

ZTR-INFORM

October 2012

ZTR is the leader for 65 years

PJSC "Zaporozhtransformator" has celebrated 65 years in September. For a long period our company holds position of leader in branch, is the leading expert of high technological production in Ukraine – approximately 90% of production used for expert, production of the company is delivered in to 86 countries of the world. According to assessment of independent national rating TOP-100, PJSC "Zaporozhtransformator" took first place as for dynamics of development in engineering for the last 10 years, ZTR brand was included into the tenth of the most expensive corporative brands of Ukraine according to version of annual rating of Ukrainian companies "Gvardiya brandov".

ZTR confidently follows the route of innovations as well as power supply, updates and modernize its equipment. One of the major directions, which increase volume of production as well as quality of production, - investments into new technologies, equipment and development. For the last 5 years the following was performed: new equipment, technologies were applied in each subdivision, test laboratory was completely modernized, winding section completed with microclimate system

was built, equipment for the application of new insulating material – laminate was implemented and etc.

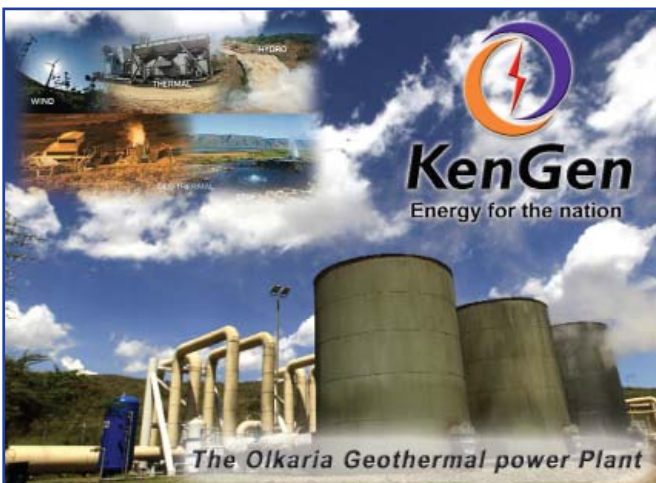
"Our team clearly understands where and how we want to continue our development. Therefore our mission is the following: "We produce



reliable production together, provide energy development of continents and developing constantly we transform our knowledge, energy as well as experience of generation into the common success", – **mentioned General Director of PJSC "ZTR" Igor Kleyner.** – During 65 years we produced more than 160 thousands of transformers and reactors, total power of our equipment made up approximately 2mln. MVA. Today we took approximately 4% of the world transformer manufacturing, and certainly, we want to increase this portion. This year ZTR celebrates 65 years but we feel young, full of

enthusiasm, power as well as follow towards. For the recent years investment program is implemented at the factory, it permits to fix leading position in this sphere. Today our company is the leader in this sphere as well as the company of international class."

Kenya has become the country in ZTR reference deliveries



Kenya republic has become the 86th country in sale reference-list of the transformer equipment manufactured by PJSC "Zaporozhtransformator" (ZTR). In July of the current year ZTR has concluded a contract for the delivery of 4 transformers rated for 90 MVA voltage 220 kV for Kenyan company "The Kenya Electricity Generating Company" ("KenGen"). Equipment will be installed on the geothermal power stations "OLKARIA-I" and "OLKARIA-IV".

General contractor of the project has become a Korean company "Hyundai Engineering and Construction Company LTD" which has won bidding for the building of power plant in Kenya and has performed a contest among wide-world transformer manufacturers.

"Due to the broad experience of equipment deliveries of high quality to Africa as well as confirmation of order execution in specified terms, ZTR proposition has become the most competitive, – **informs Sales Director of PJSC "ZTR" Alexander Tsier.** – It will be the first delivery of equipment manufactured by ZTR to Kenya as well as the first cooperation experience with "Hyundai Engineering and Construction Company LTD" that is why it is necessary to execute completely all requirements of the contract for the beginning of successful cooperation."

During the contract signing customer has specified strict requirements for the delivery terms of technical documentation, seismic stability of the transformers, painting and external cables of the equipment. Such requirements are stipulated by the arrangement of geothermal power plant "OLKARIA-IV" at the height of 2000m and improved content of hydrogen sulfide in air. Due to organization of works at high level, synchronous and proper work of departments at ZTR, all customer requirements were completely fulfilled.

Transformers will be shipped in February of the year 2013.

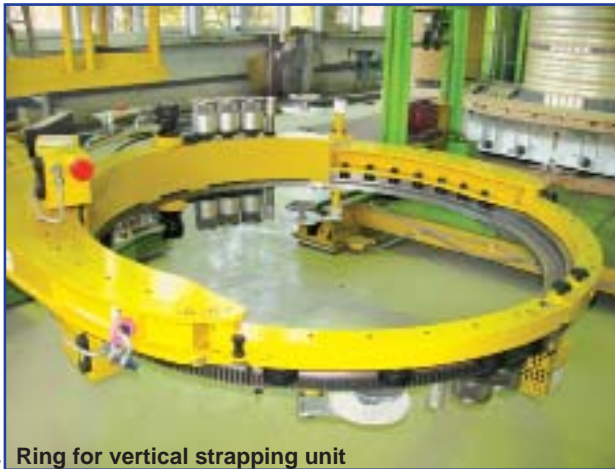
The Kenya Electricity Generating Company or simply KenGen – the largest state electrical company, produced approximately 80% of energy, consumed in the country.

Company owns fourteen HPP with total power 615,3MW, three thermal power plants rated for power 147MW, two geothermal electro stations rated for power 115MW as well as one wind plant – 5,1MW. As the results, the total power of the company makes up 882,4MW.

ZTR: technical leadership, reform continuation

PJSC "Zaporozhtransformator" is included into the tenth of the largest manufacturer of transformer equipment in the world. ZTR is to be the largest plant in CIS countries and Europe, its production power makes up 60 GVA, concentrated at one production platform, ZTR is the market leader as for volume of delivery.

Technical extension and updating of technology of PJSC "Zaporozhtransformator" is based on the system. In order to be the leader of technical mind as well as technical experience our company keeps up with the times and implements the modern technology and equipment used in the transformer manufacturing. Projects as for improvement and modernization of insulating, magnetic core, welding and winding production are realized at PJSC "Zaporozhtransformator" within the 2010-2012.



Ring for vertical strapping unit

Insulating production. New material for PJSC "ZTR" – laminated cardboard was implemented within the investment program of the year 2011 as for improvement of insulation part quality, strict tolerances for the dimensions of insulation part, reduction of technological cycles of insulation manufacturing as well as increase of production. Cutting unit with numerical control unit WNT-750 and treating unit with numerical control unit ROVER C9.50 manufactured by Biesse Group (Italy) and SCM group s.p.a. (Italy) were purchased in order to implement this technology into production. In addition to this fixed – bed milling machine Superset XL completed with fast replacement of tool HSK80 was purchased by the company; it permits to produce insulation parts (rods) made of laminated cardboard. Preliminary cutting of rectangular work pieces for T-shape rods is performed by means of new cutting unit WNT-750.

Magnetic core production. Within the investment program of the year 2012 as for improvement of framework quality, strict tolerances, reduction of technological cycles of manufacturing as well as improvement of productivity the following equipment will be implemented:

- Assembly stand KTL 180 KR manufactured by "Georg", by means of which frameworks of VI overall dimension with maximum mass – 180t could be assembled;
- TRKA/EI 500X500-CAS line for manufacturing segments of shunt reactor discs in is put into operation in order to exclude hand work and improve manufacturing of precision of shunt reactor disc plates;
- Strapping ring with 1500mm diameter for the vertical strapping unit VBM 1250 ("Georg") permits bandaging of the framework legs vertically, diameter of the leg is up to 1500mm.

Winding production. Stabilizing system for winding pressing under the constant pressure during vacuum treatment manufactured by "Gunter Seibold" (Germany) was put into operation in the year 2012. By means of it axial dimensions of windings in the process could be stabilized, improve quality of pressing as well as thermal vacuum treatment of windings, improve quality of released production.

Equipment to remove enameled insulation from CTC was put into operation in the year 2012. Equipment is intended for CTC roasting and is considered to be water electrolytic generator with burner – 20000EP – manufactured by Italian company "OWELD". In order

to increase the volume of transposed cable application in winding, new devices for bending of winding cables during the manufacturing process of winding (bending of transpositions, bending of last winding leading) manufactured by "Gunter Seibold" (Germany) was implemented in the year 2012.

Welding production. Within activities as for improvement of efficiency and quality of metal structures of the tank transformers the following equipment was implemented in welding workshop within the years 2007-2011:

- Technology to manufacture parts type flange by means of vertical turning machines with numeric control unit with function of off-axis boring as well as thread cutting;
- Technology for plasma cutting with application of layout as well as marking of parts according to the control programs based on thermal cutting machines Suprarex SXE P5500 manufactured by ESAB;
- Bending technology for stiffening ribs of channel type as well as production of bent covers and wells of walls instead of rolled at press with numeric control unit;
- Welding technology for equipment equipped with software by means of which welding was stabilized,

therefore spraying was decreased and quality of welding connections as well as joint appearance was improved;

- Technology for welding with deep alloying and reversed formation of weld joint by means of which consumption of energy was decreased, process stability as well as weld joints were increased;
- Automatic welding under the flux by twin arc by means of TWIN method (supply of two wires into welding bath) the tank walls as well as welding of stiffening ribs to them.

Implementation of the following activities is scheduled:

- Laser cutting with layout as well as marking of sheet metal-roll rated for thickness up to 11mm;
- Complex mechanical treatment of joint frames of the upper and bottom parts of tank; technology should provide the quality of sealing grooves of the bottom and upper frames of tank joint;
- Automatization of part grinding from fins after the thermal cutting and rounding of sharp edges;

- Activities as for rising and robotization of the assembling and welding of separate units of metal structures of the tank and etc.

- Painting by means of fast-drying materials with the application of equipment of airless spraying type XTreme MIX



Stabilizing pressing winding system

360, manufactured by GRACO.

PJSC "Zaporozhtransformator" is sure in its successful realization of new interesting projects, keeping of technological leadership due to its 65 years of successful technical experience and activities in the market.

Leonid Kontorovich,
Technical Director of ZTR