Dawn of Energy: Renewable, Reliable & Redefined

Power Transmission & Distribution Solutions for Utility & Renewable

Power EPC Solutions - Introduction
Dawnergy is an affiliated company of CHINT Power. Together with CHINT Electric, SIDRI Engineering and HEPSEC, Dawnergy provides EPC services for substations, transmission lines and power generation projects through the processes of design, supply, construction, installation, testing and commissioning. Apart from EPC services, Dawnergy and its partners, with global presence in over 120 countries, also engage in providing safe, reliable and efficient power transmission and distribution equipment. An example that can best illustrate this is the simple fact that CHINT has 5 manufacturing business units, 900,000 m2 manufacturing facilities and over 4000 employees in Shanghai.

The manufacturing knowledge of Dawnergy and its partners enables us to stand out from other power EPC companies. We manufacture the complete range of equipment, namely for high voltage power transmission and distribution, low voltage distribution and solar energy. Partly thanks to its easy access to CHINT Group’s manufacturing knowledge and expertise, Dawnergy Engineering offers our customers with the most economical, environment-friendly, well performing and socially acceptable solutions.

Up to now, we have already executed quite a number of EPC projects successfully not only in China but also globally, such as in Tanzania, D.R. Congo, Uganda, Kenya, Angola, Nepal, Pakistan, Cambodia, Kyrgyzstan, Zambia and Zimbabwe.
Engineering Capabilities: Partnership with SIDRI

Proven Expertise and Experience in Offering the Most Cost-Effective, Environment-Friendly, Well Performing and Socially Acceptable Solutions

We apply cutting-edge technologies in our EPC services based on our pursuit of innovations and excellence, which is best shown in engineering. With our experienced multi-disciplinary design engineers, streamlined engineering process from concept to completion and technologically advanced engineering methods, we offer customers optimal designs and advices that can reduce cost and increase reliability.

To further strengthen this advantage, we have also come into strategic cooperation with SIDRI (Shanghai Investigation Design & Research Institute Co., Ltd., please refer to www.sidri.com for more information), one of the key subsidiaries of China Three Gorges Corporation.

Engineering Scope

- Concept & basic design
- System configuration
- General Layout
- Current transformer/Voltage transformer calculation
- AC/DC capacity calculation
- AC/DC circuit design
- Earthing system calculation & plan
- Lightning protection calculation
- Cable calculation
- Short circuit current calculation
- Short circuit force calculation
- Protection relay setting calculation
- Cable diagram & schedule
- Steel gantry structure calculation
- Steel support structure calculation
- Installation drawing design
- Civil foundation design
- Construction drawing design
- Installation and operation maintenance manual
- Site inspection and testing procedure manual
- As built drawings
Optimum Solution Proposal

### Site Survey
- Site selection
- Interface structure determination
- Connected equipment investigation

### Conceptual Design
- Insulation coordination
- Current transformer calculation
- Battery calculation
- Cable size calculation

### Economic Evaluation
- Capacity estimation
- AIS/GIS type selection (comparison & analysis)
- System efficiency improvement

### System Analysis
- Load flow calculation
- Short circuit calculation
- Stability analysis
- Harmonic analysis
- Voltage drop analysis
- System surge analysis

#### Detailed Designing Process

- **Contract Document Inspection**
  - Study of lightning/switching surge
  - Study of insulation coordination

- **Engineering Schedule**
  - Schedule detail organization
  - Resource arrangement

- **Engineering**
  - Grounding calculation
  - Conductor sizing calculation
  - Current transformer calculation
  - Steel structure calculation
  - Battery/charger calculation
  - Cable sizing calculation
  - Relay setting
  - Cable support calculation
  - Installation drawing
  - Foundation drawing
  - Building drawing

- **Outsourcing & Manufacturing**
- **Approval Document**
- **Equipment Inspection**
  - Testing
  - Acceptance Check
- **As-Built Drawing**
Procurement & Manufacturing: Big Strength

For Dawnergy, one big strength is that CHINT related factories manufacture power transmission & distribution equipment such as power transformers, GIS, HV SFs circuit breakers, disconnectors, VCBs, MV/LV switchgear panels, surge arresters, insulators, CT & PT, cables & wires, capacitors, power protection & automation equipment and prefabricated substations; solar energy products such as PV cells, PV modules, inverters, monitoring system; and low voltage distribution electrical products such as MCBs, MCCBs, ACBs, contactors, fuses, etc. Our products have been widely used in various industries around the world.
Power Transmission & Distribution Product Portfolio

- Power transformer up to 765kV
- Distribution transformer up to 35 kV
- Dry-type transformer up to 35 kV
- GIS up to 252kV
- HV circuit breaker & disconnector up to 252kV
- VCB 12-40.5kV
- MV/LV switchgear panel up to 40.5kV
- Surge arrester & insulator up to 500 kV
- CT & PT up to 230 kV
- Power distribution automation system
- Cable up to 36 kV
- Capacitor & capacitor bank
- Prefabricated substation up to 40.5kV
Construction & Civil Work: Long-term Partners

The construction capability of Dawnergy and its partners such as CHINT Electric and HEPSEC supports the mission of safely and effectively delivering every turnkey project. This capability lies in our global business network, global construction partner resources and extensive experience with local culture, regulations and laws. There are two things that we always put in the first: safety and minimum impact on the environment throughout the whole process. In addition, social responsibility is actively honored.

HEPSEC (Hydro Electric Power System Engineering Company, please visit www.hepsec.com for more information) is a core construction business unit of POWERCHINA, one of the leading EPC, FEPC, BOT, BT providers in power generation, transmission lines, hydro and other renewable sectors at the global level.
Dawnergy & Partners Power T & D Solutions

Solutions consist of transmission & distribution equipment, power control systems, etc. They are widely used in power generation, power grid, civil infrastructure, energy industry, etc.

220kV Dodoma Substation, Tanzania, 220kV Shikapur Substation Pakistan, 220kV SMCO Substation, D.R.Congo

Dawnergy PV System Solution

- Providing all equipment for PV power stations.
- Improving system efficiency by 2-10%.
- Whole industrial-scale advantage to ensure system stability and efficiency.
- Providing one-stop EPC services.

- 20MW Golmud PV Power Station - China
- 60MW Shanxi PV Power Station - China
- 100MW Ningxia PV Power Station - China
Business Scope

Dawnergy & CHINT Electric focus on providing EPC services for substations & transmission lines of up to 500kV, new energy & conventional energy power plants, power supply systems of oil, gas & chemical industry, mining & metallurgy industry and commercial & civil construction industry.

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Power Transmission & Distribution  (1)

1. 220kV Rohri Substation, Pakistan
2. 220kV Shikarpur Substation, Pakistan
3. 220kV SMCO-RC Transmission Line, D.R. Congo
4. 220kV SMCO Substation, D.R. Congo
5. 220kV Mbeya Substation, Tanzania
Power Transmission & Distribution (2)

1. 220kV Dodoma Substation, Tanzania
2. 220kV Singida Substation, Tanzania
3. 33kV Tanga Substation, Tanzania
4. 33kV TOL Substation, Tanzania
Power Transmission & Distribution (3)

1. 220kV Inner Mongolia Power - Transmission Project, China
2. 110kV Shanxi Xishan Heping Bay Substation, China
3. 110kV Shanxi Lin City Transmission Line, China
4. 110kV Henan Dengfeng Substation, China

1. 110kV Fangda Carbon Substation, China
2. 110kV Mudanjiang Automotive Factory Substation, China
3. 110kV Inner Mongolia Erdos Huatai Car Factory Substation, China
4. 35kV Inner Mongolia Huhehusu Substation, China
Power Generation Projects (Renewable and Conventional)

1. 100MW Ningxia Shizuishan PV Power Station, China
2. 60MW PV Power Station, Shanxi, China
3. 100MW Jiangsu Huadian Guanyun Wind Power Plant, China
4. 2MW Hangzhou Energy and Environment Industrial Park Rooftop PV System, China
5. 1MW PV Power Station, Kazakhstan
6. 220kV Step-up Switchyard, Heibongjiang Thermal Power Plant, China
Oil, Gas & Chemical Industry Projects

1. 110kV Mudanjiang Rida Chemical Transmission Line, China
2. 110kV Mudanjiang Rida Chemical Substation, China
3. 35kV Saint Gobain Mudanjiang Substation, China
4. 10kV Distribution Station, SINOPEC Shengli Oilfield, China
5. 10kV Distribution Station, CNPC Daqing Oilfield, China
Mining & Metallurgy Industry Projects

1 110kV Yunnan Mining GIS Substation, China
2 110kV Hainan Steel Company Substation, China
3 110kV Yunnan Haolong Ciyuan Cement Plant Substation, China
4 110kV Inner Mongolia Tongmei Selian Substation, China
Civil Infrastructure Industry Projects

1. 10kV & LV Distribution Station, Shanghai World Expo 2010, China
2. 10kV Distribution Station, Beijing Olympic Games 2008, China
3. 10kV & LV Distribution Stations, National Hospital & National Health Center, Angola
4. 10kV Distribution Station, Beijing Capital International Airport, China
More Projects

**Overseas Market**

- 500kV Moro Substation, Pakistan
- 245kV Capacitor Bank Project, Kenya
- 230kV Awash-kilo & 132kV Asossa Substation, Ethiopia
- 220kV Rohri Substation, Pakistan
- 220kV Shikarpur Substation, Pakistan
- 220kV Mbeya Substation, Tanzania
- 220kV Dodoma Substation, Tanzania
- 220kV Arusha Substation, Tanzania
- 220kV Singd Substation, Tanzania
- 220kV RC-SMCO Transmission Line Project, D. R. Congo
- 220kV SMCO Substation, D.R.Congo
- 132kV Mendi Substation, Ethiopia
- 132kV Atlanta Substation, Zimbabwe
- 132kV Pomona Substation, Zimbabwe
- 132kV Stanford Substation, Zimbabwe
- 132kV Gweru Substation, Zimbabwe
- 132kV Zwishavane Substation, Zimbabwe
- 132kV Marvel Substation, Zimbabwe
- 110kV Zhongda Petrol Company Substation, Kyrgyzstan
- 88kV Norton Substation, Zimbabwe
- 88kV Mpopoma Substation, Zimbabwe
- 88kV Criterion Substation, Zimbabwe
- 88kV Mazowe Substation, Zimbabwe
- 88kV Sherwood Substation, Zimbabwe
- 88kV Victoria Falls Substation, Zimbabwe
- 88kV Redcliff Substation, Zimbabwe
- 66kV Chambishi Capacitor Bank Project, Zambia
- 33kV Baniyani Substation, Nepal
- 33kV Dhanushadham Substation, Nepal
- 33kV Paraub Substation, Nepal
- 33kV Barhathawa Substation, Nepal
- 11kV Kitwe & Luano Capacitor Bank Project, Zambia
- 10kV Shitulu Distribution Station, D.R.Congo

More>>>

**Domestic Market**

- 110kV Fangda Carbon Substation
- 110kV Hunan Huaihua Substation
- 110kV Xishan Coal Electricity Group Substation
- 110kV Heilongjiang Chemical Company Substation
- 110kV Inner Mongolia Jilinqing–Selian Transmission Line
- 110kV Inner Mongolia Hawtai Motor Substation
- 110kV Hainan Steel Company Substation
- 110kV Shanxi International Electricity Group Substation
- 110kV Mengzi Mining and Metallurgy Substation
- 110kV Heilongjiang Heihe Habao Cement Company Substation
- 35kV Inner Mongolia Erdos
- 33kV Yidonghongxin Substation

More>>>

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Quality Assurance

Dawnergy & CHINT set up our quality management system under ISO9001 and apply it throughout the production and management process. CHINT also cooperates with top international laboratories for its product evaluation, such as KEMA, CESI, PCT (GOST) and TUV. The quality policy of CHINT is to create a world famous brand and to provide satisfactory products and solutions for customers on a lasting basis. Dawnergy & the partners fully advocate the quality management system and policies in our EPC activities.
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Please note: Specifications subject to update without prior notice.