LIMITED LIABILITY COMPANY

NIIEFA-ENERGO

Saint-Petersburg, Russia

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Chairman of the Board
of Directors
Dr. Alexandr Mizintsev

General Director
Andrey Tyurikov

Dear friends!

The development of electrical engineering, electronics and information technologies is the basic element of the technological progress in the Russian Federation.

NIIEFA-ENERGO, LLC is one of the leading suppliers of products, services and integrated solutions utilized for the modernization of key Russian industries. The main area of expertise is power distribution and conversion systems and automation of the processes.

On every process stage we use cutting edge technologies, which ensure high quality of the products and minimize time required to launch new products. We use our best efforts to offer integrated solutions as necessary to satisfy all Customer's requirements. ***In doing so, we always adhere to the company's basic principle: "Supplying high quality equipment of any complexity on a turn-key basis". NIIEFA-ENERGO is a technology partner of quite a few leading global electrotechnical companies*** *and is involved into on-going long-term cooperation programs with research, design and educational institutions, as well as OEM suppliers. Production processes are based on the results obtained during the joint researches, and, therefore, NIIEFA-ENERGO is capable to offer the most up-to-date solutions to its clients.*

Our company is a dynamically developing enterprise. We expand our business in order to become established as strong company, which takes an active part in the modernization of the Russian economy.

We hereby express our appreciation for the confidence and support to all the companies that worked and are still working with NIIEFA-ENERGO.

We are open to a mutually beneficial cooperation and look forward to establishing a long-term fruitful partnership.

A.V. Mizintsev **A. M. Tyurikov**

NIIEFA–ENERGO's administrative and production facilities

NIIEFA–ENERGO, LLC was founded in 2000 based on one of Russia's major scientific research centres, the D.V. Efremov FSUE NIIEFA.

Objectives and tasks: the demands of industry and electric transport for modern electric machinery.

Potential: powerful scientific and technological infrastructure; test centre accredited in the technical skills required for testing electric machinery of low and medium voltage; highly qualified specialists; state-of-the-art equipment; new specialized buildings and sites.

Key areas of operations: conducting a range of research, engineering, design, manufacturing, installation, start-up and adjustment, warranty and maintenance service work for electric machinery of low and medium voltage and high power; package turnkey delivery of electric machinery to supply electricity for electric railways, the oil and gas sector, energy systems, industrial enterprises, municipal facilities, etc. The company's quality management system is certified for compliance with GOST R ISO 9001-2008.

The use of up-to-date of computer-assisted design systems makes it possible to reduce to time required to go from the beginning of the product development to batch manufacturing. All products released have all the necessary certificates and statements of compliance.

Metal workshop

Assembly workshop

MEDIUM VOLTAGE SWITCHGEARS

AC MEDIUM VOLTAGE SWITCHGEARS 6, 10, 20 AND 35 kV

AC switchgears from 6 up to 35 kV are designed for distribution of the electric energy of 3-phase alternating current of industrial frequency in the electrical networks.

The customer can select any of the following switchgears modifications with fixed or withdrawable circuit-breakers.

OMEGA switchgear 6, 10 and 20 kV
(one-side access, indoor installation) with air insulation, complete with withdrawable vacuum circuit-breakers BB/TEL or SION (main circuit current up to 3150 A for 6 and 10 kV, up to 2500 A for 20 kV).

K-199 switchgear from 6 up to 20 kV
(one-side access, indoor installation) with solid and SF6 gas insulation, complete with fixed 3AH vacuum circuit-breakers and three positions disconnectors (main circuit current up to 2500 A).
Manufactured under Siemens OEM-contract.

K-201 switchgear 35 kV
(one-side access, indoor installation) with SF6 gas insulation, complete with fixed 3AH vacuum circuit-breakers and three-position disconnectors (main circuit current up to 4000 A).
Manufactured under Siemens OEM-contract.

AC MEDIUM VOLTAGE SWITCHGEARS 2x25 AND 27.5 kV

AC switchgears 2x25 and 27.5 kV are designed for distribution of the electric energy alternating current 27.5 kV and 2x25 kV at AC railway traction substations.

The customer can select any of the following switchgears modifications with air insulation or SF6 gas insulation.

1S–2x25 kV switchgear
(one-side access, indoor installation) with air insulation, complete with vacuum two-pole circuit-breakers (main circuits current up to 1250 A).

1S–27.5 kV switchgear
(one-side access, indoor installation) with air insulation, complete with vacuum one-pole, two-pole and three-pole circuit-breakers (main circuits current up to 2000 A).

K–200 switchgear 27.5 kV
(one-side access, indoor installation) with SF6 gas insulation, complete with 3AH vacuum circuit-breakers and three-position disconnectors (main circuit current up to 4000 A). Manufactured under Siemens OEM-contract.

DC MEDIUM VOLTAGE SWITCHGEARS UP TO 3.3 kV

DC switchgears up to 3.3 kV are designed for distribution of the electric energy direct current at DC railway, undergrounds, trams and trolleybuses traction substations.

The customer can select any of the following switchgears modifications with fixed or withdrawable circuit-breakers.

KV-3.3 kV switchgear
(one-side access, with reduced dimensions, indoor installation) with air insulation, complete with withdrawable HSCB type VAB-206, Gerapid, UR or IR (main circuit current up to 6300 A).

KV-825 V switchgear
(one-side access, with reduced dimensions, indoor installation) with air insulation, complete with withdrawable HSCB type VAB-206, Gerapid or UR (main circuit current up to 6300 A).

KV-600 V switchgear
(one-side access, with reduced dimensions, indoor installation) with air insulation, complete with withdrawable HSCB type VAB-209, VAB-211 (main circuit current up to 4000 A).

1S-825 V switchgear
(one-side access, with reduced dimensions, indoor installation) with air insulation, complete with fixed HSCB type VAB-206, VAB-49, Gerapid or UR (main circuit current up to 6300 A).

KV–1.65 kV switchgear
(one-side access, with reduced dimensions, indoor installation) with air insulation, complete with withdrawable HSCB type VAB-206, Gerapid or UR (main circuit current up to 4000 A).

RUOSH–600 V switchgear for negative busbars
(one-side access, with reduced dimensions, indoor installation) with air insulation (main circuit current up to 4000 A).

LOW VOLTAGE SWITCHGEARS

Low voltage switchgears are designed for distribution of the electric energy of 3-phase alternating current of industrial frequency up to 1000 V and direct current up to 440 V. Low voltage switchgears are used in all field of energy generation, transmission, distribution in the electrical networks.

The customer can select two version of the following switchgears modifications.

NIIEFA–ENERGO low voltage switchgears
(one-side access, indoor installation), complete with local manufactured circuit-breakers (main circuit AC current up to 2500 A, AC voltage up to 0.66 kV, DC current up to 630 A, DC voltage up to 440 V).

Sivacon 8PT low voltage switchgears
(one- or two-side access, indoor installation), complete with stationary, plug-in or drawout circuit-breakers (main circuit AC current up to 7400 A, AC voltage up to 0.69 kV).
Manufactured under Siemens license.

CONVERTERS

The converters are design to convert alternative current to direct current (rectifiers) or to convert direct current to alternative current (inverters) at traction substations and other customers.

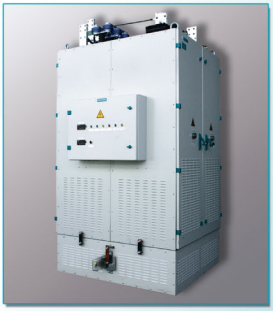
Main types of the converters:

- Rectifiers for railways 3.3 kV.
- Rectifiers for undergrounds 825 V.
- Rectifiers for trams and trolleybuses 600 V.
- Thyristor rectifiers for DC voltage booster units.
- Inverters.

The customer can select converters with one- or two-side access for maintenance, 6- or 12-pulse scheme.

Rectifier for railways
V-MPP-D-1.6k-3.3k-UHL4
Nominal rectified voltage 3.3 kV, rectified current up to 1.6 kA, fan switch on in case of overheat.

Rectifier functional unit for railways
BL-V-MPP-D-3.15k-3.3k-UHL4
Nominal rectified voltage 3.3 kV, rectified current up to 3.15 kA in case of parallel connection of two rectifiers, fan switch on in case of overheat.



Rectifier for railways
V-MPP-D-3.15k-3.3k-UHL4
Nominal rectified voltage 3.3 kV, rectified current up to 3.15 kA, fan switch on in case of overheat.

Inverter for railways
I-P-MP-2.0k-3.8-UHL4
Nominal voltage DC up to 3.8 kV, voltage range from 3.7 up to 3.9 kV, nominal current 2.0 kA, fan switch on in case of overheat.

Rectifier for undergrounds
V-MPP-D-2.5k-825-UHL4
Nominal rectified voltage 825 V, rectified current up to 2.5 kA, fan switch on in case of overheat.

Rectifier for trams and trolleybuses
KV-V-MPPD-2.0k-600-UHL4
Withdrawable diode unit, nominal rectified voltage 600 V, rectified current up to 2.0 kA, fan switch on in case of 50% current of nominal value.

AUTOMATED TELEMECHANICAL CONTROL SYSTEM

Software and hardware components of automated telemechanical control system are design to ensure supervision and control over spaced apart railway power supply facilities or other industrial facilities.

The hardware components can be used with communication channels voice frequency, digital communication channels of any configuration, the base protocol MODBUS, at the request of the customer can be implemented other protocols.

The software is implemented on the basis of specialized SCADA - ASTMU with control and server monitoring and diagnostics.

CONTROL PANELS

Substation control panel
(two-side access, indoor installation) is design for telemechanical and remote control of the substation, collection information from digital smart protection and control terminals.

Disconnectors control panel
(one-side access, indoor installation) is design for remote control of disconnectors and disconnector drive protection.

TELEMECHANICAL CONTROL PANELS

Telemechanical KP–B (TP) panel

Telemechanical KP–M (PS) panel

Telemechanical control panels are designed for existing substations with electromagnetic relays.

DIGITAL SMART PROTECTION AND CONTROL TERMINALS

All digital smart protection and control terminals InTer are full-functional bay terminals and have the following functions:

- All types of bay protection.
- All bay automation functions.
- Bay control (local and remote).
- Measurements of the controlled parameters.
- Emergency events logging.
- Emergency process oscilography.
- Bay diagnostics.
- Self-diagnostics.

Every terminal InTer has control and protection units. The control unit has the buttons for local control of bay's circuit-breaker and disconnector, the lights for indication, the display for indication of the controlled parameters and sets input.

The connection between shunts 600/825/3300 V is made by fiber optic cables to the protection unit of InTer.

Digital smart protection and control terminal DC 3.3 kV for railways
InTer-3.3

Digital smart protection and control terminal AC 27.5 kV for railways
InTer-27.5

Digital smart protection and control terminal DC 825 V for undergrounds
InTer-825

Digital smart protection and control terminal AC 6, 10 or 20 kV for utilities
InTer

Digital smart protection and control terminal DC 600 V for trams and trolleybuses
InTer-600

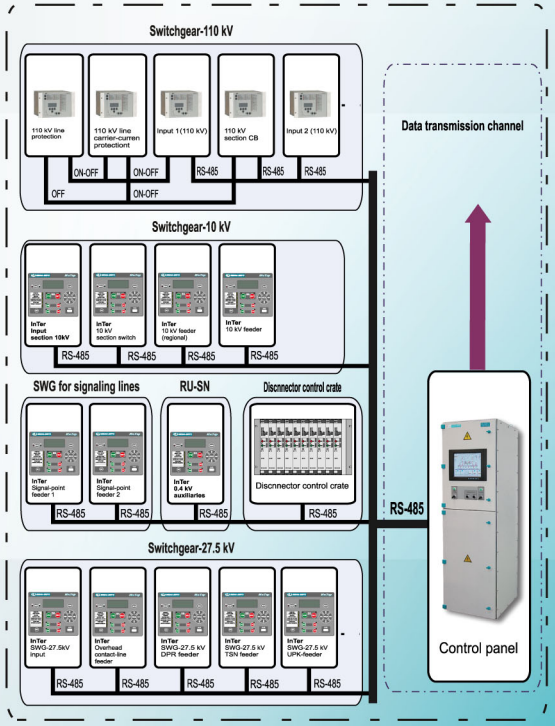
SUBSTATION AUTOMATED TELEMECHANICAL CONTROL SYSTEM

Substation automated telemechanical control system is a distributed two-level system.

Low level of control (level 1) is devices for local control (digital smart protection and control terminal, controllers etc).

High level of control (level 2) is substation overall control.

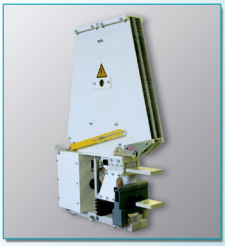
Schematic diagram of ASU TP-RIT using relay automation and protection microprocessor units of a traction step-down substation



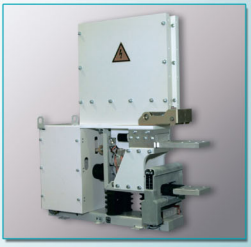
HIGHSPEED DC CIRCUIT-BREAKERS

The high-speed DC circuit-breakers VAB-206, VAB-209 and VAB-211 series, are designed to prevent overcurrent and short-circuits current in the DC circuits of traction substations and linear traction energy devices.

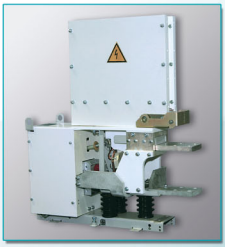
The circuit-breakers may also be used to protect the semiconductor converters, electrical machines and DC lines in industrial installations of various purpose.



HS DC circuit-breaker VAB-206 for railways
Nominal current 4000, 5000 A.
Nominal voltage 3300 V.



HS DC circuit-breaker VAB-206 for undergrounds
Nominal current 4000, 5000, 6300 A.
Nominal voltage 1050 V.



HS DC circuit-breaker VAB-209 for trams and trolleybuses
Nominal current 2500 A.
Nominal voltage 1050 V.

HS DC circuit-breaker VAB-211 for trams and trolleybuses
Nominal current 2000 A.
Nominal voltage 660 V.

SPECIAL DEVICES FOR POWER INCREASE OF AC AND DC ELECTRICAL RAILWAYS

The special devices for power increase of AC electrical railways are design to compensate of catenary voltage drop due consumption reactive power and to compensate voltage drop at inductive resistance of the external (feeding) electrical network.

The special devices for power increase of DC electrical railways are design to increase catenary voltage due using of DC voltage booster units or power transmission via DC high voltage.

AC 27.5 kV filtration and reactive power compensation unit
(indoor or outdoor installation) is designed to reactive power compensation and high harmonic filtration. Usually the unit is switchged between 27.5 kV feeder and the rail. Power of the compensation up to 2.8 MVar.

AC 2x25 and 27.5 kV compensation unit
Voltage compensation up to 6 kV for substation current up to 2.4 kA. Usually the unit is switched parallel to the traction transformer or the AC catenary.

DC voltage booster unit
DC voltage range up to 500 V, nominal current 3.15 kA, AC input voltage 10 or 6 kV.

System for high voltage converter unit
Special converter for transmission additional power to the catenary via DC 6 kV electrical net.

GROUPING POINTS

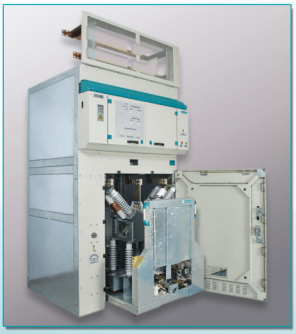
Grouping points PG-M-3.3/27.5 type electrified railways are designed for DC (3.3 kV) or AC (27.5 kV) power supply of the switching sections of the splicing stations overhead contact system.

Modular grouping points are used for newly developed splicing stations, or during reconstruction or replacement of open-type grouping points, whose operating life has expired.

Typical construction of the grouping point:

- Container (module) length 4.8 m.
- Grouping station 3.3/27.5 switch panels 1S-PV series.
- Grouping station protection panel with unit UZSSP-3.3.

Grouping pointcontainer with station protection unit UZSSP-3.3 inside.



Grouping point 3.3/27.5 switch panel 1S-PV series (one-side access, indoor installation) with nominal DC current 1400 A, AC current 1000 A, bar connection.

Depending on the number of outgoing feeders produced three types of grouping points- 6, 9 and 12 feeders. All equipment item grouping point PG-M-3.3/27.5 is located in the 3, 4 or 5 containers (modules).

SECTIONING POINTS AND PARALLEL CONNECTION POINTS

DC 3.3 kV sectioning point PS–3.3–2 Prindeprovskay railway (Ukraine)

Sectioning points are used on the double-track and one-track electric railways for the connection of different sections of catenary sections, as well as for overload current and short circuit protection.

Parallel connection points are used for parallel connection of the catenary of one-track and double-track railways. Parallel connection units ensure the selectivity of the feeder protection.

Main types of the sectioning points:

- For single way railways.
- For two ways railways (possible with bus sectioning or without).

The high-voltage compartment of AC sectioning point PSK–27.5–2

The high-voltage compartment of DC sectioning point PS–3.3–2

UNDERGROUND ELECTRICAL TRACTION NETWORK UNITS

The underground electrical traction network units are designed for distribution of the electric energy direct current 825 V in the underground electrical networks.

Main types of the units:

- Switching point PP-825 V.
- Cable connection panel SHPK-825 V.
- Disconnector fo the third rail panel SHROT-825 V.
- Siding feeder switching point RPPT-825 V.
- Depot feeder switching point PRD-825 V.
- Sectioning point PS-825 V.
- Depot sectioning point PSD-825 V.

Switching point PP-825 V
Indoor or outdoor installation, up to IP55, up to 5000 A.

Cable connection panel SHPK-825 V
Indoor or outdoor installation, up to IP55, up to 5000 A.

Sectioning point PS-825 V
Outdoor installation, up to IP55, up to 4000 A.

Depot feeder switching point PRD-825 V
Outdoor installation, up to IP55, up to 4000 A.

FUNCTIONAL UNITS, MODULES AND SUBSTATIONS

NIIEFA–ENERGO, LLC developed and widely used pre-assembled construction technology of traction substations.

The main elements of the proposed technology are:

- Pre-assembled design of the production.
- Reliable components.
- Digital control system.

Equipment included in the traction substation is divided into functionally and structurally complete enlarged modules, i.e. functional units (FU), that consist of an assembly of panels, components, the primary sensors, microprocessor controllers. All these modules are integrated by the bearing structures, the power current busbars and auxilary circuits.

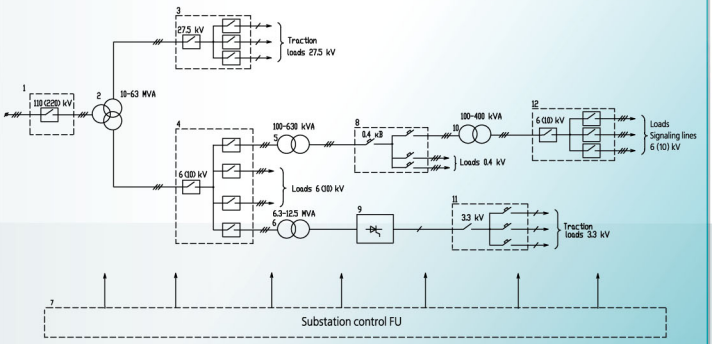
A substation assembling of functional units and modules easily connected with each other, and complete with a set of fabricated busbars and cables for quick electrical connection. Functional modules can be placed in any type of "enclosure": in a tunnel, capital or pre-fabricated building, metal or concrete module.

Technological advantages:

- Improving manufacturing quality and reliability.
- High prefabrication of equipment, including remote control and energy audit.
- Reduction of the time required for commissioning (startup availability – up to 4 weeks after final completion).
- Option for the application of functional units in different combinations depending on the requirements of the project during reconstruction.
- Reduction of time required for and costs of design.
- Ease of installation and assembly of equipment.
- Single supplier, guaranteeing the operation of all subsystems comprising an functional unit or module.

The main product array consists of operational units that aggregate several types of equipment. This technology ensures pre-assembled unit supply of adjusted and factory-tested equipment made as operational and structurally complete units with technical diagnostics devices, and makes it possible to conduct work required for the modernization of operating substations without disconnecting the supply to principal customers.

Separation of the DC and AC equipment installed in railway substation into functional modules



1. FU SWG-110 (220) kV
2. Step-down transformer
3. FU SWG-27.5 kV
4. FU SWG-6 (10) kV
5. Auxiliary transformer
6. Converter (traction) transformer
7. Substation control FU system
8. Low voltage FU
9. Rectifier FU
10. Signaling transformer
11. FU SWG-3.3 kV
12. FU SWG-6 (10) kV for signaling lines

Maintypes of the functional units for DC and AC railway traction substations:

- AC high voltage switchgear 110 (220) kV functional units.
- AC medium voltage switchgear 6 (10), 20 and 35 kV functional units.
- AC medium voltage switchgear 6 (10) kV functional units for signaling lines.
- AC medium voltage switchgear 2x25 and 27.5 kV functional units.
- AC and DC low voltage switchgear functional units.
- Substation control functional units.
- Rectifier functional units.
- DC medium voltage switchgear functional units 3.3 kV.
- Diesel-generator functional units.

DC medium voltage switchgear 3.3 kV functional unit (one-side access, indoor installation) with panels KV-3.3 series or similar. Nominal current up to 6300 A, up to 4 panels per unit.

DC low voltage switchgear functional unit (one-side access, indoor installation) with nominal DC current up to 630 V, nominal DC voltage 220 V.

AC medium voltage switchgear 2x25 kV functional unit (one-side access, indoor installation) with panels 1S-2x25, K-200 series or similar. Nominal current up to 1250 A, up to 3 panels per unit.

AC medium voltage switchgear 35 kV functional unit (one-side access, indoor installation) with panels K-201 series or similar. Nominal current up to 2500 A, up to 6 panels per unit.

The module - is one functional unit in the temperature-controlled container for outdoor installation with heating, lighting, ventilation, fire alarm or fire suppression system. Generally, the modules are made of a metal container length 3.6, 4.8 or 6 m. Overall dimensions of the module allow its transportation by rail on the platform.

Main types of the modules for DC and AC railway traction substations:

- AC medium voltage switchgear 6 (10), 20 and 35 kV modules.
- AC medium voltage switchgear 6 (10) kV modules for signaling lines.
- AC medium voltage switchgear 2x25 and 27.5 kV modules.
- AC and DC low voltage switchgear modules.
- Substation control modules.
- Rectifier modules.
- DC medium voltage switchgear 3,3 kV modules.
- Diesel-generator modules.
- Special modules for railway traction substations (warehouse, workshop etc).

AC medium voltage switchgear 35 kV module
(outdoor installation) with container (module) length 6 and 4.8 m, up to 6 panels per module, cable connections to the panels.

AC medium voltage switchgear 6 (10) kV module
(outdoor installation) with container (module) length 6 and 4.8 m. For container 6 m up to 7 panels Omega series per module, for container 4.8 m up to 5 panels, cable or bars connections to panels. For container 6 m up to 8 panels K-199 series, for container 4.8 m up to 6 panels, cable connections to the panels.

AC medium voltage switchgear 27.5 kV module
(outdoor installation) with container (module) length 6 and 4.8 m, for container 6 m up to 3 panels per module, for container 4.8 m up to 2 panels per module, cable or bars connections to the panels.

Diesel-generator module
(outdoor installation) with container (module) length 6 m. Diesel-generator power 100 kWt (125 kVA). Nominal generator voltage 380/220 V or 220/127 V. With insulated or earthed neutral. Work time up to 24 hours without additional tanking. The fuel tank 800 l. Fuel consumption at 100% load of 29.4 l/h.

It is possible to build the following substations using functional units and modules:

- AC traction substation 27.5 or 2x25 kV.
- DC traction substation 3.3 kV.
- AC-DC traction substation for splicing stations.
- AC transformer substation.

AC traction substation 27.5 kV
Nominal AC input voltage 110 or 220 kV.
Nominal AC voltage primary wiring traction power transformer 110 or 220 kV.
Nominal AC voltage outgoing traction feeders 2x25 kV.

DC traction substation 3.3 kV
Nominal AC input voltage 6, 10, 35, 110 or 220 kV.
Nominal AC voltage 50 Hz primary wiring rectifier power transformer 6, 10 or 35 kV.
Nominal DC voltage outgoing traction feeders 3.3 kV.

TURNKEY CONSTRUCTION OF ELECTRICITY SUPPLY FACILITIES

NIIEFA–ENERGO, LLC is a modern enterprise, the powerful potential of which are: hi-tech equipment, qualified personnel, advanced methods of production management, all of this allows for a comprehensive supply of "turnkey" electrical equipment (including Automated Process Control and Relay Protection and Automation Systems) for the power supply of industrial enterprises, electrified transport, oil and gas, energy systems, urban planning and other objects

As a rule, the substation is constructed of functional units, easily mechanically joined together with a set of fabricated busbars and cables for quick connection. Function units can be placed in any "shell": a metal or concrete container (module) in capital or pre-fabricated buildings.

We performs the entire range of work:

- Research.
- Engineering.
- Design.
- Manufacturing.
- Equipment delivery to the Customer.
- Full range of assembly and start-up and adjustment works.
- Service support.

Delivery of "turnkey" allow customers in the construction of electric power facilities have a supplier who is responsible for the entire range of activities to its commissioning and warranty and does not deal with issues splicing equipment from different manufacturers.

DESIGN OF ELECTRICITY SUPPLY FACILITIES WITH VOLTAGE UP TO 220 kV

The company performs work involved in designing traction and step-down substations with primary voltage of up to 220 kV. The enterprise is a member of non-commercial partnership of the Baltic Association of Designers self-regulatory organization; it has a competency certificate for certain types of works that affect the safety of capital construction projects.

Types of works performed:

- Main circuit design.
- Architectural and building aspects.
- Electric machinery and electric mains location plan.
- Installation of electric machinery.
- Power grounding and lightning protection.
- Relay protection and automation (including coincidence circuits and feature determination tables for shutdown terminals).
- Automated Process Control Systems.
- Heating and ventilation.
- Lighting.
- Fire alarm systems.
- Other electrical engineering work (ventilation and fire-fighting automatic systems, etc.).
- Optional equipment assignments for plants.

In working as general designer, NIIEFA-ENERGO uses external subcontracting for the following work:

- Engineering survey.
- Design of overhead and cable lines.
- Water supply and drainage.
- Master plan and transport.
- Other special sections (environmental protection, electromagnetic compatibility, etc.).

INSTALLATION, COMMISSIONING AND MAINTENANCE

NIIEFA-ENERGO, LLC performs the full range of installation work for electric machinery manufactured both by the company and by other producers. The enterprise is a member of non-commercial partnership of the Interregional Association of Railway Construction Organizations self-regulatory organization; it has a competency certificate for certain types of work that affect safety of capital construction projects.

NIIEFA-ENERGO has everything necessary for high-quality performance of electric machinery installation work-tools, technological and installation equipment, equipment for electrical measurement and testing, and devices for relay protection and automation circuit adjustment.

Types of installation work performed:

- Assembly and disassembly of transformer stations and line electric machinery with voltage of up to 35 kV.
- Assembly and disassembly of transformer stations and line electric machinery with voltage exceeding 35 kV.
- Assembly and disassembly of infrastructure facilities of railway, underground and urban electrical transport.

Installation works the "Gornaya" AC traction substation (auto- and railroad Adler – resort "Alpika-Servis")

Installation works at the "Osinovaya Roscha-2" 110/10/10 kV substation (Saint-Petersburg)

Installation supervision at the "Vokhtoga" AC traction substation of the Severnaya railways

Types of start-up and adjustment work performed:

- Start-up and adjustment of supply and measurement transformers.
- Start-up and adjustment of switching units.
- Start-up and adjustment of relays.
- Start-up and adjustment of automation and electricity supply.
- Start-up and adjustment of voltage system and control current.
- Start-up and adjustment of off-line debugging of systems.
- Start-up and adjustment of remote control devices.

CERTIFICATION OR DECLARATION OF ELECTRO TECHNICAL PRODUCTION

A powerful research centre has been established at for the purposes of product certification and (or) declaration and various types of tests, including research.

Types of work performed for product certification and (or) declaration:

- Product certification in GOST R, RS FZhT certification systems.
- Receipt of Rostekhnadzor's permit for release and application of products for hazardous production facilities.
- Receipt of exemption letters for products not subject to mandatory certification.
- Inscription of changes to the State Register.
- Conducting interdepartmental commission with Customer.
- Conducting proof tests – certification, qualification, acceptance, standard and regular ones.
- Conducting acceptance tests.
- Calibration work.
- Research and development.

Test Centre

TRAINING THE CUSTOMER'S STAFF

The specialists of NIIEFA-ENERGO, LLC provide training for the Customer's staff in operation and maintenance of products manufactured by the enterprise. Training may be provided with day release at manufacturing factory's premises or without discontinuing work in the course of performance of installation and start-up and adjustment at the Customer's facilities. The timeframe and programme of the training are subject to the Customer's approval.

The training includes:

- Academic education.
- Study of process charts and operation manuals.
- Maintenance and repair skills training.

If a contract for product delivery has been concluded with the Customer, the training is provided free of charge.

The efficiency of the company's business is to a great extent dependent on the HR policies. The main principles of these policies are: to create and develop corporate traditions, to select optimum balance between ethical and material incentives. We put significant efforts into education and technical training of young specialists and provide student laboratories with state-of-the-art equipment. Experts of NIIEFA-ENERGO, LLC give lectures in universities, and manage diploma and mid-term engineering works.

Our company invites external professionals, who are looking forward to get involved into challenging and interesting projects and provide them with professional training in Russian and foreign companies and training centers.

NIIEFA–ENERGO, LLC has established training centre for electrical specialists.

Practical training at the simulation traction substation in PGUPS (Saint–Petersburg)

Open the traction substation for education in PGUPS with NIIEFA–ENERGO products (Saint–Petersburg)

Training of NIIEFA–ENERGO personnel
Lecturer: Dr. L.A. German, professor chair Electricity supply Nizhniy Novogorod branch of MIIT (Saint-Petersburg)

Training of NIIEFA–ENERGO specialists at Siemens factory (Germany)

NIIEFA-ENERGO, LLC takes part in international exhibitions: "EXPO 1520", "Energy and electrical equipment", "Electro", "Ros-Gas-Expo", "Innoprom", "ExpoCityTrans", "Exporail", Kazan trade fair "Energy sector. Efficient use of resources". The company was awarded with diplomas and medals for the development of new products, as well as for huge contribution to the electrical industry. The company takes active part in conferences and symposiums: "Eltrans", "State-of-the-art automation systems and tools", "Russian electrical grids", "Electrical equipment" etc. We publish research and technical articles and information and ad materials in different specialized publications (e.g. "Global railways", "Metro-invest", "Russian Railways partner" magazines etc), in conference and symposium papers. Our company also holds industry network seminars and scientific and technical conferences.

NIIEFA-ENERGO at the fair "EXPO-1520" (Scherbinka, Moscow)

NIIEFA-ENERGO show-room (Saint-Petersburg)

Joint Scientific Conference "New technologies and equipment of traction power supply urban electric transport. Trends in the development of light rail transpot in Russia and the CIS" (NIIEFA-ENERGO, Saint-Petersburg)

Travelling seminar "Nowadays technology of traction substation design, construction and reconstruction" for managers of electrical power supply services of the Ukrainian railways

Our company uses a complex approach to knowledge-intensive tasks in order to fully satisfy Customer's requirements made and, therefore implement fundamentally new projects to address the needs of different customers: i.e. railway and municipal electrified transport, metro service, Russian energy complex, industrial plants and municipal facilities.

Nowadays, **NIIEFA–ENERGO, LLC** is on the verge of further development milestone. The company invests huge funds into the development of new types of equipment as well as the production base development. The accumulated experience of the electrical equipment development, growing personnel and scientific potential make it possible for our company to develop new products and offer to Customer the latest design and technical solutions.

Reconstruction of the "Luzhaika" DC traction substation of the Oktyabrskay railways

Electrical room of the "Leypysuo" DC traction substation of the Oktyabrskaya railways

"Osinovaya Roscha–2" PS 110/10/10 kV substation (Saint–Petersburg)

"Bulak" AC traction substation of the Zabaykalskaya railways for 2x25 kV voltage

PP–825 V switchingpoint at the "Dostoevskaya" metro station (Moscow)

"Volkovskaya" DC traction underground substation (Saint–Petersburg)

NIIEFA-ENERGO

Doroga na Metallostroy, 3, build.2
Promzona "Metallostroy"
Metallostroy, St. Petersburg
196641, Russia
http://www.nfenergo.ru

Phone: +7 (812) 464-65-93
+7 (812) 464-45-92
Fax: +7 (812) 464-46-34
E-mail: info@nfenergo.ru

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