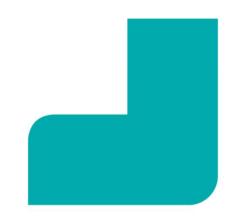


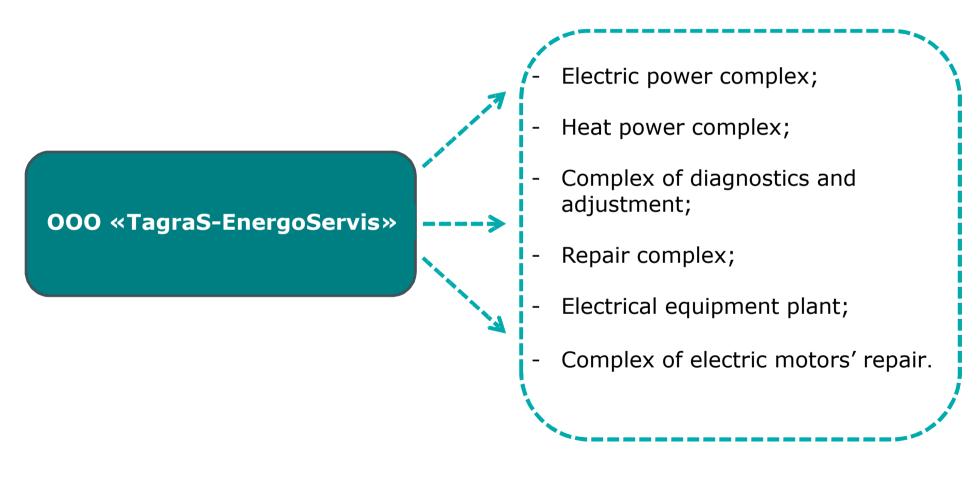


# OOO«TAGRAS-ENERGOSERVIS» ACTIVITIES' GEOGRAPHY











1. 24-hour operational dispatch control of electrical networks and electrical equipment.

2. 24-hour execution of requests in electrical equipment and electrical networks.

3. Services of electrical energy supplying for the consumer (rental of electrical equipment, high-voltage lines, package transformer substations, electric motors, etc.).

4. Emergency recovery work.

5. Maintenance and repair works of 110,35,6 (10) kV high-voltage lines, 110/35/6 (10) kV substations; 6 (10) kV switchgears, switching equipment, reclosers, 6 (10) / 0.4 kV package transformer substations, electric motors, 0.4/6/35/110 kV high-voltage lines, cable lines.

6. Maintenance and repair works of underground wells repair brigades' electrical equipment.

7. The admission of the seconded personnel of subcontracting and construction organizations to the operated facilities.

8. Energy facilities' technological connection to power supply networks.

9. Technical and metrological support of commercial energy accounting systems.

- 10. Ultrasound and thermal imaging examination of electrical equipment.
- 11. Diagnosis of the 6 (10) -35 kV vacuum switches' status.
- 12. Vibrodiagnostics of electric machines' electrical and mechanical breakdowns.







#### **HEAT POWER COMPLEX**



# **Activities:**

- 1. Operation of thermal power plants.
- 2. Implementation of thermal energy.
- 3. Implementation of hot water supply.
- 4. Implementation of chemically purified water.







1. Installation, adjustment and maintenance of remote control systems, asynchronous electric motors' control stations with the use of frequency converters and soft starters, video surveillance systems, fire alarm systems, automated process control systems and automated metering systems.

2. Installation, adjustment, maintenance and programming of electricity commercial metering units, heat and gas metering units.

3. Thermal imaging control of electrical equipment, buildings, structures, pipelines, boiler plants, chimneys.

4. Diagnostics and industrial safety expert examination of field oil pipelines and trunk oil pipelines, gas pipelines, product pipelines, production and injection wells' pump jack and wellhead valves, unregistered lifting structures, gas consumption systems, gas distribution and boiler inspection facilities.

5. Pre-commissioning works of industrial furnaces and boiler plants and auxiliary equipment.

6. Installation, adjustment, repair and maintenance of boiler plants' instrumentation and automation systems.

- 7. Test and determination of soil density.
- 8. Diagnosis of 6-35 kV high-voltage lines' ferro-concrete supports .
- 9. Non-destructive test of drilling equipment.
- 10. Technical supervision over the 6 (10) kV high-voltage transmission lines' construction and repair.





11. Installation and adjustment of 110/35/6 (10) kV electrical equipment's relay protection, including microprocessor protection devices.

- 12. Tests of personal protective equipment.
- 13. Installation and adjustment, repair and maintenance of synchronous electric motor control stations.
- 14. Diagnosis of cable lines and power transformers with using modern methods, including partial discharge.
- 15. Chemical and chromatographic analysis of transformer oil.

16. Repair, and calibration of electrical measuring instruments, panel devices, current transformers, voltage transformers, pressure gauges and pressure transducers.

17. Energy survey with the making of energy passports.

- 18. Mapping of high-voltage lines' schemes with the terrain reference.
- 19. Measurement of the electricity's quality.

20. Design and survey works.

21. Calculation and justification of the norms of technological losses of electric energy during its transmission through electric grids.

22. Fire-technical minimum's education.



#### **REPAIR COMPLEX**



### **Activities:**

Construction and reconstruction of:

- 6-110 kV high-voltage power lines;
- 110/35/6 (10) kV substations' electrical equipment;
- Boiler rooms and block-modular type boiler rooms.

Major overhaul of:

- 110/35/6 (10) kV substations' electrical equipment;
- 6-110 kV high-voltage power lines;
- Batteries of static capacitors, boilers and stoves;
- Boiler equipment;
- Thermal networks at technological oil production facilities: dismantling, installation, construction, insulation works on pipelines and auxiliary equipment;
- 35 / 6-10 kV power transformers with full or partial replacement of windings;
- 6-10 / 0.4 kV transformers with the 25 kVA-1600 kVA capacity;
- -Package transformer substations;
- Measuring transformers of HOM-6, HOM-10, HTMИ-6, HTMИ-10 types;
- Direct current machines;
- Rigid sections of large electrical machines;
- Electric motors up to 10 kV;
- Asynchronous engines up to 315 kW and voltage up to 660 (800) V;

## Restoration of

- plain bearings;
- bearing shields (steel, cast iron, aluminum);
- welding generators.





Installation and repair of:

- electric motors' control stations ;
- heating mains;
- cable lines and lighting networks;
- Boilers and furnaces;
- Block individual heat points.

Other types of work:

- Introduction of 6-110 kV vacuum and gas-insulated switches, 35-110 kV disconnectors, 6-110 kV overvoltage limiters, high-voltage capacitors.





Sector for the production of complete transformer substations. Types of manufactured equipment: Universal package transformer substation (КТПУ); Package transformer substation (КТПК); Mast type package transformer substations (КТПМ); Column type package transformer substations (КТПС); High-voltage linear block (ВЛБ).





Sector of production preparation.

Types of manufactured equipment:

- Pump jacks' control stations of the (СУ КСКН, СУ РЗД, СУ ШУЭС);
- Accounting and distribution switchboards;
- Control stations' switchboards;
- Inlet-distributive device;
- Cabinets of various types and cabinets for overalls;
- Outdoor installation type linear high-voltage disconnectors;
- Steel structures of high-voltage lines' supports;
- High-voltage fuses;
- Cable boxes;
- Designing, manufacturing and installation of block-modular boiler-houses (БМК);
- Design, manufacture and installation of checkpoints equipped with an access control

system.







Power transformers repair sector's produced works:

- Overhaul of 6 / (10) 0,4kV power transformers with capacity up to 1600kVA;
- Revision of 35-110 kV power transformers with capacity up to 10000 kVA;
- Overhaul of measuring transformers (НОМ-6, НОМ-10, НТМИ-6, НТМИ-10).





Plant produces repair of:

- electric machines with winding made of rectangular copper profile up to 8000 kW;

- explosion-proof design synchronous motors up to 1600 kW, synchronous motors up to 10,000 kW with voltage up to 10 kV;

- welding and power generators;

Inductive voltage regulators, high-frequency converters (ВПЧ), direct current motors;

- welding and dry transformers, rectifiers, power sources for dehydrators ( $\Pi\Pi$ M);
- auto generators, power tools;
- sliding bearings for pumps and electric motors;
- overhaul of 6 / (10) 0,4 kV power transformers with capacity up to 1600 kVA;
- revision of 35-110 kV power transformers with capacity of up to 10,000 kVA;





Plant produces repair of:

- overhaul of measuring transformers (НОМ-6, НОМ-10, НТМИ-6, НТМИ-10);
- -overhaul of electromagnets' coils (starter, contactor, etc.);
- -- overhaul of distribution high-voltage devices ("PBHO-10/630" type);
- Transfer of fluorescent lamps to LED.

Plant provides the following services:

- restoration of worn out steel shafts, cast iron and steel bearing shields, explosion protection units, aluminum parts, washing of parts and windings by the "KARCHER " installation with aerodynamic drying;

- removal of the multilayered old paint from the engine casing for better cooling on the water-
- and-spray unit "OERTZEN" with subsequent painting;
- balancing of rotors weighing up to 8 tons and fans;
- diagnostics of the electric motors' condition;
- delivery of electrical equipment;
- Vibrodiagnostics of electric generating sets.



ОБЩЕСТВО С ОГРАНИЧЕННОЙ ОТВЕТСТВЕННОСТЬЮ «ТАГРАС-ХОЛДИНГ»

# THANK YOU FOR ATTENTION!

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