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Business Information In A Global Context

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ПРОМЫШЛЕННЫЙ еженедельник

Stake on Energy

Russian Leaders do not change Priorities

THE CHANGE OF POWER IN RUSSIA CAUSES TRADITIONALLY AN INCREASED STRESS ON BEHALF OF INVESTORS WHILE WAITING FOR CONCRETE SPECIFICATIONS OF CHANGES. THIS TIME THE SITUATION IS STABLE: DMITRY MEDVEDEV WILL CONTINUE TO SUPPORT AND DEVELOP THE ECONOMIC PRIORITIES MADE BY VLADIMIR PUTIN. THIS ISSUE OF THE SPECIAL PROJECT «INDUSTRIAL WEEKLY» IS MEANT TO GIVE AN EXAMPLE OF THE MOST PROMISING PLAYERS OF THE RUSSIAN POWER INDUSTRY MARKET. THESE ARE SUCH COMPANIES THAT VLADIMIR PUTIN AND DMITRY MEDVEDEV COUNT ON IN THE ENERGY POLICY.

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Promoting Russia's Energy Security

"Goelro-2": the Development Plan of Power Energy sector

Vera Lebedeva

THE ENERGY SECTOR IS A PRIME MOVER OF GLOBAL ECONOMIC PROGRESS, AND SUSTAINABLE DEVELOPMENT OF ANY COUNTRY DEPENDS LARGELY ON ITS EFFICIENCY. GIVEN THE DEPLETION OF RUSSIA'S CURRENTLY PRODUCING FIELDS, WE SHOULD PROMOTE THE NATIONAL ENERGY SECURITY BY REDUCING OUR FOSSIL-FUEL DEPENDENCE. HENCE THE NEED TO STEP UP RENEWABLE ENERGY DEVELOPMENT. HYDROPOWER IS NOT ONLY ENVIRONMENT-FRIENDLY BUT ALSO PROVIDES VAST OPPORTUNITIES FOR DIVERSIFICATION AND PROMPT RESPONSE TO LOAD AND DEMAND CHANGE.

JSC RusHydro, Russia's largest power generating company and the world's second biggest company in terms of installed capacity, is a leader in developing the enormous potential of hydropower. RusHydro consistently abides by strict ecological standards and the principle of social responsibility, and takes the most careful approach to likely transformations of environment at all of its facilities, both current and future.

After a close study of the situation, the company has embarked on finishing construction of the Cheboksarskaya HPP, a project approved 40 years ago but still uncompleted. It has turned out that the low pressure hydroscheme at the current elevation of 63 m (design elevation 68 m) is unable to solve the entire range of Volga River problems (ecology, navigation, etc.). This point was also made in the statement of Caspian regions' leaders and in the findings of a special Federation Council commission, which suggested that the RF Government make a decision on implementing the initial design.

Also on the Government's instructions, RusHydro is currently exploring the possibility of building the country's most powerful (8,000 MW) Evenkiiskaya HPP which would transfer electricity to western regions of Siberia via direct-current power transmission lines. The project began with a public opinion study at the place of would-be construction. The people of Evenkia were pleasantly surprised to note the company's departure from the principles on which the great construction projects used to be implemented in Soviet times when ecological and social problems were dealt with on the leftover principle (electricity generation to the detriment of all other things, as exemplified by the same Cheboksarskaya HPP project). Now their solution is planned at the Terms of Reference stage of EIA.

The adoption of new, eco/socio-friendly technologies will help RusHydro to cope successfully with issues involved in promoting the nation's energy security in the future as well.

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We want to make these companies closer and more understandable by telling about their role in developing and reforming the industry, their investment projects, business principle, etc. In other words, we would like to say that there are good players in the Russian power industry to deal with!

Dmitry Medvedev is taking the country's power industry from Vladimir Putin in an interesting time when the industry is being actively restructured, the volume of investments is increasing, the process of liberalization of electric power market is being moved as planned, new generation companies go public successfully one after another attracting a high interest of international investors. Certain assets cause a serious fight involving financial and political recourses including those of foreign countries. And at the same time the energy yield is steadily growing, investment energy projects are becoming more ambitious and their successful implementation do not cause doubts. This is an interesting time in deed for the Russian energy power. A unique time for unique plans and unique opportunities including implementation of international energy projects.

Vladimir Putin while meeting with the President of the USA George Bush in Sochi marked: «We hope for further development of our energy dialogue filling it with perspective projects which correspond with the immense potential of two counties and favor strengthening of energy safety". Per se this is an appeal to a world energy dialogue, the importance of which is admitted by both leaders, an appeal to develop energy projects for which the Golden Age is coming in Russia.

Russia is the fourth largest energy market in the world after the USA, China, and Japan. The capitalization of RAO UES (including its subsidiary companies) is estimated in the range of $70-95 billion. And we have every reason to believe that this is far from the final price as the industry has quite a number of hidden and "dormant" assets which may add 15-20% to the capitalization. The said capitalization does not take into account the prospects of CIS countries participation in the energy as well as dividends received from synchronization with European systems that experience an increased deficit of generation. More over the economy of the country increases the consumption of energy by 5-8% annually.

Dmitry Medvedev not in the least than Vladimir Putin realizes how vast and attractive in terms of investments the Russian power energy is. And this is not the point that he has been Head of Board of directors of the world's largest gas monopoly — Gazprom. More important is his focus on keeping the present policy and support of developing advanced technologies. "We need to work out such a set of measures that would make building stations and power lines according to the latest technologies more beneficial than those built on drawings from the last century", — this is an important thesis of Medvedev's program for power energy development, and it should be paid attention to. There is one more quotation of the new President to the subject: "We should provide a long-term lending for projects that satisfy the most strict criteria for energy effectiveness. Besides that, the government may and should participate in co-financing of those energy projects that apply latest technologies".

By the way, for those who are too careful Mr. Medvedev stated in Krasnoyarsk that Russia will certainly carry out its commitments for all its energy supplies and projects. It is quite evident that the new President will give a new impulse to development of Russia — EU energy dialogue bringing it to a form of international energy communication according to experts. The status of energy superpower declared by Russia presumes first of all a complex of certain energy responsibility and initiative in establishing energy mutual understanding. And this very issue i.e. energy mutual understanding is the subject of the present project.

Photo by Fotoxpress

To build over 2,500 MW

OGK-1 is the largest wholesale thermal power generation company in Russia with installed capacity of 9,531 MW. The company owns six thermal power plants (TPPs) located in the most energy deficient areas of Russia with the projected highest rate of increase in power consumption. The company is implementing an ambitious investment program, which includes the construction of over 2,500 MW of additional generation capacity by 2012. Most of the new generating facilities will be constructed in the Urals region.

The first of OGK-1's new capacity will come on line this year with the commissioning of a 330-MW coal unit at Kashirskaya TPP, producing approximately 10% of Moscow's power systems energy. The unit will have an asynchronised generator of conceptually new design for more flexible and reliable operation.

The company is also developing an unprecedented project of constructing a 450-MW unit based on combined cycle gas turbine (CCGT) design in 2011 at Urengoyskaya TPP. The power plant situated in an area that has severe climate conditions and permafrost will see its first 320MW as early as in 2009.

The project of Nizhnevartovskaya TPP, the youngest and most effective power plant of OGK-1, is remarkable for the innovative use of project finance which is a groundbreaking investment model for the Russian energy sector. The project is to be implemented jointly with TNK-BP, and after the CCGT-unit of 800 MW is commissioned in 2010, it will be using the associated gas provided by TNK-BP and supplying the electric power to TNK-BP in return.

The new power unit at Nizhnevartovskaya TPP will allow OGK-1 to meet the fast growing demand of the regional industry. The project will benefit from the excellent geographical position of Nizhnevartovskaya TPP, close to the source of fuel and in the region with the rapid growth of demand for energy. The partners are in the process of jointly selecting the EPC-contractor that will manage the construction of the new power unit at Nizhnevartovskaya TPP.

Another CCGT-based unit of 800MW will be constructed at Permskaya TPP, making the power plant the largest one in OGK-1 with the capacity of 3200 MW in 2010, able to cover the energy deficit which already shows in the area. The project involves an EPCM-contractor and Siemens as the power equipment supplier.

In pursue of the most effective financial and environmental solutions the company has switched fuel for a new 330-MW unit at Verkhnetagilskaya TPP planned for 2011 from coal to natural gas, with no changes to the planned capacity and project timetable.

First privatized

OGK-3 is one of the first privatized Russian power producers. The main owner of the OGK-3 is Russian metals giant Norilsk Nickel.

The OGK-3 includes six large federal electric power plants: Kostroma SDPP, Pechora SDPP, Cherepetsk SDPP, Kharanor SDPP, Gusinoozersk SDPP, Yuznouralsk SDPP. The plants are scattered all over Russia in seven time zones from the North Polar Circle to the lake Baikal region. The installed capacity of all six power plants of the OGK-3 amounts to 8497 MW, which is more than 5 % of all generating capacities of the JSC RAO UES of Russia. The OGK-3 power plants are located in rapidly growing regions of Russia. The company shares float at Russian Stock Exchange and at Moscow International Currency Exchange.

The OGK-3 major long-term objective is a growth of capitalization, transparancy and stability of the Company. The strategic priorities of the OGK-3 include: expansion of generation and sales of power, improvement of SDPP capacity, implementation of new advanced technologies; improvement of reliability of heating and electric power supply; development of the Company high corporate and organizational culture; environmental care.

Now the Company has worked out its strategy until 2012 and plans to invest about 4 bln dollars into its power plants development. These goals include almost doubling its generating capacity by raising it to 15 gigawatts over the next ten years. Besides this, the company plans to go into coal. In three to four years, it expects to spend about $200 million on coal assets so it can supply 50 percent of its coal fuel demand, of which it consumes 7 million tonnes per year.

"We plan to get our own coal reserves or greenfield coal mines to develop. This is a promising approach, especially in Siberia, above all to lower the physical risk of fuel delivery, and the financial risk of fuel prices," Sergey Tazin says. At the other end of the supply chain, OGK-3 is seeking to acquire or establish electricity sales firms that deal directly with the end consumer. This will cut out the middle-man structure in the power market and allow OGK-3 to sell its power more cheaply.

"We will achieve the goals we have set for ourselves," says company executive director Sergei Tazin.

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OGK-4 to enter new stage

The management of the Generation company four of the wholesale electricity market (OGK-4 and its key shareholder E.ON held webcast on 2007 Company's results for analysts of investment companies and banks.

Actual start of electricity market liberalization, additional issues of shares and sale of the state-owned stake of OGK-4 charter capital in the favour of E.ON, as well as signature of first EPC-contracts for new capacities construction, were named by Andrey Kitashev, OGK-4 Director General being 2007 milestones. "OGK-4 showed high production results last year — it became the leader among Russian thermal OGKs in terms of electricity output and capacity loading. Three power plants — Surgutskaya GRES-2, Berezovskaya GRES and Yajvinskaya GRES — produced the unprecedented electricity output since they were launched", highlighted OGK-4 Director General.

Roman Lenkov, Deputy Director General for economics and finances noted that 2007 company's revenue as per RAS (Russian accounting standards) gained 18% growth compared to 2006 and made up RUR 31.5 bln. Net profit amounte to almost RUR 1.5 bln., which is 2.5 times higher than it was planned. Such high results were reached, in particular, due to precise cost control and effective performance in wholesale electricity market as well.

"Already after one month of operation in Russia it became obvious for us that we have purchased a good assets portfolio", — indicated Sebastian Eisenberg, OGK-4 Board member, in his speech. From his perspective prompt implementation of OGK-4 investment program is currently one of the key objectives. "Next step of E.ON should be the extension of the Russian assets portfolio and increase of assets value, and in these terms E.ON counts on OGK-4 management support", — pointed out Mr.Eisenberg.

CIP JSC successfully performs the projects for FGC UES

The principal mission of the Centre of Infrastructural Projects JSC (CIP JSC) is the creation of the Decision Support Systems (DSS) capable of acting in any field of management of the economic entities spatial resources on the basis of the geoinformation systems.

The Company created the Corporate Geospatial Resource Management System (CGRMS) for the trunk transmission lines (330 kV and higher) of Federal Grid Company of Unified Energy System of Russia (FGC UES). CGRMS was created and commissioned at FGC UES (45 branches) as DSS for analysis, estimation, and management of assets and technical conditions of HVLs (45,000 km) and substations (144) in the territory from Vladivostok to Kaliningrad.

Nowadays CIP JSC successfully performs the projects for FGC UES on creating CGRMS for 220 kV transmission lines of 90,000 km length, and for Moscow United Electrical Grid Company on creating CGRMS for 110-6 kV distribution lines in Moscow Region (47,000 sq. m length).

Also CIP JSC performs the works for FGC UES in new directions, where application of geoinformation technologies is worthwhile:

— FGC UES' assets management for the life cycle including permanent assets, land, real estate, inventory and work management;

— estimation of technical conditions of facilities and presentation of aggregated data for assets management, planning, and budgeting systems while planning and realizing the works on maintenance and repair of the electric grid infrastructure of FGC UES;

— recovery of the lost design documentation and control of technical information, design and estimate documents related to any features, facilities, systems, equipment, etc.;

— research and development and control of civil and construction-assembly works at any stage of construction and/or reconstruction, including analysis of deviations from the project facility already constructed;

— updating of initial survey data and implementation of work practices and procedures.

CIP JSC have been rendered the facilities of monitoring and natural calamity forecasting (fires, lightning, glaze-ice, squally wind) for FGC UES since 01.08.2002 for making decisions on efficient management of routine operation of the electrical grid infrastructure.

CIP JSC is the first Russian company, which used a dirigible possessing an unique 8-channel integrated aerial surveying system, and made by AeroScan JSC — CIP JSC`s branch spatial monitoring of land for various industries, including power industry, oil and gas, railroad and highway.

JSC Centre of Infrastructural Projects

E4 Group: State of the Art Engineering Concepts

E4 Group was established about 2 years ago. However, it succeeded in becoming one of the largest and key market participant of engineering services of Russia. The Company declares, that it will continue to grow with equally fast pace in 2008. E4 Group intends to allocate up to US$90 million for repowering, establishment of training centers and purchase of assets not only in Russia, but also abroad. Peter Bezukladnikov, CEO E4 Group presented the Company.

— How the idea did come to you to set up the company?

The Russian economy is at the moment at the stage of fast development. This leads to considerable growth of electric and heat power consumption. The investment program of RAO "EES of Russia" launched for the period from 2006 to 2010 envisages construction of the new generating capacities amounting to 40.9 thousand kW. Before 2006 the Russian market could not offer major contractors capable to perform EPC(M) contracts of new power units construction using their own resources. Therefore, in 2006 the amalgamation of key engineering companies resulted in setup of OJSC "E4 Group."

— What is the company organizational chart?

— This is a vertically integrated company with transparent business-processes, minimum administrative and management staff and planar structure of business kinds: design and research, construction and erection, construction of electrical networks and substations, service and repair, logistics, IT. The total number of employees is over 18,000 highly knowledgeable specialists.

— What are your financial and economic indicators?

— The revenue for 2007 amounted to over US$1138 million. At the moment we have signed the contracts at the total amount of about US$2333 million and we intend to invest up to US$90 million into development of the Company in 2008.

— Could you tell us about operating contracts of E4 Group?

The total number of Russian and foreign projects performed by our business-units, exceeds 350. I would like to emphasize 3 contracts, awarded in 2008: Construction of power units 2x400 MW for the construction of Stavropol TPP (EPC Contract), CCPP-410 MW construction in Krasnodar TPP (EPC Contract) and construction of power unit #4 for 800 MW in Perm TPP (EPCM Contract).

www.e4group.ru

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"IES intends to join Russia's top five energy companies"

Interview by IES-Holding President Mikhail Slobodin

Mikhail Slobodin,
President of Integrated Energy Systems

The first stage of the energy industry's reform is nearing completion. RAO UES of Russia is holding the last auctions to sell its assets and will go into liquidation as early as on 1 July. The industry's further development will to a large extent depend on the new owners of the generating assets. One of them, CJSC Integrated Energy Systems, is the largest Russian private operator in the electric power and gas-distribution industries. Today we have with us IES-Holding President Mikhail Slobodin.

— In one of his latest public appearances, RAO UES CEO A.Chubais hinted that Gazprom or SUEK may be only a second-largest owner of generating assets. He may have alluded to IES. How do you assess your company as compared with competitors? As a fairly big player?

— I don't want to make guesses, I can tell you how we position and feel ourselves today. IES has already become a fairly serious player in the energy market. Over the five years of the company's existence we have turned into a major holding company with over 60,000 employees in 30 Russian and Ukrainian regions. We have closely approached our main task of building a serious energy corporation. Over the five years of the company's existence I have managed to put together an assertive team of young professionals united by common goals and willing and able to reach those targets. This is important.

We currently assess our business at USD 3 to 4 billion. We want this figure to grow to USD 12 to 15 billion within five years. This year we have to complete business structuring in two main lines of activities, i.e. generation and retail sales. Non-core assets will be sold. We plan to present our new structure and five-year strategy to the investors' community in the first half of 2008. We are paying a lot of attention to preparations for an IPO scheduled for 2009-2010.

Our plans include becoming Russia's largest heat producer, the largest gas transportation company next to Gazprom and the largest seller of electric power, heat and gas to retail consumers. In other words, within the next five years, IES intends to join Russia's top five energy companies.

— Are you really planning an IPO? Where?

— I think by 2009 we will have a better understanding of where an IPO can be most efficient. The shareholders will naturally maximize the company's capitalization, there are scenarios for holding (an IPO) in Russia. I think by that time the Russian market will catch up on its instruments as well. Of course, there is a well-known, traditional, currently popular alternative, which is London. Russian investors are now discovering Deutsche Boerse and so on. I think closer to 2009, we will decide on this.

— You have mentioned that the company's business is currently under transformation. How will IES' business be organized by the time you hold an IPO?

— In fact we have spent nine months to develop an optimal business model. IES officers communicated with six European and world energy companies in order to understand those companies' operational schemes. We discussed these issues with experts of major energy holding companies for about three weeks. Today we know for sure what makes their operations efficient.

A business model developed by IES-Holding will comprise generation (fuel, electric power and heat production, heat networks), trading (fuel purchase, operations in the wholesale electric power market, heat supply bilateral contracts) and retail sales (electric power, heat, gas).

Three divisions will be established on the basis of IES assets. Firstly, the Generation Urals Division based on OJSC TGC-5 and OJSC TGC-9, with its headquarters located in Perm. Secondly, the Trading Division with its headquarters located in Perm. And thirdly, the Retail Sales Division with its headquarters located in Moscow. However, as *(new)* assets are acquired in the key regions, the number of divisions may change.

— What do you consider to be the most vital current problem for the new owners of generating assets?

— I believe that one of the most vital and absolutely unresolved problems is technical connection to the grids, which currently accounts for 10-20% of investment programs. The procedure and the amounts that the companies are required to pay now were not at all provided for in the generators' investment programs. It means that an additional burden of RUR 60 to 70 billion, being quite a considerable amount as I should say, lies on the company.

As a matter of fact, I am convinced that only one third part of the reform has been completed so far. During the second part investors will proceed to the implementation of the investment program, start operating in the new capacity market, this will be the time when the generators start operating under new conditions, and all mechanisms run in and tune up. It is exactly the second stage that the whole reform's efficiency and completion will depend on.

For my part, I am sure of success of the industry's reform. The difficulties and challenges we are currently facing are quite surmountable, if all of us, meaning the state, industrial ministries and agencies, and private strategic investors, listen to and hear what each of us says and work as a coherent team.

In Brief

Mikhail Slobodin,
President of Integrated Energy Systems
Born on September 17, 1972.
1992: Graduated from the Ural State University, Faculty of Economics (major: Economics, summa cum laude).
1992-1996: Sevuralboksitruda, Foreign Economic Relations Department, Engineer; Finance Department, Deputy Head of Department.
1996: Renova, Representative for the Ural Region. Field Cryolite Plant, Head of Business Development Project.
1996-1999: SUAL, Economic Department, Head of Department; Financial and Economic Department, Deputy Head of Department.
1999-2000: Nizhniy Tagil Smelter, Deputy Director General for Economics and Finance.
2000-2001: Renova, Regional Development Department, Director. Project Manager for establishing UralTEK (coal energy company: 5 thermal power plants in Russia, and 2 coal strip mines in Kazakhstan).
2001: Irkutskenergo, First Deputy Director General for Economics and Finance.
2002: TNK, Power Business Development Department, Director. After the TNK and British Petroleum merger: TNK-BP Management, Vice President for Energy.
2003: appointed Director General of IES, then in 2006 took up a post of President of CJSC IES.

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Tyumen: Investment-Attractive Zone

Anilov Denis, Deputy Director of Investment Policy and State Entrepreneurship Support Department of the Tumen Region

Now, the Tyumen Region, which is among the most stable Russian regions, is considered one of the most attractive places for potential investors. Its GRP grew by over 10% in 2007, which is more than its average growth in Russia.

The Tyumen Region is Russia's complex constituent part including, besides the southern Tyumen Region, the Khanty-Mansi and Yamal-Nenets autonomous areas that are not its administrative units and remain full-fledged parts of Russia.

The region's economy features many branches. It has large industrial enterprises, developed infrastructure, efficient agriculture and a wide range of various social services.

The Tyumen Region has various mineral resources, namely oil, peat, quartz sands, brick and keramzite clays, sapropels, limestones, fresh and mineral waters, etc. It is rich in peat, which industrial reserves (495 deposits) are estimated at 37 billion cu.m.

The timber and woodworking industry plays an important role in the development of the region. Its standing timber reserves total about 920 million cu.m.

In the last years, the growth of fixed capital investments has been steadily growing in the Tyumen Region. In 2006, 87.5 billion roubles and in 2007 — 113.7 billion were invested into the region's (without autonomous areas) economy and social sector.

Such companies as Lukoil, TNK-BP, Gazprom, US-based Halliburton, Austrian-based OMV, Salym Petroleum Development (Dutch-British Shell) and many others have already started working in the Tyumen Region.

The south of the region features rapidly-growing power industry that fully meets regional requirements and transferring electric power to other regions. The German-larges concern E.ON and Russian company STS have established a Tyumen-based joint venture dubbed E.ON-STS Energiya to build power facilities with a capacity of 3,000 MW.

Also, the region has the developed petroleum industry supplying Russia's petrochemical industry with light hydrocarbons. In 2006, the Antipinskiy oil refinery was launched.

Chemical and petrochemical enterprises manufacture butadiene, synthetic resin, plastics, polyethylene pipes and polymer film. Sibur Holding has initiated building the world-largest olefins and polymers production petrochemical plant worth 1.7 billion Euro. 350 million Euro have been invested into the construction of the Ural Mining and Metallurgical Company's iron and steel works. Schlumberger and Bentec Drilling & Oilfield Systems companies are implementing oil-and-gas equipment production projects in the Tyumen Region.

There is a considerable demand for construction and finishing materials in the Tyumen Region due to rapid growth of the building industry. In 2007, the housing construction equaled 896,000 sq.m and 1 million sq.m are to be built in 2008. The MC Bauchemie Russia company plans to spend 10 million Euro for the production of dry mixes. Talks are being held with Knauf on building a heat-insulation materials plant.

An agreement of intent has been signed with Ikea on constructing a furniture shield plant.

The Tyumen Region is included into the Russian State Industrial Clusters Programme.

The legal, infrastructural and information platform has been created in the Tyumen Region in order to attract investments. In 2003, Regional Law No.159 "On state support for investments in the Tyumen Region" was adopted, which allows for the following types of supporting investors: tax exemptions in line with federal and regional laws, budget loans, subsidies, subventions and other forms.

The government of the Tyumen Region has worked out and is offering investors more than 60 investment projects totally worth over 12 billion Euro in the following branches:

— Chemical and petrochemical industry;
— Oil refining;
— Machine-building;
— Woodworking;
— Shipbuilding;
— Pharmacy;
— Biotechnologies;
— Peat processing;
— Construction materials production;
— Agriculture;
— Light and food industry;
— Transport and logistics;
— Commercial and residential real estate;
— Housing and public utilities;
— Service industry.

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Visit www.investintyumen.ru for all additional information on the investment potential of the Tyumen Region.

In Brief

The Tyumen Region (without autonomous areas) is situated within the Western-Siberian plain. Its area is 161,800 sq.km. It borders on the Sverdlovsk, Kurgan and Omsk regions, Khanty-Mansi Autonomous Area and Kazakhstan.
Population — 1,314,500 people
Population density — 8.2 inhabitants/sq.km
Administrative centre — Tyumen (570,900 people).

Urals IDGC — Investing into Consumer's Comfort

The company supplies its consumers with over 80 billion kWh a year

The Urals Interregional Distribution Grid Company OJSC (Urals IDGC) is a united operating company managing distribution grid networks of the Sverdlovsk, Chelyabinsk and Kurgan regions as well as the Perm Territory. Its operational area totals 514,000 sq.km with over 12 million people living there.

The company's cable and overhead power lines are stretching more than 150,000 km. It has 36,300 transformer substations with a total capacity of over 52,000 MVA. The total headcount of the grid facilities exceeds 14,000 employees.

Urals IDGC provides electric power to over 1.6 million consumers, including 30,000 industrial enterprises of the Urals, namely the Ural Mining and Metallurgical Company, Pipe Metallurgical Company, VSMPO-Avisma Corporation, Siberian-Ural Aluminum Company, Maxi-group, Magnitogorsk Iron-and-Steel Works, Russian Railways, etc. The company supplies its consumers with over 80 billion kWh a year and this figure is yearly growing by 4.5%.

The development of the Urals power distribution system is one of Urals IDGC's key objectives. About 25 billions rubles are to be invested into the grid infrastructure of the Sverdlovsk, Chelyabinsk and Kurgan regions as well as that of the Perm Territory by 2010. In this period, Urals IDGC is going to build many transformer substations with a total capacity of 4,000 MVA and about 3,000 km of transmission lines.

The investment projects were successfully implemented chiefly due to Urals IDGC's close cooperation with regional authorities. Urals IDGC is now the only interregional company that signed cooperation agreements with administrations of all regions of its activities. The company is working on forecasts of electric demand growth and elaborating and updating plans for the development of the Urals jointly with authorities and major power consumers. The joint programme and interaction between authorities and energy companies allowed the steady development of power systems of the Sverdlovsk, Chelyabinsk and Kurgan regions as well as the Perm Territory and properly meeting the growing economy's demands in electric power.

Another Urals IDGC's key objective is improving customer affairs. In order to create a united electric power quality management system according to the state standard, the company has certified electric power transmitted to consumers. In February 2008, all Urals IDGC's energy producing affiliates finished the certification of electric power. About 1,000 main substations have been certified within Urals IDGC's area.

To ensure the high quality of services, Urals IDGC is preparing to monitor the quality of electric power and is constantly reconstructing and re-equipping its energy facilities. Only in 2007, the company spent some 1.2 billion rubles on repairing vital energy equipment of its power lines. The Urals power system overhaul programme for 2008 worth 1,239,700 rubles will allow efficient work on establishing the united electric power quality management system to be continued.

Urals IDGC works in line with the United Client Handling Standard setting requirements for and rules of customer relations, determining the quality of services rendered and optimizing and formalizing relations between the energy company and its client.

To improve the reliability of electric power supply, Urals IDGC's initiated the First Class Reliability Programme that has been successfully run within the Urals for over a year. As a result of this long-term project, all municipal formations and socially-important facilities will be powered from several independent power sources, which will allow continuous power supply even in case of malfunction on one of the sources. This will bring the comfort of an ordinary consumer up to world standards.

Urals IDGC's key tasks are reliable and uninterrupted power transmission to consumers of the Urals, high quality of energy transmitted and development of grid infrastructure. Meeting them allows the company's efficient business and full-fledged development of economic and social-cultural sphere of the Big Urals.

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Energoauditcontrol in Russian power sector

Silvian SEU: "Our advantages are integrated solutions and wide range of services"

Geographic, historical and technical peculiarities of Russia's Unified Power market in the transition period make new demands on automated systems applied in electric power industry, such as information and metering, dispatcher management, technological management, etc. Silvian Seu, Director General of the ENGINEERING CENTER "ENERGOAUDITCONTROL" — a national leader in automated systems maintenance answered our questions.

— Mr. Seu, what are EAC's business key principles applied in Russia?

— These principles are the same worldwide. First of all, automated systems used in the power sector are complicated and involve various kinds of metering and communication equipment managed by special software. Such systems are aimed at different targets. For example, systems of commercial electric power metering created to optimize the expenditures on energy and power consumed; besides, only with the help of the Automated Information and Measurement System of Electric Power Commercial Metering (AIMS EPCC) consumers have their way to the wholesale electric power market.

— What services does EAC have on offer?

— We offer a full "circle" of services: development, start-up services and further maintenance of automated metering and control systems. Integrated solutions and wide range of services are among our company's greatest advantages.

To maintain modern information systems we need professional, competent specialists who are numbered in this field. A team of high-skilled engineers, designers and financial experts applying comprehensive approach and understanding of the peculiarities in the time of power sector reforming is key feature of our company. The so called "triple threats" highly qualified professionals able to guarantee quality maintenance of each and every element of the system are rare. On the other hand, hiring numerous maintenance emplyees is inexpedient. As a rule, in this case we work with specialized companies.

"ENERGOAUDITCONTROL" possesses unique experience in servicing companies scattered on our territory, such as energy suppliers, oil and gas enterprises, transport companies. With such geographic scale you need qualified specialists as well as modern technologies of remote control in every region to execute management and administration.

— Could you please tell us a few words about your clients.

— Our clients are most significant Russian companies, known all over the world. Among them *Gazprom, Russian Railways, Sibur, Gazpromneft*, and *Mosenergo*. By the way, these companies are major power consumers; for example, Russian Railways' share in national consumption balance is 6% *Gazprom* has about 2.5% Vast geography of their business makes it difficult to control energy consumption. For instance, *Russian Railways* owns thousands of facilities scattered from Kaliningrad to Vladivostok. We have created metering and control system which enables us to have centralized access to the data and process it on-line via modern software.

— What other large-scale projects is EAC running at present?

— At present we are simultaneously running many projects. It is suffice to say about the systems of commercial electric power calculation for *Gazprom* and *Sibur*. They are, of course, not so extended as the AIMS EPCC for Russian Railways but unique in their technically sophistication. It is a real challenge to create a system of the kind in places — I mean gas extraction enterprises — where even elementary analog communication is a problem. Imagine how difficult it is to maintain a steady real time signal. Now you could witness the upshot of this work — the monitor shows the amount of power this or that drill rig or oil pumping station is consuming — by the way, they are located beyond the polar circle.

— What equipment do you use?

— We are geared to exercise world leaders' products, such as Landys & Gyr who are number one in the world in instrument and system manufacturing for electric power calculation. We also use Echelon-, Elster- and Metronica-equipment. As for transformers, we work exclusively with Russian manufacturers — the Ekaterinburg Plant, Elektroapparat from St. Petersburg, Ramenskoe Plant, and other. We have many suppliers, since the number of equipment items we need for work is about 1,500.

Of course you know that system upgrading is endless. There are always new products that our specialists learn how to work with. There is no turnkey technical solutions, ready to use. You always need some debugging in order to unite separate elements into a failure-free and smooth-working system. This is our know — how.

— EAC's strong point in Russia is in its extensive network. How do your affiliates function?

— It is wrong to create a functioning system and leave it to the cares of your customer — making him to sort out all the problems he faces. We execute monitoring and maintenance of systems by our own means. For this purpose we have organized affiliate network in the territory of the Russian Federation — in St. Petersburg, Yaroslavl, Novosibirsk, Vladivostok, Krasnoyarsk, and Ekaterinburg.

The system functions with the help of our IT specialists and programmers who provide with high-level maintenance, e.g. quality work in central posts of data gathering *(Russian Railways, Gazprom, Sibur)*. The branches have also got mobile teams who — if needed — get directly to the fields to meet the existing requirements, an AIMS EPCC must be restored in 24 hours.

— A company offering outstanding solutions needs outstanding staff, doesn't it?

— We are constantly developing. It is no secret basically it is not funding that is a problem, but high-skilled professionals. There are very few specialists with relevant experience, and of course, they are in great demand. Design engineers are most hard-to-find individuals. Besides, professionals in automatics, power economy and programming are always wanted. At present the company staff amounts at about 500 skilled specialists. The overwhelming majority work in Moscow, and the rest — in our filial branches. We want professionals only everywhere.

— What are the new directions of the company? What projects are short listed?

— We are running a number of new projects — many of them are still being worked out. We would like to diversify our activities. To my mind, we are now working with a very promising segment in residential metering. Some time ago with regards to peculiarities of residential metering tariffs, it was economically inexpedient.

But as the rates are growing up, the problem of precise metering data will certainly occur — and the segment will face dramatic development. We have already started working on retail market AIMS EPCC — the project is being applied for the *Russian Railways*. It is unique both for Russia and Europe.: *the Russian Railways* has got the most branched electric network in our country. Thus, the company provides with electricity all its numerous consumers. This is, in fact, socially important, especially in the regions with no other energy supplier. Schools, hospitals, households, small enterprises are among Russian Railways sub-consumers. Our company's metering system for retail clients allows on-line power consumption check. This 3-year project is very important for Russia.

— In a nutshell, what is the mission of your company?

— "ENERGOAUDITCONTROL" sees its mission in creating perfect metering systems using which our customers become more efficient and powerful!

Our clients are most significant Russian companies, known all over the world. Among them Gazprom, Russian Railways, Sibur, Gazpromneft, and Mosenergo. By the way, these companies are major power consumers; for example, Russian Railways' share in national consumption balance is 6% Gazprom has about 2.5% Vast geography of their business makes it difficult to control energy consumption.

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In Brief

The Engineering Centre "Energoauditcontrol" is the leading Russian company in creation and maintenance of electric power commercial calculation systems and automated dispatcher and technological control systems.

April 2008

Industrial Weekly

United Power Grids of North-West Russia

Veniamin Pinhasik: "The consolidated North-West IDGC is the largest energy producer in the region"

On April 1, 2008, the restructuring of North-West IDGC by merging with seven regional distribution grid companies was completed. The consolidation was carried out under the state-approved programme of reforming Russia's energy industry. This step was approved by the overwhelming majority (99.9%) of the merged companies' shareholders.

Veniamin Pinhasik: «The principle of our operational company is the maximum transparency»

Russia. It has 55.4% of the company's stockholder capital.

In May 2008, North-West IDGC plans to enter the leading Russian stock exchanges without listing and, in June 2008 — to undergo the listing procedure.

"I am for grid companies to remain state-owned. Any instability in the grids may cause serious problems," Veniamin Pinhasik thinks.

To Build but to Take Care

In 2008, North-West IDGC's companies plan to raise investments into the development of the power grid system by 20% up to 3.7 billion roubles. It is going to attract over 1 billion roubles of loans for the construction, re-equipment and overhaul of energy facilities.

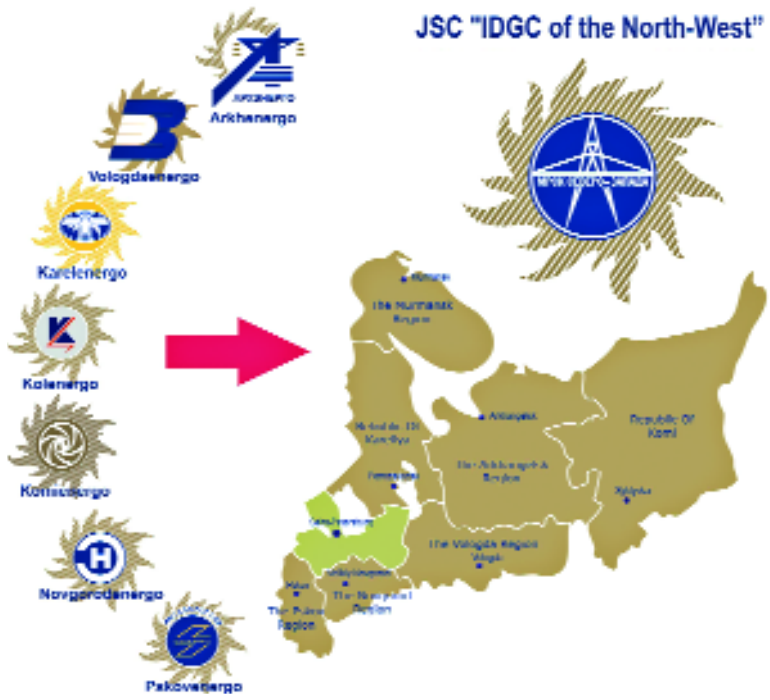
In line with investment programmes for this year, 1,277 km of transmission lines and 358 MVA of generation facilities are to be built.

There are plans to largely raise investments in the Komi Republic. Early this year the 110-kW line and

In the opinion of North-West IDGC Chief Veniamin Pinhasik, it is not a good solution to infinitely build generation facilities to connect new consumers. "The state should think about energy saving. The whole world, except for Russia, is already thinking about it. The reason is low tariffs for electric power making no sense saving it. Thus, energy consumption and grid loads grow and the cost of their maintenance increases. Energy should be saved as it will allow making electric power cheaper for the consumer," he said.

Plans for Future

By 2015, North-West IDGC will have invested some 33.4 billion roubles into the development of the



North-West Interregional Distribution Grid Company covers seven regions of Russia's Northwest Federal District with a total area of 1.5859 million sq.m and a population of 6.69 million people. The total length of overhead and cable transmission lines is 169,300 km. The company has 1,141 substations with a capacity of 35 kW and up. The installed capacity of power transformers of the substations totals 17,500 MVA. There are 35,400 6-10/0.4-kW transformer substations with their aggregate capacity of 6,700 MVA.

What do we have?

North-West IDGC General Director Veniamin Pinhasik called the consolidation a remarkable event. "After April 1, North-West IDGC employs about 14,000 people, so we have become one of the largest companies in North-West Russia," he said.

The company plans to receive 20 billion roubles of profit in 2008. "The financial activity of each branch and the company as a whole will be absolutely transparent," promised V.Pinhasik. "The investor can check each rouble spent on the grid development."

The unified company's capital stock equals 9.5787 billion roubles and it is divided into 95.787 registered ordinary shares with a par value of 10 kopecks each. North-West IDGC's main shareholder is the state in the name of RAO UES of

PS 110/10 kW substation were commissioned, which is the first step to solve the problem of power supplies to Komi's southern parts. Since 2005, the investments have increased almost 5 times and will total some 1 billion roubles by the end of this year.

A 110-kW substation is being built in the Vologda Region, which will ensure steady power supplies to the city of Cherepovets, the region's metallurgical centre.

In 2008, 610 million roubles are to be invested into overhauling and constructing grid facilities in the Novgorod Region. The construction of the 110/10-kW substation will start in Velikiy Novgorod to enhance the reliability of power supplies to the water intake facilities and a residential district. Also, a 110-kW line is to be built to connect a major oil trader to the power grid.

regional power grid system, which will allow to build 5,100 km of transmission lines and to put to operation 2,770 MVA of capacities. Much more money should, however, be spent on building power grid facilities.

"Our task is to construct power grid facilities at priority rates for new consumers to be connected without any limits. Such limits now exist almost in all large cities of Russian Northwest," said company Chief Engineer Alexander Kukhmai.

Now that housing construction and production is growing in the regions, the power industry must not hamper the development of their economic and social sphere. In this situation, authorities and energy companies must cooperate. And this process can be seen.

In 2006, working out regional programmes for power industry development and raising its reliability started. Agreements between RAO UES of Russia and administrations of the Murmansk and Vologda regions have already been concluded. Elaborating programmes with the administration of the Komi Republic and Novgorod Region will soon be completed. The regional agreement stipulates measures to develop the grid infrastructure up to 2012.

Towards Wise Management

"As an operation company, we have the main task of taking proper management decisions and maintaining the stable work of the whole distribution grid system in order to increase North-West IDGC's capitalization," reckons Deputy General Director for Corporate Management Anatoliy Kushnerov.

One of the tasks set by the company chief is to achieve a radically new level of distribution grid management with the development of information technologies being one of the solutions. This year, North-West IDGC plans to establish channels of communication with is branches, which will allow the managing company and seven branches located in North-West Russia to work in one information field.

Taking care of company employees is no less important. North-West IDGC's Board of Directors has adopted the programme for preventing injuries in company branches for 2008-2010, which priorities include creating the advanced labour safety management system, ensuring professional activity safety and protecting health of the employees.

"The energy industry is a sphere, which is dangerous for people working in it. Not everybody can for in an energy company due to bad health, mentality and other factors. That is why, we are paying great attention to psychophysiologic testing of personnel," says Veniamin Pinhasik.

By 2012, North-West IDGC plans to spend more than 1.5 billion roubles for motor transport including special and cross-country vehicles. "Much of our motor vehicles are quite worn-out with almost half of them being more than 10 years old," said Deputy General Director for Logistics Anatoliy Ignatyev. According to him, a united transport division will soon be created in the company to this end.

To take care not only of ourselves but of the environment as well is the company's strategic objective. By 2010, North-West IDGC will have spent 303.6 million roubles on environmental projects. The employment of renewable energy sources in the Northwest grid system is already being discussed.

Visit North-West IDGC corporate web-site at www.mrsksevzap.ru and eng.mrsksevzap.ru (English version).

By North-West IDGC Press-Service

Photo by Anton Shoshin

In Brief

"RAB — new tariff regulations system"

The financial state of distribution grid companies can be improved if the new RAB (Regulatory Asset Base) tariff calculation technique is introduced. This year, its test introduction is scheduled in Komienergo and Novgorodenergo. North-West IDGC has set up a working group on implementing the RAB-based tariff regulation project. It is led by Deputy General Director for Economy and Finance Olga Makarova. "In line with the schedule, we are expecting to have received final calculations of tariff and balance consequences of the new tariff regulation system's introduction presumably by June 1, 2008," she said.

Industrial Weekly April 2008

Towards Blue Gold

Advanced Technologies in Power Generation and Water Treatment

Gulnara Fridman,
Chief of Waterbotruff and Warmbotruff projects

The problem of drinking water is undoubtedly one of the most important problems facing humanity and it will become much more complicated in the future. The lack of energy and pure water are key challenges our planet will encounter in times to come. That is why, each step to solve these problems is far beyond the scope of local technological or marketing success. So, it is especially pleasant to mention new important (and even revolutionary) developments represented by German companies New Oil Technologies GmbH and New Energy Technologies GmbH jointly with St.Petersburg-based Continvest at the Hannover Messe 2008 show. For the first time in Europe and in the world, these companies exhibited cutting-edge and unique equipment — water treatment disinfection units and fuel-free heat generators. The equipment employs the process of cavitation and a number of unique advanced solutions kept in secret by the inventors. (Intellectual property and invention rights belong to corporate authors from Russia and Ukraine).

Problem of Drinking Water

US experts say over half of our planet's population will live in regions with persisted water shortages. Fresh water is rapidly becoming a deficient natural resource and is more and more often called 'blue gold'. In the 20th century, water consumption increased 7 times, while the world population — only thrice. The lack of water causes a number of economic, social and political problems that can undermine stability in the world and lead to global disasters.

Statistics proves that 2.8 billion people constantly lack pure water. For example, in Eastern European countries, 16% of people do not have water and sewerage at their homes, while in rural areas of this region this index exceeds 50%. According to the UN, 37 children die every day in developed EU countries due to water-related diseases. 2006 saw 170,000 such cases with many of the victims being babies from 6 to 11 months old. Doctors assure the loss of 6% of water leads to subconscious state, 10% — to hallucinations and 12% — death. According to the UN Food and Agricultural Organization (FAO), about 4,000 children daily die in the world from the lack of potable water.

Many countries including Russia and Kazakhstan declared this year the year of pure water as this problem is getting increasingly important with every passing year. That is why, units that can turn almost any dirty water into drinking one are vital today and will be needed in the near future. It should be also considered that it takes the units 15-20 minutes (a record-breaking time) to clean dirty water after filling the circuit with dirty water — it is not an ordinary multi-step treatment. Also, the units have compact configuration and the production cost of cleaned water is rather low. The next stage of works (about two months) is sea water desalination and bright results are already available.

Almost all countries face water-related problems. Even such a humid and under-populated country as Armenia (a completely random example) with huge Sevan Lake filled with fresh water will lack some 750 billion cu.m of it yearly by 2025, according to local experts.

To attract attention to this problem, the UN set up World Water Day. The Millenium Declaration adopted by the UN calls for reducing by half the number of people in the world lacking safe drinking water and proper sanitation by 2015. UN experts say meeting this goal requires $10 billion per annum. This year, World Water Day is devoted to hygiene issues as the UN declared the year 2008 the international Year of Sanitation. By the way, about 21% of infectious diseases in India are caused by unsafe drinking water.

The global water shortage is aggravated by the increasing population that will reach 8.1 billion by 2030.

Experts say two thirds of the world population, which is about 3 billion people, will severely lack drinking water by 2025. The world already faces the catastrophic shortage of drinking water, which will soon be called 'blue gold'.

Mexico, on of the most populated cities in the world, will soon remain without potable water as, due to the lack of up-to-date drain systems, rain water mixes with sewage effluents and then runs into water pipelines.

The same situation is in the Spanish region of Catalonia, where 4.5 million people lack drinking water that was usually taken from underground sources that are drying now. Spanish authorities are trying to lay the pipeline from the Rona River in France to Barcelona.

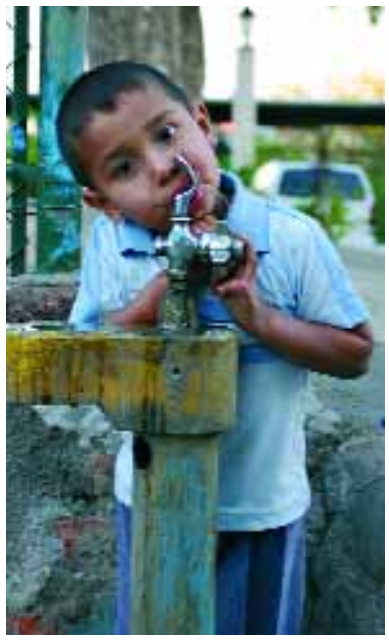
Before the War

Russia is the most fresh water-rich country in the world (Baikal Lake alone contains 23% of global drinking water resources). But it is not profitable to export water (Russia and Brazil could do it very well) even given severe shortages of drinking water. Transporting water (in any state!) to another water basin is quite expensive. Transporting icebergs from Antarctica to South America, Africa and Australia is no cheaper. Icebergs are especially difficult to move in the Northern hemisphere.

With that, humanity consumes only 10% of world river flow and 90% of it remains undisturbed. But these 90% are contaminated by the former 10% already used and released after treatment plants back to the nature. It resembles a fly in the ointment very well. In this context, new state-of-the-art equipment made by New Oil Technologies GmbH, New Energy Technologies GmbH and Continvest compensates for this shortcoming in favour of nature and people.

Water-related problems are complicated in Russia. We use only 2% of the river flow for housing and public utilities and other needs, thus, contaminating the rest 98%. And the main contaminators are not so much industrial enterprises as housing and public utilities of cities, villages, etc.

At that, specific water consumption in different countries varies. This index in Moscow officially equals 500 l per head a year, in Europe — 150-160 l and Berlin — 120-130 l. Of course, much depends on water management habits and culture and… water prices. In Russia, one cubic meter (1,000 l) costs 7-8 roubles and in EU countries — 3-4 Euro — 20 times more. But these are not the only reasons for the gap in consumption…



For the last 40 years, the Middle East and Northern Africa have reduced water consumption by 2.5 times. The problem of water tarnishes relations among the countries of this region that are complicated even without that. Former UN Secretary-General Boutros Ghali thinks water shortages may cause the next war in the Middle East. Former Israeli PM Yitzhak Rabin and King of Jordan Hussein have the same opinion, too.

What to Do?

The mankind is searching for ways out of water crisis already now. Having drunk natural fresh water, the Gulf States started desalinating salt water at a price of $2.4-4.5 per cu.m. Turkmenistan is seeking $4 billion to build the world-largest salt lake. China is constructing channels as it can afford to spend $59 billion to build three 1,300-km channels. Indeed, the ground water level in Beijing falls by 70 cm every year.

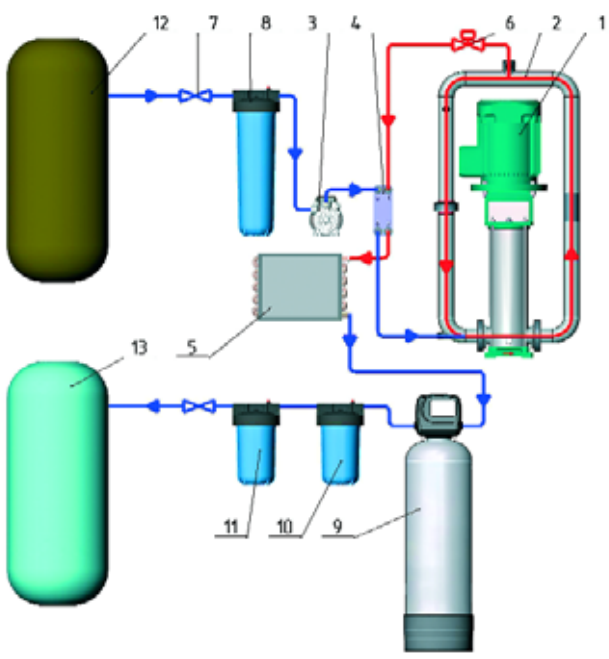
Russia has enough water-related problems, too. It has the Supply of Population with Drinking Water federal target programme designed for 10 years. It provides for river sanitation, replacement of water treatment facilities and water pipelines, introducing advanced treatment technologies and many other useful things. Due to the lack of funding, however, most Russians will simply boil water in the coming 40 years.

Yet, there is a better solution. Much better!

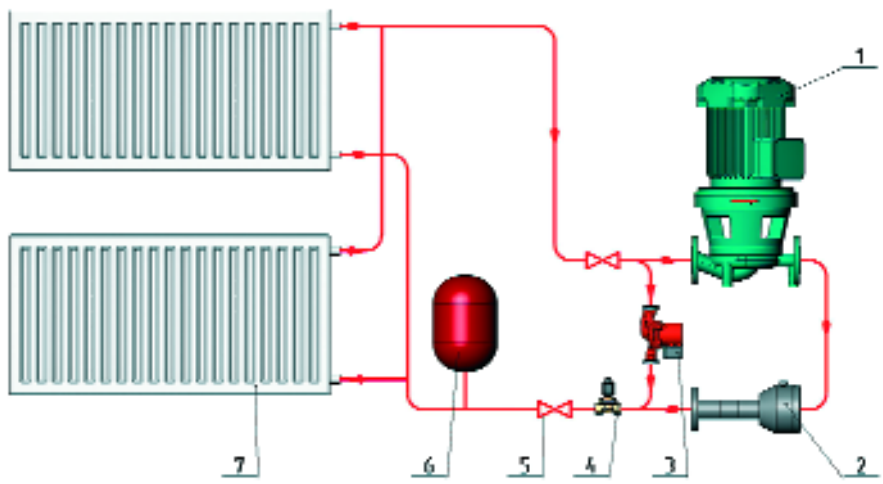
Let us return to the beginning of our conversation. To radically new equipment designed by New Oil

Principal hydraulic diagram of unit installation for disinfection and purification of water. Description of diagram:

1 — High-pressure cenrifugal pump;
2 — Hidrodinamic contour;
3 — Injecting pump;
4 — Plate heat exchanger;
5 — Heater;
6 — Electro-magnet valve;
7 — Ball cock;
8 — Filter for rough purification;
9 — Charding filter;
10 — Filter for fine purification;
11 — Filter for fine purification;
12 — Tank for initial water;
13 — Receiving tank.



Principal diagram of heat generator



1 — The main pump "WILO";
2 — Generator;
3 — Circulating Pump;
4 — Electro-magnet valve;
5 — Ball cock;
6 — Expansion tank;
7 — Heating radiator.

Technologies GmbH, New Energy Technologies GmbH and Continvest — Waterbotruff units, in which boundary conditions of cavitation destroy pollutants and organic molecules and make water from any pool or loo in the world drinkable!

Tested

It is very important that the unit demonstrated at the Hanover show was not a laboratory one. It is an almost series product, which has undergone serious tests in various countries, places and organizations. The results of the tests carried out in Russia and Western Europe for two years proved its high and unmatched performance. At the same time, heating and hot water supply units were tested.

Russian certificates for water disinfection and treatment assemblies as well as for those designed for heating and hot water supply and the EU certificate for the water treatment device have been received. Heating and hot water supply units are not to be certified as they do not belong to high-risk ones.

The new devices were undergoing the most difficult tests in Russia on Lukoil's facilities for nine months in 2007. It was thoroughly checked whether they could be used for heating and drinking water supply at gas stations lacking central water supply.

Principle of Operation

The technology employed in new assemblies has been designed and adjusted for several years. In the Warmbotruff 5,5A and Waterbotruff 7,5A units, all customers' requirements were met. They have a new design, advanced electronics operating in the automatic mode (as a washing machine), increased water output and volume of the room heated, etc.

Now, let us go into detail…

The instruction strictly says that the Waterbotruff unit is designed to disinfect and clean tap and any contaminated ground water as well as holes to get clean drinking water according to sanitary standards adopted in Russia and Europe. The unit uses the process of cavitation with sonic waves destroying caviation bubbles. The main place where cavitation is created is… the pump.

If it is not completely clear, let us go on. The unit employs the water disinfection principle basing on hydrodynamic effect. A wide range of ultrasonic frequencies allows achieving maximum water disinfection without using any chemical agents. This method of disinfection does not depend on the transparency of source water unlike ultraviolet disinfection, which is very popular now. The high-pressure water flow created by the centrifugal pump is specially transformed into the pulsating bubble. Ultrasonic vibrations are induced by the water vortex.

At the moment of burst, cavitation bubbles have a spot temperature of several thousand degrees Kelvin and a pressure of dozens of thousands of atmospheres. Pathogenic flora is fully destroyed in such severe conditions.

The Waterbotruff's patented design allows maintaining cavitation mode without damaging assembly parts.

All parts of the unit contacting with water are made of stainless steel. The assembly has no moving or rotating parts (except the engine with the pump), which ensures its absolute reliability. Its service life is 25 years.

The unit has special filters with changeable output cartridges to finally clean disinfected water from permanent pollutants, namely solid and oily impurities, which allows getting pure drinking water from sources with almost any level of contamination. The unit's daily capacity is 4,500 l of pure water — a daily drinking water requirement for 1,500 people.

Warmer!

Another state-of-the-art product developed by New Oil Technologies GmbH, New Energy Technologies GmbH and Continvest employs thermal energy released by cavitation to heat rooms. The Warmbotruff is an ecologically-friendly alternative energy source. This advanced heating system, which really needs no fuel, has an incredible efficiency of electric-to-thermal energy conversion — up to 300% (it was proved by pilot testing).

The main physical phenomenon causing this conversion is interlayer targeted cavitation directed so that it does not damage the generator's parts. The unit can be coupled with any heating systems without changing its design. If needed, a boiler can be switched to the unit to get running hot water.

The Warmbotruff unit allows electric power consumption to be significantly reduced at the expense of high conversion ratio. The only power consumer is the pump engine, which works 40% of day. A usual tariff is used in payments.

Advantages and efficiency

Being alternative energy sources, heating and hot water supply units have a number of big advantages over devices employing other principles (gas and electric boilers, solar batteries, oil radiators and underground thermal pumps). In addition, this equipment is absolutely environmentally-friendly as it makes no emissions in the atmosphere and is completely safe to handle. It does not need continuous service and can be used without technical permissions and additional installation.

The both types of units include parts made by famous manufacturers, namely Grundfos, Wilo and Siemens, US-made filters providing high-quality operation.

Marketing researches showed that every country (and the world market at whole) needs such equipment due to problems with pure drinking water and heat. From year to year, the number of natural disasters increases, so the water-cleaning units are vital. In addition, they can be used to save water by its cleaning and reusing at food and processing plants. Also, the units can be employed at plants producing pure drinking water.

The assemblies have very high economic parameters. For example, pure drinking water produced by the Waterbotruff from any contaminated source costs 5-6 copecks a litre (without installation and burden costs) and pay back period — 6 months.

Notably, the both units will be manufactured in Germany since June 1, 2008. Parts suppliers are now fulfilling orders on parts, filters, pumps, etc. Technical capabilities, however, create some limitations — 1,000 units a month will be sold in the first months (the Waterbotruff costs 18,000 Euro (VAT included) and Warmbotruff — 8,000 Euro (VAT included) and the capacity will have doubled by the end of the year. The pay back period does not exceed 6 months. Their warranty period is 5 years and service life — 25 years.

CONSIDERING A PRESSING GLOBAL PROBLEM OF FINDING ALTERNATIVE HEAT SOURCES, WHICH IS ESPECIALLY IMPORTANT FOR THE EUROPEAN MARKET THAT HAS ALMOST NO OWN NATURAL RESOURCES, WE CAN SAY THAT OUR PROJECT HAS SOLVED THIS PROBLEM ONLY IN THE LOCAL SCALE. WATER IS THE SOURCE OF HEAT (ALL ENERGETIC RESOURCES OF WATER HAVE NOT BEEN STUDIED YET), BUT WHEN COMPARED TO SUCH ALTERNATIVE DEVICES AS UNDERGROUND THERMAL PUMPS, SOLAR BATTERIES, ETC, OUR UNIT HAS BIG ADVANTAGES. THEY ARE COMPACT, EASILY INSTALLED, CAN DO WITHOUT REGULAR MAINTENANCE AND THE MOST IMPORTANT THING IS THAT THEY ALLOW CONSIDERABLE SAVING OF ELECTRIC POWER (ACCORDING TO PILOT PROJECTS) NEEDING NEITHER GAS NOR OTHER FUEL.

In Brief

Elena Vasilyeva,
Chief Engineer of "R&D Centre of Standardization of Compliance Approval Metrology (Certification) "Test-S.-Peterburg".

We tested one of the units designed by Yu.R.Fridman and his team in order to check if it could be used in waste water treatment. With that, waste water had different composition including industrial, household and polluted natural waters. A number of drinking water parameters were evaluated as reaching them is the final tasks of water treatment.

The results showed a significant improvement of both chemical and microbiological parameters in the cleaned water. At that, the cleaning efficiency was very high given a quite short operation cycle. To fully disinfect the water and remove contaminants from it, several stepped cleaning cycles were carried out, if needed. The unit proved its high efficiency in cleaning variously contaminated waters given rather high output. It opens wide prospects for its employment due to a number of reasons, namely wide introduction of closed-cycle water treatment technologies in various production spheres, critical importance of treating waste waters drained into surface basins, etc.

Industrial Weekly
April 2008

"The Power of Motion"

Oleg Bragin: «We have risen to eminence in our profession»

Oleg Bragin,
General Director of "Mobile Gas-Turbine Power Plants"

JSC "Mobile Gas-Turbine Power Plants" ("Mobile GTES") is the unique and prospective company. These characteristics become of great importance from the standpoint of power industry reforming and growing of power generation shortage. Being 100% affiliated company of RAO "Unified Energy System of Russia", after July 1, 2008, "Mobile GTES" will be managed under the aegis of FSK Unified Energy System. Oleg Bragin, the General Director of JSC "Mobile Gas-Turbine Power Plants", tells us about company achievements, plans and features.

— Oleg Valentinovich, what purpose such unique company as "Mobile Gas-Turbine Power Plants" was founded for in Russia?

— Our company was set up to provide the reliable power supply of Moscow region (and Moscow first of all). It was not easy, because Moscow region has always had problems with energy supply. Region development stably increases and so the energy demand increases, too. But all that building of stationary power industrial objects– power plants, large substations, and power distribution network – couldn't keep up with energy demand increase in region. To find a way out of this situation, we decided to place our bets on mobile power plants. At first we made agreements with the Government of Moscow, Moscow region authorities and RAO "Unified Energy System of Russia". These agreements determine the main strategic principles of energy industry development in Moscow region. I would like to emphasize that mobile power plants are not an alternative but addition to the traditional power industrial objects.

— Which are built in Moscow region, too?

— Yes, they are. But we should take into account that building of electrical networks and stationary power supply objects takes a good deal of time. When building of one object takes no less than two or three years, and energy demand increases too fast, we have to take active measures, traditional methods are not suitable for us. The autumn-winter peak period 2006-07 has showed that we are near to limit customer's energy supply in case of cold weather in future to unload substations and avoid contingency loading. Customers consume more energy in the cold periods. Lowering of temperature causes the avalanche-type rise of additional power consumption – especially in morning and evening peak-hours. Therefore power distributing substations going to be overloaded, and many of them have sufficient technological wear. Of course they permit some overload level, but can't work constantly in such extreme conditions.

— And if all substations to refurbish…

— Of course we doing refurbishment for them, but it also takes much time. To unload these substations, we made, in my opinion, very good decision: injections of electrical power in the places of distributing substations overloading. It is evident that is mobile gas-turbine power plants are the most effective thing because of fast installation, commissioning and take-over, as well as re-transportation in new places, if needed.

— Are the mobile gas-turbine power plants going to be transported often?

— This is the one of the advantages of the mobile power plants: they could be transported so many times as you need. It's their normal operating mode. The mobile power plants are set in the places of electrical network equipment overload. It is actually mobile conception of energy industry: power plant can be operated in one place, then in another, moving from place to place. Mobile power plants help us to solve many problems until the large stationary energy industry objects are built in this region.

— So your company is of a kind "energy rescue"?

— In some sense… I would like to point out: our company had proved its importance. We generated more than 20 million kWh in peak-hours last year, which is greater than it was planned earlier and we proved once more the idea of forming such company. We hadn't any faulty during operation; specialists of our company are in watch twenty-four hours a day. Every mobile power plant began to work under the command of National Electrical Network Operator, and every time it starts to supply electrical power at nominal (full) load already in 7 minutes after start-up. Our company experience turned out to be very effective so we were asked for help from other regions. They have the same local problems to solve.

— Could you name some for example?

— The most difficult situation is in Vladivostok. The thing is that practically the whole power generation is concentrated in the north of the Far East, in Khabarovsky region, but the most of customers are in the south of Primorsky region. At the same time there is only one power line. This causes the energy deficit increase in peak-hours.

Primorsky region has the same situation as in Moscow region. There is also an agreement signed between governor of the subject and RAO "Unified Energy system" concerning the package of measures on building of new energy objects during few years. But to provide the customers with electric energy today local generation objects are not enough. To solve this problem in 2008 "Mobile Gas-Turbine Power Plants" are planning to install two gas-turbine power plants. The customer of the project is Dalnevostochnaya Generating Company - business unit of RAO "Unified Energy Systems of East", and our company performs as the contractor.

Besides we plan to install the mobile power plants in other regions of the country. After survey of demand in the mobile power plants applications it has become evident that the most critical region after the Primorsky region is Krasnodar Territory now. It is connected not only with forthcoming Olympic Games 2014 in Sochi (but still it's a very important separate issue), but with spending of the nearest summer. Specific character of the region is that the peak power consumption loads, in contrast to the most territories of Russia, appear not in winter but in the period from May to August – to provide conditioning. At present we are trying to decide this problem by means of two gas-turbine power plants installation which we plan to take-over in operation from July.

— Are the mobile power plants used all over the world?

— Similar systems are actively used in the world. For example, they proved their effectiveness during the Olympic Games in Athens. It had demonstrated excellent performance in Spain, Finland. Several stations are set in France now.

— Do you offer your services in the foreign market?

— Within the limits of our company we just register the world demand. The fact is that we have a lot of orders on such systems in Russia. At the same time we are ready to examine requests from west partners. And probably we will penetrate into the European market in the future. In general we have analyzed the global market of mobile gas-turbine power plants and know it well – as from the point of equipment so as eventual customers.

— What type of equipment do you work with?

— We are ready to examine all types of equipment. Now we are satisfied in cooperation with Pratt&Whitney Power Systems, which produces very reliable equipment. Besides, it's easy to operate and to install; our personnel is trained to work with this equipment. But we are also ready to collaborate with other manufacturers. We are interested to get information about equipment produced by them. We use only high and efficient technologies. Of course in a year or two new more ecological technologies come. But I'm sure that at any case we will use the best of what the world gas-turbine technologies can afford.

— What are the company's plans the nearest future?

— Our plan is to work over the regions, which I mentioned earlier, together with the RAO "Unified Energy Systems of Russia". We prepare to install two power stations in Krasnodar Territory, but actually there is a need in at least four power plants. Also situation in some parts of Moscow region (for example, in Dmitrovsky region) remains quite difficult, that's why it will require additional power. To our opinion the demand for at least five power plants will arise during next year. And I'm sure that we will have more orders next year. In other words, practically our business activity is in great demand at the market today.

Besides we work over the issue of forming a kind of "Emergency Power Reserve" within the Russian Federation. Now we are talking about the idea that in order to provide reliable energy supply we need to create a special service. The service that could localize the accident shortly over the whole territory of country in case of some natural disaster: snowfall, earthquake or simply power supply loss. This organization should be able to transport power generators to the problem point and to restore energy supply in short period of time. Now we determine the optimal quantity and list of equipment to fulfill the task of this "Emergency Power Reserve".

— To what extent do you interested in investments?

— Any company is interested in attracting investments. And as we pass into FSK directing from July 1, we will coordinate and agree all our investments programs and plans with this organization. One must say, that investments program of FSK includes a variety of significant arrangements, which solve the same problems as our company does. At the present we work on synchronization of our investments plans and programs with investments plans and programs of FSK to ensure a further development of mobile energy industry.

— Please, characterize your company team specialists.

— First of all – they are young and professional. Practically all persons working in our company are high-qualified and have great experience in energy industry. They are experts at their area of knowledge! For example, specialists of our company must be in watch twenty-four hours a day in the shifts. In case of emergency under the command of the National Electrical Network Operator they can immediately start the gas-turbine power plant. It is not very easy! While preparing annual report, we have paid attention that more than 60% of our employees are younger than 30 years. And there are professionals who worked in energy industry for 30-40 years too. That's why I think that our company team is young and professional at the same time.

I also would like to say some words about professionalism. The readiness to work twenty four hours a day is normal in our company. Our employees are ready to come to work at any time and solve any problem, and I appreciate it sincerely. We are the team, where everybody finds mutual understanding, knows what purpose he is working for and what perspectives he has. And speaking about professionalism, I have something to compare with. For 7 years I've been working abroad, in

Finland taking part in stationary power plants projects, from it's designing to erection and commissioning. Taking into account this experience I can say that professional level of Russian specialists has increased greatly. I will go so far as to say that our specialists are not inferior to foreign specialists.

I appreciated to my team for all that we have achieved. It's the team that is half the battle and high competitiveness level of the company.

— Do you consider your company as competitive?

— Yes, I think we are competitive in the whole. Our company is unique not only because of what we do, but how we do our work. Basically, there are a few such effective companies in the world founded to provide fast movable energy supply. I know that our experience is unique, because we professionally work only in the mobile electric power plants industry. We accomplish the full cycle from designing to installation.

— Please formulate the motto of your company.

— The company's motto is "the power of motion". Combination of these terms gives us… mobile power plants.

By Dmitry Kozhevnikov

■ Take-over in operation of 10 mobile gas-turbine power plants in Moscow region (Site "Novosyrovo") From left to right: O.Bragin, A.Chubais, V.Korobov, Ts.Tsagadaev.

April 2008

Industrial Weekly

Tomsk Electronic Company

The TEC is implementing contracts worth millions of Euros

Andrey Shestakov, General Director of the Scientific and Manufacturing enterprise "Tomsk Electronic Company"

400-year-old Tomsk has never been an industrial centre. Since times immemorial that saw opening there the first university behind the Urals, Tomsk has been kindly called Siberian Athens. 15 years later, the Transsiberian mainline surpassed it, thus, almost finally depriving it from the laurels of an industrial centre. Tomsk has been famous for its intellectual achievements for over a century. In December 2005, this city worthily got the right to organize a special technical/promotional economic zone within its borders.

The "Tomsk electronic company" scientific-production enterprise (TEC) was set up in 1999 on the scientific and production base of the Tomsk branch of the Moscow Machine-Building Technology Research Institute. The Tomsk petrochemical plant became its first really serious partner. At that time, the TEC already had specialists on automation, electric drives and measuring instruments. The help rendered to the petrochemical plant was invaluable as the plant had hard economic problems solved by the automation project for the production of "polypropylene" elaborated by the TEC. The next serious contract was concluded with Transneft. It provided for the development of the Russian intellectual electric drive beating foreign analogues by a number of parameters. Now, the TEC manufactures 3,000 electric drives and electronic control units a year.

The TEC has the full cycle of production with process monitoring at all its stages. It also has an automatic line for brazing electronic components using lead-free technologies. Advanced computer-controlled machines are used in mechanical production. Up-to-date foreign-made equipment is also important for the enterprise as it is one of the reasons why the TEC has made a qualitative step forward. Large contracts emerged soon after.

Technological lines for the Pervouralsk Dinas Plant were the first experience of making complete metallurgical equipment. The world-famous Yukos managed to be the TEC's partner, too. It was 2003 that saw the company's reaching a new frontier. It developed a dedicated controller for oil, gas and water assessment for the oilmen. The next step was becoming a prime contractor. Since 2005, the TEC has signed a number of contract treaties with the Nizhniy Tagil Iron and Steel Works. The company was responsible for technological facilities of two shops of this giant — the wheels and tires shop and blast oxygen one. Works on the first object have already been finished — final check line No.3 has been launched. It has taken the TEC one year and a half to design, manufacture and commission the advanced robotic center. This project led by the TEC united efforts of leading Russian and foreign manufacturers and the result was impressing.

This line allows controlling all types of full-profile handling wheels with a diameter of 720-1,260 mm at an annual performance of 350,000 wheels and high speed of operation.

All technological operations are highly-automated and a number of them are fully automated with railway wheels acceptance procedure meeting all Russian and international standards.

Concurrently with this project, the TEC has started implementing the next one — the full-scale overhaul of the blast oxygen shop at the Nizniy Tagil Iron and Steel Works. Austrian company Siemens-Voest-Alpine is the prime contractor and the TEC — a subcontractor. This project includes a number of ready-to-operate works, particularly overhauling the system of feeding bulk metals into converters and steel-pouring ladles including full-scale engineering with working

project elaboration, manufacturing and delivering equipment and technological process automated control systems, building and assembly works and comprehensive equipment testing. In 2010, the Nizniy Tagil Iron and Steel Works is to receive a new converter steel making shop with an annual capacity of 4,300,000 t. The main difficulty of this overhaul is that it is implemented without suspending the steelmaking process. So, the project is divided into five stages with each of the converters to be successively modernized. Building the loop flux handling line, TEC experts used the SICON conveyor system meeting increased environmental and economic standards. Its employment allowed the conveyor route to be flexibly laid with a height reaching 40 m and a length of 400 m at large angles without transfer stations and charge material to be moved in the off state mode. It is the only working conveyor system in the Russian metallurgical industry.

At present, the TEC is implementing contracts worth millions of Euros. It is ready to offer its partners electric drives and automatic electric systems, oil metering stations as well as to automate production processes in petrochemistry and oil-and-gas production. It can also carry out overhaul operations for technological units. The company's sales market includes the Urals and Kazakhstan. It delivers oil-and-gas production equipment to consumers in the whole of the Siberian Federal District including the Irkutsk Region, Krasnoyarsk Territory, Khanty-Mansi and Yamal-Nenets autonomous areas. The TEC's clients include such Russian oil-and-gas giants as Lukoil, Rosneft, TNK-BP and others.

The TEC was named the best innovation company in the region. Just in terms of new jobs, it fulfilled obligations of almost all Tomsk-based innovation companies — last year it employed 300 people.

The TEC is also carrying out R&D works. A design institute has been working in the company sine 2007. This sphere is called very promising. The company also has a student design bureau with 20-30 people always working there. They receive production, pre-graduate and graduate practice. Future specialists study how to design and manufacture weight batching and measuring as well as manufacturing control and regulating systems, automate production and technological processes, create intellectual electric drives, etc.

The economic stability achieved by Russia is one of the three strongholds of the TEC's prosperity. The second one is a wise marketing policy and the third one — its own intellectual potential.

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ELSIB — Generator of the Future

Technical retooling and mastering new technologies, R&D works, introducing advanced business processes and expanding the range of products are the key tasks for a developing Russian machine-building enterprise. With that the main question remains — what certain steps should be taken to achieve the needed result? What sources of investments are available and can the enterprise offer a truly innovation product allowing the sales market to be extended and featuring competitive advantages? A new team of top manager of the Novosibirsk Electric Machine-Building Plant — the ELSIB Scientific Production Enterprise OJSC (ELSIB) managed to answer these and other questions. It took the enterprise one year to give up the policy of survival in favour of the strategy of development, progress and production growth.

Potential of Growth

The year 2007 became the year of changes for ELSIB. A team of professional managers led by Korney Gibert came there in order to make ELSIB the leader of the Russian machine-building. We can already say that the plant has become a stable enterprise with a large potential of growth.

In 2007, the system approach was the main principle in the new policy. Changes were made in every sphere of the company's life without exception. Serious efforts were made to improve the company's management system. Since January 1, 2008, the company has new organizational structure reflecting base management principles, namely flexibility, system approach, rationality and innovations.

In Brief

Korney Gibert,
ELSIB General Director:
"No doubt that the year 2007 was a successful one. Now, our task is not to stop and move on even more firmly.
ELSIB has years of hard and interesting work ahead. Expanding production and entering new markets will require the introduction of advanced technologies and employment of cutting-edge equipment. Altogether, we should do our best to further improve production procedures and management structure as well as enhance labour, rest and living conditions."

Due to growing requirements in generation equipment, ELSIB has a task of doubling the production of generators. ELSIB's goals till 2011 are to raise its production, technological and innovation capabilities in order to yearly manufacture up to 20-22 turbo-generators, 5-6 hydro-generators and up to 500 large electric motors. As for the nearest plans, in 2008, the company plans to sell $100 million worth of products and, in 2009 — over $180 million.

■ Turbo-generator TVM-500 was on of the most succesful project of ELSIB

Investments in Success

In line with its investment plan, RAO UES is to rapidly raise its generating capacities. The Novosibirsk plant plays an important role in the process ot generating capacities. For example, it is to build generating facilities for Olympics-2014, which alone proves it is stable and trusted by the authorities.

ELSIB experts are sure that the Russian energy sector will acquire much home-made equipment. Russian generation companies need and will need hydro- and turbo-generators, high-voltage asynchronous electric motors produced at the plant. Yet, ELSIB participates in many international tenders. It repeatedly had to compete with multinational machine-building giants. The advantage of Western corporations is engineering — their readiness to fulfill a large project from beginning to end. Russian businessmen felt this trend, too. For instance, the Russian consortium headed by the E-4 group won a tender organized by Southern Generation Company — TGK-8 to fulfill the project dubbed "Expanding the Krasnodar TPP with building the 410-MW combined-cycle gas turbine." As a prime contractor, E-4 Group will deliver the so-called "energy island" (equipment set for power generation independently from the country's energy system). The combined-cycle plant will include the 303.4-MW M701F4-type gas turbine made by Mitsubishi Heavy Industries as well as the Mitsubishi Electric hydrogen-cooled gas turbine generator. In addition, the Ural Turbine Plant will ship the 140-MW steam cogeneration turbine and ELSIB — the generator for the air-cooled steam turbine.

"Professional management of wise investment policy is the prerequisite for success," says ELSIB General Director Korney Gibert. "We are aimed at creating efficient business process management system and working out the development strategy."

The overfulfillment of the investment programme proved it, too — 34 projects were implemented instead of 21 that had been initially scheduled. The enterprise invested more than 2 million roubles with 60% of them spent on buying basic funds.

ELSIB's plans for 2008 are even more ambitious. $17 million are to be spent with this figure not being a final one. The real investments into the company's development and, thus, the growth of Siberia's share on the machine-building market, will be much higher. Most of the assets (83%) will be spent on the production development.

"It is impossible to fulfill a developed investment programme and introduce innovation production management technologies in modern conditions without cooperating with reliable and experienced partner, including foreign ones," stressed ELSIB General Director Korney Gibert. "In this connection, the company's managers bolstered foreign economic relations and are talking with a number of enterprises on long-term cooperation."

In 2008, the company's priority will be designing and manufacturing high- and medium-output hydro-generators, 50-200-MW air-cooled turbo-generators (for steam and gas turbines), high-voltage asynchronous electric motors and special high-voltage motors. According to the modern trends in the electric machine-building, the ELSIB has designed air-cooled generators and is raising their production. Their main advantage is larger flexibility, simplicity of operation and fire safety.

Profitably and Efficiently

One of the main evidences of the Novosibirsk Electric Machine-Building Plant's success is the 16-times increase in profit against the last year. The volume of main product sales has risen 30% as compared to 2006 and totaled 870 million roubles. In 2007 the plant's aggregate income (including other activities) reached 1,063 million roubles, which is 46% more than in the last year. These achievements were possible due to a number of large contracts, which include delivering the TVM-500 turbo-generator to the Reftinskaya SDPP. The 500-MW TVM-type assembly has a number of advantages over its analogues with the efficiency (98.95%) being the main one. High quality, reliability and long service life of ELSIB's electric machines are proved by multi-year operation.

The production development is impossible without attracting new employees. To solve this problem, ELSIB concluded contracts with branch educational institutions teaching students for the certain work. In addition, the plant has formed the personnel reserve to fill management vacancies, which will allow efficiently mastering new business processes and directions.

In 2007, many social problems were solved. In particular, ELSIB adopted the new Collective agreement for 2008-2010, approved the company's Social-economic policy, worked out the housing problem solution plan and raised salary.

Notably, regional authorities seriously help the enterprise as it is qualified as a strategic one. In 2007, ELSIB twice received state support for investment projects. Fruitful cooperation will be continued especially in the social sphere and employing people.

"In 2008, ELSIB will become 55 years old," said General Director Korney Gibert. "The plant has a rich experience behind and wide prospects and large possibilities — ahead. The main thing is that every move and decision should lead to the main goal — to make ELSIB generator of the future!"

In Brief

Electric Machine Building with Siberian Character

ELSIB is one of the main Russian and the only Siberian and Far Eastern enterprise manufacturing large electric machines for power stations. Its location — in the centre of Russia — was chosen according to its role determined by the Soviet government in 1950 in the decree on its establishment. "The Novosibirsk Turbo-Generator Plant" (the company was called in this way when it was set up) was to meet requirements of power stations located in Siberia, the Far East and Middle Asian Soviet republics in electric generators for steam and hydraulic turbines. From the very beginning, the enterprise's team, however, set higher goals. Their selfless work allowed creating a large plant with own R&D centre that could solve the most complicated tasks. Developing and manufacturing new electric assemblies meeting world standards by their technical and operational performance, the company has quickly gained confidence and respect of its clients and became one of the leading manufacturers.

ELSIB's electric machines are used not only in the energy field but also by oil-and-gas companies, coal producers, chemical, metallurgical, metalworking and other major industrial enterprises. Its generators and large asynchronous electric motors have been long and reliably working in all regions, former Soviet republics and 42 countries all over the world. Almost 30% of the aggregate Russian TPP capacity is generated by ELSIB's generators.

The company chiefly designs and manufactures:

— Powerful hydro-generators for all types of vertical hydraulic turbines;
— Air-, hydrogen- and liquid-cooled turbo-generators;
— High-voltage asynchronous electric motors in standard and explosion-protected versions.

When surviving difficult years of radical changes and sweeping economic reforms, ELSIB did not stop its innovation-driven development. Within the recent 18 years, it has designed air-cooled turbo-generators with a capacity of up to 125 MW. The TF-125-2U3 turbo-generator is the best in its class featuring the highest efficiency. In order to meet requirements for oil pipelines, ELSIB has created new bipolar explosion-protected electric motors in the explosion-proof casing with a capacity of up to 5 MW. In addition, it has developed a number of new asynchronous electric motors for thermal and nuclear power plants and other industries.

April 2008

Interregional Distribution Grid Company of Centre

Open Joint-Stock Company "Interregional Distribution Grid Company of Centre" was established on 17 December 2004. Electric systems of the Company of over 377, 539.6 km total length are located on the territory of 459.8 thousand sq. km in 11 constituent entities of the Russian Federation. Activities on transmission and distribution of the electric power and connection of clients to the electric networks of 0.4 — 110 kV voltage are provided by 11 network branches of the company. The structure of IDGC of Centre includes the following branches: Belgorodenergo, Bryanskenergo, Voronezhenergo, Kurskenergo, Kostromaenergo, Lipetskenergo, Tverenergo, Smolenskenergo, Orelenergo, Tambovenergo, and Yarenergo. Evgeniy Fedorovich Makarov is General Director of IDGC of Centre

Industrial potential of IDGC of Centre is 2,308 substations of 35-110 kV for the total capacity of 30, 366.3 MVA and 85, 097 substations of 6-10 kV for the total capacity above 14,227 MVA. The proceeds of the company increased by 25% in 2007 in comparison with 2006 and equaled 32.3 billion rubles. According to the forecasts, in 2008 the consolidated proceeds will increase up to 42 billion rubles, in 2009 — up to 50 billion rubles. Capitalization of the company as of 1 March 2008 amounts to 54.3 billion rubles. Net asset value as of the same date exceeded 38 billion rubles. EBITDA is 6.6 billion rubles. Despite the increase in the amount of loans, the relation of the aggregate borrowed capital to EBITDA in 2007 decreased in comparison with 2006 from 0.75 to 0.62 that proves improvement of the credit rating on the given indicator.

Target Model

Establishment of IDGC of Centre is an integral part of the approved reform plan of the Russian electric power industry which provides interregional integration of newly created enterprises after division of the power companies by kinds of business. Formation of the target structure of IDGC of Centre was completed by consolidation of 11 distribution grid companies with IDGC of Centre in the form of branches, and transition to the unified share.

The consolidation was completed on 31 March 2008. On this day changes were made in the Uniform State Register of Legal Entities about termination of activity of DGC as a result of their consolidation with IDGC. It is necessary to say that the IDGC reform was supported by the overwhelming majority of shareholders, including the minority ones. Their support is provided by the resolutions of the extraordinary general meetings of shareholders which passed in all subordinated companies in January of this year.

As to the transition of the whole company to the unified share, it will take place in the 2nd quarter 2008. Shares of IDGC will be registered in May-June at the stock exchanges of RTS and MICEX Stock Exchange in the sector of non-listed securities. On 20 March 2008, the Federal Financial Markets Service of Russia registered additional issues and prospectus of ordinary registered uncertificated shares of IDGC of Centre for converting shares of the distribution grid companies into them.

Achievements

IDGC of Centre for its short three-year history managed to demonstrate efficiency of the activity, high level of management, transparency of the company in all directions. The evidence of the efficiency is the received certificates and leading places in national scorings in many directions.

JSC IDGC of Centre became the first interregional distribution network company which received the certificate of conformity of the Quality Management System with the requirements of ISO 9001:2000 International Standard in view of provisions of ISO 10006:2003 "Guide to Quality Management at Designing." Implementation of QMS in JSC IDGC of Centre became one of the major steps to formation of the unified operational company with a high potential of growth of capitalization and integrated hi-tech management system. Increase in the investment appeal of the company will become an important result of QMS introduction.

Consortium of the Russian Institute of Directors and Expert — RA Rating Agency "RID — Expert RA" awarded IDGC of Centre the corporate governance scoring B++ in accordance with the National Corporate Governance Scoring. It is noteworthy that the corporate governance scoring B++ was awarded only to 152 Russian companies.

The National Rating Agency awarded IDGC of Centre the certificate of the high business solvency rating ("A", 2nd level). Including owing to this high rating, the company managed to involve in the beginning of this year the loan unprecedented for the electric power industry — in the volume of 10.5 billion rubles. General Director of IDGC of Centre Evgeniy Makarov says that the investment appeal of IDGC as a unified operational company will be much higher than now. It will allow to become attractive in the market of both the borrowed and the share capital, and to make loans cheaper in the future.

JSC IDGC of Centre also received the certificate of conformity with the 2nd level of organization and technological maturity in the field of project management. The next goal is implementation of the management systems on the basis of environmental and industrial safety standards.

All the received certificates prove a high level of management, financial transparency, openness of the company in all directions. But reception of ratings and certificates was preceded by large-scale work on realization of a great deal of projects and actions.

Thus, in 2007 IDGC of Centre completed realization of the project on introduction of the automated system of controlling of efficiency of business processes on the basis of ARIS Process Performance Management platform. The important component and recipe for efficiency of functioning of IDGC of Centre's management system is the developed corporate information resources management system on the basis of SAP products. As of the beginning of 2008, the automation system project covered all industrial divisions of IDGC of Centre branches; the first automated workplaces appeared in the regional electric systems. The major achievements of 2007 are implementation of SAP IS-U modules regarding formation of the productive supply and balances of the electric power to consumers, billing and invoicing, introduction of FI, FM, CO, HR, MM SD, PM modules and other modules — maintenance service and repair of the equipment.

SAP also automated the process of technological connection which allows to reduce the period of servicing the client. Developing the automation system project, the company within three years should build the unified information space and join the leading West-European firms as for the level of information structure development.

Strategic plans

The company has approved and is performing the Development Strategy for 2008-2015. The Strategy is directed at a large-scale attraction of investments in order to decrease the grid equipment deterioration to the level of highly developed countries (40-50%) and creation of the electric capacities reserve, the volume of which is 3-5 years ahead the economic development.

Till 2010 IDGC of Centre plans to direct over 38 bn rubles for investment which is an unprecedented volume in the history of the electric power industry.

In 2007 IDGC of Centre constructed over 3 thousand km of networks, and through 2010 the company plans to construct more than 11 thousand km of transmission lines and launch substations of 35-110 kV voltage for the total capacity of 2,920 MVA.

The capacity planned to be connected in 2008 is 785 Megavoltampere (MVA); according to the forecasts for 2009 this indicator will reach 824 MVA. Now, within the limits of the *Special Economic Zones* (SEZ) program, the company will have to provide Lipetsk SEZ with 40 MW of the electric capacity. Under the *Affordable and Comfortable Habitation — to Citizens of Russia* presidential program, the required capacity in the Yaroslavl Region is 22.8 MW.

According to the Russian Grid Complex Development Programme approved by the RF Government, till 2011 IDGC of Centre will have to deliver about 700 MW capacities to the generation facilities, including 60 MW capacity at the Belgorod Thermal Power Station (on 28 November 2007 a new gas-turbine station was launched).

Such wide-scale projects will be performed due to many factors, including productive teamwork of JSC IDGC of Centre and the authorities of the Russian Federation's constituent entities. At the moment the Company has signed cooperation agreements with administrations of all 11 regions serviced by it.

The agreements provide mutual obligations of the parties concerning the performance of Programs of prime measures on the grid facilities construction and reconstruction and performance of other actions directed at prevention of capacity deficiency and increase in the grid complex work reliability, and also possibility to connect consumers to the electric networks.

The agreements also reflect the necessity of the integration of the company's subsidiaries' grid complex and the municipal power entities, joint position of the administration and JSC IDGC of Centre concerning the establishment of Customer Service Centres system on the territory of the regions, and other important issues on mutually advantageous cooperation of the parties.

'The most important mechanism of attraction of investments in our industry is transition to the new RAB tariff regulation system', said Evgeniy Makarov. 'It will help us to update our production funds and, thus, the network companies will not hamper the development of the regions' economy. I would like to stress that the reform which is being performed in Russia is a great benefit for shareholders, investors, the company, and its clients'.

Transition to a long-term tariff regulation and inclusion in the tariff of expenses for the involved capital, introduction of economic incentives for decrease in the operational costs of the companies' subsidiaries, and increase in the service reliability and quality are the main elements of the company's strategy.

Official website of IDGC of Centre: http://www.mrsk-1.ru

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Integrated Projects

Integrating IT Solutions in Energy Sector: Trends and Experience

In order to reach a principally new level, meet new conditions and actively participate in the country's social-economic development, Russian energy companies need advanced technologies. Belgorod is an example of introducing IT solutions in the energy sector. Belgorodenergo was the first in Russia to introduce the SAP R/3 industry solution. This project was implemented by consulting companies Fainomika and Sciener. Since their establishment, these companies have fulfilled a number of unique projects for Russian energy enterprises. We shall talk about it with Fainomika Managing Director Aleksei Chernikov and Sciener Managing Director Maksim Lesnichenko.

Aleksei Chernikov

— What trends determine the development of IT services in Russia's energy industry?

Maksim Lesnichenko (ML): The market of IT services in the Russian energy sector is developing directly according to its tasks. The branch has entered the final stage of restructuring, which allows major Russian and foreign players to come in it. In these conditions, IT solutions help optimize three main parts of energy companies' activities, namely their long-term development strategy, faultless performance of energy supply facilities and social importance as well as client-orientedness.

The first aim investors want to achieve after buying energy companies is to raise their efficiency. To this end, they should work out the strategy, create common management procedures and rules, elaborate the common database properly and timely reflecting company activities as well as provide communication between the base and energy consumers.

The second aim is to ensure the reliability of energy supplies. Continuous energy supplies are vital for the energy sector. The final product — energy — reaches the consumer almost instantly and the companies are always connected with clients and each other by a single inseparable network of electric power and heating grids. The reliability and quality of power supplies, which are the main quality criterion, are ensured primarily by the fault-tolerance of energy facilities.

There is another critical issue. The energy industry is a socially-important branch, which successful performance influences the safety, comfort and welfare of many thousands people. A company improving its work with residential electrical customers has much more chances to succeed in its sphere. Thus, it should pursue a client-oriented policy necessary to manage client relations in market conditions. Information technologies allow creating clear procedures in order to make relations between the company and its clients fully transparent.

It is only natural that the implementation of the aforementioned three components should be well-balanced considering interests of shareholders. Companies supplying IT services in the energy sector should meet these requirements.

— Why do Sciener and Fainomika companies cooperate and how this cooperation is going on?

Aleksei Chernikov (ACh): I should say that our companies established partnership relations in the very beginning due to the common base, Belgorodenergo, and a common idea of business process management optimization. It was planned that Fainomika and Sciener would supplement each other in the IT sphere. Now, our cooperation is quite fruitful. Fainomika specializes on building and upgrading strategic management and quality management systems as well as provides information support for these processes. Creating enterprise management models, Fainomika solves three main tasks, namely modeling business processes, building resources management systems and forming strategic planning. Working together, we offer our clients integrated solutions of optimizing production and business as a whole. In practice, we help create strict regulations for business processes of the company and its branches, elaborate normative and regulatory documents and work out strict management procedures and rules. So, the leadership gets clear and exact idea of all company business processes irrespective of its field of activity and resulting key efficiency indexes as well as can carry out short— and long-term planning.

ML: Concerning Sciener, I would like to say that we adapt the management and strategic planning systems in the company's operational activity and automate this sphere. While Fainomika determines the client's strategic policy, Sciener arranges its day-to-day activity. Thus, the consumer receives integrated strategic and day-to-day business process management system.

— What results have the both companies achieved together?

ML: Since the companies were set up, Belgorodenergo has been the first and the main our orderer. In fact, it is our cradle. All the projects we have done for this regional distribution company work well. For example, we have recently finished automating the process of electric grid connections in Belgorodenergo. We have developed an integrated solution automating all stages of connection process, from the client's application to payment for work. Also, we have done much work for Tulenergo and are starting to cooperate with Center and Volga IDGC. This valuable experience allowed us to create typical solutions that remain relevant even during the process of energy companies' "unpacking" — separating generation, grids, sales, etc.

ACh: Big results have been achieved when creating the centralized resources management system for Center IDGC. We have jointly created the system's basis for this company. In the end of this year, 4,600 company employees worked in the SAP, SEM and ERP modules. In addition, these solutions were copied in all subsidiary regional distribution companies. For the Center IDGC, the automation concept dubbed "System project" has been developed and is being implemented. It is intended to unify the company's management system, provide transparency for shareholders and superior bodies and make the day-to-day management of this large and geographically dispersed holding more efficient. The "System project" provides for the automation of main, auxiliary and developing business processes at the strategic and operational level. The project has already passed the organizational, so-called "zero" phase and phase No.1, during which business processes and electric power accounting were automated and a database of subordinate energy facilities was built. Then, we are to carry out the second phase of the project relating to assets management and client relations. Under the project, Fainomika (as its initiator) is engaged with introducing the quality management system, ARIS-based methodology and software, SAP strategic planning instruments and their integration with SAP ERP transaction modules. Sciener is introducing the SAP IS-U, SAP ERP, SAP NetWeaver, SAP BW, SAP SRM, SAP SCM, SAP Solution Manager, SAP Mobile, SAP Learning Solution and SAP E-Recruting systems and integrating the modules with each other and external systems, namely SCADA, ASU TP, AIIS KUE, etc.

Maksim Lesnichenko

At the same time, we participate in a difficult but interesting process of merging regional distribution companies with Center IDGC into the United Operation Company (UOC).

— Are there any companies in Russia that introduce IT solutions in the energy field like Sciener and Fainomika?

ACh: Of course, there are. And, of course, we face competition. Nevertheless, we have managed to occupy our market niche and make our products and services interesting for clients. And if we speak about how we differ from other suppliers of IT solutions to the energy industry, I should say that we have come out of this sphere and have close ties with it. Our experts, business engineers, many of which worked in the energy sector for many years, perfectly know its requirements and processes, say, from inside. It is very important as the energy sphere features own nomenclature and strict production regulations. Timely response and control, proper business planning for enterprises that are often located far from each other and in different tax zones, have different wage systems, etc are extremely important in this sphere. Knowing this, we offer energy companies ready and field-proven typical base decisions. We do not have to spent time and money to adapt for the client and learn anew at his expense.

ML: Another important point is that all solutions we offer are not short-term ones and are designed to be relevant for several years considering interests of the consumer, economic feasibility and market situation. In future, this will allow energy companies to respond to business challenges with minimal expenses and maximum flexibility. Long-term cooperation is one of our main principles of dealing with energy companies.

— What requirements do energy companies have to suppliers of IT solutions and which of them are the most popular?

ACh: The main requirements are the presence of branch solutions, successful introduction experience and integrated approach. Starting to

work with a certain company, we first find out what are the client's goals and business sphere where does he want to achieve good results. According to this, the management system project can be either complex or optimize processes in a separate direction whether it be business process management, resources management or strategic planning. First, we find out the company's development strategy and long-term goals. Then, we create the management system needed to achieve them, work out and shape business processes, determine the range of responsible persons and executors. And at the final stage, we automate the system basing on IT solutions in order to manage and analyze accumulated data. In addition, results received with the introduction of the management system are showed, e.g., the comparison of real annual financial results with the planned ones, the compliance of the company's operation to the adopted strategy and rules, etc.

ML: As a rule, we start working with a client from developing the finance management system by creating budgeting and network accounting systems. To elaborate the operational control system, Sciener classifies it, formalizing regulations and accounting policy, creating a united counterparty database, system materials registry, etc. Eventually, the client will require the optimization of other business processes, namely electric power sales and purchases, grid maintenance and operation management and customer relationship management. But it is much more profitable and efficient for energy companies to create a full-fledged management system covering all spheres of operation from the very beginning. Such a system-wide long-term approach allows the system to become cheaper and more efficient.

— What do you think are the prospects of the Russian IT market? What solutions are your companies going to offer in the near future?

ML: The Russian IT market has passed the initial stage and is successfully developing. Moreover, many spheres, such as the oil-and-gas industry, energy sector and heavy machine-building have been saturated with IT solutions relating to financial-economic and production processes. I think future solutions in this sphere will be aimed at reducing accounting and flow of documents, stepping up decision-making and coordination processes and creating united information management systems. This will help to manage production process at a completely new level.

Besides, in the future, IT developers will focus their efforts on less profitable but quite attractive spheres, one of which is the municipal and housing sector. There are two reasons of this. On one hand, the people welfare is growing and quality requirements for municipal services as well as their range are increasing, too. An advanced consumer wants to use rapid Internet and high-quality telephone service, security and other life support services. On the other hand, major investors are coming to the municipal and housing sector, too. They are directly interested in making the field at most efficient, controllable and transparent. That is why, IT companies have a real prospect of cooperating with municipal/housing and associated companies as well as banking and insurance ones, which is proved by the experience of developed countries.

We plan to develop and supply our products not only in the energy sphere. Say, municipal and housing companies can employ solutions designed for energy ones. Sciener is ready to offer CRM solutions for many kinds of municipal and housing services. We have a CRM solution integrated with IS-U. Sciener participates in the "Creating the regional integrated information system of the Belgorod Region" Regional Target Programme.

Some power sales companies were privatized and now their shareholders want the range of services to be expanded. We are ready to offer them adequate solutions.

The main prospects of grid companies are the total accounting of electric power and assets management. In this context, we can offer proper and time-tested solutions. In addition, we can create solutions for promising direct contracts for electric power transfer.

We are working on a solution that will allow the grids to enter the electric power wholesale market to compensate for their technological losses. We have a management and cost-saving solution for reducing losses in internal grids. We can apply it to assets management and reliability, provide monitoring and decision support system to optimize the grids development, overhaul and maintenance.

ACh: I think the state sector will soon require IT solutions, too. It can be the military-industrial complex and state corporations as well as the administration sphere. In fact, the state also supplies services providing security, social protection and economic welfare of our citizens. For the state administration system to be up-to-date its main internal processes should be optimized, too. And we are ready to help it. Also, we are interested in the cooperation with metallurgical and oil, nuclear energy and chemical enterprises. It concerns both Russian and CIS companies especially their energy sphere.

Notably, our companies offer our clients complex solutions from strategic planning and process modeling to financial-economic management and branch specialization.

In Brief

ФАЙНОМИКА
КОНСАЛТИНГОВАЯ КОМПАНИЯ

The Fainomika LLC was established in 2003. It is a consultant in the sphere of strategic and operational management, financial and information technologies for major Russian energy enterprises. The company specializes in the design and introduction of strategic management systems on the basis of the Balanced Scorecard (SSP).

www.fainomika.ru

SCIENER

The Sciener LLC was set up in 2002. It specializes in introducing SAP ERP management systems for Russian energy companies. The company runs projects on automation of administrative, financial, production and other processes in the power industry. Its fulfilled projects include introducing the resource management system for Belgorodenergo and automating business processes of other Belgorod-based energy companies; creating a unified network platform and introducing information management systems in the UES Federal Grid Company and a number of Russian and CIS energy companies.

www.sciener.ru

«Almost 80% of the Russian Market»

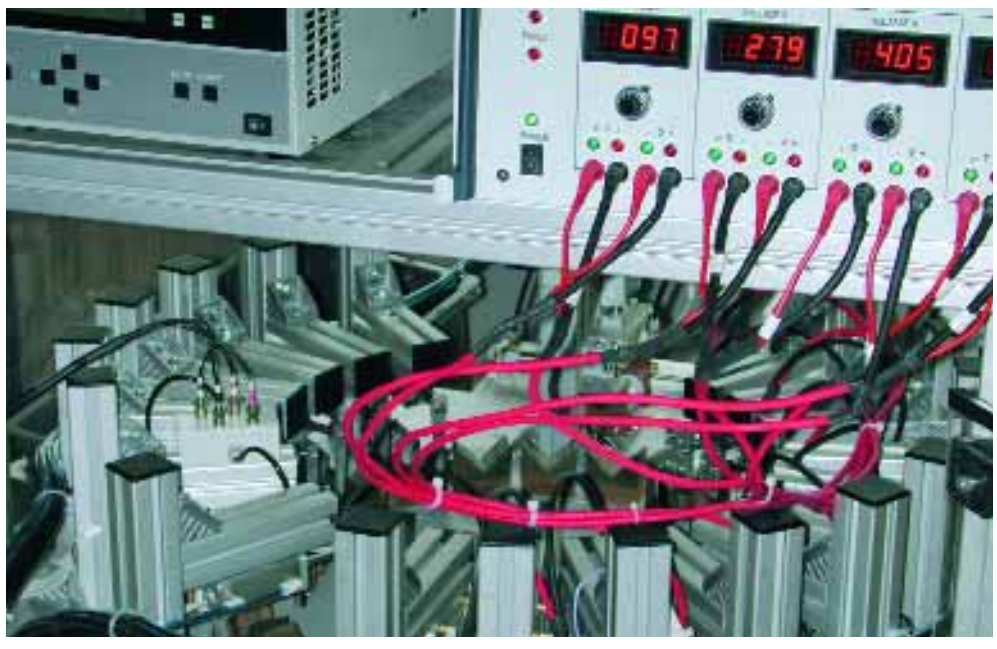
Nucon Company is one of the recognized leaders of the Russian market of electro technical products. The success of the Company is mainly determined by its rely on state-of-the-art technologies and finding its place in the Russian and world markets. The instruments that the Company uses in its operations and how Nucon sees its further development is the subject of our conversation with General Director of the Company...

— Your company is rather young...

— Our company was set up seven years ago. We have been in this business for a long time: we were engaged in sales, we grew and wanted Russian producers to increase the quality of their products. We pointed it out to Russian enterprises but we didn't get a due affect as most of them were as a rule former Soviet plants with a complex structure where a decision making process took about 8-10 months. That is why we had an idea to set up our own plant. We started to learn ways of investments, technical capabilities of equipment producers; for two years we visited manufacturing plants and examined opportunities...We made up a serious engineering group and bought from the leading European producers the technological processes that influence the quality of the manufactured products. The processes that automatize and reduce manual labor are our know-how. Our engineers developed a number of technological processes and built up a completely automated production where about 60 employers are engaged though a similar manufacturing enterprise in Russia hire 1200-1500 people.

— What is the geography of your supplies?

— So far it is mainly Russia and CIS countries, however, we are actively entering other markets. Experts in other countries including competitors and consumers know us, look closely at us, compare prices... In the international market one should demonstrate its stability, after being in the market for 3-4 years you may be perceived as a stable world supplier. We plan to enter European and Asian markets including central Asia: United Arab Emirates, Syria, and other countries. We offer competitive prices and high quality.



— What about home Russian market?

— We've got reliable positions in the home market. Five years ago when we were setting up our business the Russian market was almost fully controlled by European manufacturers, mainly Italian and German companies. But we managed to "win over" about 80% of the Russian market within three-four years. We took it up very seriously as it was a difficult competitive struggle with the companies that had high reputation, popular brand and a truly high-quality product. And we were a newcomer and started our business from scratch. Many Russian manufacturers were changing their attitude very slowly: at the beginning top management did not want to consider home producers seriously as they didn't believe them. But we proved persistently that we were not worse and in a number of positions we were better than our competitors. We invited their top management to visit our plant, they watched our operations and examined our equipment (and we had the most advanced one at that moment). We explained to them in detail the quality of our product. They agreed with us and in the course of time they started to buy small batches of illuminating equipment, lamps, lighting fittings, outdoor lighting, etc. It took a long time for a number of companies to make a decision whether to work with us or not, but now all of them are our partners.

It may be said that nowadays many companies understand that it is more reliable to implement large-scale perspective projects together with Russian producers. Because now they think where and at what prices they will be purchasing spare parts and order modernization in 20 years...

— Where exactly can your products be seen?

— Almost everywhere. For example, in all new construction sites in Sochi, all roads that are being reconstructed or constructed by the government, streets in cities — everywhere the lighting is based upon our products. And not only in Russia. We've got representatives in Belarus, Ukraine, Kazakhstan...

In some places more, in some — less, but our product is present in all former-Soviet Union territory. On the whole there are almost no technical limitations for our product. We also produce equipment which improves electric power transportation, relieves power circuit, and makes it possible to increase the number of consumers by 40%.

— How do newcomers enter Western markets where there are a lot of local manufactures?

— It happens according to standard market rules. Yes, there are own brands there, serious competitors who gained a foothold long ago, established systems and sales networks. But young fast-growing companies always appear and they want to have as more high-quality brands in their portfolio as possible. And here we go with our high-quality brand. And they use their marketing methods in their market to promote Russian certified condensers along with Turkish, German, Italian, Chinese, Indian ones... A price/quality question arises. And we maintain high quality and competitive prices due to large-scale mass serial production.

— Do you easily come to an understanding with your partners?

— I'll say this way: we are always open for discussion and search for mutually beneficial forms of cooperation with our partners. We are always ready to consider all wishes and find a reasonable compromise. But we never apply dumping methods or reducing prices at the cost of quality... We earn every new contract honestly.

www.nucon.ru