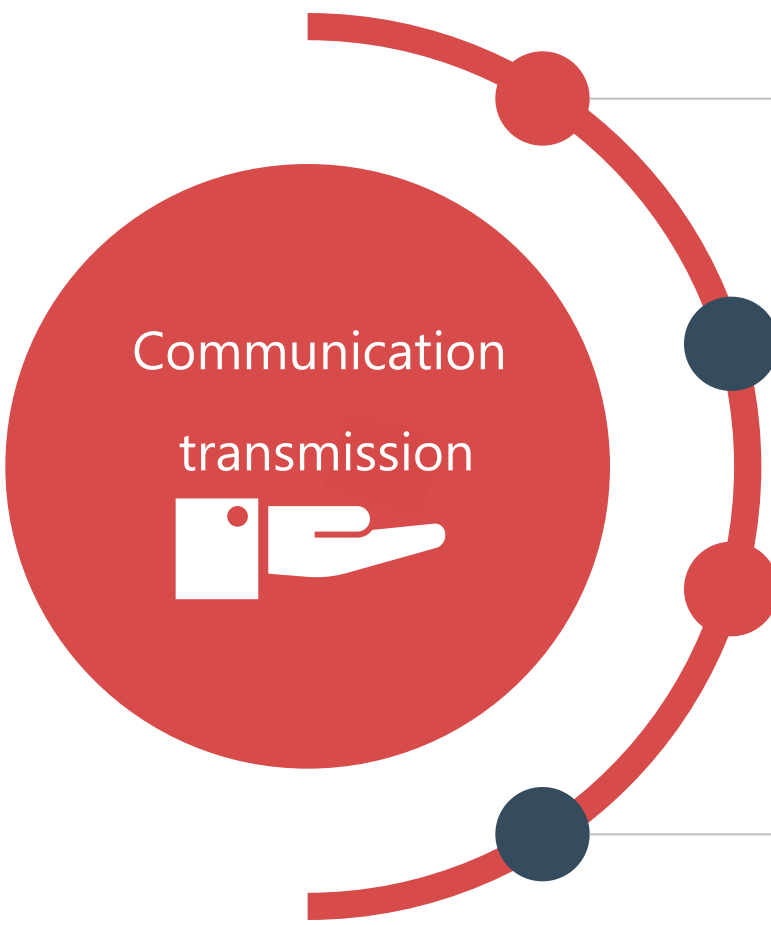
Hardware equipment - Dedicated network for dispatching data



System principle

- Security zoning
- Network dedicated
- Horizontal isolation
- Vertical authentication

Hardware equipment - communication transmission equipment



Optical terminal equipment

The transmission equipment in communication systems mainly performs photoelectric conversion and transmission functions.

IAD (Primary Group Terminal)

Pulse code modulation refers to the process of converting analog signals into standard digital signals through sampling, quantization, and coding.

Dispatching telephone system

Dispatch switches, softswitches

Wiring equipment

ODF/DDF/VDF

Hardware equipment - Communication and dispatching equipment

Communication transmission cabinet

SDHI

IAD

Dispatching calls

Dispatching data private network-1 two-plane cabinet

router

switch

Vertical encryption

Secondary security cabinet

firewall

Network security monitoring

Log audit system

Positive/reverse isolation

Intrusion detection device

Vulnerability scanning

Integrated wiring cabinet

ODF

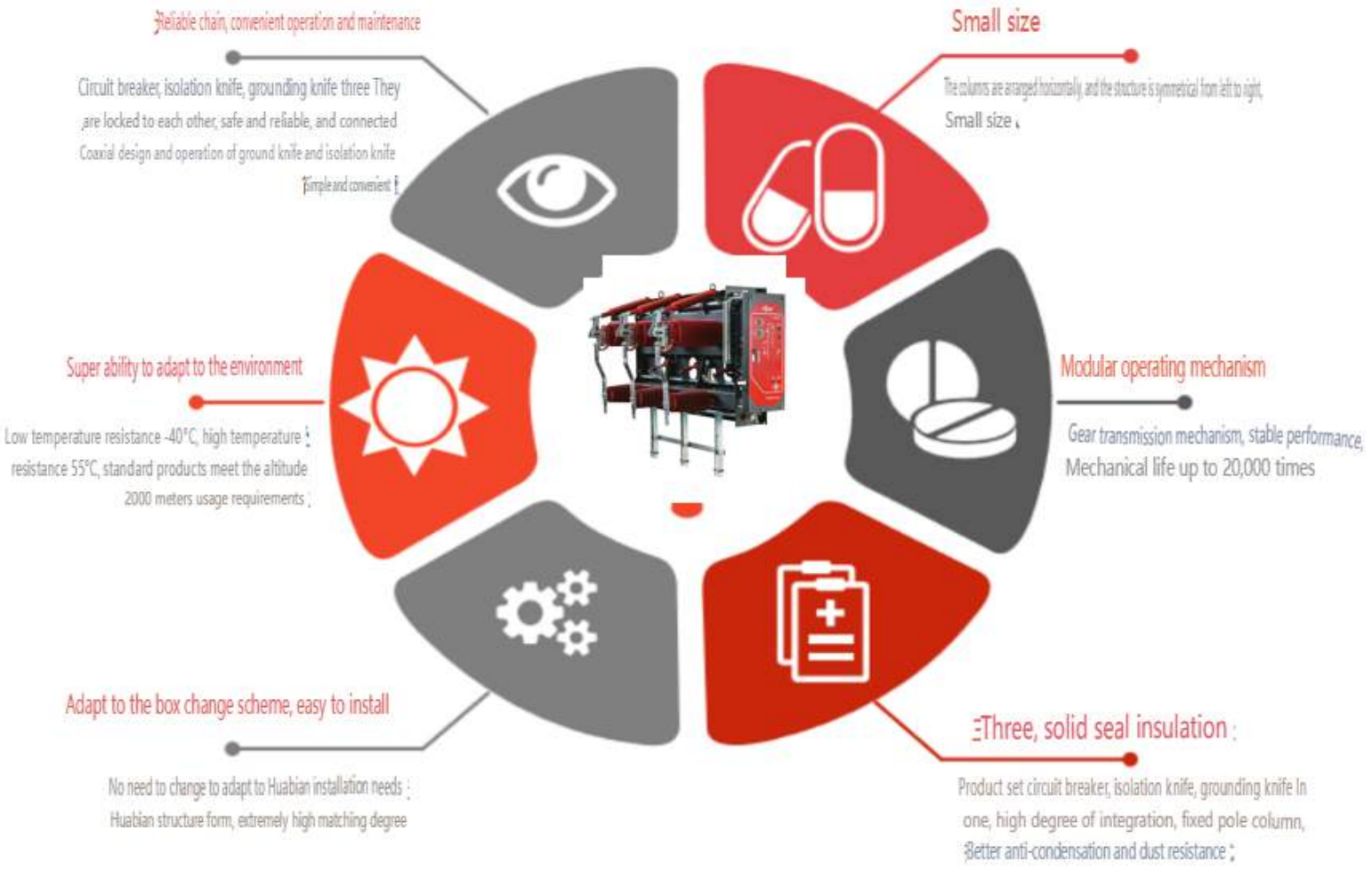
DDF

VDF

Hardware equipment - Other equipment

It integrates circuit breakers, disconnectors and grounding switches into one unit and is mainly used in 40.5kV box-type substations, such as the box-type substations in the onshore wind power and photovoltaic industries. The equipment adopts solid-sealed insulation, with the pole columns arranged horizontally and the structure symmetrical on both sides. It is wall-mounted in the box-type transformer, which can minimize the volume of the box-type transformer and reduce the on-site construction area to the greatest extent.

Integrated solid-sealed intelligent vacuum circuit breaker



Hardware equipment - State Grid equipment

Distributed photovoltaic protection switch

Distributed power access unit

Measuring switch

BONN

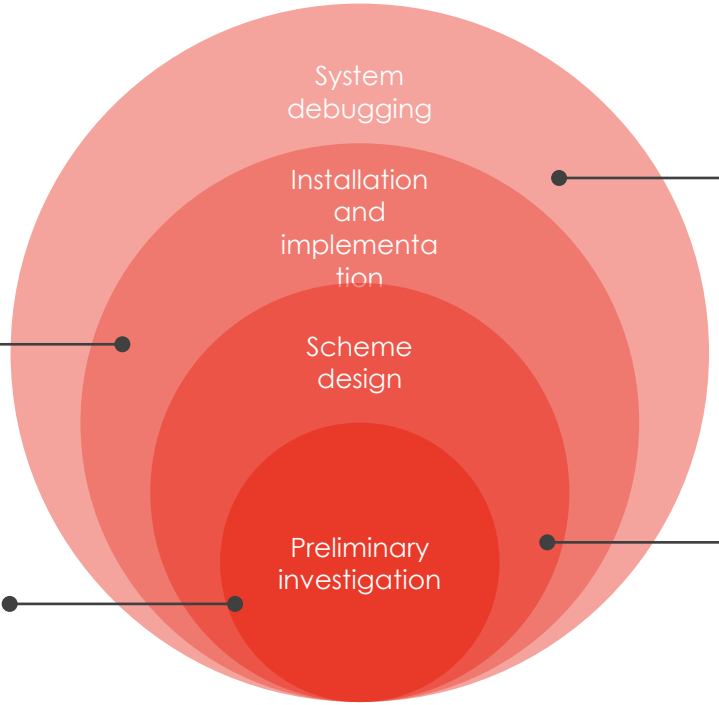
PART 03

Company advantages

Our company has rich experience in project cases

System service

Provide system services throughout the entire project cycle



Algorithm implementation
System configuration
Complete operation

4

Engineering construction
Equipment installation
System deployment

3

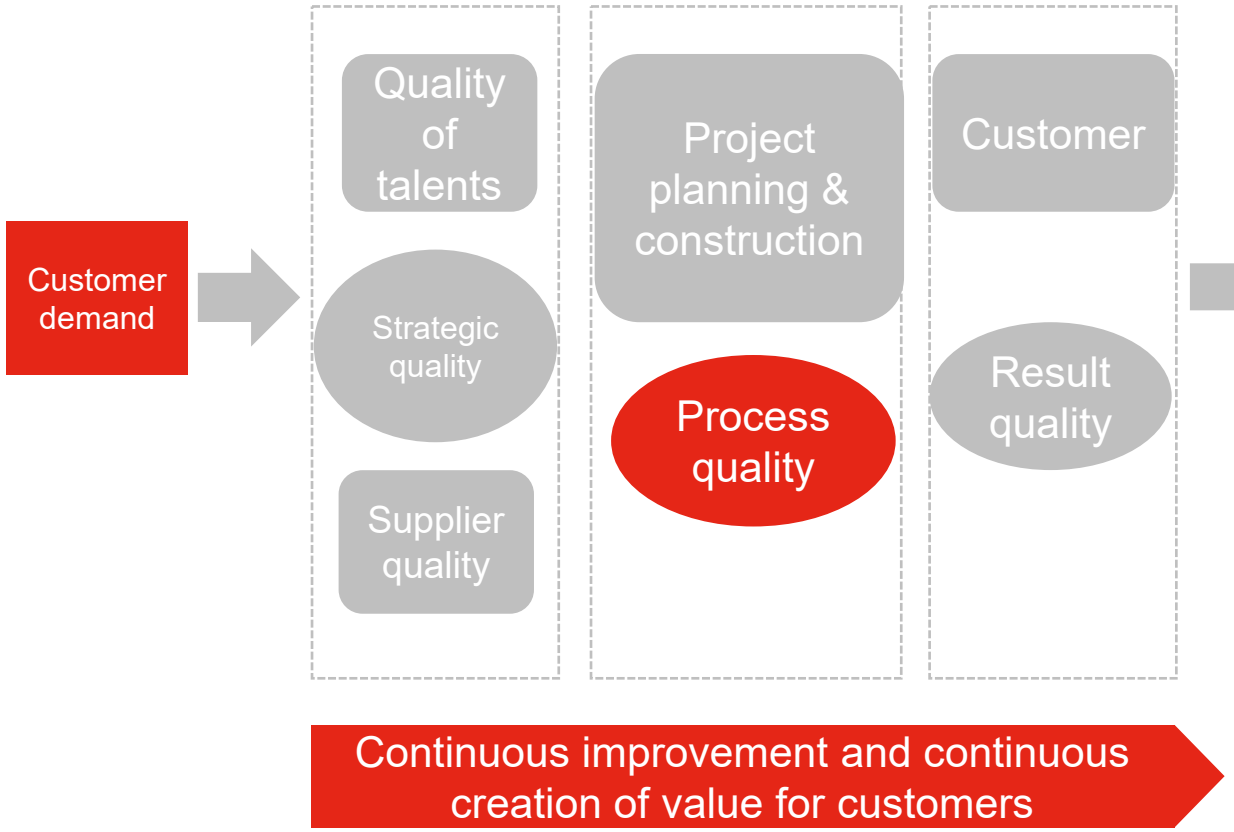
1

On-site investigation
Feasibility analysis
Demand confirmation
Auxiliary planning

2

Construction plan
Construction plan
Product specification
Budget planning

Comprehensive quality construction



Based on ISO9000 total quality management, we aim at customer needs and implement quality management throughout the entire process and the entire value chain under the guidance of strategy.

From customer demands to customer satisfactionFrom strategic drive to strategic execution

Implement the quality-first strategy and achieve victory through quality

Embed quality requirements in the process to comprehensively enhance work quality

Customer value

High-efficiency power generation

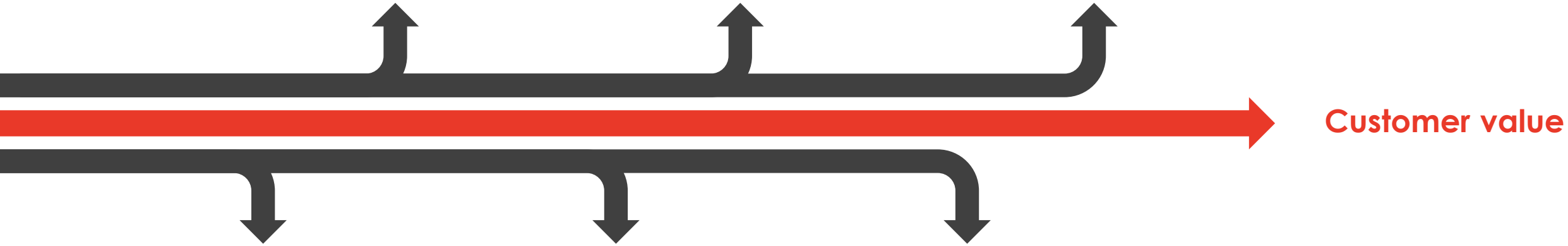
Through effective data analysis and management, the impact of system operation failures on power generation efficiency can be reduced, and the system's power generation capacity can be increased

Intelligent operation

Information technology means and centralized monitoring platforms are used to uniformly control the operation status of the entire station and intelligently assist in decision-making

Safe operation

Full-line equipment protection monitoring and management, online power quality analysis, active and reactive power safety regulation



Preventive maintenance

Based on years of historical data analysis, we provide suggestions on equipment replacement, maintenance, etc., to achieve maximum benefits

Superior dispatch

Seamlessly integrate with the upper-level platform to ensure that the upper-level power supply platform can view data in real time and implement encryption security protection

Flexible customization

We provide different equipment configuration plans as needed, offering flexible configuration solutions to reduce investment costs

New energy industry performance

The Meihe Fanglin Photovoltaic High-voltage Grid Connection Secondary Project

This project is located in the Aviation Port Area of Zhengzhou City, covering an area of approximately 225 mu, with a total construction area of 278,000 square meters. It is planned to build over 5,000 rental housing units.The photovoltaic installed capacity is 2.5MW. The secondary project includes telecontrol communication screens, public measurement and control screens, fault disconnection, data dispatching screens, SDH transmission screens, AC/DC screen cabinets, etc., and ultimately meets the grid connection and delivery requirements with the power supply bureau.

New energy industry performance

The secondary project of photovoltaic high-voltage grid connection for the 24-megawatt photovoltaic carport project of SAIC Passenger Vehicle (Zhengzhou) Branch

This project is located in the Economic and Technological Development Zone of Zhengzhou, Henan Province, with an installed capacity of 24 megawatts. The power consumption mode is self-generated and self-consumed, with surplus power fed to the grid.There are four connection points. The project will newly build 20 1,250-kilovolt-ampere step-up transformers. The connection points are set in the 10-kilovolt distribution room within the factory area, and the four circuits are respectively connected to two 110KV substations.Our company takes on the role of secondary general contractor, responsible for the commissioning, connection and grid connection of the entire secondary system. At the same time, our company undertakes the optical differential modification of the 110kv substation and the optical cable laying of the entire external line.

New energy industry performance

The New energy high-voltage grid connection project of CRRC Zhuzhou - Xinjiang Huadian Tianshan North Foot Base

The 6.1 million kilowatt new energy project of Xinjiang Huadian Tianshan North Foot Base is located in Hami, Barkhun and Yiwu counties, covering a total area of approximately 990 square kilometers, including 4.2 million kilowatts of wind power.Our company offers high and low voltage complete sets and secondary cabin systems for 35MW wind power projects.

The performance of the equipment

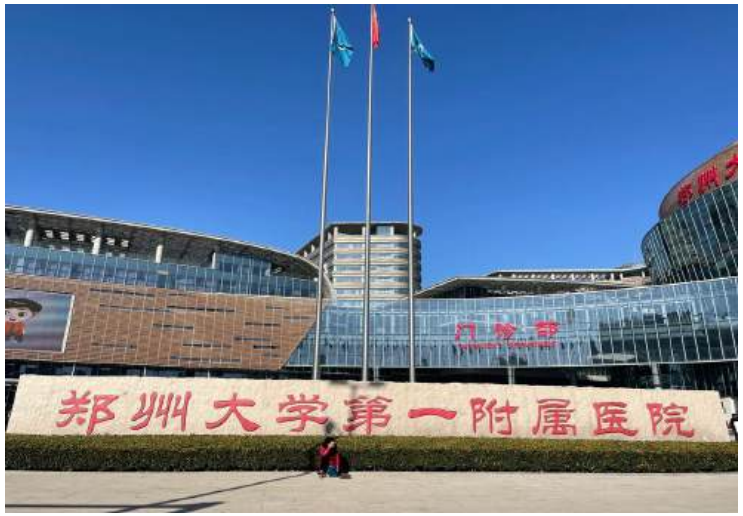
The BRT power supply and distribution projects for the Agricultural Road Expressway, Longhai Road Expressway and the Third Ring Road in the east

A total of 32 BRT bus stops are designed along the line. About 28 kilometers of the entire line are equipped with power supply contact lines, while the vehicles on other sections are driven by batteries without power supply. A total of 10 switch stations were newly built in this project.

Industry field

New energy

rail traffic



Medical care

Industry

Education

Business

Win-win cooperation

国家电网公司
STATE GRID

中国华能
CHINA HUANENG

中国华电
CHD

郑州公交

国家能源集团
CHN ENERGY

中国建筑一局

中广核 CGN

郑州新郑国际机场
Zhengzhou Xinzheng International Airport

国家电投
SPIC

中国电建
POWERCHINA

兴港集团
XING GANG GROUP

蔚来
nio


Join Hands
To Build
Clean Energy
Together