NEC NATIONAL ENERGY COMPANY

Industrial solutions of the NEC Group

nec.pro

About us

The NEC Group (National Energy Company JSC) is an association of technology companies that manufacture innovative Russian products and provide services for the electric power and industrial sectors

NEC in figures

> 168,000 m²

Total production area

95 bln rubles

Total revenue

> 4,500 people

Number of personnel

Unified

Science and Technology Center
More than 50 innovations

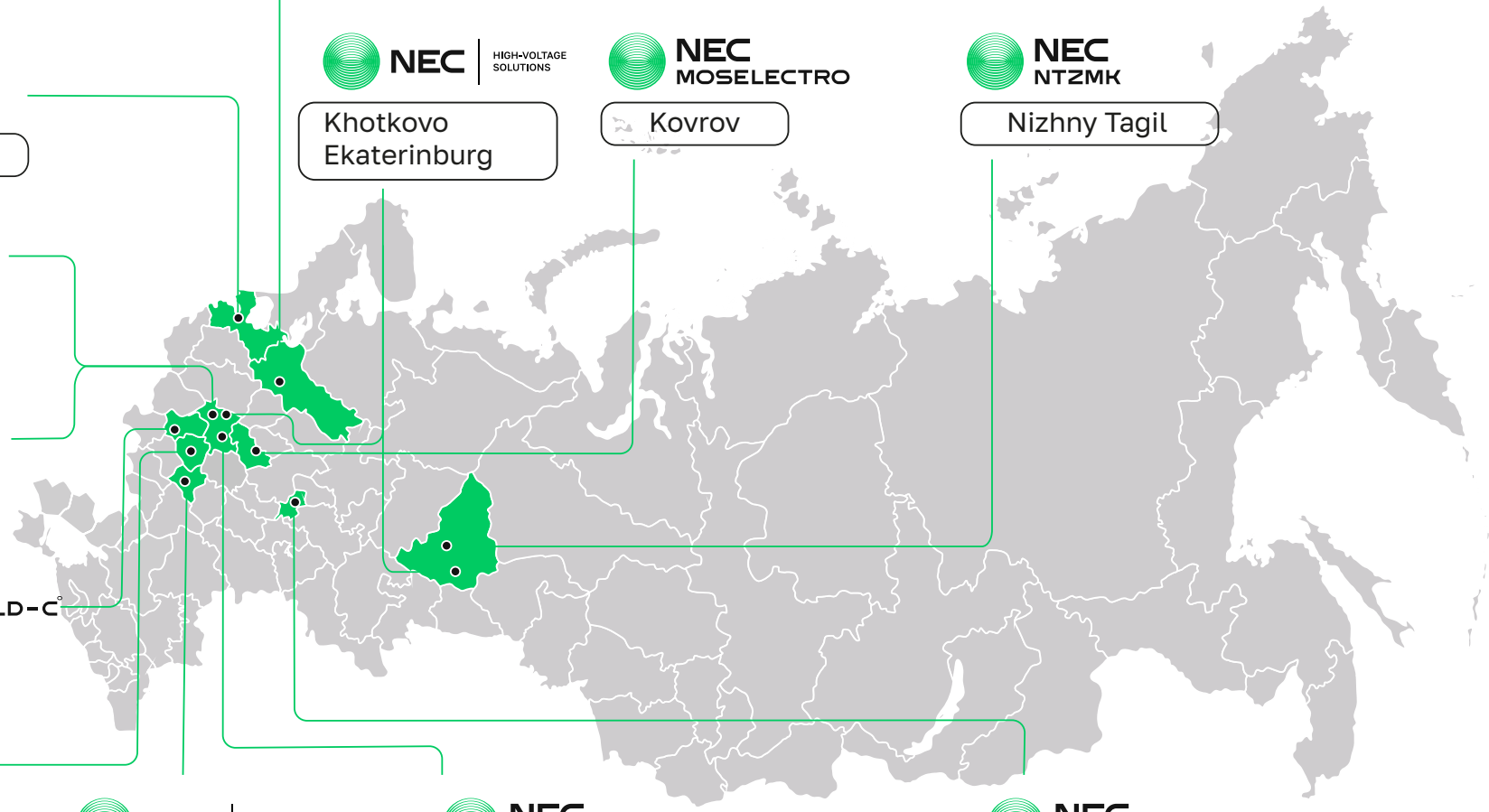
Our goals

- Technological autonomy of Russia through the development and localization of complex products
- Development of modern engineering school traditions and competence centers in different regions of the country
- Leadership in key areas and competitive entry into international markets
- Full provision of power facilities with high-quality machinery manufactured in house

Map of assets

NEC NATIONAL ENERGY COMPANY

10 regions of location



NEC NARTIS
Cherepovets

NEC.TECH
Saint-Petersburg

NEC
Moscow

NEC INCONTROL
Moscow

NEC ELECTROSHIELD-C
Babynino
Kaluga region

NEC ENHIM
Uzlovaya
Tula region

NEC HIGH-VOLTAGE SOLUTIONS
Khotkovo
Ekaterinburg

NEC MOSELECTRO
Kovrov

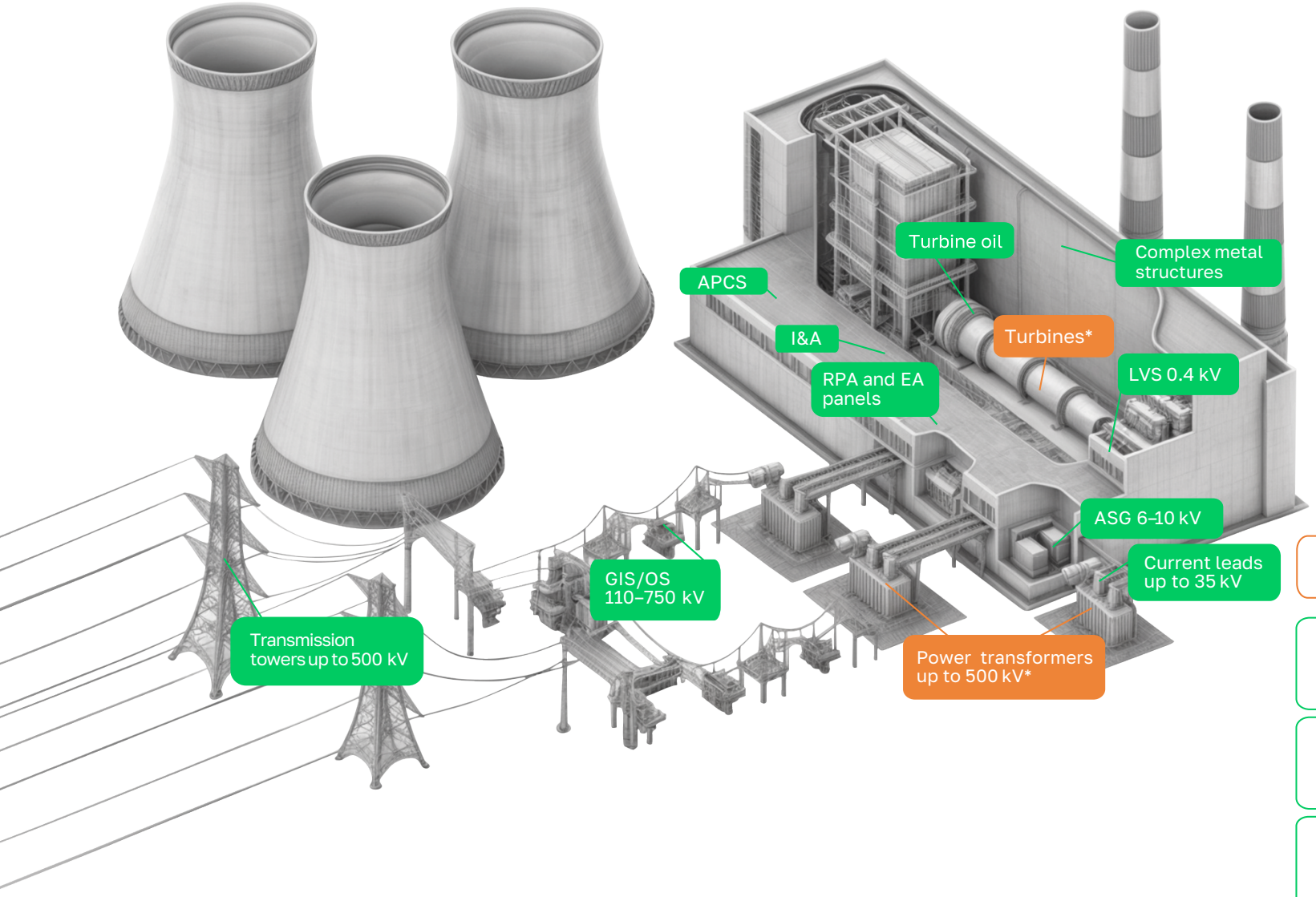
NEC NTZMK
Nizhny Tagil

NEC HIGH-VOLTAGE SOLUTIONS
Gryazi
Lipetsk region

NEC RTC-ELECTRO
Pavlovsky Posad

NEC UNITEL
Cheboksary

Solutions for generation facilities



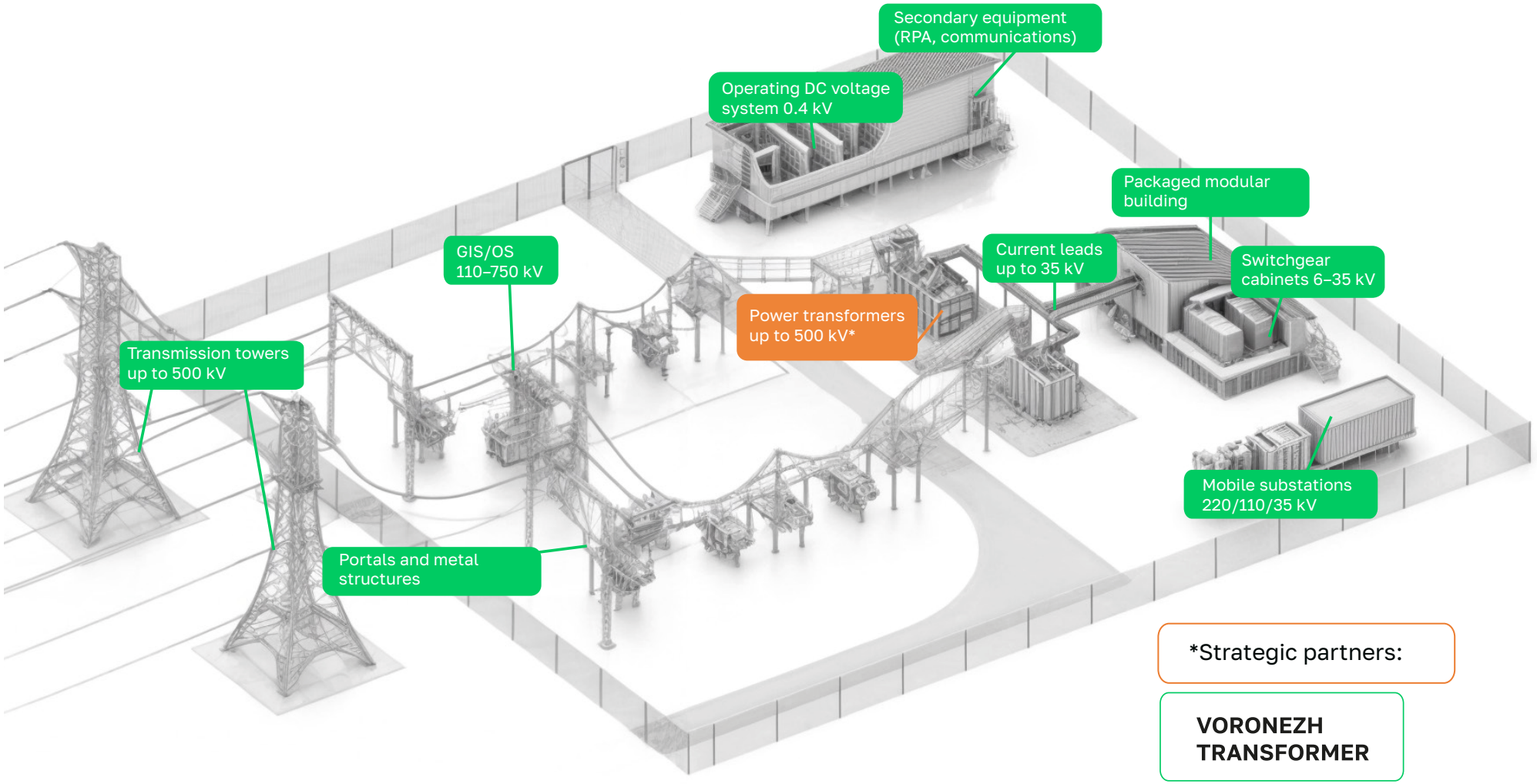
*Strategic partners:

VORONEZH TRANSFORMER

NEVSKY TRANSFORMER

URAL TURBINE WORKS

Solutions for electrical networks

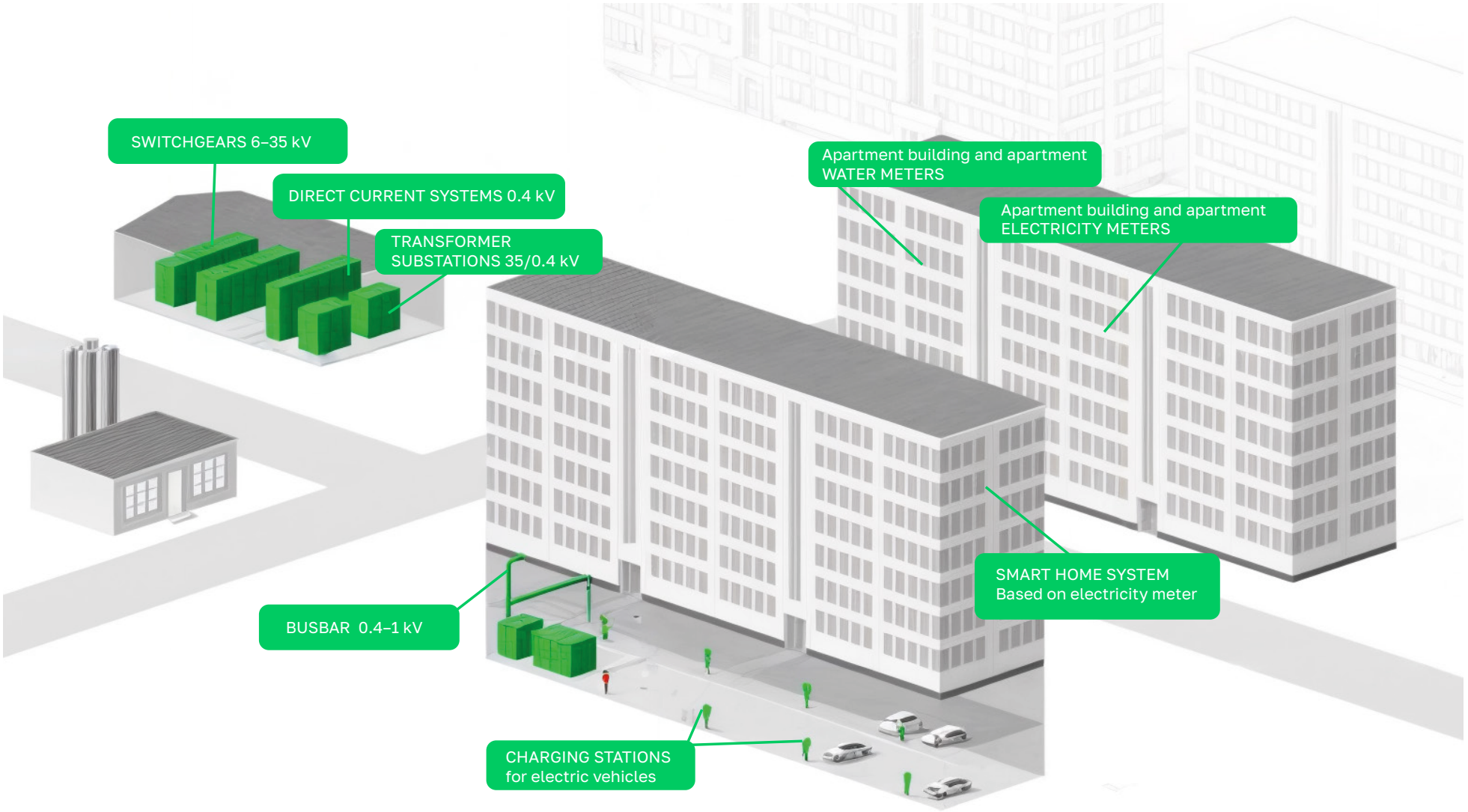


*Strategic partners:

VORONEZH TRANSFORMER

NEVSKY TRANSFORMER

Solutions for urban infrastructure and development



Assets
of the NEC Group

NEC NARTIS

Russian leader in the production of smart metering devices

Date of foundation:
2018

Number of employees:
> 1,000 people

Area:
> 30,000 m²

Production capacity:
2.1 million
meters per year

Activities:

- Production of smart metering devices
- Production of DC and AC charging stations
- Development of its own parts (electronic components)
- Production of water and gas meters

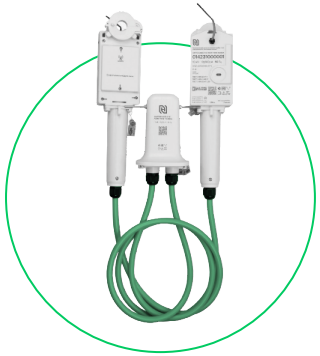


Solutions



Electricity meters

Produced in various modifications, which differ in precision class, maximum current, rated voltage, network connection options



Commercial metering system 6–10 kV

Designed for measuring active and reactive electric energy in both forward and reverse directions and active, reactive and total power



Data acquisition and transmission device with CIPF

Designed for receiving and storing data from electricity meters, energy resources meters and other digital meters of the data measuring system through digital interfaces, for recording discrete signals, and for transferring the received information to higher level computer systems, automated information-metering systems and smart metering systems



DC/AC charging stations

Designed for charging electric vehicle batteries. Produced in various modifications which differ in maximum current, voltage and power ratings, number of connectors



Telemechanics up to 20 kV

The telemechanics system for networks with a voltage of 0.4–20 kV provides remote control of secondary switching circuits of equipment, collection and transmission of commercial metering data and power quality parameters

NEC ELECTROSHIELD-C

Manufacturer of measuring current and voltage transformers up to 750 kV

Date of foundation:
2000

Number of employees:
> 240 people

Area:
> 6,000 m²

Activities:

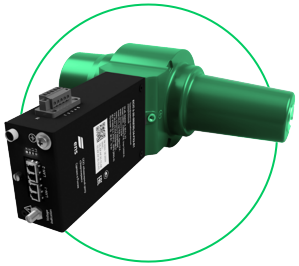
- Development and production of 0.66–750 kV measuring transformers
- Development and production of current and voltage sensors
- Development and production of power transformers



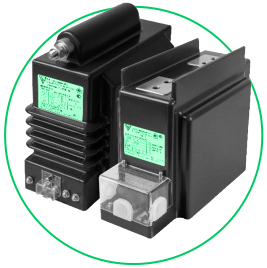
Solutions



Electromagnetic measuring transformers
and current sensors for 6–35 kV switchgear



Combined digital transformers
for 6–35 kV KRU, KRUE



Electromagnetic measuring transformers
for 6–35 kV switchgear, PKU, and reclosers



Low-power power transformers
for voltage classes of 6–10 kV



Outdoor electromagnetic measuring
transformers for ORU-35kV



Electromagnetic measuring transformers
for current busbars and turbo generators
for voltage classes up to 24 kV



Electromagnetic current transformers
for power transformers and high-voltage
switches for voltage classes of 35–750 kV

NEC UNITEL

Production of equipment for automation of substations and power systems

Date of foundation:
2009

Number of employees:
> 500 people

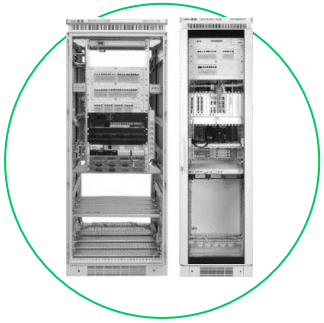
Area:
> 10,000 m²

Activities:

- Integrated solutions for technological networks and communication systems
- Production of PKUS SKO Teleprotection Equipment
- Production of UNIT-AP Arc Protection Device
- Integrated solutions for relay protection and automation, power management and E-SCADA 6–750 kV

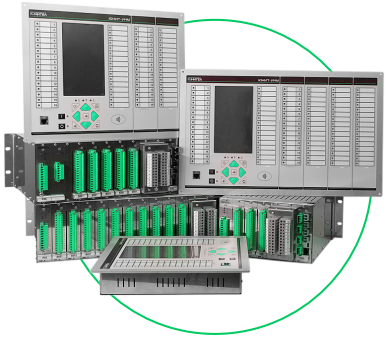


Solutions



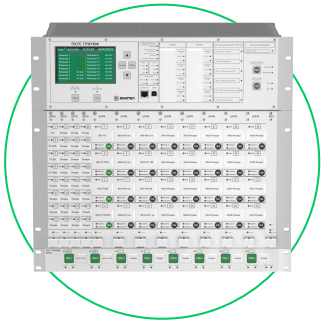
Integrated solutions for technological networks and communication systems

Full cycle of communication systems: from design to production. Development of technological solutions for facilities of any complexity, covering all sections of communication systems



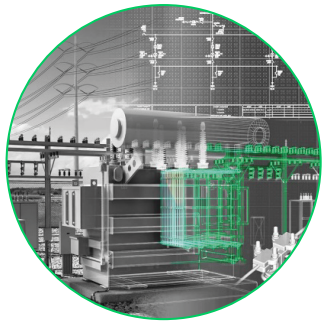
UNIT-AP Arc Protection Device

Serial production of UNIT-AP Arc Protection Device 6–35 kV



PKUS SKO Teleprotection Equipment

Development and production of reliable alarm and command transmission devices



Integrated solutions for relay protection and automation, power management and E-SCADA 6–750 kV

Development of integrated technical solutions for relay protection and automation, power management and E-SCADA for industrial and electric power facilities of voltage classes 6 (10)–750 kV. Equipment manufacturing. Implementation of integrated turnkey projects

NEC INCONTROL

Development, production and implementation of CPCS, information security systems and information-analytical systems

Date of foundation:
1993

Number of employees:
> 400 people

Area:
> 7,000 m²

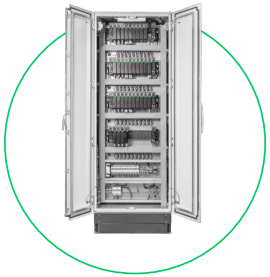
Russian leader
in the development
and implementation
of APCS for power facilities

Activities:

- Turnkey automation of power engineering and industrial facilities, implementation of projects for import substitution of APCS
- Development and production of the INCONT software and hardware system for the creation of APCS and ISS for power and industrial facilities up to the 1st category of importance CIIF
- Supply of turnkey information security of CIIF
- Development of operational personnel training simulators
- Production of information and analytical systems
- Independent expertise, consultations, training, provision of related services

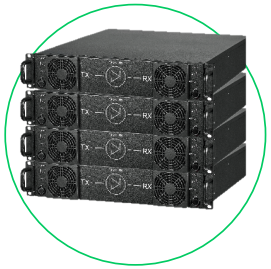


Solutions



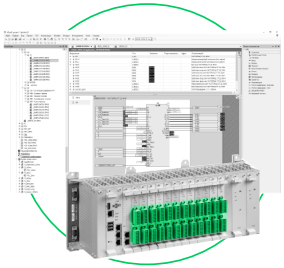
Automated process control systems

Development of design and detailed documentation, ensuring all documents are prepared, production, factory testing, delivery, construction, installation and commissioning, maintenance services under warranty



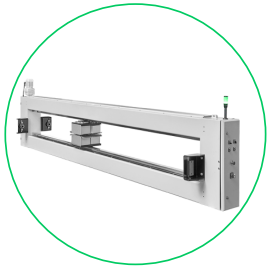
Information security systems

Categorization of CIIF, development of threat and intruder models, development of design and detailed documentation, packaging, production, factory testing, delivery, construction, installation and maintenance services under warranty



INCONT software and hardware system

The ecosystem of products and solutions for the automation, safety and efficiency of energy and industrial equipment.
INCONT software and hardware system is the first cross-platform and cross-controller system in Russia and is compatible with the following controllers: INCONT, Regul R500/ R600, TPTS-NT. INCONT software and hardware system can be used to create solutions for APCS, ACS, DCS, EPS, AVMMCS, as well as for operational control and dispatching



Quality management systems (QCS)

INCONT automated product quality management system of continuous production lines provides accurate measurements and stable control of product parameters on processing lines of a wide variety of materials (paper, cardboard, film, foil, rolled products, nonwovens, etc.). The system allows to control such parameters as base weight, humidity, thickness and composition



Information and analytical systems

A set of information and information-management systems that use a unified field of APCS data, increasing the efficiency of process equipment operation, both due to the accuracy of mode management and by providing production services with timely analytics for making optimal management decisions



INCONT operational personnel training simulators

INCONT simulators are a software and hardware system consisting of APCS software and hardware tools identical to those installed in facilities, a simulation model of process and electrical equipment, as well as service systems to support the training process

NEC | HIGH-VOLTAGE SOLUTIONS

Plant for the production of complete gas insulated switchgears (GIS) 110-500 kV and high-voltage equipment

Date of foundation:
2024

Projected number of employees:
70 people

Area:
9,000 m²

Activities:

- Production of electrical equipment and implementation of integrated power supply projects for generation facilities and power grids
- Production of GIS 110–500 kV based on in-house manufactured components: circuit breakers, disconnectors, earthing switches and quick-acting earthing switches, control cabinets, metal structures, and also current and voltage measuring transformers and GIS module housings
- Provision of related services



Solutions

NEC HIGH-VOLTAGE SOLUTIONS



GIS – LZ 110

Rated voltage – 110 (150) kV
Rated operating voltage – 126 (170) kV
Rated frequency – 50 Hz
Short-circuit current – 40/50 kA
Rated current – 2,000/ 3,150/ 4,000 A
Three-phase version
Indoor and containerized installation



GIS – LZ 220

Rated voltage – 220 kV
Rated operating voltage – 252 kV
Rated frequency – 50 Hz
Short-circuit current – 50/63 kA
Rated current – 3,150/ 4,000/ 5,000/ 6,000 A
Three-phase/single-phase version
Indoor and containerized installation



GIS – LZ 330

Rated voltage – 330 kV
Rated operating voltage – 363 kV
Rated frequency – 50 Hz
Short-circuit current – 50/63 kA
Rated current – 4,000/ 5,000 A
Single-phase version
Internal installation



GIS – LZ 500

Rated voltage – 500 kV
Rated operating voltage – 550 kV Rated frequency – 50 Hz
Short-circuit current – 63/80 kA
Rated current – 4,000/ 5,000/ 6,300 A
Single-phase version
Internal installation

NEC | HIGH-VOLTAGE SOLUTIONS

Production and supply of high-voltage equipment with rated voltage up to 500 kV, engineering, research, testing, preparation and adaptation

Date of foundation:
1995

Personnel number:
> 290 people

Area:
8,350 m²

Certification:
ISO 9001
ISO 14001

Activities:

- Production and supply of high-voltage equipment with rated voltage up to 500 kV inclusive, spare parts for this equipment, as well as related equipment, components and materials
- Engineering, research and technical development
- Testing, preparation and adaptation to specific conditions of use of Russian and foreign-made equipment



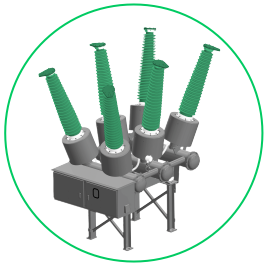
Solutions

NEC HIGH-VOLTAGE SOLUTIONS



Column switches 110-220 kV

Rated current up to 4000 A
Cut-off current 40, 50, 63 kA
Single- and three-pole control
Spring drive



Tank circuit breakers 110-220 kV

Rated current up to 3150 A
Cut-off current 40, 50 kA
Spring drive



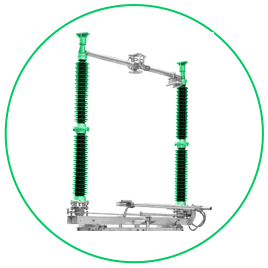
Measuring current transformers 110-220 kV

Gas – free
Rated current up to 3000 A
Current of thermal resistance up to 63 kA
Any accuracy classes



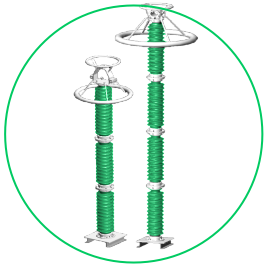
Measuring transformers for voltages of 110–220 kV

Eletagaz
Inductive
Up to 3 secondary windings
Any accuracy classes



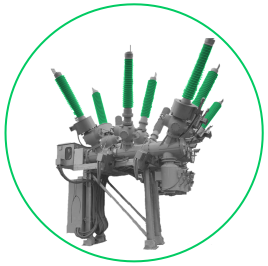
Disconnectors 110-500 kV

Horizontal-rotary type
Rated current up to 4000 A
Thermal resistance current up to 50 kA (63 kA for 110 kV)
Free-standing earthing devices



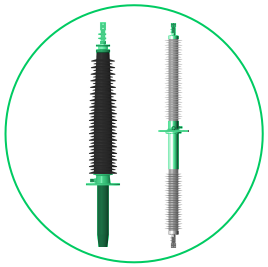
110–500 kV busbars

Single-post
Up to 3 wires
For RF filters
For rigid busbars



Hybrid cells 110 kV

Rated current up to 3150 A
Cut-off current 40 kA
Spring drive
Compact, suitable for outdoor installation up to -45 °C



High-voltage capacitor inputs 35-330 kV

Rated voltage 35 – 330 kV
Rated current 1 000 – 2 000 Ah
External insulation: porcelain/polymer

NEC
MOSELECTRO

Development and production of 0.4–35 kV equipment

Date of foundation:
1946

Number of employees:
> 600 people

Area:
> 20,000 m²

Activities

- Development and production of electrical equipment: DS, DTS, MITS, switchgear, GIS, LVDS, reclosers, current leads, busbar
- Implementation of complex energy supply projects
- Design and installation of the supplied equipment



Solutions



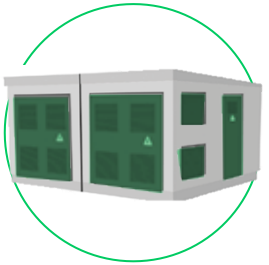
Switchgear 6–35 kV

Full range of air-insulated switchgear 6(10)/20/35kV for grid and generation facilities



LVDS -MESHCH up to 0.69 kV

Compact, modular design
4b sectionalization
High degree of protection up to IP54



DS/ DTS/ MITS

Capacity up to 3150 kVA, voltage from 6 to 35 kV
Equipment with transformers of any manufacturers of self-manufactured LVDS and switchgear
Design, supply and installation



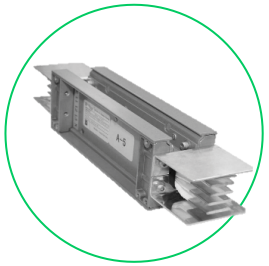
GIS 6–20 kV

GIS for distribution networks
Expandable configurations for secondary distribution



Air-insulated current leads up to 35 kV

Over 70 years of manufacturing experience
No. 1 in Russia
Availability of KEMA test reports



Busbar up to 1 kV

AC and DC current up to 6300 A
Copper or aluminum conductors
IP54 internal installation. Power take-offs with equipment from any manufacturer
Plug-in for BIM design



Reclosers

Rated current 400, 630 and 800 A
Rated voltage 6.10 kV
kiosk and pole types

NEC
RTC-ELECTRO

Production of cable couplings, current leads and busbars for voltage classes 0.4–220 kV

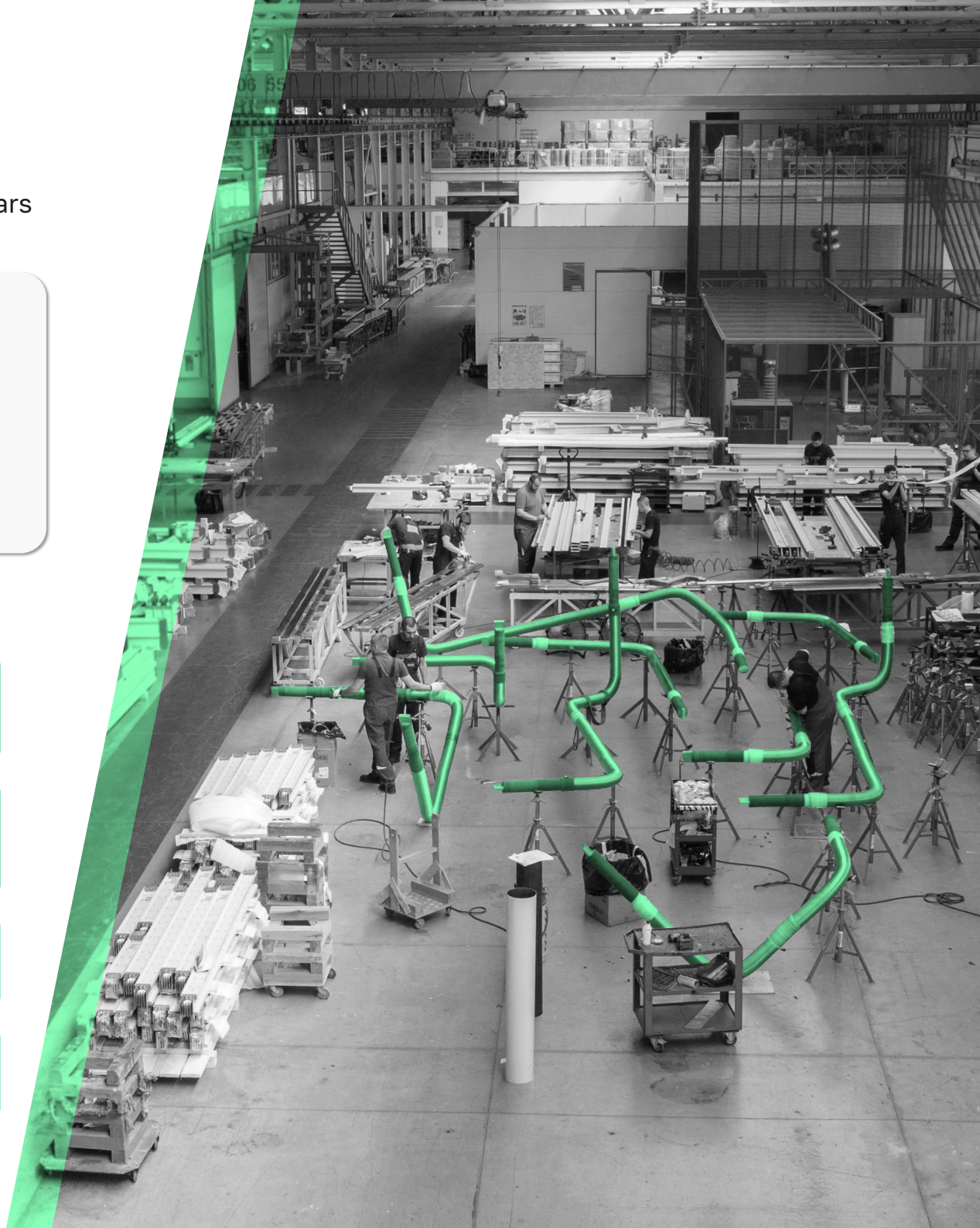
Date of foundation:
2006

Number of employees:
> 200 people

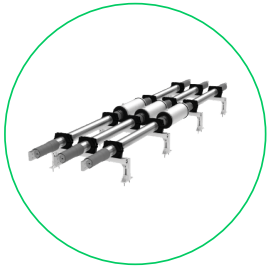
Area:
> 11,000 m²

Activities:

- Production of busbars with rated voltage up to 1 kV
- Production of current leads with a nominal voltage from 1 to 35 kV
- Production of current leads with a rated voltage of 110 kV
- Production of 6-220 kV cable end/connecting couplings



Solutions



PIMCL

Phase-insulated current leads with molded RIP-insulation

U-rated up to **110 kV**
I-rated up to **6 500 A**



TKLS

Complete current leads with molded insulation

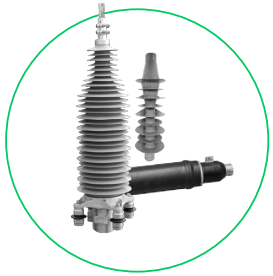
U-rated up to **20 kV**
I-rated up to **18,000 A**



OCL

Open current leads (hardwire)

U-rated up to **35 kV**
I-rated up to **6,300 A**



Cable couplings

Connecting and terminal

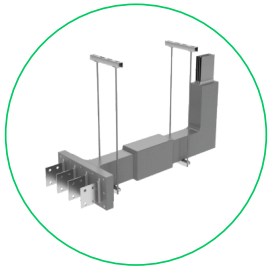
U-rated **6-220 kV**
Core section from **25 to 2,500 mm²**



PIMCLEI

Phase-insulated current leads with extruded insulation

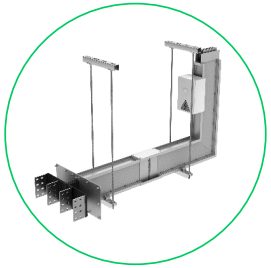
U-rated up to **35 kV**
I-rated up to **6,300 A**



TKLN

Fire-resistant busbars with molded insulation

U-rated up to **1 kV**
I-rated up to **12,600 A**



SBB

Sandwich type busbars

U-rated up to **1 kV**
I-rated up to **6,710 A**

NEC ENHIM

Production of import substituted fire-resistant turbine oil

Date of foundation:
2023

Number of employees:
> 130 people

Area:
4,200 m²

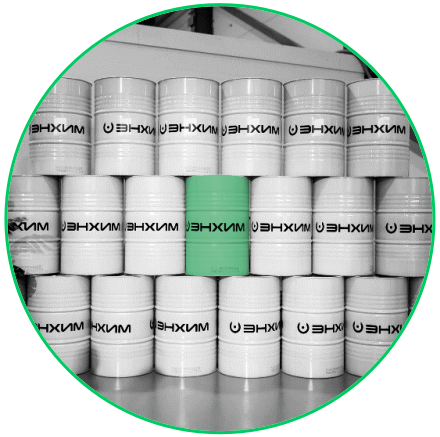
Production capacity:
1,200 t/y

Activities:

- Production of fire-resistant hydraulic fluid of OMTI type for regulation and lubrication systems of steam and gas turbines
- Localization of production of a wide range of products based on the synthesis of phosphoric acid esters (second stage)
- Conducting scientific research and development work



Solutions



Fire-resistant turbine oil Enhim 55
TU 20.14.73-002-19153700-2018

Turbine fire-resistant oil based on trixylenyl phosphate is intended for use as a lubricant and hydraulic fluid in the lubrication and control systems of turbine units using high parameter steam. It contains no additional dopes and has an isomeric composition



Fire-resistant turbine oil Enhim 55M
TU 20.14.73-002-19153700-2018

Fire-resistant hydraulic fluid modified with improved maximum permissible concentration (5 mg/m 3) is used for lubrication and control systems in gas and steam turbines, turbocharger lubrication systems, reactor coolant pumps, generators, etc., and also for conventional hydraulic equipment

NEC NTZMK

Leading manufacturer of steel construction for industrial, civil and special purposes

Date of foundation:
1942

Number of employees:
> 800 people

Area:
> 62,000 m²

Production capacity:
> 3,500 tons/month

Activities:

- Manufacturing of metal structures for industrial and infrastructure facilities
- Complex production of all types of metal structures for power units
- Production of power transmission towers up to 500 kV



Completed projects



Lakhta Center Multifunctional Complex

Volume – 12,585 tons
Saint-Petersburg
2015–2017



Fisht Olympic Stadium

Volume – 8,400 tons
Sochi
2011–2014



Skolkovo Business Park Multifunctional Complex

Volume – 2,517 tons
Skolkovo, Moscow
2014–2023



UGMK Arena Multifunctional Ice Arena

Volume – 7,500 tons
Ekaterinburg
2019–2025

NEC.TECH

Leading developer in the field of IoT, energy and electronic component base products

Number of employees:	Size of R&D department:
> 350 people	**50**

Activities:

- Development of domestic microelectronics and electronic component base
- Development of relay protection and automation terminals (RPA), devices for transmitting alarms and commands via digital communication channels (UPASK)
- Development of intelligent metering devices for electricity, water, gas, data collection and transmission devices (DPS)
- PaDevelopment of solutions for electric charging transport infrastructure: management of charging sessions and billing, management of electrical network modes using storage devices and controlled load
- Development of digital twins at generation facilities – CHP and GRES
- Expertise in the development of industry standards and regulatory and technical documents

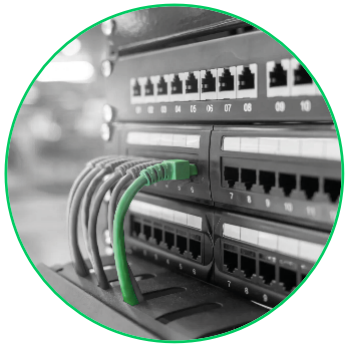


Solutions



Software

Embedded software for the acquisition, processing, transmission and storage of measured electrical energy data



Communications and communication equipment

Operates as part of a combined system with other network devices, collects, converts, storesand transmits information



RP and EA equipment

Equipment for monitoring, control and transmission of relay protection and automation (RPA) and emergency automation (EA) commands



Meters

Intelligent devices that measureand record the consumption ofresources (electricity, gas, water) and transfer the information to industrial controllers



Charging stations for electric vehicles

Development of design and embedded software for fast, convenient, stylish and reliable charging stations for electric vehicles using domestically manufactured components



Digital twin at energy facilities

Development of an automated system that collects and processes data in a facility or power system, updating of equipment model parameters

NEC NATIONAL ENERGY COMPANY

Notes

Notes

NEC NATIONAL ENERGY COMPANY

nec.pro

Telegram «InfoNEC»

MAX «InfoNEC»

National Energy Company JSC • +7 (495) 258-04-88 • info@nec.pro
14 Malaya Pirogovskaya Street, Building 1, Moscow, 119435