



# SMART GRID

CONNECTING WONDERFUL LIFE WITH OPTIC-ELECTRIC NETWORK



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# CONNECTING WONDERFUL LIFE WITH OPTIC-ELECTRIC NETWORK

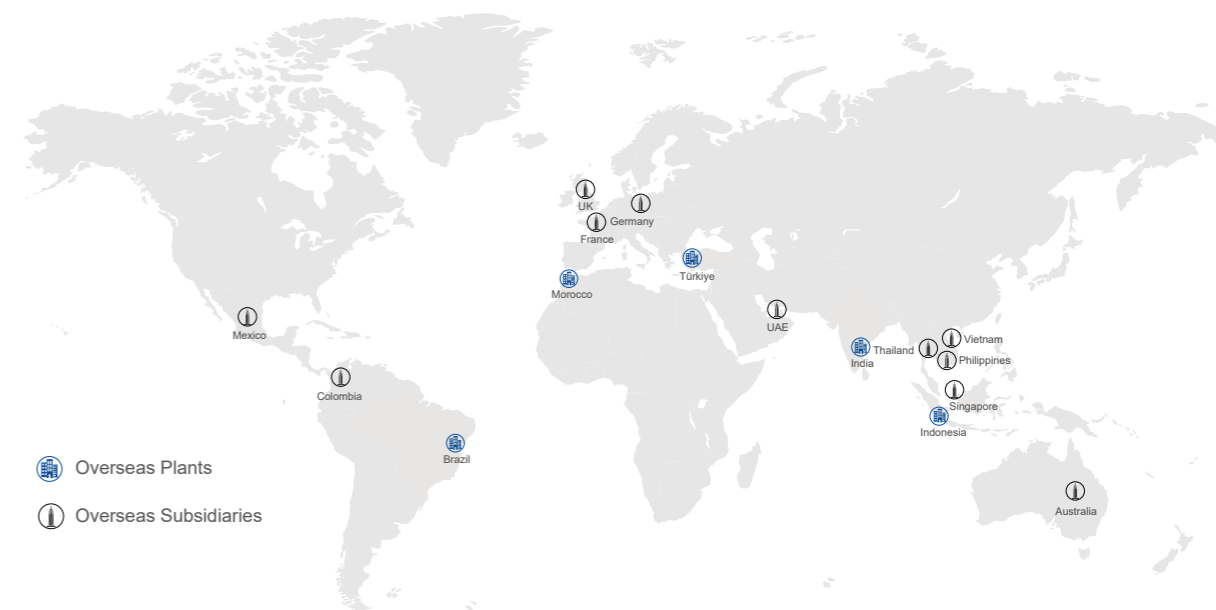
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## ABOUT US

ZTT Group(Full name: Jiangsu Zhongtian Technology Co., Ltd.) has a specialized industrial portfolio that includes marine equipment, renewable energy, smart grid, optical communications and industrial internet. ZTT was listed on Shanghai Stock Exchange (SSE) in 2002 (Stock Code in SSE: 600522). With 80 global subsidiary companies and over 16,000 employees, ZTT is one of the largest advanced manufacturing enterprises in China and is listed among the Top 500 Chinese Enterprises.

At ZTT, we are committed to reducing our environmental impact and working towards net zero goal. From our manufacturing processes to our product design and supply chain management, we strive to minimize our carbon footprint and conserve natural resources.



<b>1992</b> Established	<b>160</b> Global Markets	<b>16,000<sup>+</sup></b> Employees
<b>44</b> Branch Offices	<b>80<sup>+</sup></b> Registered Subsidiaries	<b>5</b> Overseas Plants
<b>2,500<sup>+</sup></b> Patents	<b>Top-500</b> Enterprise in China	<b>\$13.5 Billion</b> Revenue 2023

### Overseas Plants



## OUR STORY

1992

- ZTT entered the field of optical communications.

1995

- ZTT successfully developed the underwater cable specifically designed for the Yangtze River area.

1997

- ZTT was identified as the national key high-tech enterprise.
- ZTT 960 core optical fiber ribbon cable passed the national qualification.

1999

- ZTT entered the field of Marine Equipment.

2000

- ZTT entered the field of Power Transmission.

2002

- ZTT A shares listed and issued on the Shanghai stock exchange.
- Zhongtian Technology Optic Fiber Co., Ltd. was established.

2004

- ZTT acquired of Shanghai Aluminum Factory and then founded Shanghai Zhongtian Aluminum Wire Co., Ltd.

1992

2008

- ZTT established a national post-doctoral scientific research center.
- ZTT Research Institute was established.
- ZTT up-rating conductor passed the national certification.

2009

- ZTT was ranked among the top 100 technology enterprises in China.

2010

- ZTT entered the field of precise manufacturing.
- Zhongtian Technology Industrial Wire & Cable System Co., Ltd. was founded.

2011

- ZTT entered the field of renewable energy.

2012

- Zhongtian Photovoltaic Technology Co., Ltd., Zhongtian Photovoltaic Material Co., Ltd., Zhongtian Energy Storage Technology Co., Ltd., and Zhongtian New Energy Residential Technology Co., Ltd. were founded.
- ZTT was listed among the Top 500 Chinese private enterprises.

2008

2013

- ZTT was recognized as national enterprise technology center.
- ZTT do Brasil Ltda was established.

2014

- ZTT successfully developed China's first  $\pm 320\text{kV}$  high-voltage DC cable.
- ZTT received the Excellence Award for Corporate Social Responsibility in the Annual List of China's Communication Industry.

2015

- ZTT Brazil factory held opening ceremony.

2016

- Jiangsu Zhongtian Bright Transformer Co., Ltd & ZTT Marine Systems Co., Ltd. were established.
- ZTT was ranked among Top 500 Chinese Enterprises.

2017

- ZTT Indonesia and ZTT Morocco were established.
- ZTT successfully developed the first flexible DC cable with largest capacity  $\pm 525\text{kV}$ . Our cable has passed the qualification in China and worldwide.

2018

- ZTT Morocco started construction.
- ZTT Indonesia held opening ceremony.
- ZTT acquired Demirer Kablo.

2013

2019

- ZTT won "China Quality Award".
- ZTT overseas factory in Morocco and Europe went into operation.

2020

- ZTT was awarded the 6th "China Grand Awards for Industry".

2021

- ZTT set up the "ZTT Scholarship", which was selected as an excellent case of social responsibility of Chinese private enterprises.
- ZTT released the action plan of "green and low carbon manufacturing", and the production energy consumption of the group decreased by 10% in the fourth quarter.

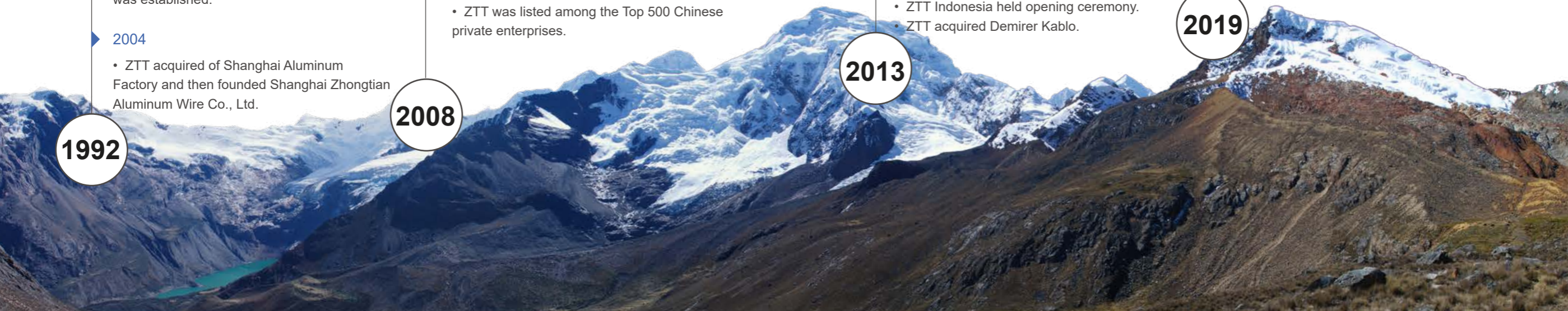
2022

- ZTT CE HYDROGEN CO.,LTD. was established, launched 35/70MPa hydrogen refueling stations and hydrogen dispensers.

2023

- ZTT was invited to participated in the 28th United Nations Climate Change Conference (COP28).
- Two of our flagship factories under ZTT Group, Jiangdong Fittings Equipment Co., Ltd. and Zhongtian Electric Technology Co., Ltd, have been proudly recognized as Zero Carbon Factories.

2019



# FIELD

## Information & Communication

ZTT provides cables, components, devices, antenna feeders and infrastructure services for multi-dimensional network construction. The products include preforms, optical fibers, optical cables, ODN, antennas and RF cables, active terminals, optical transceivers, data centers, high-performance raw materials and other products for telecom infrastructure network, as well as engineering consulting, design, construction and integration services.



## Smart Grid

Focusing on the development of power grid, ZTT is committed to building the whole product chain of power equipment products, and aims to the safety, energy conservation, environmental protection and intelligence, provides first-class system solutions for power transmission and distribution, receiving great praise with "ZTT Serves Power Grid, Power Grid Trusts ZTT" in the industry.



## New Energy

Led with power station construction, featured with distributed photovoltaic, centered on microgrid technology, taking key materials as a breakthrough, and highlighted with large-scale energy storage system, renewable energy industry has gradually grown into a new growth pole of ZTT.



## Marine Equipment

ZTT tightly grasps the development opportunities for submarine economy involving island development, marine new energy development, undersea observation network, marine resources exploration, and marine engineering equipment, adheres to the principle of equal emphasis on offshore & onshore resources and optoelectronic integration, provides overall solutions for marine equipment, and serves the construction of Chinese maritime power.



## Industrial Network

ZTT integrated the national leading advantage of the identification resolution system, as well as industry-leading technologies such as cloud-native, blockchain, 5G, digital twins, and artificial intelligence. We have created an inclusive, low-cost, and sustainable digital transformation path, providing industrial personalized services with common foundations for the production, distribution, circulation, and consumption of various industrial enterprises.



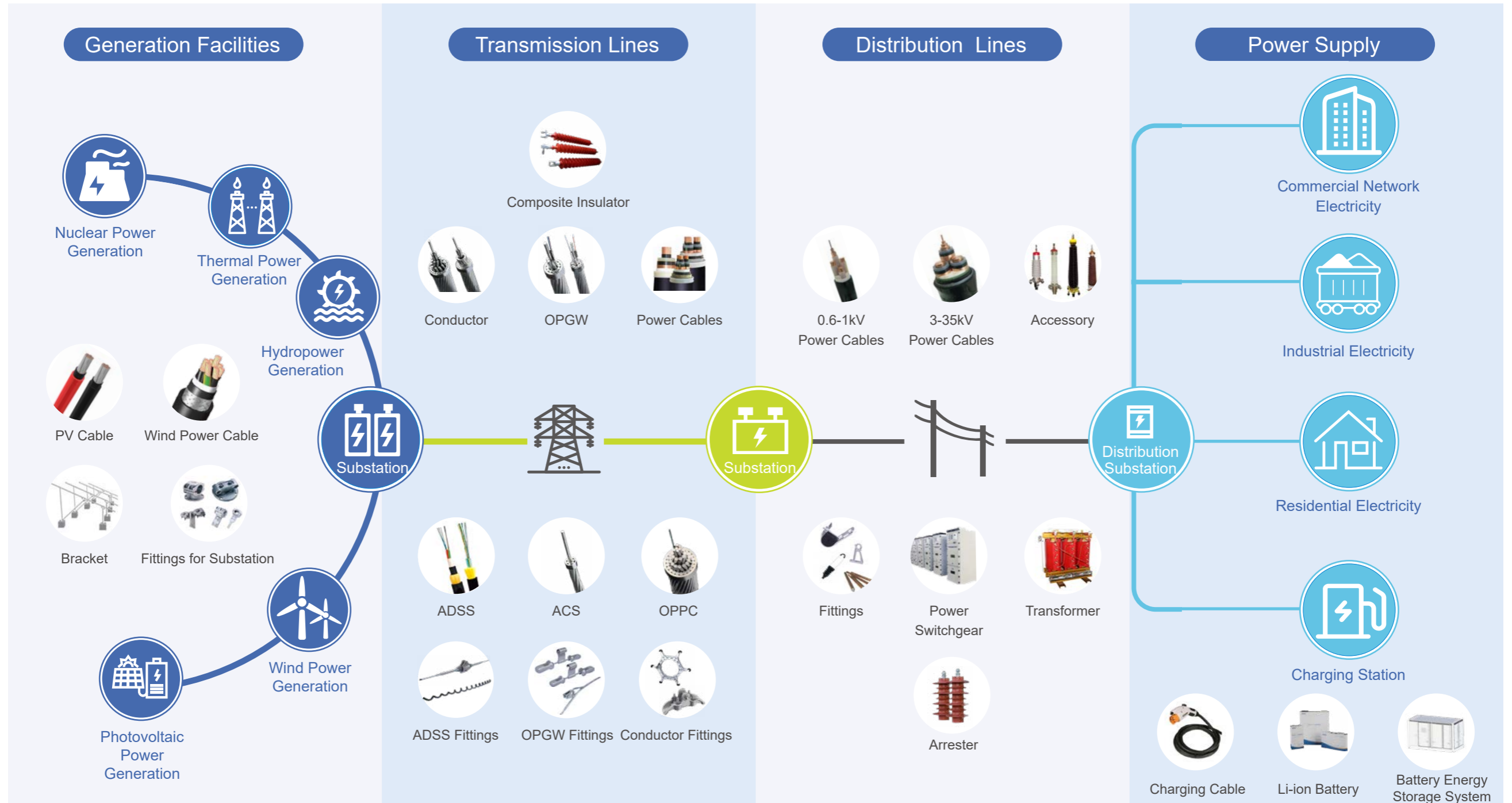
## EPC

ZTT now extends its service to Finance, Design, Supply, Installation, Testing and Maintenance, and offers EPC, EPC+F, BOO/BOT solutions.



# SMART GRID SOLUTIONS

ZTT is committed to building a strong and intelligent transmission and distribution business, thereby enhancing power grid performance worldwide. ZTT has developed a strong supply chain and a range of transmission and distribution network products centered around safety and efficiency, environmental sustainability, and smart technology.



# POWER TRANSMISSION LINE SOLUTION

ZTT is a leading international supplier of transmission line equipment. We are dedicated to low-carbon economy and technological innovation. We offer a wide range of products, including conductors, ground wires, OPGW, cables, fittings, and electrical equipment, serving the power generation, transmission, and distribution sectors.



1

### Conductors



Conductors are used in overhead transmission lines, playing the essential role of carrying electricity and transmission.

3

### OPGW



OPGW is used in transmission lines, combining the functions of grounding and communications.

5

### OPPC



OPPC is a new type of special electrical cable that makes up the unit of fiber in the phase with the function of phase and communication.

7

### Fittings for Substation



Our mechanical substation connectors are available for rigid bus connections and overhead aluminium flexible conductors.

2

### Conductor Fittings and Link Fittings



The hardware fittings and accessories are designed to connect the conductor, tower and insulators. They carry the mechanical and electric load.

4

### Insulator



Insulators are used in overhead transmission lines and substation to provide electrical insulation and mechanical support.

6

### OPGW Fittings



The hardware fittings and accessories are designed to connect the OPGW and tower. It can carry the mechanical lightning and earth fault loads.

8

### Electrical Switchgear



A switchgear is composed of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment.

# DISTRIBUTION LINE SOLUTION

ZTT is committed to building a whole industry chain of power equipment products, and with the goal of safety, energy saving, environmental protection and intelligence, providing first-class system solutions for power distribution customers.



①

## Transformer



ZTT is an experienced and reliable manufacturer of distribution transformer. ZTT transformers always play a key role in the reliable transmission and distribution of power.

②

## Arrester



ZTT is an experienced and reliable manufacturer and supplier of arresters and satisfies different customers' requirements with quickest delivery time.

③

## Fittings



Mainly used for overhead distribution lines with voltage levels below 10kV and spans below 100 meters. This product has the advantages of simple installation, low cost, sufficient material supply, convenient branching and maintenance, and easy troubleshooting.

④

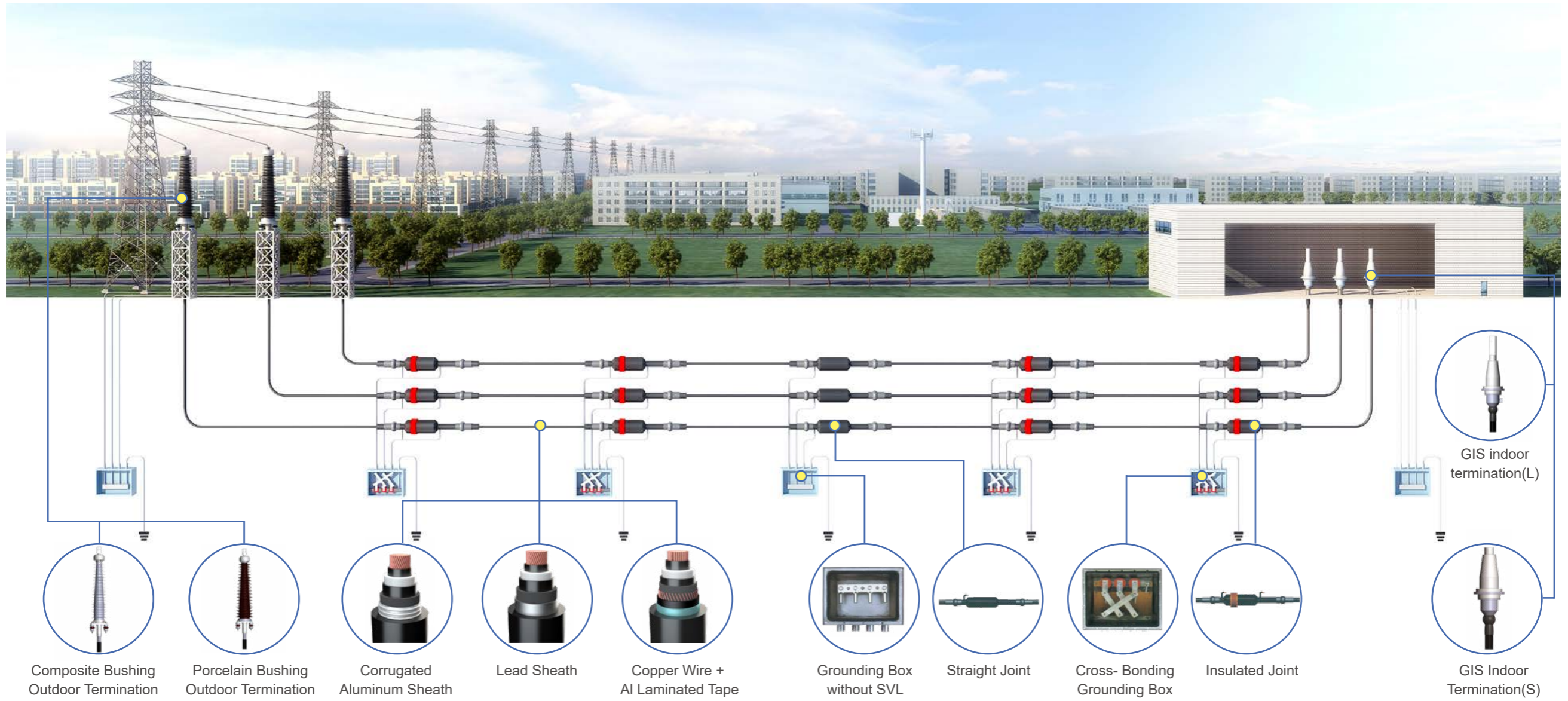
## LV/MV Power Cables



ZTT products meet the international standards of IEC series and can be manufactured according to customers' requirements of standards such as ICEA, AS, BS, DIN/VDE, etc. ZTT can also produce XLPE insulated cable with special requirements including waterproofing, anti-termites, anti-rodents, river crossing, etc.

# HV POWER CABLE SYSTEM SOLUTION

ZTT can provide 66kV 500kV power system packages. The whole system includes XLPE cables, terminals, connectors and other related products.



## HV/EHV XLPE Cable

The HV cable (66kV~500kV) has the construction of a conductor (copper or aluminum, max. cross section:3500mm<sup>2</sup>) insulated with the cross-linked polyethylene(provide superior heat resistance 90℃), shielded with metallic screen (Lead sheath, Aluminum sheath or wire plus laminated tape) according to requirements, finally to be covered by extruded PVC (ST2), PE (ST7) or halogen free (ST12) sheath for anti-corrosion.

## Accessory


ZTT specializes in the design, research and development, production, supporting and construction services of cable accessories and power fittings. The product range covers up to 35kV Low voltage and medium voltage distribution networks, 66kV—220kV high voltage transmission and transformation projects. ZTT provides comprehensive professional services for power transmission and distribution systems.





# MARINE AND OFFSHORE SOLUTION


ZTT is an experienced and reliable manufacturer and supplier of marine and offshore cable. We are a professional company with an annual output of about 15,000 kilometers of marine and offshore cables. ZTT can satisfy different customers' requirements and provide the fastest delivery time.





**1**  **Marine and Offshore LV Power Cable**  
Designed for power, circuits & control system. Suitable for use in commercial marine & offshore applications. Maximum conductor temperature is 90°C.

**2**  **Marine and Offshore MV Power Cable**  
Designed for power, circuits system. Suitable for use in commercial marine & offshore applications. Maximum conductor temperature is 90°C.

**3**  **Marine and Offshore Instrument Cable**  
Designed for instrument & control system. Suitable for use in commercial marine & offshore applications. Maximum conductor temperature is 90°C.

**4**  **Marine and Offshore VFD Power Cable**  
Designed for VFD power driver system. Suitable for use in commercial marine & offshore applications. Maximum conductor temperature is 90°C.

**5**  **Submarine Composite Cable**  
Submarine power cable is used for interconnection of offshore power fields, tidal wave locale, wind mill and offshore oil & gas platforms and also islands. The voltage for such application are usually less than 36kV AC type and typically uses the 3cores XLPE cables.


**6**  **UG Cable**  
ZTT is an experienced and reliable manufacturer and supplier of power cable. It produces about 10,000 kilometers of medium voltage power cables each year.

# NEW ENERGY SOLUTION

ZTT is a PV system integration service provider. We provide consultation, design, system integration, EPC, O&M service and etc. for different PV system like large and media level grid tied PV plant, small on/off grid PV power system, BIPV and etc. We also provide design, manufacturing and supply the high quality facilities of PV power plant.




**1 PV Bracket**




ZTT can provide various types of fixed and tracking photovoltaic brackets, which can be customized for the specific conditions of each project.

**3 High And Low Voltage Power Distribution Equipment**




The backbone enterprise of complete sets of electrical equipment mainly produces series of products such as high and low voltage switch cabinets, communication boxes, cable trays, and bus ducts.

**5 Lithium Ion Battery**




ZTT supplies specially specially designed long-life and high-safety batteries for large-scale energy storage products. Our batteries can meet the 10-year test for large-scale energy storage systems.

**2 PV Cable**




PV cables have superior UV resistance, cold resistance, ozone resistance, hydrolysis resistance, acid resistance, salt resistance, damp heat resistance, alkali resistance, superior all-weather ability.

**4 Wind Power Cable**




ZTT wind power cable meets the technical specifications (GB/T 29631-2013) of national electric wire & cable quality inspection center, which is mainly for the wind turbine generator with  $\leq 1.8/3kV$ .

**6 Battery Energy Storage System**



ZEST MUSE 1.0 Liquid Cooling System -- Mature, Universal, Safety, and Efficient four in one, brings customers more flexible and innovative energy storage solutions.

**7 48V Battery Pack for Telecom Station**



Cost effective; Long life cycle; Environmentally friendly; Easy O&M  
Main supplier of operators at home and abroad.

# EPC SOLUTION

Based on the ability of precision manufacturing for years, we extend our services to Investment, Financing, Design, Supply, Installation, Testing and Maintenance.  
Now we are specializing in providing EPC,EPC+F,BOO/BOT solutions to client.



ZTT has full product chain to support the EPC project, which allows us better ability to control the products cost, quality, and delivery time, etc.

ZTT has a strong financing channel in China with full experience of financing, and has established stable cooperation relationships with Sinosure, banks and funds. We are glad to provide financing solution for our customers & partners.

ZTT has its own engineering and construction company, and has signed strategy cooperation agreement with different public institutes to work together for HV system engineering work. During past years, we have completed numbers of domestic and international projects.

## Notable Projects



• 230kV&115kV Transmission Line for EDC in Cambodia



• 230kV&132kV Transmission Line for PGCB in Bangladesh



• Mongolian 80MW/200MWh Battery Energy Storage System



• Engineering, Procurement, and Construction of 20MW BESS Pilot Project in Pakistan



• 155kV Submarine Cable Turnkey Work for Offshore Windfarm in Germany



• 132kV CT&ET Dique-ET Tolosa Underground Cable Project in Argentina



• Rudong 110 MW Photovoltaic Power Plant(BOO) in Nantong



• Philippines Telecom EPC Project

# POWER PRODUCTS

## SPECIAL CONDUCTORS



ZTT special conductors are widely used in key projects such as UHV, large spans, and ice zones, and are exported to more than 112 countries including the United States, Britain, India, Poland, and Turkey. ZTT has supplied hundreds of thousands of kilometers of special wire products overseas and has a leading global market share.

### Up-rating Conductors(HTLS conductors)

- INVAR Conductor (Patent)
- GAP Conductor (Patent)
- ACSS Conductor (Patent)
- Thermal Resistant Aluminum Alloy Conductors, Steel reinforced- TACSR

### Energy Saving Conductors

- Aluminum Conductors, Aluminum Alloy Reinforced-ACAR
- All Aluminum Alloy Conductors-AAAC (6201, 1120 Alloy Type)
- Aluminum Conductors, Steel Supported-ACSS(Patent)
- All Aluminum Conductors-AAC
- Large Cross Section Area Conductor

### Weather Resistant Conductors

- Low Noise Conductor
- Low Wind Pressure Conductor (Patent)
- Center Enlarged Conductor
- ACSR, TACSR (Shaped Outer Layer)
- Non-Specular Conductor
- Anti-corrosion Conductor
- Self-damping Conductor



## OPGW/OPPC/ADSS



ZTT Power Optical Cables are known for high quality and excellent performance. Our products are exported to more than 140 countries and regions, with an online operation of 700,000 km and a leading market share.

### OPGW

It is normally used in UHV, large span, heavy iced, high altitude areas. OPGW has lightning resistance, corrosion resistance, ultra-cold resistant, low loss, large capacity.

### OPPC

OPPC is used where communications and power transmission is needed in the same cable.

### ADSS

It is suitable for built high-voltage transmission lines, because it saves comprehensive investment, reduces man-made damage to optical cables, has high safety, has no electromagnetic/strong electric interference, and has a large span. It is favored by the majority of power system users. It is popular in the power system city network. It has been widely used in the communication construction of transformation and rural network transformation.



As one of the IEEE members, ZTT is participating in the revision of IEEE 1138 OPGW standard, and also is the drafter of IEEE 1595 OPPC standard.



## POWER CABLE

ZTT manufactures power cables and cable accessories up to 500 kV, and can provide LV, MV, HV, EHV cable solutions. Cable systems are certified through type and prequalification tests by KEMA, CESI and similar international institutions.

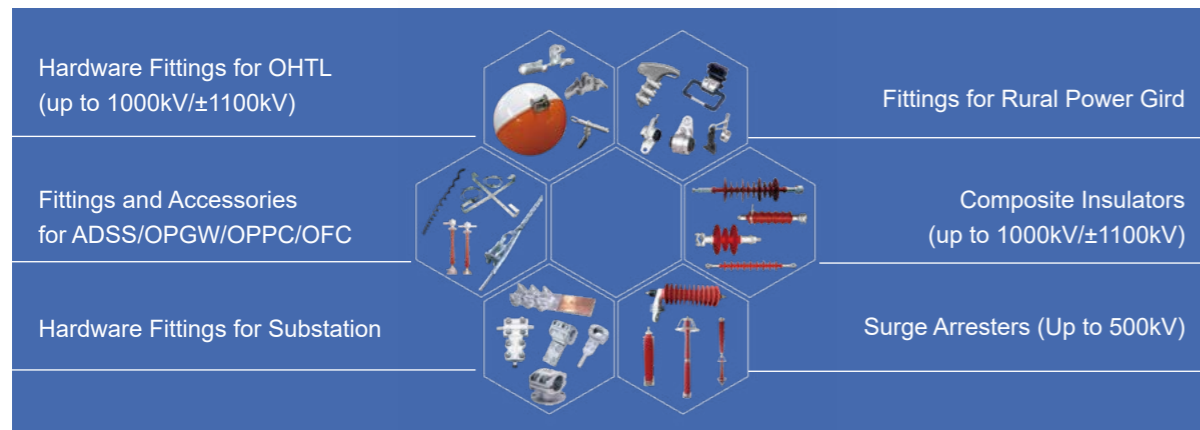
In 2018, ZTT successfully acquired DEMIRER KABLO factory from Turkey. DEMIRER KABLO is mainly engaged in HV and EHV power cables and accessories.

As a global turnkey project contractor, ZTT can also provide laying, jointing, terminating, testing, supervision and commissioning services.



## FITTINGS/COMPOSITE INSULATOR/ARRESTER

ZTT hardware fittings and accessories has been operated online over 600,000 km in more than 100 countries up to 1000kV/±1100kV. There are 2 fittings factories in China and India. ZTT composite insulator passed the 5,000 hour test in STL laboratory. ZTT is the drafter of IEEE 1591.4 (OPPC fittings standard) and IEC 62005-9-5 (Reliability qualification for optical fibre closures /protective housing).



ZTT conducts the tests at:



## NOTABLE PROJECTS

ZTT takes serving the power grid as its mission, has formed a complete industry chain of power transmission and distribution, actively participates in the construction of UHV power grids and smart grids.



### OPGW

Global operation  
≥ 728,000 km

### Conductor

Global operation  
≥ 1,800,000 tons

### Fittings

Global operation  
≥ 1,200,000 km

### Power Cable

Global operation  
≥ 130,000 km

- 1000kV Huainan to Shanghai UHV Transmission Demonstration Project (Conductor, OPGW, Fittings)
- ±1100kV Changji to Guquan UHV DC Transmission Project (Conductor, OPGW, Fittings)
- 220kV Zhoushan to the Mainland Networking Project-Crossing Sea (Conductor, OPGW, Fittings)
- EETC 500kV transmission line project in EGYPT (Conductor, OPGW, Fittings)
- 345 kV Canso Strait Crossing in Canada-Crossing Sea
- River Crossing and Anchor Towers for Haldia TPP-Subhasgram 400kV D/C Line in India (OPGW)
- 500kV Yacyreta-Ayolas-Villa Hayes Project (Fittings)
- Xiamen ± 320kV flexible HVDC system demonstration project
- Turkish Electricity Davutpasa GIS S/S – Yıldıztepe S/S 380kV Underground Cable Connection Project
- Nanjing Power Supply Company 220kV Qiuteng - Gaowang line project
- Turkish Electricity Davutpasa S/S – Topkapi S/S 154kV Underground Cable Connection Project
- Interconnection of Dique substation and Tolosa substation with 132kV U/G cable project in Argentina
- ±660kV HVDC Project from Matiari to Lahore in Pakistan

# SOCIAL RESPONSIBILITY



## Employee Care

ZTT first established the working mechanism of "spiritual mentor for employees", which embodies the scientific management principle of "always putting people first" and gives full humanistic care to our employees.



## Charity Activities

While developing steadily, ZTT has set up a "ZTT charity fund" to actively participate in social charities, respond to natural disasters immediately. ZTT donated money and materials in the fight against snow disasters, earthquakes and other disasters, and organized engineers to provide technical assistance and support for communication power restoration.



## Gender Equality

ZTT is committed to gender equality, and understand that diversity leads to better business outcomes. We are working towards achieving gender equality in our business by creating a gender-inclusive and equitable work environment; making progress on a gender-balanced workforce, and establishing an inclusive and unbiased culture.



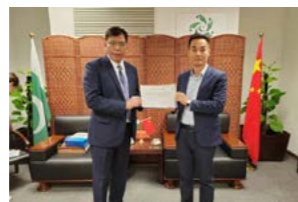
## Cultural Diversity

ZTT, as an international company, has been recruiting international employees from different cultural background, and implemented local construction according to the development and cultural traditions of different countries, and is committed to becoming a part of its community, earning the recognition of natives.

## Charity Activities



ZTT invested Hope Primary School to support underprivileged students and ensure they have access to quality education



ZTT donated money through the Pakistan Embassy to support Pakistan's post-flood home rebuilding efforts



ZTT promptly responded to the 7.0 magnitude earthquake in Turkey, providing relief and launching a donation campaign for recovery efforts

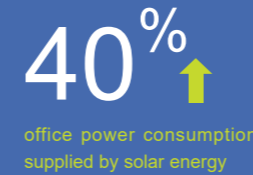


ZTT India donated anti-epidemic funds to AP State Government Epidemic Prevention Foundation



At ZTT, we prioritize green manufacturing and sustainable development as essential values in fulfilling our corporate social responsibility. We actively promote resource conservation, environmental friendliness, and the pursuit of our net-zero goal. Our dedication has been acknowledged through our selection as the benchmark enterprise for social responsibility in China's communication industry.

As part of our commitment to a lowcarbon future, 500 kWp Rooftop Solar PV plant has been installed at ZTT's office building and most factories' roofs.



ZTT offers various green energy solutions to customers, fostering the advancement of clean and sustainable energy. In 2022, ZTT proudly ranked the 55th among the "Top 500 Global New Energy Enterprises." By that same year, our cumulative installed capacity for photovoltaic green power reached 384 MW, generating 423.91 million kWh of clean energy. This achievement translates to a remarkable reduction in carbon emissions, equivalent to 422,639 tons.



ZTT strictly complies with relevant environmental laws and regulations, and has established a sound environmental management system.



ZTT has implemented a range of effective measures to conserve water resources. We have established clear water-saving objectives and enhanced water consumption management practices.



## UN Sustainable Development Goals Addressed

