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TGOOD ELECTRIC(300001.SZ)

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TGOOD GLOBAL
-ENERGY,FAST-

PREFABRICATED SUBSTATION

A NEW GENERATION OF DIGITAL ONE-STOP INTEGRATED SERVICES SOLUTION FOR ALL SCENARIOS

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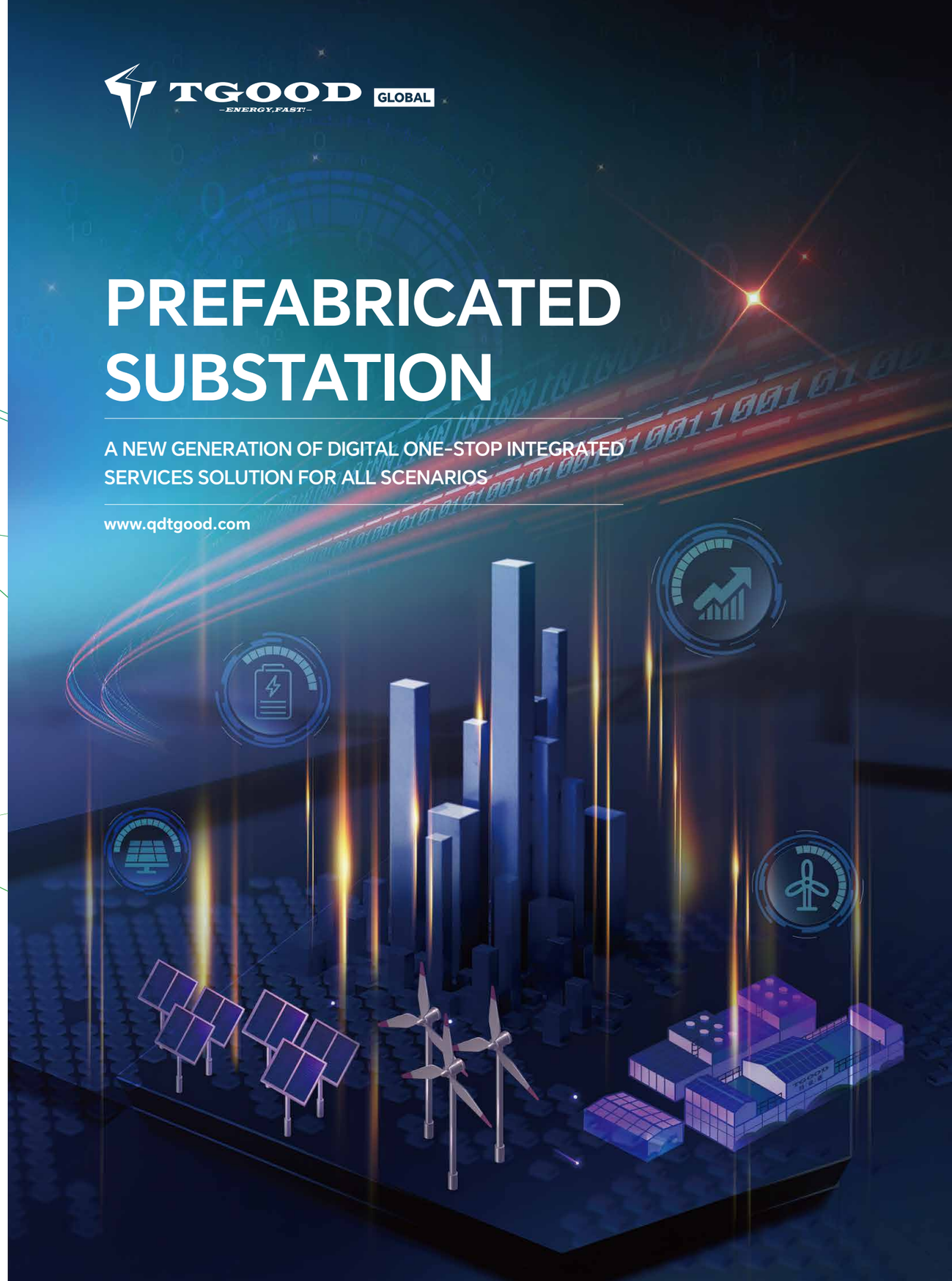


COMPANY INTRODUCTION

TGOOD Electric (300001)

Est. 2004 | Listed 2009

Power Equipment & EV Charging Networks

2024 Performance

Revenue: **RMB 15.37B**

Net Profit: **RMB 917M**

Total Assets: **RMB 25.01B**

Industry Leadership

#1 in Railway & Power Markets

National "Manufacturing Champion"

EV Charging Dominance

552K Public Charging Terminals

331K DC Terminals

26% Terminal Share | **24%** Charging Volume Share

2004 ~ 2025

Focus on the integrated design, R&D and production of prefabricated substation products

NO.1	China's largest R&D and manufacture base for prefabricated power equipment
Champion Enterprise	Won the title of the eighth batch of national manufacturing single champion enterprises issued by the Ministry of Industry and Information Technology
Top 500	Selected as one of China's top 500 private enterprises for two consecutive years
Three times	TGOOD's team building was included in the teaching case library of Harvard University and Tsinghua University three times

260+	10000	780k ㎡	10000+
Subsidiaries	staff	Factory Area	Prefabricated substation integration experience

STRATEGY OF ONE BODY WITH TWO WINES

TGOOD 300001 特锐德

Smart Manufacturing
+ Integrated Services

TOUGHRIG 特中和

Ultra-advanced Zero-Carbon Digital Building
+ High-speed Vertical Parking

TELD 300001 特来电

Charging Network + Microgrid
+ Energy Storage Network

Target

- Strengthen the position as the world's leading brand in prefabricated power equipment.
- Build a charging network ecological operator that the government trusts and customers are satisfied with, becoming the strongest and largest in China.
- Create a digital ultra-high-speed three-dimensional parking system based on ultra-grade zero-carbon buildings.

three modern professional manufacture bases

EPCO one-stop Full-scenario, full-life cycle

Complete system certification and product certification

Steady growth

14.602 billion CNY

Operating income in 2023, an increase of 25.56% over the same period

50+

Covering more than 50 countries and regions around the world

300001

In 2009, it was listed as the first stock on the Growth Enterprise Market, stock code 300001

Leading Technology

High-tech enterprise

National Key High-tech Enterprise

20 years of technology accumulation

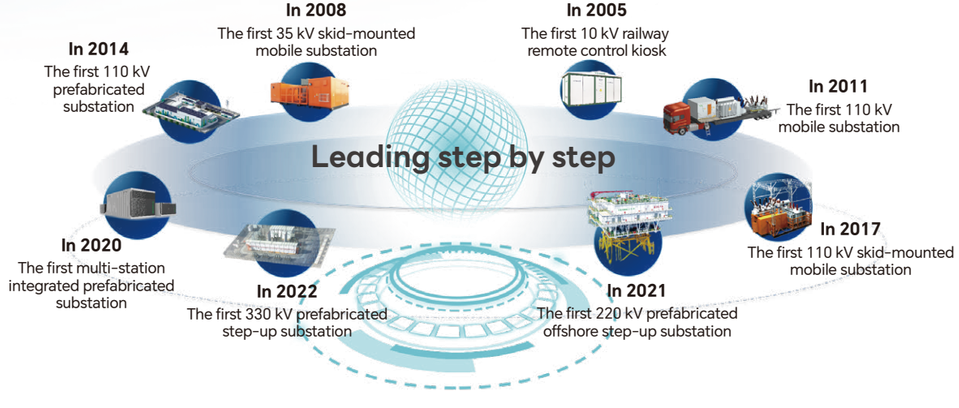
Integrated design, R&D and production experience of intelligent prefabricated transformer products

100+
Application Scenario

10+
Industry coverage

1500+
Patents, copyrights and other intellectual property rights

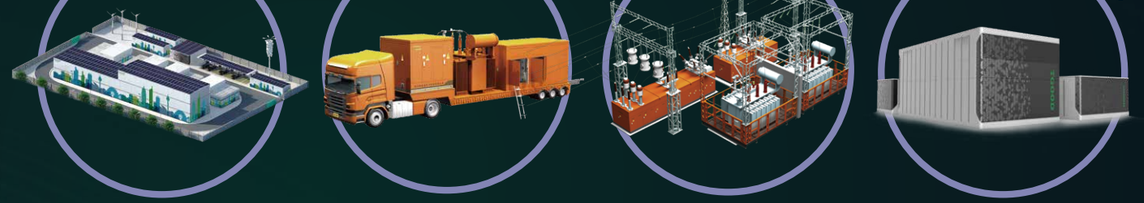
30+
National, provincial and municipal key projects



INTELLIGENT MANUFACTURING

Compact Substation

Prefabricated Substation



GIS & HGIS

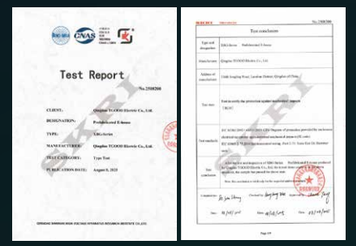
TGOOD
Intelligent
Manufacturing

Transformer Product Series

Switching Devices

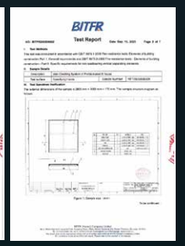
Switchgear Products

TEST REPORT

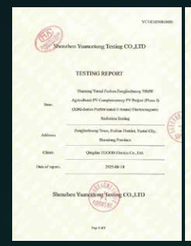
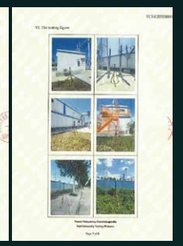


Impact resistance report

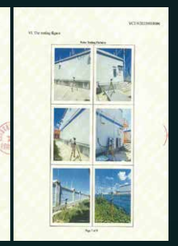

Cyclic ageing report

Fire resisitance report

Electromagnetic radiation report

Noise test report


Performance test report

CONDITIONS OF OPERATING ENVIRONMENT

Variable	Name	Unit	Description
Outdoor Ambient Temperature	Maximum Daily Temperature	℃	≤55*
	Minimum Daily Temperature	℃	≥-45**
	Average Temperature of the Hottest Month	℃	45
Ambient humidity	Daily mean relative humidity		95% and below
	Monthly mean relative humidity		90% and below
Altitude of the installation site		m	1,000 and below (please specifically state if exceeding 1,000)
Protection level			IP54
Impact resistance		J	20
Design Wind Velocity		km/h	170
Seismic intensity			8 (0.2g)
Pollution Class	Equivalent Salt Deposit Density (ESDD)	mg/cm^2	0.55(Coastal Areas)/0.3 (Inland Areas)
	Non-soluble Sediment Density (NSDD)	mg/cm^2	5.00 (Coastal Areas and Inland Areas)

Note: * more than 55°C is optional **lower than -45°C is optional

BUILDING MODE

Standardized design | Factory production | Prefabricated construction

The new generation of prefabricated substations follows the concept of "standardized design, factory production, and prefabricated construction", which has changed the construction model of traditional substations and realized the transformation of substations from "building" to "purchasing".

- Prefabricated substation enclosure replaces buildings, reducing the amount of civil construction
- Maximize factory prefabrication to reduce installation workload
- Transport modularization, suitable for transport under complex road conditions
- Mechanized assembly construction, convenient construction

Civil engineering work prefabricated substation manufacturing

Delivery transportation

Prefabricated construction

Acceptance and commissioning

DEEP PREFABRICATION **Build → Buy**

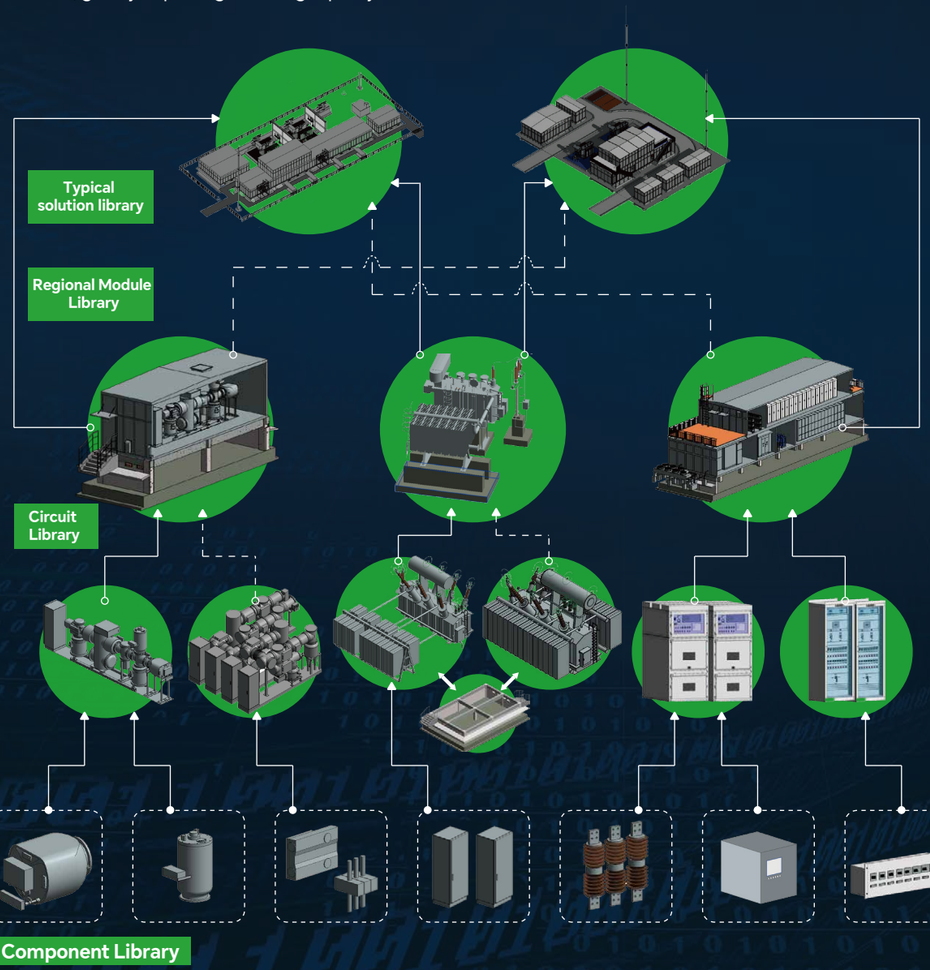
To build a prefabricated substation only need **100 days**


- Modular assembly substation construction, complete construction technology
- Mechanized on-site construction reduces labor input
- 4-5 days to achieve the transformation of the substation from scratch
- High website construction efficiency and fast equipment operation

PREFABRICATED SUBSTATION SOLUTION

Highest cost-effectiveness | Highest reusability

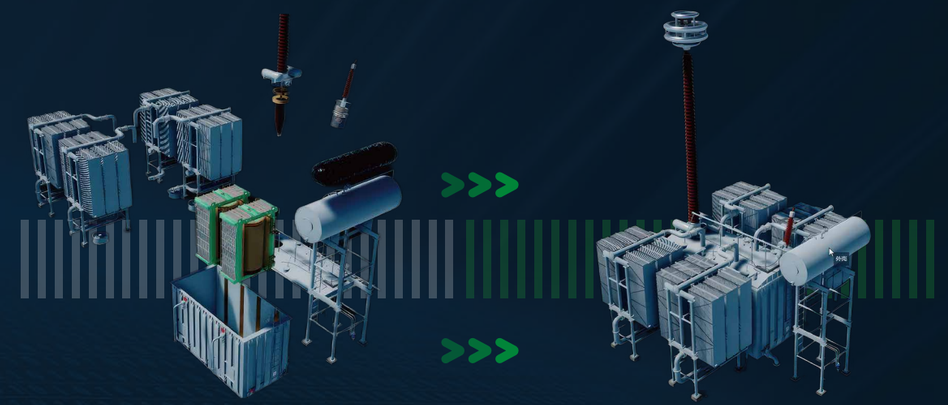
- Previous solutions can be replicated, allowing typical and standard designs to be quickly advanced, greatly shortening design time
- Technical experience can be continued, allowing the best process route and design quality to be selected, greatly improving the design quality

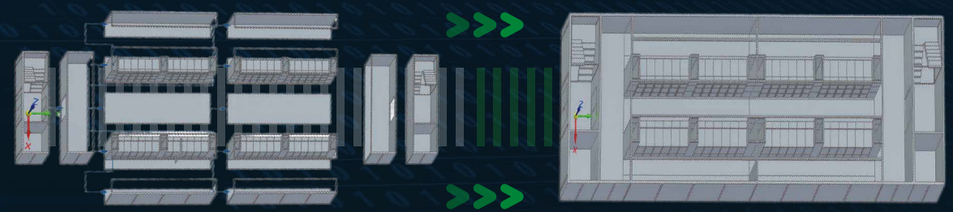


MODULAR DESIGN

Component modularity | Design modularity | Production modularity

- The standard library is constructed based on the characteristics of the 3D model, and the equipment and enclosure are modularly constructed based on the principle of interface standardization.
- Use standardized and modular 3D models to manage space design and reduce the site footprint
- Prefabricated production with standardized and modular 3D models shortens the construction period of the entire substation

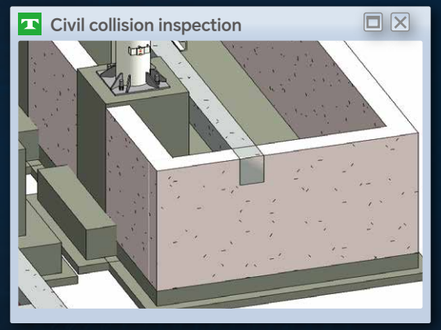


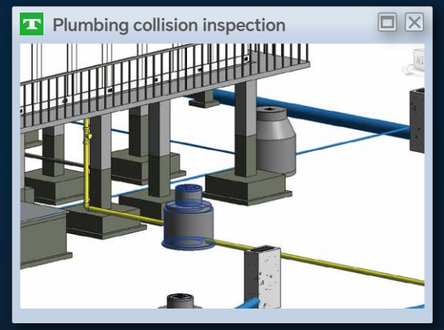


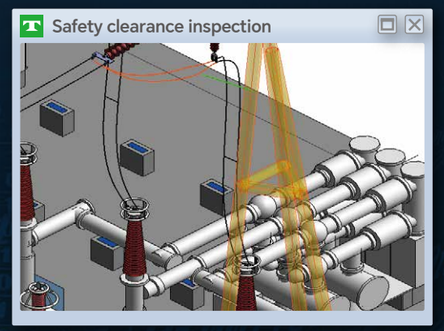
FORWARD COLLABORATIVE DESIGN

Design Visualization | Reduce error rate | Multi-disciplinary collaboration

- 3D visualization, complex systems and structural layouts can be clearly displayed, facilitating optimized design decisions.
- Working in a unified model effectively reduces design errors and conflicts, and improves design quality and efficiency.

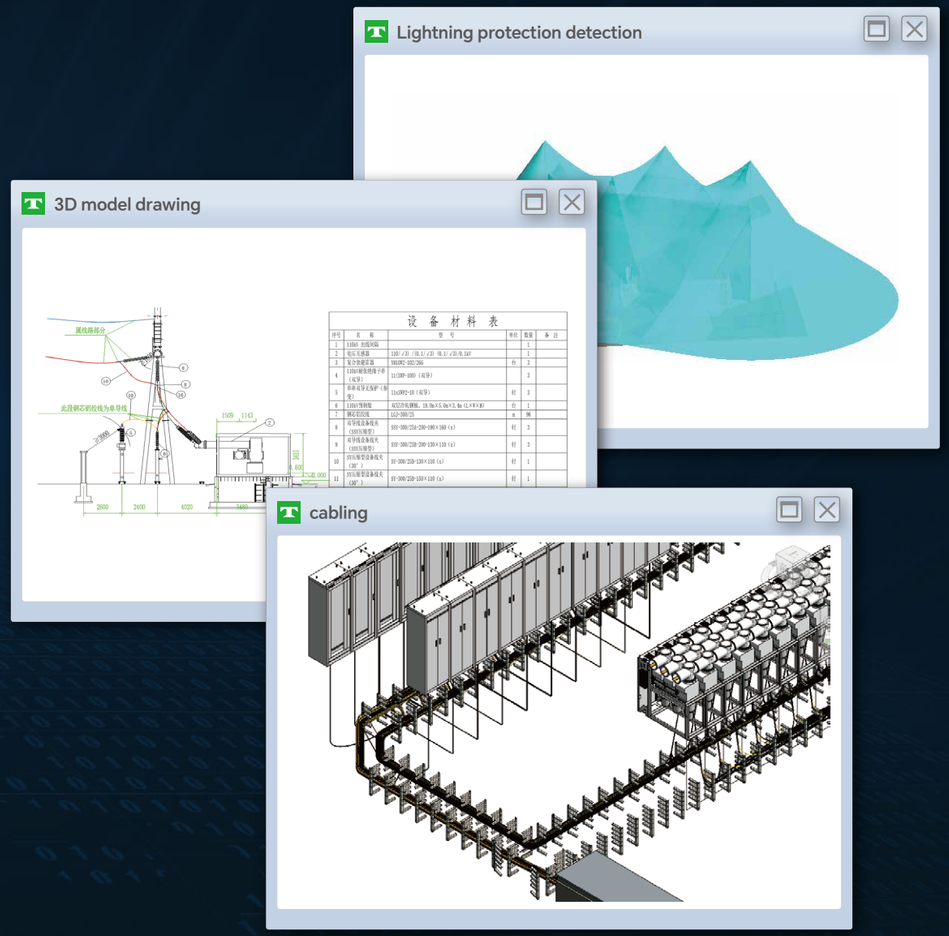






COMPUTER ASSISTED

Collision Detection | One-click image output



- Computer-aided concealed engineering, lightning protection and grounding, electrical safety clearance verification, automatic cable laying, collision inspection, etc.
- Directly cut and draw the 3D model, and fully export the whole substation equipment list, engineering drawings, installation materials and other related information

CHARACTERISTICS OF PREFABRICATED E-HOUSE

HIGH WEATHER RESISTANCE APPLICATION OF PREFABRICATED E-HOUSE

Structural Strength | Earthquake Resistance

The main structure complies with the design service life of the building structure and is 50 years

- The world's first coastal 220kV modular prefabricated substation
- The world's first 220kV prefabricated offshore substation

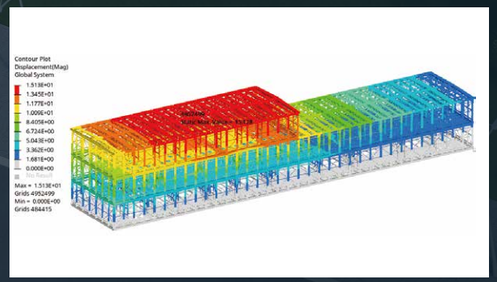
Finite element simulation software ABAQUS analysis meets the seismic intensity of 9 degrees

Institute of Engineering Mechanics, ChinaEarthquake Administration

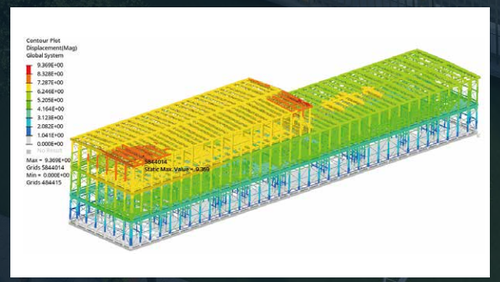
Suzhou Electric Science Research Institute

- Calculation report on seismic performance of prefabricated substation for Protection and Control Prefabricated E-house
- Calculation report on seismic performance of prefabricated switchgear E-house
- Seismic test of prefabricated E-house for modular substation

Seismic test of prefabricated E-house for modular substation



Widthwise earthquake acceleration



Lengthwise seismic acceleration

Thermal Insulation | Sealing And Waterproof Performance

DOOR PANEL AND COLUMN SPLICING STRUCTURE

- **The overall wall thickness is about 120mm, which has good thermal insulation effect**
- **Application temperature range: maximum (55°C) ~ minimum (-55°C)**

ROOF JOINT PROTECTION SYSTEM

- **The joints are treated with mechanical structure and sealing materials to ensure double security of waterproof sealing.**

CHARACTERISTICS OF PREFABRICATED E-HOUSE

ANTI CORROSION TECHNOLOGY APPLICABLE TO MULTIPLE REGIONS

Service life up to 50 years

C5 anti-corrosion solution (coastal areas)

C3 Anti-corrosion Solution (Inland Areas)

ISO 12944	50years	Imported spraying line	Good effect
Meets corrosion protection requirements	Meet 50-year service life	Imported from Switzerland and the United States	High production efficiency and good spraying effect

CUSTOMIZABLE APPEARANCE AND OVERALL INTEGRATION

The prefabricated E-house is the first of its kind in China. It is constantly updated and iterated to lead the industry innovation. The enclosure can be customized according to different customer requirements.

- Self-developed and self-produced, unified appearance, not limited by production capacity, etc.
- The enclosure, equipment and auxiliary systems are integrated as a whole, with an unified style

ENSURING THE SERVICE L IFE OF PREFABRICATED E-HOUSE

Fire resistant insulation | Impact resistance

Fire resistance test of special wall panels for prefabricated substation

- The outer double-layer steel plate is filled with insulation material to form a whole with strong impact resistance.
- Effectively prevent the impact of external fire sources, conventionally reach Class E second-level fire resistance for 2h, and the transformer compartment reaches Class C first-level fire resistance for 3h.
- Fire protection distance is implemented in accordance with GB50229

Purification board

Insulation core material

Rock wool

Fireproof board

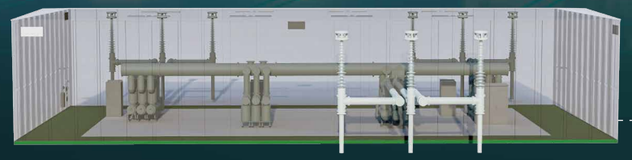
insulation core material

Aluminum silicate wool

CHARACTERISTICS OF PREFABRICATED E-HOUSE

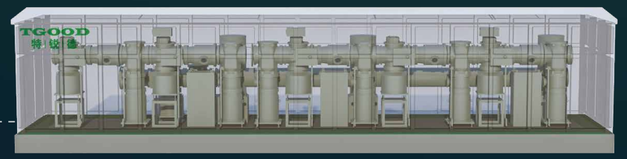
01 GIS PREFABRICATED SUBSTATION

According to different usage scenarios and requirements, GIS prefabricated E-house can be divided into inline integrated GIS prefabricated E-house and conventional GIS prefabricated E-house.



Conventional GIS prefabricated substation

Inline GIS prefabricated E-house



Features of prefabricated E-house

Three-layer shock absorption technology

Applied between GIS equipment and enclosure to reduce vibration transmission during GIS operation

Three-layer shock absorption technology

Applied between GIS equipment and enclosure to reduce vibration transmission during GIS operation

Maintenance-free

The enclosure is maintenance-free and the space meets the specifications. Maintenance and inspection are more convenient

Configuring SF_6 detection

The enclosure is equipped with SF6 detection alarm and automatic ventilation system

Earthquake and wind resistance

Integrated design, high integrated installation strength,meets earthquake and wind resistance requirements

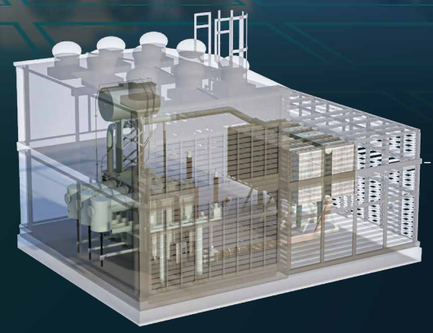
Multiple connection modes

Can realize various connection forms such as cable, overhead, oil-gas casing, etc.

02 TRANSFORMER PREFABRICATED E-HOUSE

Integrated transformer prefabricated E-house / split transformer prefabricated E-house

can be selected according to the use scenario requirements



Split transformer compartment

Integrated transformer compartment

Features of prefabricated E-house

Flexible application

The grille and fire-wall type wall panels are flexible and meet the dual requirements of heat dissipation and fire protection

Noise reduction

The substation use sound barrier technology to reduce noise for the transformer

Capacity optional

The main transformer has flexible connection configuration and a wide range of optional capacities

03 SWITCHGEAR PREFABRICATED E-HOUSE

The E-house is prefabricated, and the switchgear selection and installation form are flexible. Different equipment can be integrated into the enclosure. The internal operation passageway in front of the substation and the maintenance passageway space behind the switchgear meet the relevant national standards, making operation and maintenance more convenient.

Safe and reliable

The enclosure is dustproof, anti-condensation and corrosion-resistant Equipped with an internal arc pressure relief channel to ensure safety

substation integration

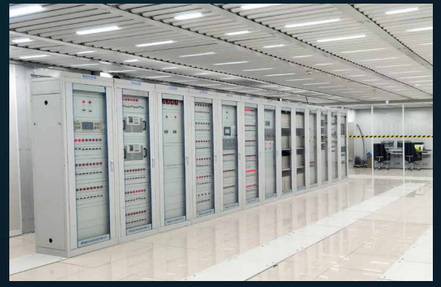
high structural strength Flexible substation selection, factory integration

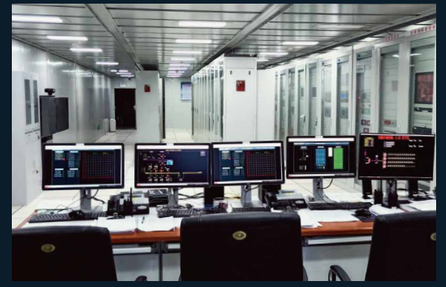
Flexible layout

The switchgear in the enclosure can be designed with single-row or double-row layout to meet different scenarios

04 TRANSFORMER PREFABRICATED SUBSTATION

The substation automation system integrates a variety of protection and control equipment such as integrated automation, metering protection and other related supporting facilities. Some equipment can be wired and debugged in the factory, which greatly reduces the on-site workload and improves the power transmission efficiency of the substation.





Flexible layout

The panel can be arranged in double-row, triple-row, multiple-row layout, etc.

Plug&Play Solution

It can realize the solution of prefabricated optical and electrical cables, with cable interlayer

Meet O&M requirements

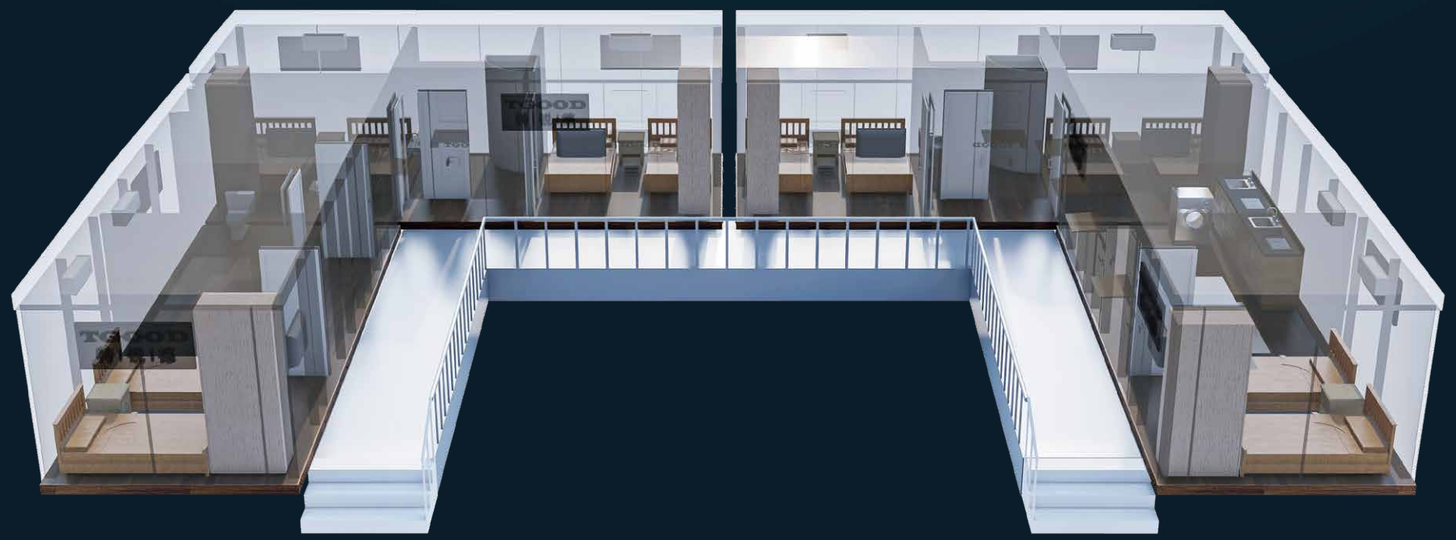
The main control room can be set up according to needs to meet the on-duty operation and maintenance needs of operation and maintenance personnel

05 MULTIFUNCTIONAL PREFABRICATED E-HOUSE

Prefabricated E-house for auxiliary equipment

capacitor modules, SVG modules, grounding transformer modules, etc. can be integrated and installed in the factory to meet the requirements of distribution transportation, and can be flexibly combined into compartments according to different needs.

AUXILIARY EQUIPMENT



Prefabricated living and office E-house

Fixed modules such as prefabricated living room and tool rooms are decorated according to home decoration standards, taking into account the functionality and usability of the living room. Humanized decoration design provides a good working and living environment for substation operation and maintenance personnel on duty

POWER SIDE APPLICATION SCENARIOS

Assist China's key power generation groups

Provide integrated solutions for 1000+ projects

Flexible plan

Energy conservation and environmental protection

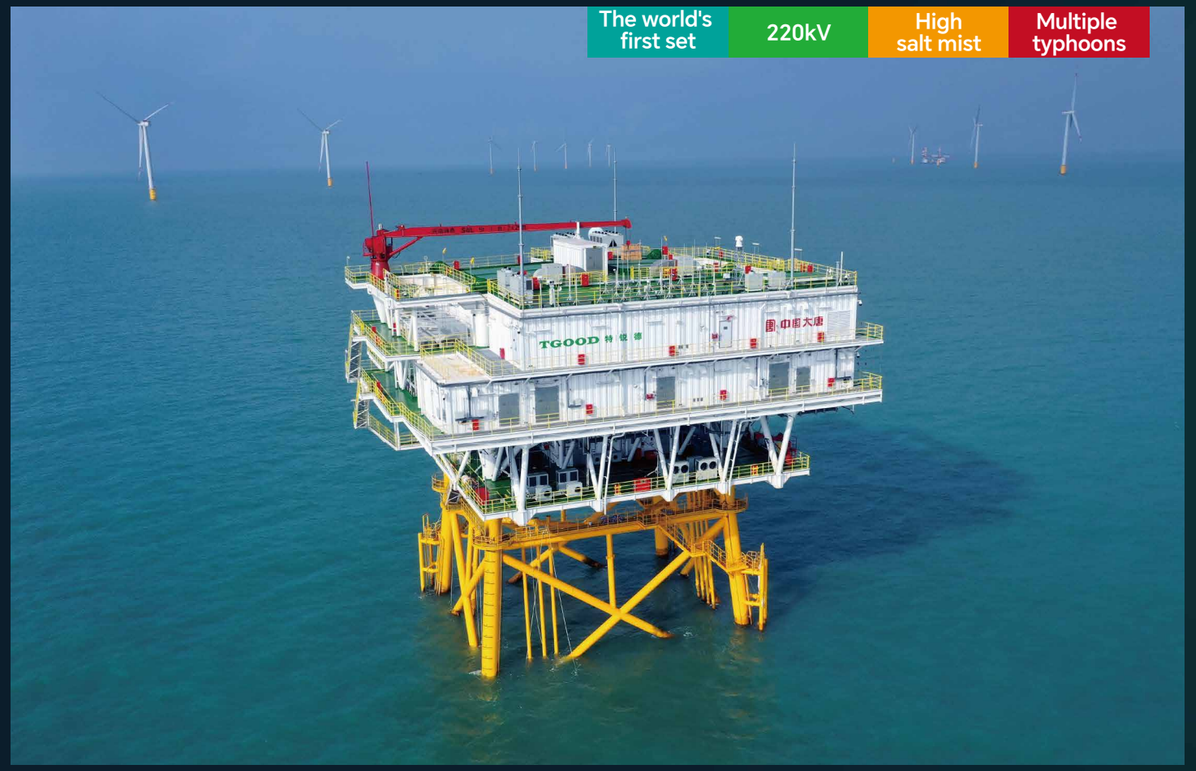
Compact Structure

reliability

CHARACTERISTICS OF PREFABRICATED SUBSTATION

CEIC Ningdong Photovoltaic Step-up Station Project

Major equipment	System Scale	Equipment configuration plan
330kV system	Single busbar configuration with 1 Incomer and 3 Feeders	GIS composite electrical appliances
Main transformer	3×360MVA	Outdoor integrated transformer
35kV system	Single busbar configuration with 67 Feeders	TGP inflatable cabinet is used in the prefabricated E-house
SVG system	6×±15Mvar	Arrange in Prefabricated E-house
Parallel capacitor system	6×±15Mvar	Parallel capacitors are used in the prefabricated E-house
Secondary system	129 panels with 22 data center substations inside	The prefabricated E-house adopts a complete set of equipment



CHARACTERISTICS OF PREFABRICATED SUBSTATION

Datang Nan'ao Lemen Offshore Wind Power Project

Major equipment	System Scale	Equipment configuration plan
220kV system	2-line transformer interval	Outdoor GIS
Main transformer	2×150MVA	Indoor split type transformer
35kV system	Single busbar configuration with 9 Feeders	TGP40.5 is used in the prefabricated E-house
Earthing Transformer System	2 sets o f NER	The prefabricated E-house adopts a complete set of equipment

CHARACTERISTICS OF PREFABRICATED SUBSTATION

SPIC Lingchuan Wind Power Step-up Substation Project

Major equipment	System Scale	Equipment configuration plan
220kV system	Single busbar configuration with 1 Incomer and 3 Feeders	Outdoor GIS
Main transformer	3×100MVA	Outdoor integrated transformer
35kV system	Single busbar segmented configuration with 9 Feeders	KYN61 is used in the prefabricated E-house
Reactive power compensation system	3×28 Mvar	Prefabricated E-house adopts directly-mounted SVG equipment
Earthing Transformer System	NER	NER is used in prefabricated E-house

POWER GRID SIDE APPLICATION SCENARIOS

Provide integrated solutions for building a new type of power system

On the power grid side, focusing on the problems and challenges faced by power grid company in the construction and renovation of substations and the construction of smart distribution networks for new power systems, TGOOD focuses on the construction of new power systems, leverages its system integration technology advantages, innovates product forms and connotations, and provides customers with full scenario and full lifecycle system integration solutions.

New construction of substation | Substation expansion | Substation technical renovation | Low voltage management | Substation load transition | Smart power distribution

POWER GRID SIDE APPLICATION SCENARIOS

New construction of substation

Substation expansion

Substation technical renovation

Low voltage management

Substation load transition

Smart power distribution

CLASSIC CASE OF THE ENERGY STORAGE SIDE

The grid side provides integrated solutions for building a new type of power system

State Grid Shanxi Taiyuan
110kV Substation New Construction Project

China Southern Power Grid Guangdong Foshan
110kV Substation New Construction Project

State Grid Sichuan Chengdu
110kV Substation Expansion Project

China Southern Power Grid Yunnan Kunming
35kV Substation 10kV Outdoor Switch Renovation Project

State Grid Zhejiang Hangzhou
110kV Substation GIS Renovation Project

State Grid Chongqing Low Voltage Governance
35kV Substation

State Grid Suqian Tianhe Solar
110kV Mobile Substation Rental Project

State Grid Anhui Hefei
Old Residential Area Power Distribution Upgrade and Renovation

China Southern Power Grid Shenzhen
Prefabricated Smart Distribution Room - Power Cube

Modular Intelligent Prefabricated Substation

PREFABRICATED SMART POWER DISTRIBUTION

Assist the rapid implementation of new power systems on the distribution network side

With full load capacity factory prefabrication and integrated installation of primary and secondary equipment as the core, advanced prefabrication E-house integration key technology as the foundation, and the construction concept of "fast, small, precise, economical, and flexible", we aim to create a new generation of prefabricated smart power distribution rooms that are "strong, reliable, resource efficient, environmentally friendly, fast, efficient, green, and low-carbon".

CUSTOMER VALUE

Compared to the traditional construction mode of power distribution rooms,prefabricated smart power distribution rooms achieve "one-stop packaging construction" for factories, point-to-point distribution transportation, on-site mechanized construction, modular assembly, and ready for operation upon delivery:

F
Deep factory prefabrication, reduces construction period by 60%

S
Reasonable layout, saving land compared to traditional distribution rooms by 20-50%.

P
Diverse appearance and image designs, highly integrated with the surrounding environment.

E
One stop responsibility system, complete station delivery.

F
Flexible layout and equipment selection; Full scene coverage

E
New materials, new technologies, low carbon, environmentally friendly.

APPLICATION SCENARIOS

The construction, renovation, expansion, and upgrading of distribution rooms of industrial parks, public buildings, residential areas, charging and swapping stations, highways, ports, distributed photovoltaics, and other scenarios can all be applied.

LOAD SIDE APPLICATION SCENARIOS

Chip industry

Data Center Industry

Rail Transit Industry

Energy storage industry

Photovoltaic manufacturing industry

Lithium battery industry

Automotive Manufacturing Industry

Industry Park

Tourism and Hotel

Steel Industry

Petrochemical industry

Airport Industry

Oil Industry

Coal Industry

TGOOD TYPICAL GLOBAL CASE

ENERGY FAST!

Power Grid-Afirca Fluhof Renovation

TGOOD First 110/35 kV Prefabricated Substation in South Africa

Power Grid-Central Asia Bugri Distribution

TGOOD First110/10 kV EPC Project in Overseas

Power Grid-Columbia Grid Reconstruction

TGOOD First 132 kV Mobile Trailer in South America

Oil & Gas PROJECT
SIEMENS & TGOOD Indonesia Prefabricated Substation

MINING PROJECT
SWISS ABB & TGOOD KAZ Mineral Skid Substation

SOLAR PROJECT
Kazakhstan 110/22 kV Prefabricated Substation

MINING PROJECT
Central Asian Kumtor Gold 110 kV Skid Substation

POWER GRID
Saudi Arabia 132/33 (13.8) kV Mobile Substation

POWER GRID
CHINA 110/35/10 kV Mobile Substation

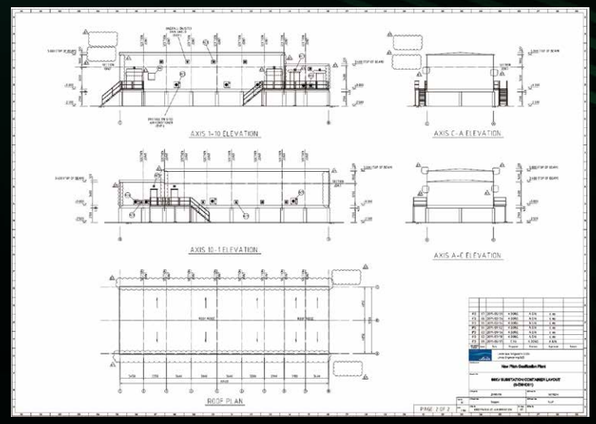
POWER GRID
Côte d'Ivoire 220/33 kV Mobile Substation

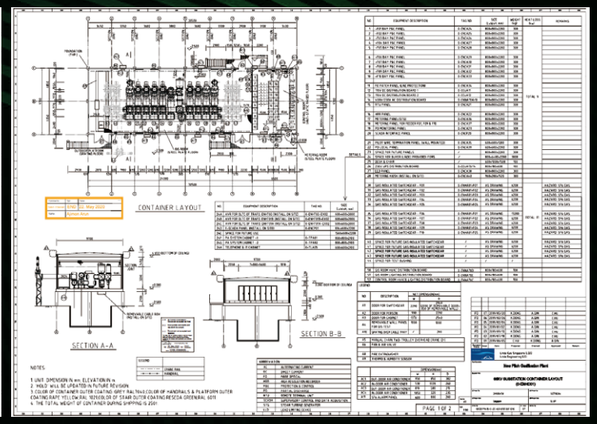
POWER GRID
CHINA 110/10 kV Mobile Substation

SINGAPORE LINDE PREFABRICATED SUBSTATION

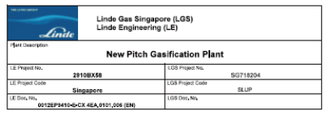
STANDARD:
EN 1993 SERIES\AISC 360

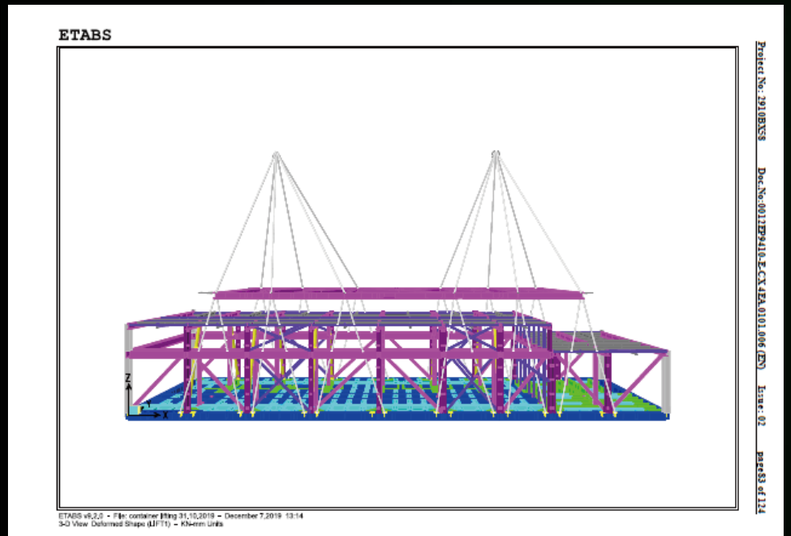
- The design of the E-house structure follow the EN1993 series or AISC 360.
- Professional simulation software simulates real scenes and calculation.
- The structural strength meets the requirement of earthquake resistance, snow load, wind resistance, etc.





Drawings


Linde Gas Singapore (LGS)
Linde Engineering (LE)
New Pitch Gasification Plant
2910BX50
Singapore
66kV Substation Container Structure Calculations (with PE stamp)

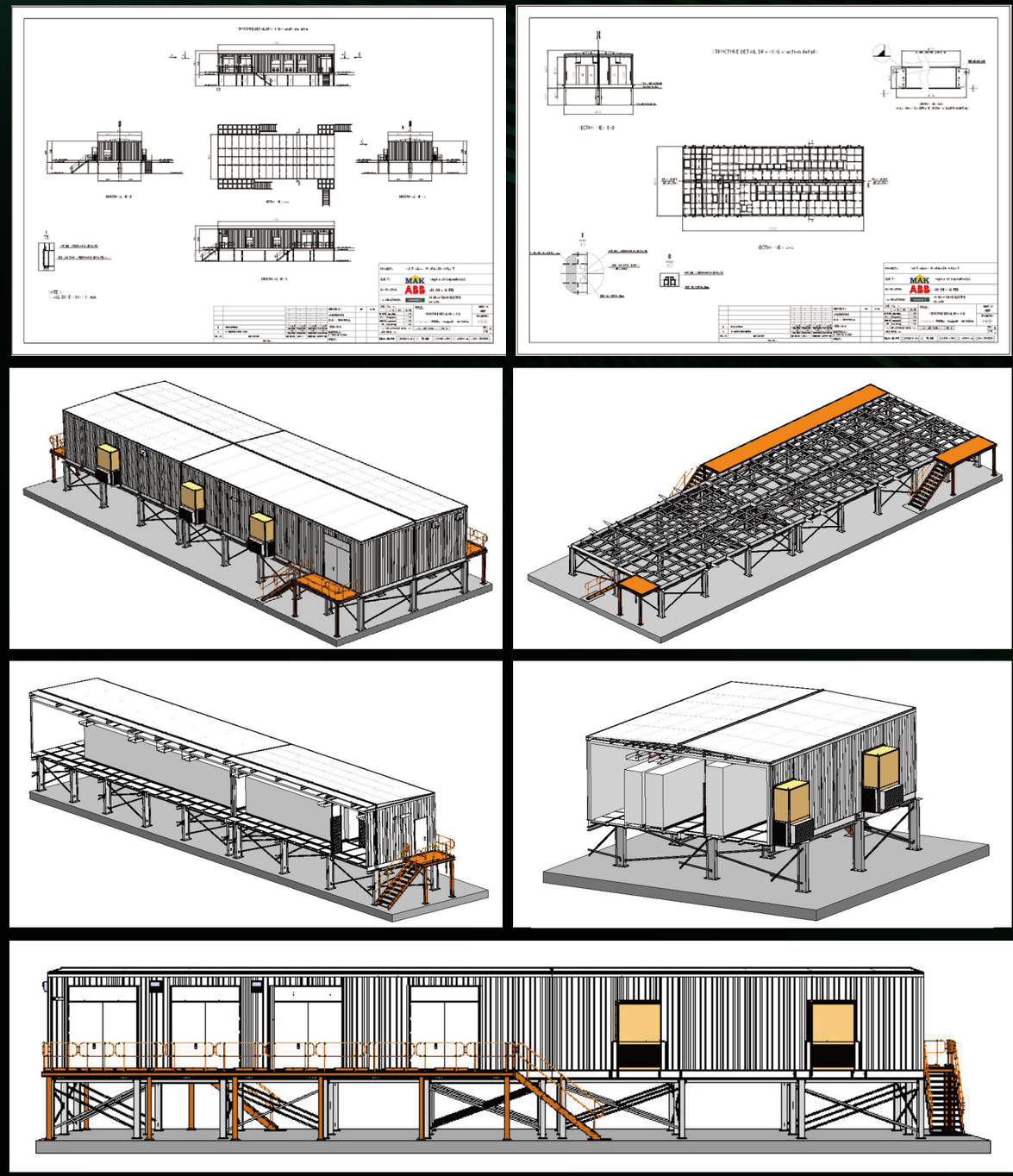


Certificates

MONGOLIA MAK PREFABRICATED SUBSTATION

STANDARD:
EN 1993 SERIES\AISC 360

- The design of the E-house structure follow the EN1993 series or AISC 360.
- Professional simulation software simulates real scenes and calculation.
- The structural strength meets the requirement of earthquake resistance, snow load, wind resistance, etc.



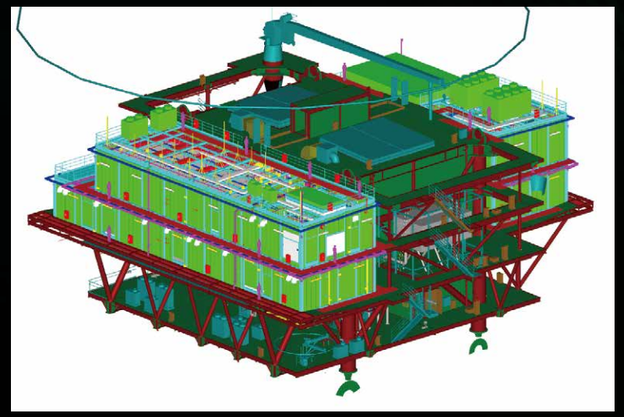
Drawings

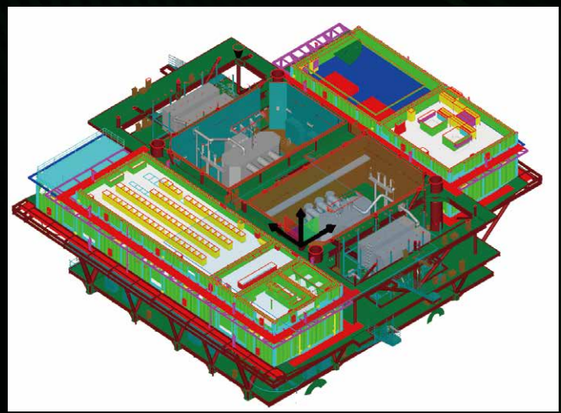
CHINA 220/35KV OFF-SHORE PREFABRICATED SUBSTATION

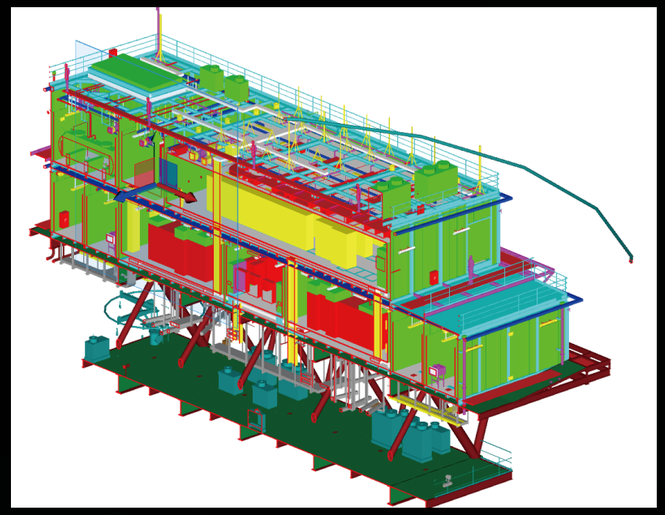
STANDARD:
EN 1993 SERIES\AISC 360

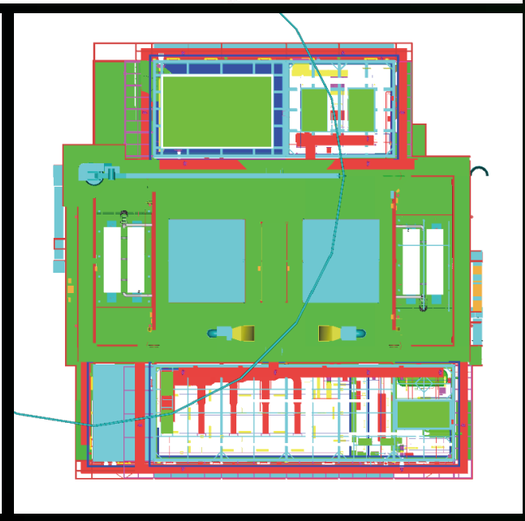
- The design of the E-house structure follow the EN1993 series or AISC 360.
- Professional simulation software simulates real scenes and calculation.
- The structural strength meets the requirement of earthquake resistance, snow load, wind resistance, etc.

Drawings









3D Rendering