Presentation of the group of companies “SibEnergoGroup”
Mission and strategic target of the group of companies “SibEnergoGroup”

Mission of the group of companies “SibEnergoGroup”

Our company’s mission is to render a complete set of engineering services, which enables our customers to increase competitiveness in the market, to lower costs by practical implementation of resource saving technologies, and to achieve a higher level of safety of industrial processes.

Strategic target of our company is to become the leading system integrator through the following:

Practical implementation and active promotion of the most up-to-date approaches based on experience of foreign engineering companies and fundamental knowledge of Russian experts joined together.

Application of the most efficient system of methods of operation and the most up-to-date software, providing meeting the targets on time and at the highest level of resource saving.

Practical implementation of commercially effective projects in building and reconstructing the power generating facilities.
Activities of the SibEnergoGroup:

Core strengths of the company:
- Full set of engineering services enabling us to provide our customers with the system approach to meeting a target
- Reliability and responsibility in cooperation with customers and partners
- Portfolio of projects of power generation facilities all around the world
- Study of foreign experience in engineering, and joining this experience with the unique knowledge of the company’s experts
- Providing customers with a number of economically sound alternative methods for solving engineering problems, the possibility to estimate such factors as financial appeal, measure of risk, and to choose the most appropriate one
- Arranging such structure of production and control processes, which will enable real-time and effective solution of engineering problems of any complexity
- Running scientific researches and commercial introduction of the developments.

Major activities of the group of companies “SibEnergoGroup”:
- Concurrent engineering of power generation facilities
- Commissioning of power generating equipment
- Innovative studies in heat and electric power engineering
- Production of power generating equipment
- Designing and development of industrial control systems
- Complete range of services in power generation auditing
Global work experience in projects’ implementation

Joint Stock Company “Sib EnergoGroup” (Novosibirsk, Russia)
JSC “COTES-Nauka” (Novosibirsk, Russia)
JSC “COTES-Siberia” (Irkutsk, Russia)
KF KOTES Limited Company (Pavlodar, Kazakhstan)
RM Invest (Germany)

Experts of the company have participated in design works and commissioning at various power engineering facilities in Russia and abroad: Poland, Bulgaria, Yugoslavia, Macedonia, India, Iran, Iraq, Bosnia and Herzegovina, Korea, Kazakhstan, Mongolia, Chile, Morocco, Rumania, Turkey, China, Cuba, and other countries.
Professional approach to meeting any target

In the process of concurrent engineering of TPP, electrical supply networks and substations, experts of the holding company will do the following:

- Development of feasibility reports, pre-feasibility conceptual studies, conditions and terms of tenders and bids
- Calculation of capital expenditures, calculation of efficiency of investments, development of investment projects of business plans
- Development of concepts and strategies of development of power generating facilities
- Collecting and processing of initial data
- Selection and layout of the equipment
- Production of auxiliary equipment
- Project preparation
- Endorsement and examination of design documentation
- Obtaining permissions to construction
- Rendering warranty and post-warranty services

References

- Design of reconditioning of Unit No.2 at the Aksu TPP (Kazakhstan), field supervision and commissioning
- Development of engineering design of the Ivanovo TPP
- Development of arguments in support of investments in construction of the facility, generating 660 MW at the Kuznetsk TPP
- Draft of reconstruction of the BKZ 420-140 boiler units # 3, 4 and 5 at TPP-2 of JSC “Astana-Energy”
- Development of the technical and economic proposal to transfer the Arkhangelsk TPP from fuel oil to coal combustion
- Project of reconstruction of section # 7 of the ash disposal area at TPP-1 of the JSC “Astana-Energy”
- Development of pre-feasibility study of reconstruction and development of the Yuzhno-Kuzbasskaya TPP.

Alexey I. Herzog

Technical director of the JSC “SibEnergoGroup”
Honorary power engineer of Russian Federation

Achievements

- Participation in construction of the Novosibirsk TPP-5
- Management of construction of ash disposal area at the Novosibirsk TPP-5
- Construction works at the Novosibirsk TPP-3
- Management of reconstruction of the Novosibirsk HPP
- Construction of the Barabinsk TPP
- Construction of power substations “Cheluskinskaya”, “Vympe”, “Frunzenskaya”, “Olovozavodskaya”, and “Berdskaya”
In the process of designing the “SibEnergoGroup” will prepare the following:

- Composite infrastructure plan
- Plans, facades and sectional views of buildings and premises with division into separate units
- Engineering documentation
- Boiler flow diagrams, diagrams of gas supply and chemical water treatment
- Equipment placement and manifold

We will also develop local, object-oriented budgets and consolidated budgetary calculation, give advice on the best suppliers of equipment, and exercise technical supervision over the working process.

References

- Development of the building of ash disposal area #3 at the power station JSC “EPC”
- Draft of reconstruction of network pipelines at the Shelekhov section of Novo-Irkutsk TPP
- Development of the technical and economic proposal to build the TPP “Stonary” (Republic of Bosnia and Herzegovina)
- Development of fundamental engineering solutions for the furnace and burner’s devices, and for executing mathematical simulation of the furnace processes at the Berezovskaya Power Plant
- Development of pre-feasibility study including determination of the site area for constructing the 500 MW TPP in Kemerovo region
- Development of the design of reconstruction of the BKZ-75 boiler plant at the Irkutsk TPP-5 with the boiler’s transfer to the CFB technology (circulating fluidized bed)
- Development of pre-feasibility study of the investment project to continue building the Omsk TPP-6
- Design of assembly of precipitator at Ekibastuzskaya TPP-2.

Anatoliy N. Lodosenko

Director, “KF KOTES” Limited Company

Achievements

- Repair works to power equipment at TPP-1 and TPP-2 (Astana)
- Design works management at Ekibastuzskaya TPP-2
- Management of design reconstructions of the second power generating unit at TPP (Aksu)
- Development of the feasibility study of building of ash disposal area at TPP (Aksu)

Sergey E. Kuzhenyazov

Deputy Technical Director for design and engineering of JSC “SibEnergoGroup”

Achievements

- Repairing of boiler equipment at Ekibastuzskaya TPP-2
- Repair works at Ekibastuzskaya TPP-2
- Repair works at Biysk TPP
- Management of repair works at Novosibirsk TPP-4
- Management of general contractor’s works in implementing project of customers’ conversion of local boilers plants to central heating system in Novosibirsk
- Supervision over arrangement of general contractor’s works in assembling the kettle unit at TPP-5
- Participation in designing and field supervision at assembling a turbounit at Novosibirsk TPP-3
At commissioning CAD/CAM systems, our engineers provide the following:

Designing, commissioning, examination of automation systems of power generating equipment.

Development of integrated CAD/CAM systems of technological processes and local systems.

Development and turnkey commissioning of all types of industrial control of technological processes: informational, control, integrated, and consolidating separate CAD/CAM systems into the unified system of engineering control.

Inspection of technological facilities for the purpose of reconstructing the automation systems.

Procedural and technical assistance in the process of development of maintenance documentation.

Training of operating personnel.

References

Commissioning of CAD system at the Frunzenskaya sub-station.

Execution of works for “The Control Center of the IPP heating system”

Designing of CAD system at the Bibliotechnaya sub-station.

Complete set of works at the Olovozavodskaya sub-station.

Achievements

More than 40 projects in the field of CAM systems in power engineering, communication means, fire alarms at TPP’s sub-stations of 110-220 kilovolt and control centers, including the following substations of the JSC “NovosibirskEnergo”: Bibliotechnaya, Olovozavodskaya, Gorskaya, Frunzenskaya, switching sub-stations “Bibliotechnyi” and “Teplovaya”. Execution of a series of commissioning works of industrial control at substations of the JSC “NovosibirskEnergo”, ash disposal area #2 of the Novosibirsk TPP-3, etc.

A series of works ranging from development to commissioning:

Control systems of 24 long-retracting water soot-blowers at Novosibirsk TPP-3 (over 10 years of trouble-free operation).

Control systems of 24 short-retracting water soot-blowers at Lmin TPP (China).

Control systems of vibrobit devices at TPP (Ust'-Illim).

Control systems of long-, short- and deep-retracting water and steam soot-blowers at TPP Jerada (Kingdom of Morocco).

Control systems of long-retracting water soot-blowers at TPP AES (Ust'-Kamenogorsk).

A series of works ranging from development of performance specification to adopting of automatic devices of the airborne system for strategic aviation.

Author of five inventions.
In the process of commissioning, experts of the holding company will do the following:
Balancing, setup examinations of thermo-technical equipment.
Starting and mode technological adjustment.
Functional thermal testing of kettles, turbines, and unit as a whole.
Express testing of kettles, turbines, and auxiliary equipment before and after the repairs with the purpose of identification of their operating efficiency.
Adjustment of power generation characteristics of equipment.
Practicing the start-stop modes of the units.
Improving the mobility, reliability, efficiency, and environmental safety of the equipment.
Converting boiler plants and stations to burning the non-project fuels.
Starting and technological mode adjustment of monitoring and control systems.
Preparation of maintenance documentation.
Training of customer’s operating personnel.

References
Functional thermal testing of turbounit at the Baikal TPP
Examination of the system of recirculating water supply at Novo-Ziminsk TPP
Inspection and examination of the system of recirculating water supply at Ust'-Illinsk TPP
Commissioning of power unit № 2 of 325 MW at the Aksu TPP of the JSC “EEC” (Kazakhstan)

Alexander M. Medvedev
Deputy technical director (commissioning)

Achievements
Reconstruction of Novosibirsk TPP-4
Reconstruction of Novosibirsk TPP-2
Reconstruction of local boiler plants (Novosibirsk)
Reconstruction of fuel supply system at Novosibirsk TPP-5
Innovative activities

In 2009, holding company established a total-cycle innovative company “COTES-Nauka”. Experts of the company are targeted at creating not only fundamental theoretical works, but practical developments meeting the demands of power engineering, too, and at developing technological basis of power engineering of the future.

Major activities of the Joint-Stock Company “COTES-Nauka”

- Study of thermal physical properties of working media and materials applied to power engineering
- Development and implementation of the means of industrial control of technological processes in power engineering
- Improvement of technical level and operations of steam and gas turbine installations and power units
- Study of physical and chemical characteristics and thermal technical properties of solid and liquid fuel, analysis of fuel mode of power stations
- Pilot and theoretical studies of operational processes in kettles and boiler plants
- Study and evaluation of strength of kettles’, turbines’ and pipelines’ metal
- Development and upgrade of water-preparation technology and technology of preparation of water chemical solution
- Estimation of influence of thermoenergetic objects on environment

Felix A. Serant

PhD (engineering), Russian federal government prize winner in the field of fundamental scientific researches and engineering, author of 38 inventions and patents, monographs and 140 published articles and reports, Director of JSC “COTES-Nauka”

Achievements

- Development of boiler plants with the ring (annular) furnace chamber. The head steam generating unit of this series of 820 t/h capacity, manufactured by JSC “SibEnergoMash”, was installed at Novo-Irkutsk TPP
- Development of draft proposals and designs for reconditioning and creating new boiler plants:
  - Kettles П-57Р at the 500 MW power unit of Ekibastuzskaya TPP-2
  - Steam kettle ТП Е-214 at the Novosibirsk TPP-5
  - ГК-40 at the Belovo and Tom'-Usinsk TPPs
  - ГК-10 at the Yuzhno-Kuzbasskaya TPP
  - The 500 MW power units of Ekibastuzskaya TPP-1 and TPP-2
  - The 500 MW power units of Nazarovskaya TPP
  - The 300 MW power units of TPP “Ermakovskaya”
  - The 800 MW power units at Bereznovskaya TPP
  - The 300 MW power units of TPP in Bosnia and Herzegovina
  - The 200 MW power units of TPP in Macedonia and Montenegro
  - The 210 MW power units of TPP in Nevil, India
Innovative developments

Pulverized-coal boiler plants with the ring (annular) furnace chamber

Ring (annular) furnace chamber allows:
- Reduce boiler plant’s height by 20%
- Reduce boiler plant’s heating surface by 20%
- Improve the reliability of operation of furnace waterwall panels through the uniform heating along the furnace perimeter
- Reduce fouling and slagging in furnace
- Reduce NOx emissions
- Activate heat exchanging in furnace chamber
- Improve the building and support-suspension structures of boiler plant

Systems of step staged combustion of fuel

New technology allows the following:
- Reduce NOx emissions to 350-400 mg/nm³
- Provide high efficiency and stability of combustion at a low level of CO emission
- Reduce furnace screens’ slagging and corrosion

Systems of heat recovery of outgoing gases of industrial boiler plants and processing furnaces

Usage of systems of heat recovery allows the following:
- Increase the efficiency of industrial furnaces by 15-20%
- Save 15-30% of the combusted fuel
- Provide ecological friendliness of the equipment
- Perform water heating for heat supply by using the low-grade heat

Low-emission straight-flow and swirl powdered-coal burner devices

We offer several kinds of burner devices:
- Low-emission gas and fuel oil burners
- Swirl adjustable burner for the furnaces equipped with roller mills
- Swirl burner with adjustable swirl of secondary air
- Swirl powdered-coal burner with the system of high dust concentration (HDC)
- Straight-flow and slot burners for tangentially fired furnaces

Usage of systems of heat recovery allows the following:
- Increase the efficiency of industrial furnaces by 15-20%
- Save 15-30% of the combusted fuel
- Provide ecological friendliness of the equipment
- Perform water heating for heat supply by using the low-grade heat

Low-emission straight-flow and swirl powdered-coal burner devices

We offer several kinds of burner devices:
- Low-emission gas and fuel oil burners
- Swirl adjustable burner for the furnaces equipped with roller mills
- Swirl burner with adjustable swirl of secondary air
- Swirl powdered-coal burner with the system of high dust concentration (HDC)
- Straight-flow and slot burners for tangentially fired furnaces
Local automation systems for automating technological processes of boiler plant equipment

The system allows to automate the processes of ignition, control of vibrobit devices, water-jet sootblowing and steam "Cannon" soot-blowing.

Local automation system provides possibilities for adjusting configuration to meeting particular targets, operation control at all stages, and it also allows visualization of the processes at different levels of zooming.

References

The system was developed on the basis of progressive advance of engineering solutions taken for the following facilities:

Novosibirsk TPP-3
Imin TPP (China)
TPP Jerada (Morocco)
TPP in Ust'-Kamenogorsk

Production of the high-energy striking-signaling systems

Advantages of the striking-signaling system:

Automation of the process of lighting and illuminating the burners of boiler units
Provision of fire safety of ignition
Improvement of technological effectiveness and efficiency of power generation processes
Simple and reliable operation and maintenance
Spark electrode can make self-cleaning from combustion products
Reliable overheat protection
Continuous control over the process of ignition and operation of the burner by the intellectual selective control meter of the ignition torch at combustion of combined fuel in steam boiler plants

References

Ignition of powdered-coal burners of the ТП Е-214 boiler plants at Novosibirsk TPP-5
Ignition system together with 24 igniting devices was supplied to the power generation unit #2 of the Akos TPP (Kazakhstan)
Reliable business partnerships

Our business partners:
- JSC “Machine Building Plant ZiO-Podolsk”
- JSC “Enterra”
- Power generation equipment producing company Loesche GmbH
- Machine building company “SES Timoce”
- Transnational company “Clyde Bergemann”

Our regular customers:
- Electrical engineering company “EPC”
- Power generating coal company “IrkutskEnergo”
- The largest power generation research institute “VNIIPI EnergoProm”
- Power generation company “Astana Energy”
- Power generation company “AIIEs”