STATE GRID
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Internet of Things in Electricity (IoTE) Practice in China

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About State Grid

Practice on Internet of Things in Electricity (IoTE)

State Grid in India

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About State Grid

State Grid Corporation of China (State Grid,SGCC)

Established on December 29, 2002. It takes the investment, construction and operation of power grids as core business, and undertakes the basic mission of ensuring safe, economic, clean and sustainable power supply. State Grid supplies power to over 1.1 billion population which covering 88% of Chinese national territory.

As the world's largest public utility enterprise , with the total assets amounting to 580 billion USD by the end of 2018, State Grid also operates overseas assets steadily in Philippines, Brazil, Portugal, Australia, Italy, Greece , etc.

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About State Grid

Leading and compiling 61 international standards

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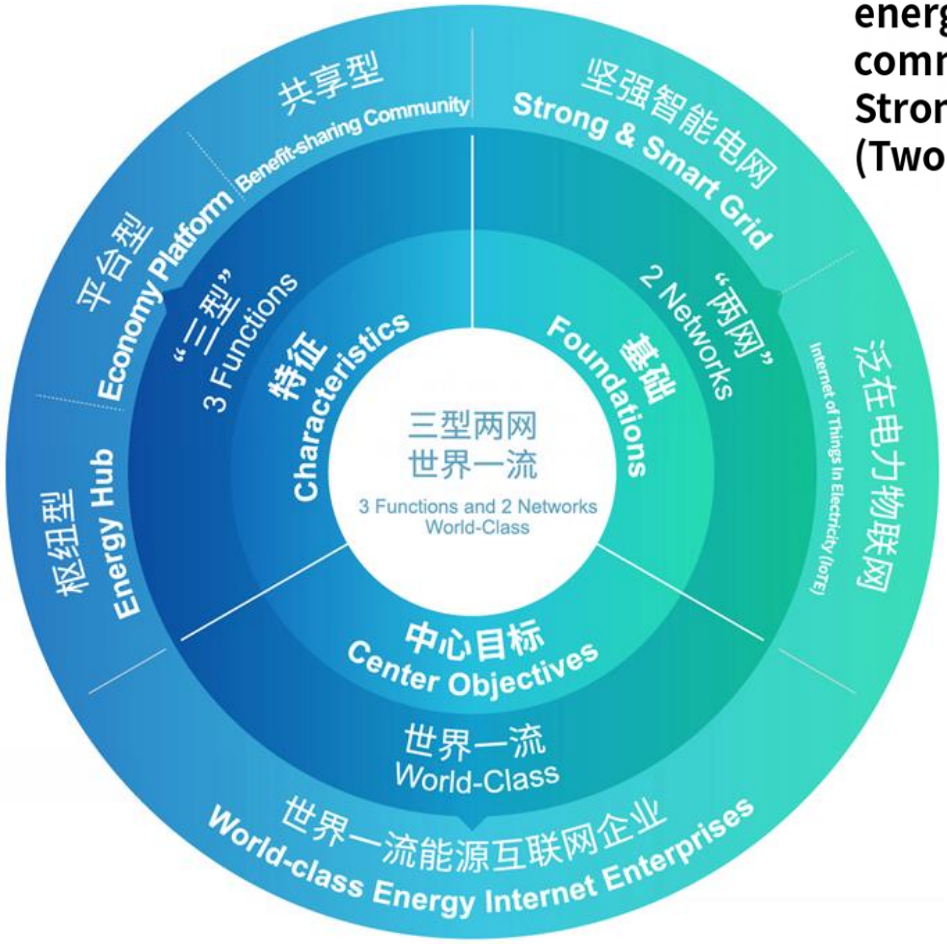
About State Grid

In 2019, State Grid launched an initiative to fully develop a world-class energy internet company serving as an energy hub, value-creating platform and benefit-sharing community (Three Functions) with the development of Strong & Smart Grid and Internet of Things in Electricity (Two Networks).



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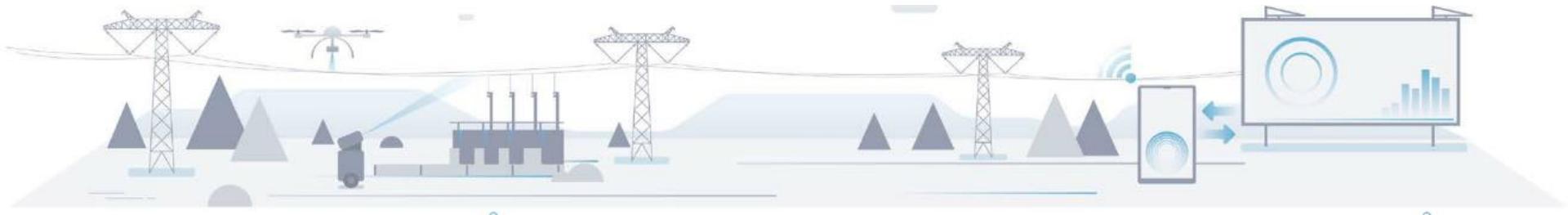
Practice on Internet of Things in Electricity (IoTE)

In order to create **Internet of Things in Electricity(IoTE)** with **comprehensive state perception**, **efficient information processing**, and **convenient and flexible application**, State Grid has fully applied modern information and communication technologies such as **big data**, **cloud computing**, **mobile internet** and **AI** to realize **the interconnection of all things in power system** and **human-computer interaction**.



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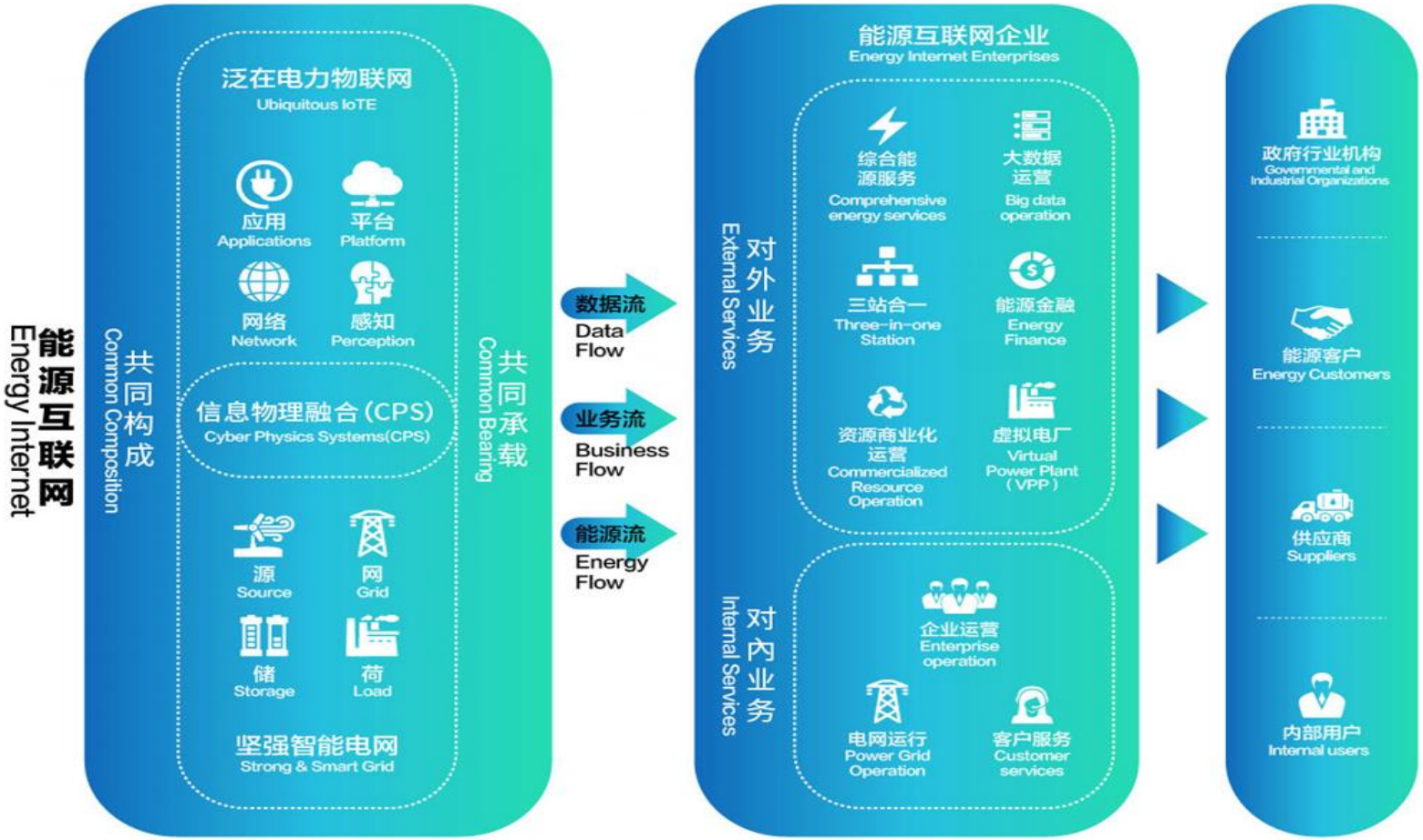
Practice on Internet of Things in Electricity (IoTE)



概念内涵
Concept and Connotation

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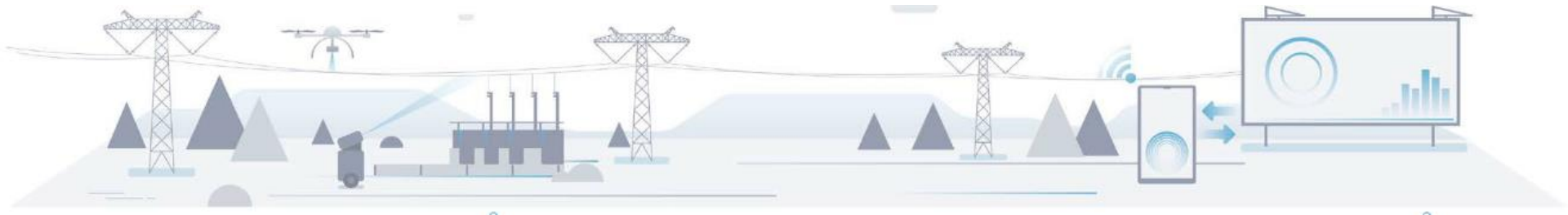
Practice on Internet of Things in Electricity (IoTE)

Building for the Internet of Things in Electricity (IoTE) needs higher demands on the depth, breadth and density of information perception.
Based on years of development and construction, State Grid has built **ten application systems in two levels**, covering business areas such as **enterprise operations, power grid operation and customer service**, and various levels of applications, and has access to **480 million smart energy meters and 40 million acquisition terminals**. It is **the basic data source** for various services such as **fault repair, power trading, customer service, distribution network operation, power quality monitoring**, etc., **supporting the IoTE perception** such as “wide-area interconnection”, “holographic sensing” and “multi-sensor coordination”. The construction of the layer has the first-mover advantage of technological innovation and equipment development.

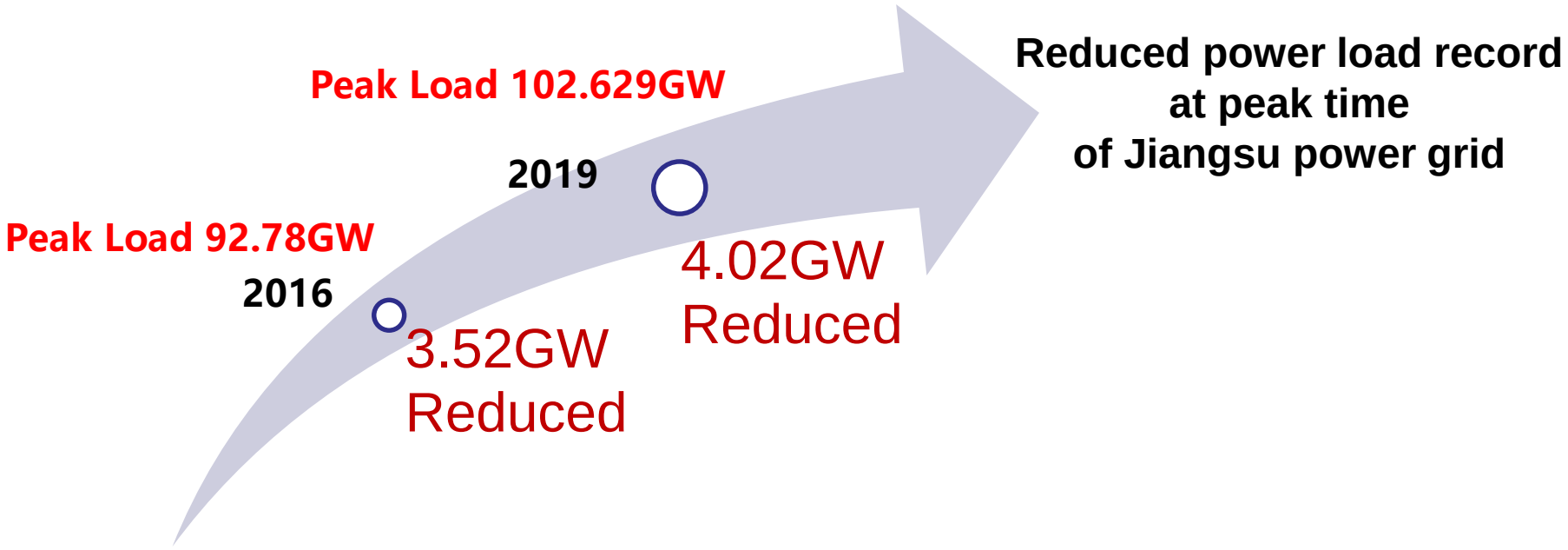


Scene： Demand Response System Based On IoTE To Stabilize The Peak Load Conflict

State Grid Jiangsu Power Co., Ltd. continuously strengthens demand side load management and uses market-oriented adjustment measures to stabilize peak load conflicts.

Jiangsu Power uses a large-scale air conditioning peak shaving system to remotely adjust the water temperature and the current of the customer's air conditioner host, and flexibly regulate the air conditioning load without affecting comfort of customers. At present, the system has accessed 1,191 central air-conditioning customers, which can regulate the air-conditioning load to 300,000 kW. At the same time, the large-scale power resource-grid-load friendly interactive system was developed and constructed, and a large number of interruptible load resources were centralized and accurately controlled, and instantly cut off in the event of an emergency in the power grid to ensure the safety and stability of the large power grid. At present, Jiangsu Power Grid has a precision load control capability of 2.6 million kW at millisecond level.

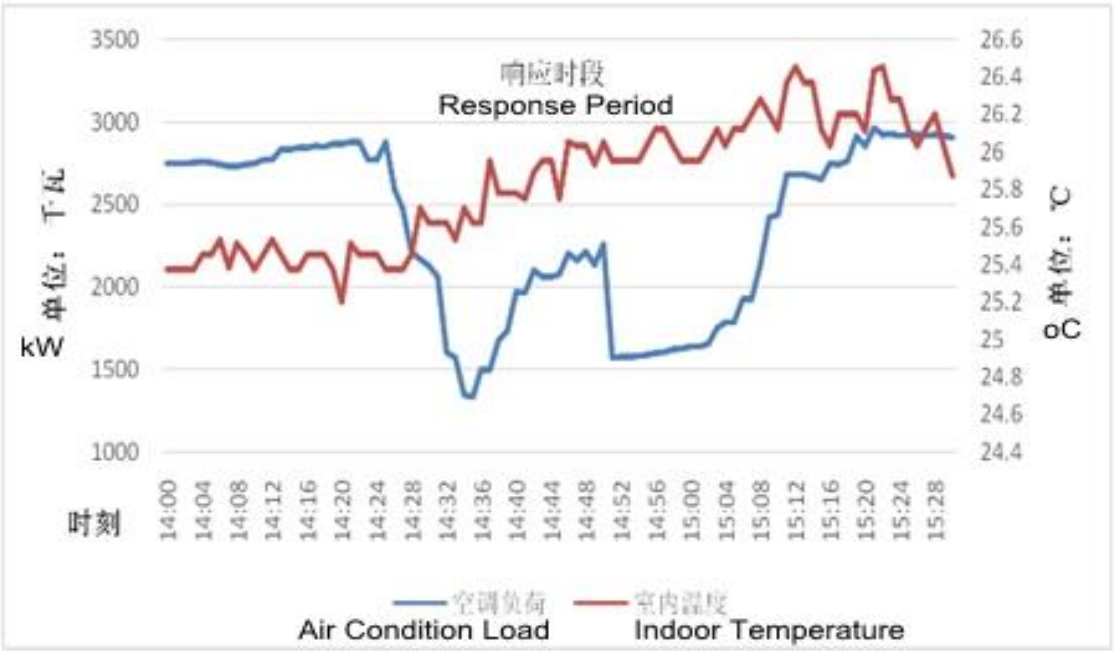
Scene： Demand Response System Based On IoTE To Stabilize The Peak Load Conflict



Scene： Demand Response System Based On IoTE To Stabilize The Peak Load Conflict

Scene： Demand Response System Based On IoTE To Stabilize The Peak Load Conflict

Golden Eagle Building, Jiangsu Province
Participated the demand response on 30th Jul,2019, actual response capacity maximum level was 1.540MW, expected to receive a response incentive of 46,700 CNY (4.67 Lac INR).



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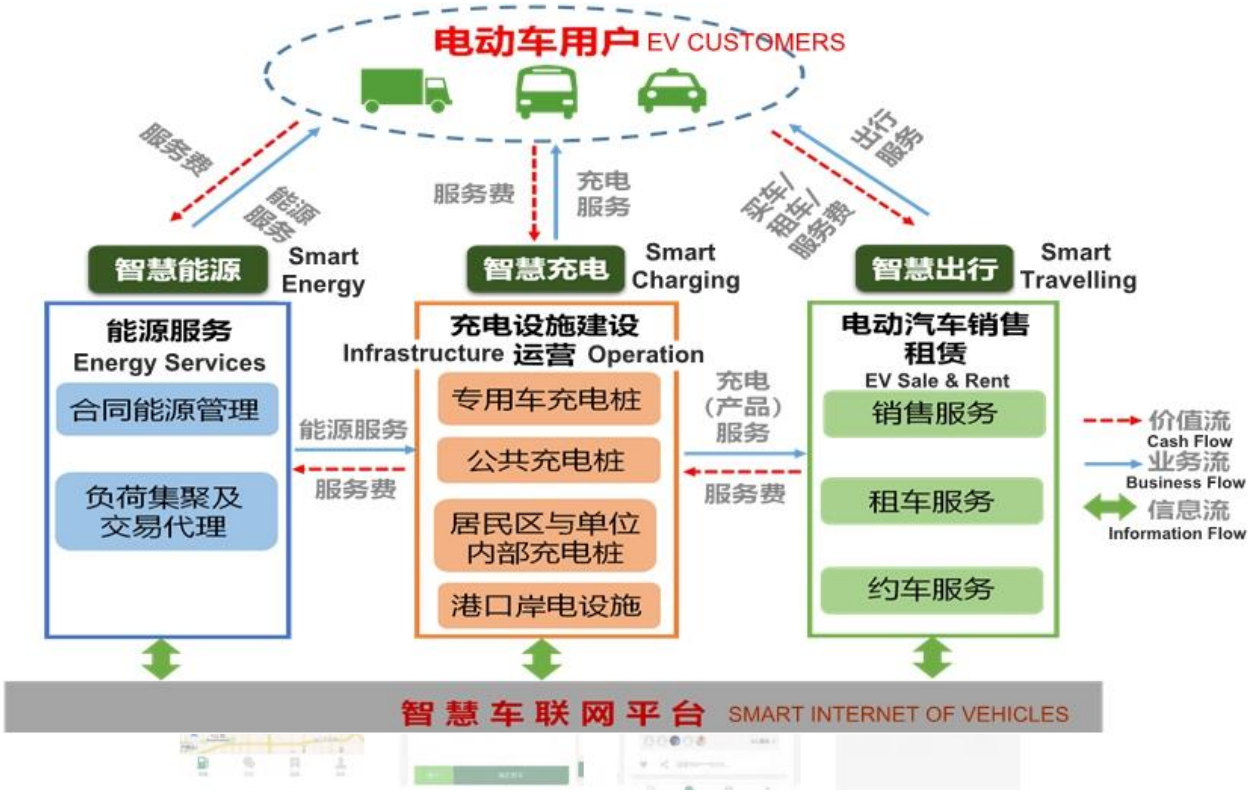
Practice on Internet of Things in Electricity (IoTE)

Scene： SMART INTERNET OF VEHICLES

Achieve one-stop service of access declaration, intelligent operation, smart charging, payment online, private pile sharing, and sharing charging equipment parameters, price and real-time status



Scene： SMART INTERNET OF VEHICLES

UTILITY-DRIVEN SMART INTERNET OF VEHICLES ELECTRIC VEHICLE CHARGING NETWORK-2018 EEI AWARD

Accumulatively accessing 252,000 charging piles and over 1.3 million registered users (to End of 2018), Covers 49,000km high way, 19 provinces and 171 cities. The self-operated charging infrastructures have realize 693 million Units charge amount in 2018.

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Practice on Strong & Smart Grid

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Substation Equipments & EPC Service

- PGCIL, Thiruvalam 765kV GIS ; Cuddapah 765/400kV GIS ; Kanpur 765/400kV GIS
- PGCIL, Kishanganj 400/220kV GIS .

2017 PGCIL GIS Operational Performance –Runner-Up

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Substation Equipments & EPC Service

- PGCIL, Agra\ Aligarh \ Banaskanta 765kV Smart Substation Secondary System
- PGCIL, Power Storage System Integration （500kW）With Lithium Battery

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Technical & Consulting Service

- Kalkota CESC Distribution Loss-Reduce Consulting Project

CONSULTANCY REPORT

AT&C LOSSES DIAGNOSIS &
PRILIMINARY RECOMMENDATION

Prepared For :
CESC LIMITED

Prepared By:
ZHEJIANG ELECTRIC POWER
ECONOMY RESEARCH INSTITUTE

May 31, 2016

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Technical & Consulting Service

- ADANI, Mundra 2×330MW Power Plant, Substation Adjustment Test Service;
- LANCO, Nagarjuna 2×660MW Power Plant, Substation Adjustment Test Service;
- KSK, WPCL4×135MW Power Plant, Substation Adjustment Test Service;

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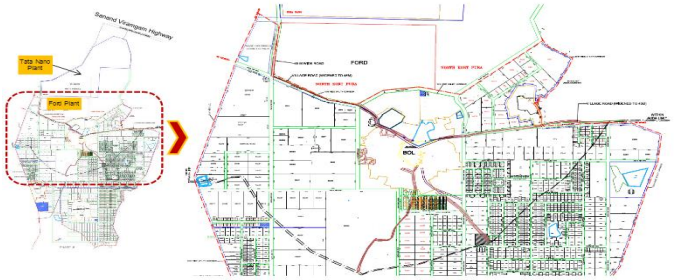
MADE IN INDIA

- SGCC PINGGAO GROUP, HV GIS Factory in Ahmadabad , Under Developing
- SGCC NREC, Power Relay Production & Service Factory in Bombay, Since 2013



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