Automation

Commutation

Teleautomatics

DEPARTMENT “POWER INDUSTRY”

Contents

- Plant SēM ltd
- Systems and equipment for reception and distribution of electric power
  - Automatic Control Systems (ACS)
  - Relay Protection and Automation (RPA)
  - HV, MV and LV equipment
- Package approach
- Service maintenance
- Partners
- Customers
- Reference list
- Contacts

Plant SĒM ltd

- ✓ Established in 1992 on base of All-Union Trust “Hydroelectromontazh” under the name of “Plant Electrobalt”, ltd with further rebranding to “Plant SĒM”, ltd in 2018; Since 2018 “Plant SĒM”, ltd has been presenting Department “Power industry” of SĒM Holding

- ✓ One of the leading and successfully developing associations of electrical distributing and switching equipment manufacturers in North-Western Russia

- ✓ Manufacturing of all range of 0.4 – 110 kV electrical equipment

- ✓ Package approach to providing of equipment supplies

Department «Power Industry»

- **Division of Automatic Control Systems (ACS), teleautomatics (TA)**

- **Division of Relay Protection and Automation (RPA) equipment**

- **Division of high-voltage (HV), medium-voltage (MV) and low-voltage (LV) equipment**

Division of ACS and TA

Designing and manufacturing of ACS, ADCS and TA systems on the base of equipment by world leading manufacturers

Design works on feature determination tasks creation. Equipment feature determination.

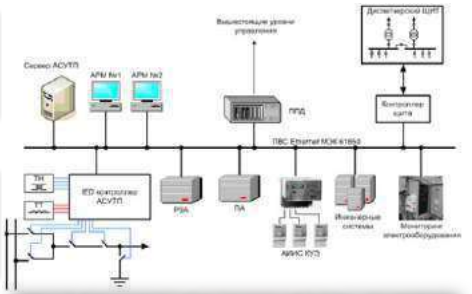
Purchase of components directly from the manufacturers

Package supplies of electrical equipment for any object

Integration of Russian and Foreign manufacturers' equipment for solution of various level tasks

Training of the Customer's personnel on operation of the supplied systems

Installation and set up of equipment at the Customer's sites as well as warranty and post-warranty service of systems

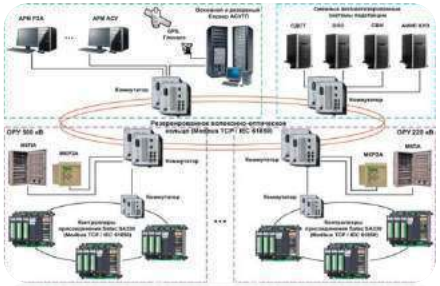


Division of ACS and TA

Collection and initial processing of analog signals

- Collection and initial processing of discrete signals
- Displaying of information on workstations displays
- Automatized control of switching equipment (including by switching blanks)

- Operating interlock of switching devices
- Warning and fault signaling, real-time displaying and recording of the equipment state
- Journaling of operator's major actions (control, shift change) with indication of the date and time of action together with information on user identification



Recording and displaying of events

- Continuous automatic control of the System hardware and software state and functioning;
- Keeping of events and analog signals archives (trends, reports);

- Access authorization and users control (passwords system);
- Parametrizing and accumulation of oscillograms form terminals of MP RPA;
- Results displaying from microprocessing facilities for detection of aerial line damage location;
- Accumulation of information from emergency situations recorders, saving of recorded oscillograms in common archive of APCS;
- Transmission of information to the higher control levels

- ✓ APCS on the base of software MicroSCADA Pro
- ✓ Automated System of Remote Power Sources Metering on the base of software Network Manager
- ✓ ADCS on the base of terminals RTU 560
- ✓ APCS of power plants: Software and Hardware Complex (SHC) System 800xA
- ✓ APCS of power plants: SHC Freelance 800F
- ✓ Automatic Information-and-Measuring System of Commercial Electric Power Metering on the base of "Elster"

Division of ACS and TA

In 2011 company had participated in works on modernization of power unit No 5 of NPP Novovoronezhskaya. By the order of OJSC "DZHET" there were manufactured panels and stands of full-scope unit control board (UCB) simulator that was successfully applied during package emergency response exercises in 2011.

The successful work experience initiated the effective cooperation, so the plant had manufactured full-scope simulator panels and stands for NPP Novovoronezhskaya-2 in 2014.

Division of ACS and TA

The manufacturing of full-scope simulator equipment for power unit No2 and No3 of NPP Smolenskaya by order of OJSC "VNIIAES" were completed in 2013. The retrofit special panels were applied for designing and manufacturing of video-stand and safety panels on base of wide-screen touch displays.

In parallel with execution of this order plant participated in works on modernization of UCB No 2 of NPP Smolenskaya. The process of manufacturing of panels and boards for UCB of Reactor Control Leading Engineer was completed in 2013.

Division of ACS and TA

Full-scope simulator (FSS) for Ruppur NPP (Bangladesh). 2018

FSS for Ruppur NPP was the first project where the ENTIRE instrument cluster of panels and stands, as well as their control system, were developed and produced by our company with the direct participation of our long-term partner - ITC DZET JSC.

The project of the prototype block was based on the project of Novovoronezhskaya NPP-2 and had a similar composition of panels and stands.

However, despite the unprecedentedly tight design deadlines, we refused to use our engineering design from 2013 and created a completely new generation of equipment, using all the accumulated experience.

As a result, we were proud to present a new generation of FSS to customers, which have no analogues in the Russian Federation. The project was completed in 2018.

Division of Relay Protection and Automation equipment

Engineering development and manufacturing of relay protection and automation electrical equipment

Installation and Adjustment supervision

Installation and adjustment of equipment at the Customer's sites

Training on techniques and methods of supplied systems operation

Warranty and post-warranty servicing of the systems

Division of Relay Protection and Automation equipment

RPA systems integration is carried out on the base of microprocessing units by Siemens and ABB – a series of the advanced digital devices of protection and control with open

communication interfaces for remote control and remote setting of parameters, intuitive user's interface and very versatile functional capabilities.

The devices support the wide-spread international open communication standards:

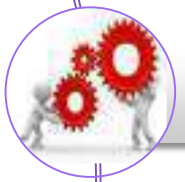
- **PROFIBUS FMS**
- **PROFIBUS DP**
- **IEC60870-5-103**
- **DNP 3.00 Level 2**
- **MODBUS ASCII/RTU**
- **Ethernet connection as per IEC 61850**

- ✓ 750kV power lines protection
- ✓ 500 kV power lines protection
- ✓ 220 – 110 kV power lines protection
- ✓ AT500/220/10 kV and AT220/110/10 kV protection
- ✓ 500-220-110 kV SF6 insulated Cubicle Switchboard and 220-110 kV Section Switch
- ✓ AT 500-220-110 kV bus arrangement protection
- ✓ Automatic equipment and interlocking of switching devices
- ✓ Local automatic protective devices at the substation
- ✓ Series of type cabinets for integration of APCS for electrical part of stations and substations

Division of HV, MV and LV equipment

Engineering development and manufacturing of 110, 35, 6(10) and 0.4 kV electrical equipment

Direct purchasing of components from manufacturers



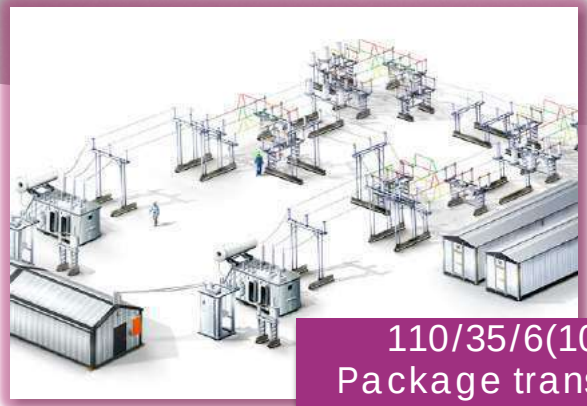
Installation and Adjustment supervision

Installation and adjustment of equipment at the Customer's sites

Training of the Customer's personnel on supplied equipment operation

Warranty and post-warranty servicing

Division of HV, MV and LV equipment



110/35/6(10) kV Package transformer substations

6(10) kV cubicle switchboards (CSB)

Low-voltage package plants

Package approach

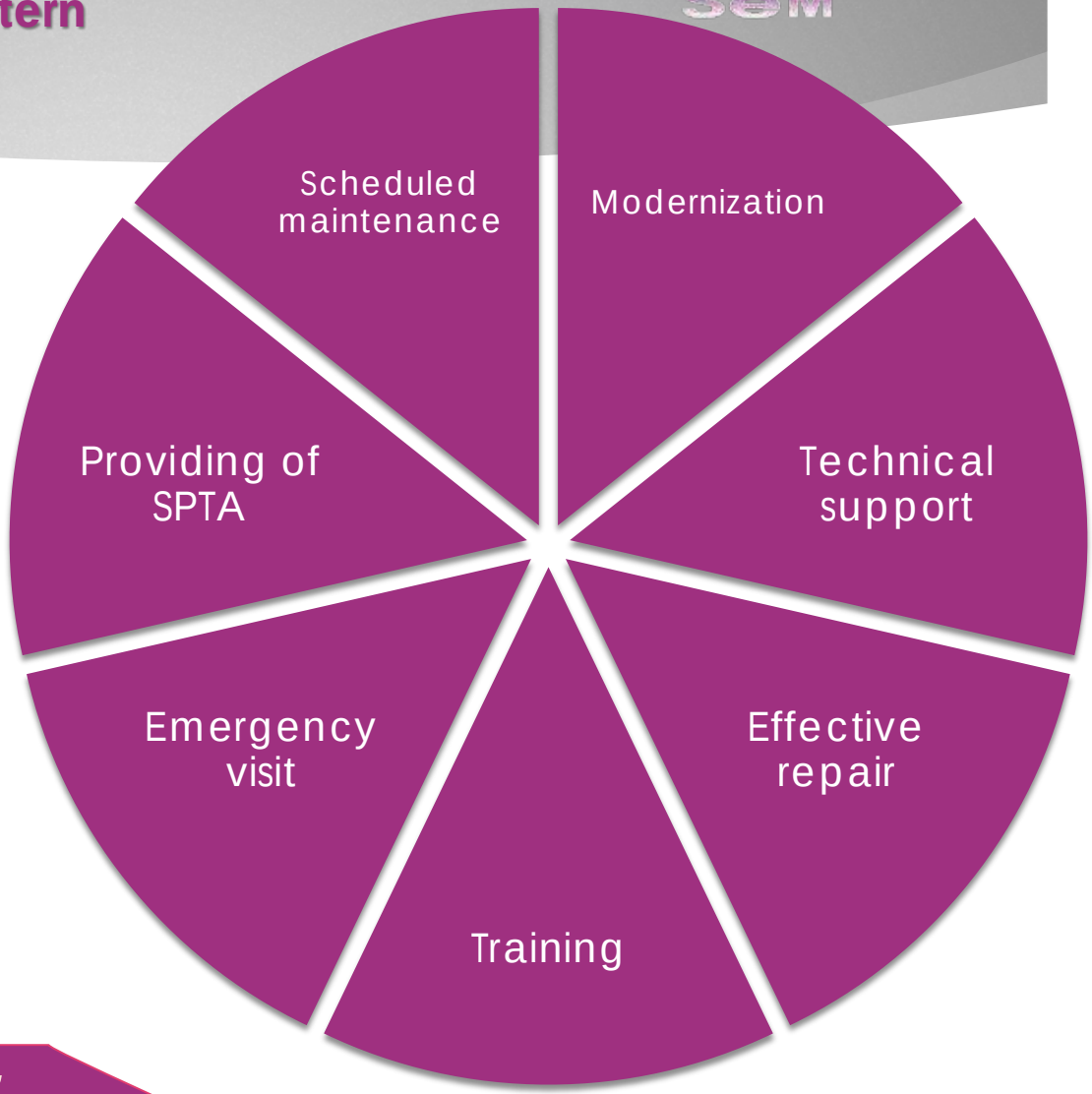
- Consultation
- Development of Engineering project/Design
- Purchase of equipment and components
- Manufacturing
- Erection and set-up
- Testing/Complete integration of the system
- Warranty and post-warranty servicing

Service maintenance

Our Company provides service maintenance to North-Western Region of Russia

Warranty services:

- ✓ Repair and recondition of the failed equipment
- ✓ Diagnostics and elimination of malfunctions
- ✓ Day-and-night support

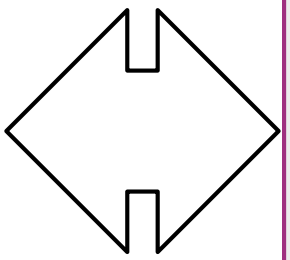


Certificates and Licenses

- ✓ Quality management system is confirmed by certificate of conformity with standard ISO 9001:2015
- ✓ License for the design and manufacture of equipment for NPP, storage facilities for nuclear materials and radioactive substances, storage of radioactive waste
- ✓ All manufactured products undergo all required certification at Russian Standards Public Services

Partners

Cooperation with reputed manufacturers provides unrivalled opportunity to integrate the various electrical facilities manufacturers' equipment that allows to solve different Customer's tasks with optimal quality-price ratio



ABB

Schneider Electric

реле и автоматика

SIEMENS

PHOENIX CONTACT
INSPIRING INNOVATIONS

Klemsan®

Customers

OJSC «TNK-BP»

State Corporation of nuclear power “Rosatom”

OJSC “Oil Company “Lukoil”

OJSC “Gazprom”

PJSC “LENENERGO”

OJSC “Oil Company “Rosneft”

PJSC “ROSSETI”

Reference-list of most significant supplies

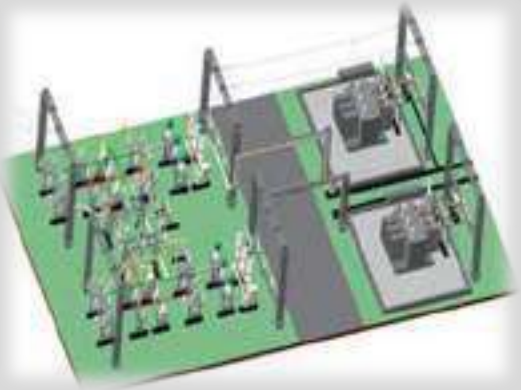
Year	Customer
2010	Reconstruction of 750 kV Outdoor Switchgear for NPP “Leningradskaya”
2010	Supply of package transformer substations of 35/6/0.4 kV for “Kharyaga field” (Total E&P Russia)
2011	Reconstruction of 330 kV Outdoor Switchgear for NPP “Kolskaya”
2011	Supply of cubicle switchboards (CSs) of K-104 series for “Vanjeganskoye field”
2011	Supply of cubicle switchboards (CSs) of K-08C series for Oil Refinery Plant “Tuapse”
2011	Cubicle switchboards (CSs) of K-59 series for OJSC “Chernogorenergo”
2011	Supply of 10 kV cubicle switchboards (CSs) for “Baltijskaya NPP”, power units No1 and No 2
2011-through the present	Supply of 10 kV cubicle switchboards (CSs) for “Novovoronezhskaya NPP2”, power units No1 and No2

Reference-list of most significant supplies

Year	Customer
2013	Supply of low voltage equipment, including draw-out elements for cubicle switchboard (CSs) of 6 kV for «Smolenskaya NPP»
2013	Supply of draw-out elements for 6 kV cubicle switchboards (CSs) for «Kolskaya NPP»
2013	Supply of full-task simulator panels and boards for “Novovoronezhskaya NPP», power unit No1
2013	Supply of package transformer substations of 3/6 kV for «Kolskaya NPP», power units No1 and No2
2014	Supply of low-voltage equipment and facing panels for full-task simulators for «Kolskaya NPP»
2016	Supply of full-task simulator panels and boards, straight and radial control keyboard for «Belorusskaya NPP»
2016	Supply of switchboards and cubicles for A.C. and D.C. currents for «Balakovskaya NPP»
2016	Supply of full-task simulator panels and boards, straight and radial control keyboard for «Smolenskaya NPP»
2018	Supply of 10 kV cubicles switchboards (CSs), packaged modular building for Power Substation 212 (PJSC Lenenergo)

Reference-list of most significant supplies

Year	Customer
2018	Supply of 10 kV cubicles switchboards (CSs) for Power Substantion “Goljanovo”
2018	Supply of 10 kV cubicles switchboards (CSs) for Power Substation “Kupchinskaya” (PJSC Lenenergo)
2018	Full-scope simulator (FSS) for Ruppur NPP (Bangladesh)
2018	Supply of 10 kV cubicles switchboards (CSs) for Power Substation-190 (PJSC Lenenergo)



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