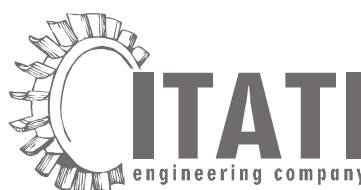


# ITATI GROUP

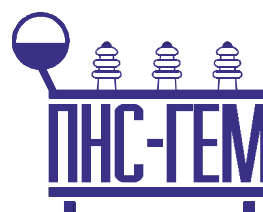
ITATI Group - a group of the companies that focus on the market of engineering services and supplies of equipment for the energy industry.



At the head of the group stands the company "ITATI-Engineering", one of whose tasks – promotion of new advanced technology and modern efficient equipment from proven international manufacturers.



Subsidiary company "ITATI" has 11 years' experience of practical implementation of project works and supplies for energy industry of Ukraine. Up to 2015, the "ITATI" geography of services and supplies spread to Ukraine, but in the near future ITATI plans to carry out activities in the international area.



The company "PNS-HEM" from 2015 is a part of ITATI Group. The geography of the "PNS-HEM" activities in energy industry already covered more than 20 countries of the world.

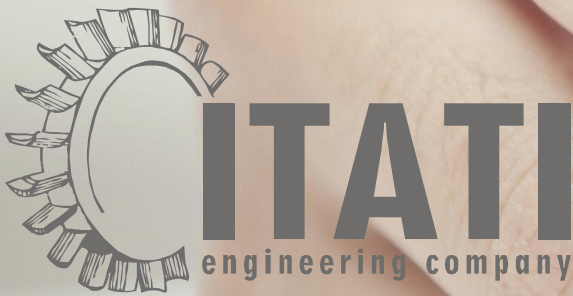
## OUR MISSION

**OUR MISSION** – to promote energy efficiency by providing high-quality and technologically advanced engineering services that correspond the highest requirements of Customers and society.

**OUR PRINCIPLES** – efficient and flexible response to customer requirements, high technical level, applying of new efficient and environmentally friendly developments, stable friendly relations with Partners.

**OUR TEAM** – a team of like-minded people who appreciate the professionalism and responsibility which every day unite their efforts and talents for developing and implementing advanced solutions for the energy industry.





The engineering company "ITATI" was founded in 2004 to provide consulting services in the energy market of Ukraine.

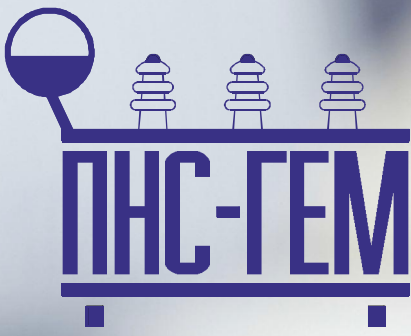
Since 2010, «ITATI» LLC expanded the range of boundaries of their business, adding to the principal activity the development and implementation of projects related to the reconstruction and modernization of power generating plants. Now the company "ITATI» performs design, installation and commissioning, provides delivery of equipment and spare parts for thermal, nuclear, gas turbine and hydro power plants.

Personnel of "ITATI" LLC – engineers, designers and managers with great experience. Staff of the company has a tendency to the annual expansion.

Financial turnover of "ITATI" LLC in 2014 amounted to more than 15'000'000 USD.

During its activity the company "ITATI" established strong business relationships with the major players in the energy market of Ukraine:

- PJSC "KYIVENERGO";
- SE NNEGC "ENERGOATOM";
- PJSC "DTEK ZAHIDENERGO";
- PJSC "DONBASSENERGO";
- PJSC "UKRGIDROENERGO";
- as well as design institutes and subcontractors.



The company "PNS-HEM" was founded in 1993 from the Ukrainian branch of "Hydroelectromontazh" (HEM) that was founded in 1967.

The company has a great experience in:

- project designing of technical reconstruction and adaptation of newly installed equipment at power plants and other power facilities;
- installation and commissioning of electrical equipment for internal and external engineering networks, measuring devices and instruments, systems of automatics of any complexity;
- preventive maintenance of delivered equipment throughout the entire period of operation according to service plans of manufacturers or customers.

High quality of works of the company is confirmed by successful execution of the projects with the most difficult types of electrical equipment both in former USSR countries and abroad.

"PNS-HEM" received positive auditor's conclusion of quality from "ABB" in 2008.

The quality control system of performing works is based on requirements of the European quality assurance models ISO and on standards developed by the company according to the requirements of the Ukrainian State authorities of Accreditation and Licensing.

## COMPLEX DESIGNING:

Organization and implementation of projects in the energy sector;

Serving as a general designer;

Providing expert and consulting services;

Development of feasibility studies for investment in reconstruction and in new facilities in the energy sector;

Execution of technology and economic calculations, estimates and projections;

- Development of project documentation in stages:
- Feasibility study;
- Technical project;
- Design documentation.

## DESIGN OF AUTOMATED PROCESS CONTROL SYSTEMS:

"ITATI" in collaboration with "Emerson Process Management" offers customers a unique combination of services, which ensures the development of the individual, efficient and most advanced engineering solutions.

This is possible due to a combination of many years of international experience of the company "Emerson Process Management" in the field of automation control systems in the energy sector with a deep knowledge of the requirements and standards of local markets, as well as project management experience of "ITATI".

Companies can jointly perform the design and implementation of turnkey automated process control system of separate systems as well as automated process control systems of power plant blocks and power distribution electric substations, and integrate new management system or merge several automated systems into one.



WE DESIGN



## WE SERVICE

### SERVICE OF 50-165MW

#### TURBOGENERATORS:

- Replacement of indirectly cooled generators by air-cooled turbogenerators with power output increase;
- Upgrade of rotors with the replacement of retaining rings by single-mounted rings from corrosion-resistant steel;
- Full or partial replacement of stator windings.
- Upgrade of systems for control and operation parameters monitoring.

### SERVICE OF 200-300MW

#### TURBOGENERATORS:

- Replacement of generators by air-cooled or hydrogen-to-water cooled generators;
- Replacement of generators by hydrogen-to-water cooled generators;
- Upgrade of systems for control and operation parameters monitoring.

### SERVICE OF 200-500MW

#### TURBOGENERATORS:

- Upgrade of stators with the replacement of active steel end zones and stator winding replacement;
- Upgrade of rotors with the replacement of retaining rings by a new structure using corrosion-resistant steel;
- Replacement of stators by new ones of improved design;
- Increase of generators capacity to meet the turbines upgrade needs;
- Replacement of synchronous turbogenerators by asynchronous ones to improve performance stability of the power units;
- Upgrade of stator winding thermal control.
- Upgrade of systems for control and operation parameters monitoring.

### SERVICE OF 800-1000MW TURBOGENERATORS:

- Upgrade of stators with the replacement of active steel end zones and stator windings replacement;
- Full or partial replacement of stator windings at four-pole generators;
- Replacement of old stators by new ones of improved design;
- Upgrade of stator winding thermal control;
- Upgrade of systems for control and operation parameters monitoring.

### SERVICE OF HYDROGENERATORS:

- Replacement of stators;
- Replacement of active steel cores and stator windings;
- Upgrade of rotor poles;
- Upgrade of footsteps and bearings of hydrogenerators using composite materials;
- Upgrade of systems for control and operation parameters monitoring.

### SERVICE OF TPP, NPP, HPP OPERATING EQUIPMENT:

- Reconstruction of main and auxiliary equipment in order to improve design performance characteristics, add or change some functions (transfer condensing units to cogeneration, transfer extraction from cogeneration to industrial one or vice versa) including full replacement of the equipment by the new one;
- Upgrade of main and auxiliary equipment with the replacement of part of main units and mechanisms both in the factory environment and at the installation site;
- Warranty service;
- Technical support at preventive maintenance;
- Operational servicing;
- Participation in off-schedule repairs;
- Provision with spare parts and special materials;
- Evaluation of optimal a service life extension term according to the results of diagnostics and special calculations;
- Design supervision.



WE SUPPLY

## POWER TRANSFORMERS AND REACTORS:

- Power transformers, auto-transformers, reactors of voltage up to 800kV and power up to 1200MVA;
- Power, converting, special cast resin transformers ("dry") of power up to 25MVA;
- 3-phase shunt reactor of voltages: 6, 10, 15, 20, 35kV, power up to 8000kVA;
- Arc suppression coils of voltage from  $6/\sqrt{3}$  to  $110/\sqrt{3}$ kV power from 125kVA to 10,000kVA;

## EXCITATION SYSTEMS:

- Turbine and hydroelectric generator excitation systems;
- Thyristor self-excitation systems (TSES) for turbo generators;
- Thyristor self-excitation systems (TSES) for hydroelectric generators;
- Thyristor independent-excitation systems (TIES);
- Diode brushless systems (DBS) for high power turbo generators;
- Diode independent-type excitation systems (DIES);
- Thyristor self-excitation systems, reversible, excitation (TSES-R);
- Standby thyristor systems (STS);
- Cross-field exciters for turbine generators;
- Cross-field brushless diode exciter (BDE);
- Cross-field exciter;
- Standby exciter sets for generators;
- Excitation systems for diesel generators and small turbine generators;
- Starting devices;
- Thyristor starting devices.





WE SUPPLY

### TURBOGENERATORS:

- Forced hydrogen-cooled turbogenerators;
- Hydrogen-to-water cooled turbogenerators;
- Completely water-cooled turbogenerators;
- Completely air-cooled turbogenerators;
- Asynchronized turbogenerators with air and combined air-and-water cooling;
- Asynchronized compensators.

### HYDRAULIC GENERATORS:

- Vertical-shaft hydraulic generators (capacity up to 300MVA);
- Vertical-shaft hydraulic generators (capacity over 300MVA);
- Bulb-type hydraulic generators;
- Horizontal-shaft hydraulic generators for small HPP.

### PIPE VALVES:

- Locking and control pipe valves, which operate in a wide range of temperatures and pressures;
- Motor drives for pipel valves;
- Pipe armature in accordance with individual customer's specifications..

All supplied valves accompanied by the necessary volume of documentation and warranty.



WE SUPPLY

## MICROPROCESSOR-BASED PROTECTIVE RELAYING AND CONTROL CUBICLES:

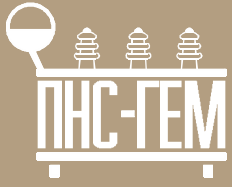
- Protection and control for 6-35kV equipment;
- Protection and control for 35-110kV equipment;
- Protection and control for 110-220kV equipment;
- Protection and control for 330-750kV equipment;
- Auxiliary substation equipment;
- Program and technical complex for substation equipment;
- Protection and control of station equipment;
- Protection and control of 6-35kV station equipment;
- Program and technical complex for station equipment;
- System integrity protections;
- Fault and emergency recorders;
- DC control systems;
- AC distribution systems;
- Auxiliary low voltage complete devices;
- Soft start systems;
- Frequency converters;
- Digital static thyristor exciter;
- Time synchronization systems;
- Disconnect switch interlocks;
- Automation systems for power utilities;
- HF-communications.

## OUR LAST MAIN WORKS 2010-2015:

- 2011, SE NNEGC "ENERGOATOM", "TASHLYTSKA HPP", UKRAINE – “Inspection of condition of parts and components of pump-turbines and the hydro directing device No.2”;
- 2012, PJSC "KYIVENERGO", "KYIVSKA TPP-6", UKRAINE – “Construction, installation and commissioning works on reconstruction of the excitation system of the power generator No.2”;
- 2012-2014, PSC"PTMZ" for "BURSHYNSKA TPP", UKRAINE – “Modernization of a regulation equipment system of the turbine power unit No.5”;
- 2012-2013, SE NNEGC "ENERGOATOM", "TASHLYTSKA HPP", UKRAINE – “Project development and budget documentation for unit friction replacement of the shaft seal of the pump-turbine”;
- 2013-2015, PJSC "KYIVENERGO", "KYIVSKA TPP-6", UKRAINE – “Construction, installation, commissioning works and equipment supply for reconstruction of the seal of the regenerative air-heater of the Block No.2”;
- 2013-2015, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – “Design works of the project of reconstruction of the power generator 125MVA, turbine excitation system and safety relay system of the Block No.1”;
- 2014-2015, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – “Design works of the project of reconstruction of the open transformer substation 110kV of the Block No.1 (including replacement of the power transformers 40, 80 and 80MVA”;

## OUR LAST MAIN SUPPLIES 2010-2014:

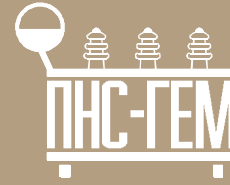
- 2010, PJSC "DONBASSENERGO", UKRAINE – Set of rotor blades of the turbine K-800-240-2;
- 2012, PJSC "KYIVENERGO", "KYIVSKA TPP-6", UKRAINE – Excitation system for the turbogenerator TVV-320-2;
- 2012, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – Set of spare parts for the turbogenerator TBF-125;
- 2012, SE NNEGC "ENERGOATOM", "YUZHNO-UKRAYINSKA NPP", UKRAINE – Locking and control pipe valves for Yuzhnoukrainska NPP;
- 2013, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – Locking and control pipe valves with motor drives;
- 2013, PJSC "KYIVENERGO", "KYIVSKA TPP-6", UKRAINE – Locking and control pipe valves with motor drives;
- 2014, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – Locking and control pipe valves with motor drives;
- 2014, PJSC "KYIVENERGO", "KYIVSKA TPP-6", UKRAINE – Locking and control pipe valves with motor drives;
- 2014, PJSC "KYIVENERGO", "KYIVSKA TPP-5", UKRAINE – A power generator 125MVA of the Block No.1;



## LATEST WORKS

### WORKS 2010-2013:

- 2010, "DNEPRODZERZHYNska HPP", UKRAINE – Replacement of compressors, reconstruction of pneumatic facilities;
- 2010, "TKHAK BA HPP ", VIETNAM – Erection supervision, commissioning of electrical equipment, control and measuring instruments and automation of four hydrogenerators of power 20MW;
- 2010, "KURAKHOVSKA TPP", UKRAINE – Commissioning and testing of thyristor excitation system of turbogenerator TGV-200M;
- 2010, "PUMP STATION NASSIRIYA", IRAQ – Wiring works of switchgears 6kV and twelve pump units with synchronous motors 6 kV, 1.2MW;
- 2010, "KURAKHOVSKA TPP", UKRAINE – Wiring works for modernization of excitation systems on two generator 200MW;
- 2012, "PAVLOVSKAYA HPP", RUSSIA – Commissioning of digital excitation systems UNITROL-5000 of four hydrogenerators 100MW, after-sales service;
- 2012, "BURSHTYNSKA TPP", UKRAINE – Project on adaptation of excitation system during modernization of generator 200MW;
- 2013, "TASHLYKSKA PSPP", UKRAINE – Commissioning works, after-sale service of electrical equipment 0,4-15,75kV, automation systems of power facilities and excitation systems of hydro units #1,2; servicing of relay protection and automatics;
- 2013, "BELOTSEKOVSKA TPP", UKRAINE – Project on adaptation of excitation system during modernization of two generators 100MW;



LATEST  
WORKS

### WORKS 2013-2014:

- 2013, "KHARKIVSKA TPP", UKRAINE – Project on adaptation of excitation system during modernization of two generators 120MW and generator 300MW;
- 2013, "ZAPORIZKA TPP", UKRAINE – Project on adaptation of excitation system during modernization of two generator 300MW;
- 2013, "DUBOSSARY HPP", MOLDOVA – Development of reconstruction project of power equipment and automatics of four hydro units 12,5MW;
- 2013, "TASHLYKSKA PSPP", UKRAINE – Erection supervision and commissioning of electrical equipment 0,4-75kV, automation systems and excitation systems of hydrogenerators №1, 2. Maintenance of protection and automation;
- 2013, "NAGLU HPP", AFGHANISTAN – Supervision on erection, commissioning and testing of thyristor excitation system of four hydro units 25MW;
- 2014, "PAVLOVSKAYA HPP", RUSSIA – Commissioning of digital excitation systems UNITROL-5000 of three turbogenerators of power 100 M, after-sales service;
- 2014, "SUBSTATION 35KV CHULAKOVKA", UKRAINE – Replacement of 35 kV oil switches by vacuum switches (4 pcs), test with increased tension of 35kV equipment and busbar, commissioning of the control schemes;
- 2014, "ZAPORIZKA TPP", "KHARKIVSKA TPP", UKRAINE – Wiring works for modernization of excitation systems on 3 generator 300MW;
- 2014, "KHARKIVSKA TPP", UKRAINE – Design of the protection system of generator 300MW, outdoor switchgear 330kV and airline 330kV.