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CZECH Power Industry

Supplement of Czech Business and Trade





CZECH POWER INDUSTRY

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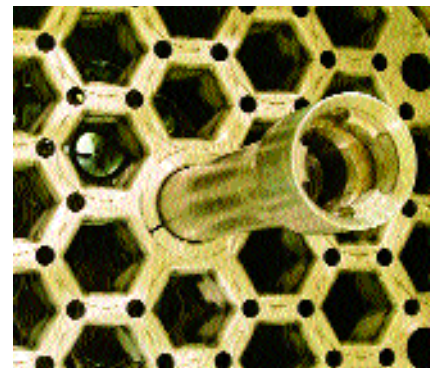
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Legislation Will Influence the Future of Nuclear Power



Outlook in Nuclear Energy Research and Development



RWE Offers Clearly Stated Advantages

MK ČR E 6379

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Dear Readers,

This sector-oriented supplement is focused on energy and the power industry. The energy sector is highly important for every country, it is crucial for industry, services, and the life of inhabitants. The Czech power industry is now experiencing an eventful period. Liberalisation of the gas sector was completed last year, there is an ongoing debate on the construction of a new nuclear facility, and new wind and solar power plants are being erected all over the country. Our strategy for the future is to increase effectiveness and to work for the preservation of the installed capacity.

There is much the Czech power industry can offer. In this issue, we are introducing the largest European producer of briquettes from biomass, you will learn details about the company which has delivered the largest wind power station in Central Europe, and get acquainted with a number of other large firms in the energy sector.

Our country attracts many investors, which is evident from an article on the production of solar panels in the Czech Republic. However, we do not lag behind in research and development either and, last but not least, as you will see for yourselves, our schools are training much sought-after energy experts, who can find jobs all over the world.

Ondřej Štrba

The Future of Power Industry in the Czech Republic

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Demand for electricity in the Czech Republic is constantly rising. This is nothing unusual, a similar trend is documented by statistics in most EU countries, where electricity consumption has been rising approximately by 10% every 5 years. The growth of electricity consumption depends directly on the standard of living of the population and growth of the economy. Electricity, as a very sophisticated and clean source, is the easiest to use and in a distant future will probably replace all the other forms of consumption (heat, liquid fuels in transport). Electricity cannot be stored, and with rising consumption there is thus no other possibility but to increase the installed generating capacity of the facilities. This is an essential prerequisite for reliable functioning of the electricity network. Unfortunately, some countries have given up on this condition, whether because of a lack of their own fossil sources or as a result of political decisions and obstructions to the building of new facilities. The Czech Republic now finds itself in a similar situation. The main source for electric power generation – brown coal – will be available only up to the year 2030 and in such a situation it does not pay to invest in the construction of new facilities in some locations, while the lifetime of most large coal-fired power plants will end in the years 2010 – 2020. Another factor which is a major complication in the use of coal is the enormous uncertainty about the costs of emission allowances, the price of which cannot be reliably determined in advance.

Energy Balance

The decommissioned brown coal plants will have to be replaced by something else, since from 2010 the Czech Republic will gradually lose the installed generating capacity of 6 000 MW.

Gross electricity production from renewable energy sources			
Power generation facilities	Gross electricity production in 2006 (GWh)	Gross electricity production in 2007 (GWh)	Share in gross electricity production in 2007 (%)
Hydroelectric power plants	2 550.7	2 092.2	2.4
Biomass total	731.1	970	1.1
Biogas	175.8	210	0.2
Wind power plants	49.4	125.1	0.1
Communal solid waste (biodegradable)	11.3	12	0
Photovoltaic systems	0.5	2.2	0
Liquid biofuels	0	0	0
Renewables total	3 518.80	3 411.50	3.90%

2007 data are preliminary

Source: Ministry of Industry and Trade of the Czech Republic

The capacity will fall step by step, around 2016 we will have to stop exporting electricity and will become theoretically net consumers of our production. However, the reality is much more complicated, because there is no central authority that would plan and decide on the construction or operation of all energy generating facilities. To put it simply, investors do not build power plants to save the Czech Republic's energy balance but to make money over a particular period of time. The lack of generating capacities will inevitably bring demand that will exceed supply, and will push up electricity prices, all of which will ultimately increase the attraction of investment in new power stations. These will be nuclear, gas, and partly coal-fired plants that will replace about 60% of the capacity of the present-day coal-fired facilities. Renewable sources do not have a potential to replace more than 6% of electricity consumption, and their role in the overall balance is thus negligible.

Construction of New Facilities

The construction of new facilities is thus by no means a question of politics, it is a reaction to demand, and a question of preserving the volume of generation that corresponds to consumption. The basic condition for investment in the construction of a power plant is the long-term availability of a fuel at a predictable price. If brown coal mining does not develop further, which is highly probable, it will not be possible to operate coal-fired power plants on the scale to which we are used now. Importing brown coal is pointless, import would greatly increase the price. Hard coal can be imported, but this option is strategically very disadvantageous, because countries in a stronger trading position and with better access to sea transport will have a similar idea. In any case, our energy industry cannot be based on imported coal. What, then, will replace the loss of approximately 40% of the capacity of the existing brown coal-fired plants? In the short term, it will be 2–3 gas facilities with a total capacity of approx. 1 GW, and a new 2 GW nuclear facility that is to be available after 2020. If it is not, gas is likely to play an even bigger role, and so may imported hard coal. The fact remains that at present it is far more simple to build gas facilities than a nuclear or coal-fired power plant, and

Overview of power generation in the Czech Republic in 2003-2007

Characteristics	2003	2004	2005	2006	2007
Gross consumption	66 987	68 618	69 945	71 656	72 045
Gross power generation	83 201	84 335	82 579	84 288	88 383
Imports total	41 137	2 765	8 335	6 917	10 204
Exports total	19 868	18 482	20 965	19 549	26 357
Installed capacity (MW) as of 31 December total	17 343.9	17 434.2	17 412.2	17 507.6	*

2007 data are preliminary
 * - Total installed capacity not specified in preliminary figures yet
 Source: Ministry of Industry and Trade of the Czech Republic

thus their importance will increase with the rising price of electricity.

Energy Policy

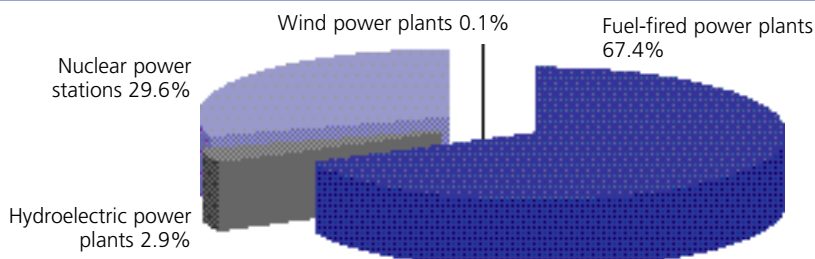
The role of the state in power production is understood in various ways. In the Czech Republic the prevailing notion of the government is as a central control body. Energy policy is then reduced to a set of speculations concerning the future shares of the different sources in power generation, i.e. an aspect that the state cannot influence almost at all, because it is neither building any power plants nor

then have to start rationing energy. Thus, energy policy does not mean central-command planning, but the description of the possible consequences of political decisions which can influence the electricity market. The influence of the state in the power industry should be as low as possible.

Renewable Sources

Renewable sources are without a doubt a very attractive area. All EU countries now have very generous systems of support in place, which basically ensure

Share of facilities in overall power production in the Czech Republic in 2007



Preliminary data
 Source: Ministry of Industry and Trade of the Czech Republic

will do so. On the other hand, it is an important fact that the so-called energy self-reliance is merely a political notion at present. Europe's Union for the Coordination of Transmission of Electricity (UCTE) is a system to which all countries make supplies and also draw from. Countries that have higher own sources quite logically contribute more than they use, and this is connected with a certain financial benefit. If the principle of self-reliance was to be strictly applied, we would go twenty years back when the interconnection of the systems served exclusively to solve total breakdowns. However, countries such as Austria, Slovakia, the Netherlands, Italy and others would

certain profits from the operation of equipment using renewables. Indeed, this does not mean that the problem has been resolved. Basically any renewable source involves an insoluble problem. Solar and wind energy are unreliable sources, moreover with considerably lower output per unit of equipment, and their price on the electricity market will thus always be lower than in classical sources. On the other hand, the use of biomass and biogas requires a long-term guaranteed supply of the input raw material, which gradually appears to be their greatest barrier. Small hydropower stations are relatively reliable, but their potential is very limited and in the Czech Republic has

been practically exhausted. Renewable sources will never be a match to large power stations, with the few exceptions of large hydropower plants their role is mainly in local consumption, in the conditions of the Czech Republic primarily for heating.

Vision of the Future

In a relatively short time the Czech Republic will have to cope with a fall in the production of brown coal, which is now used to generate over 60% of electricity. As the existing reserves will not last beyond the year 2030, building

new coal-fired plants may not pay. Due to growing demand for electricity and simultaneous fall in the installed capacities of brown coal plants the quantity of generated electricity will gradually decline and around the year 2016 electricity will cease to be exported from the Czech Republic. This will be unpleasant especially for end consumers because a lack of electricity in the market will cause a significant price increase. On the other hand, this situation may "attract" more investors and motivate them to build new facilities. More than ever will this be an

opportunity for facilities that can be regulated and operated according to momentary requirements, i.e. above all gas-fuelled power stations, because demand for electricity of this type will be very attractive. Over the long term, there is no other solution but the construction of nuclear power plants because there is simply no other source that would meet the requirements of sufficient capacity, reliability, and no emissions at once. ■

Gas Industry in the Czech Republic

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Contemporary State of the Czech Natural Gas Market

The country's gas industry is an important part of the energy sector, its share in primary energy sources has been around 20% in the long term and according to the valid State Energy Policy, this share has to be maintained even by 2030. Due to the nonexistence of domestic sources, practically all the countrywide natural gas consumption is imported from outside of the EU countries. Natural gas is supplied to about 2.8 million end-users within the country. The share of large-scale consumers accounts for 45% of the demand in the Czech Republic, the share of medium-scale consumers is 10%, small-scale consumers take 13%, households 30%, and losses in the gas distribution system and the gas companies' own consumption make up 1.9%. Compared with the most other European Union member states, the Czech gas industry differs mainly in the fact that only an insignificant quantity of natural gas is used for electricity generation. However this could be changed in a short period of time, because quite a few entities in the power industry are considering the construction of a natural gas-fuelled electricity source.

Domestic Gas Consumption Has Fallen Sharply

As far as the country's gas consumption after many years' stagnation since the second half of the 1990s, it is recorded a significant 7% drop last year, i.e. by more than 0.6 billion cu. m. The factors that played the supreme role were above all an increase in average annual temperatures, measures taken by end-users to cut consumption, and the switch of some customers to other types of fuel.

Natural Gas Market Has Been Privatised

From the legal, commercial, and ownership point of view it can be stated that the country's market of natural gas has been completely privatised and has also been, since 1 January 2007 entirely liberalised. Thus all end-users could take advantage of the right to change their gas supplier without paying any charge. In the course of the second half of 2007 and the early 2008 it has been recorded a switch particularly among the large-scale customers, especially in the brewing, ceramic, glass, paper-making industries and refineries towards the newly established rival firms. In the initial phase of liberalisation, since 1 January 2005, the newly entering traders preferred to monitor the market state

and only in the second half of the last year and this year they have made more determined efforts to get a share of the market especially in the large-scale consumers category. The most significant new trader, which has started to expand greatly and strongly established its presence on the Czech market, is VEMEX, s.r.o., a company indirectly controlled by the Russian company Gazprom export Ltd. VEMEX is gaining positions especially in the category of large-scale consumers with steady consumption patterns. The other new traders could be divided into three groups. The first group is formed by the country gas mining companies (Moravské naftové doly, Petr Lamich – LAMA) which try to sell gas on the market by supplying it directly to end-users. The second group are firms trading directly with gas producers (besides VEMEX, the list can include WINGAS, VNG Energie, Energie Bohemia). The last group of new gas traders is formed by electricity suppliers, who are trying to establish themselves in the gas sector as well (Česká energie, Lumius, Lumen Energy, United Energy Trading).

However, traditional gas companies owned by supranational energy firms remain to be the dominant suppliers, i.e. RWE (includes the largest natural gas

trader RWE Transgas, operator of the RWE Transgas Net distribution network, the largest operator of underground storage facilities RWE Gas Storage, and six regional gas traders and distributors), and E.ON. RWE's payment for the shares of the National Property Fund in the above-mentioned companies, which was made in 2002 and exceeded CZK 120 billion (EUR 4.1 billion), has been the largest foreign investment in the Czech Republic to date. Further billions of Czech crowns were paid by foreign investors to municipalities for the takeovers of their shares in gas companies.

Complying with the requirements of energy legislation of the European Union, implemented by the Energy Law, the most important country companies have already been through the stage of legal unbundling. It was firstly applied to the largest country gas firm – RWE Transgas, a.s. In 2006, the daughter company, RWE Transgas Net, s.r.o., was established and became a new operator of the gas pipeline system. Under the Energy Law, operators of distribution networks with over 90 000 customers were to unbundle their activities by 31 December 2006. As of 1 January 2007, the process of legal unbundling was completed on the level of regional gas operators, whose distribution networks had more than 90 000 customers. Gas trading companies were unrelated from those operating in natural gas distribution. 86 operators of local distribution networks were not required to perform legal unbundling.

Diversified Gas Sources, Long-term Contracts on Gas Supply and the Underground Gas Tanks

Since 1996 the Czech Republic is dependable on one source of natural gas,

Overview of annual natural gas consumption in the Czech Republic

Year	Natural gas consumption		Year-on-year change	
	million cu. m	GWh	million cu. m	%
1993	6 983	72 915	+314	+ 4.7
1994	6 934	72 803	-49	- 0.7
1995	8 075	84 782	+1 141	+ 16.4
1996	9 306	97 714	+1 231	+15.2
1997	9 441	99 131	+135	+1.5
1998	9 390	98 591	-51	- 0.5
1999	9 427	98 982	+37	+0.4
2000	9 148	96 053	-279	-2.9
2001	9 773	102 611	+625	+ 6.8
2002	9 542	100 193	-231	- 2.4
2003	9 739	102 600	+197	+2.1
2004	9 691	102 236	-48	-0.5
2005	9 562	100 829	-129	-1.3
2006	9 269	97 806	-193	-3.1
2007	8 644	91 195	-625	-6.7

Source: Ministry of Industry and Trade of the Czech Republic (statistics)

the Russian Federation. From 1967 onwards, customers in Slovakia and Moravia were supplied with gas by the gas pipeline "Fraternity". After completion of the transit system in 1972, supplies were extended to the whole territory of Czechoslovakia, and natural gas also went by the transit pipeline to the Western European countries.

In order to diversify natural gas supplies for the Czech Republic, the state-owned Transgas enterprise signed in 1997 a long term contract with Norwegian producers (Statoil, Norsk Hydro, Saga Petroleum) for annual deliveries of gradually up to 3 billion cu. m till 2017, and in 1998 signed a contract with Russia's Gazpromexport for the annual supplies of 8-9 billion cu. m up to 2013. Currently about 25% of natural gas is imported from Norway and 75% from the Russian Federation.

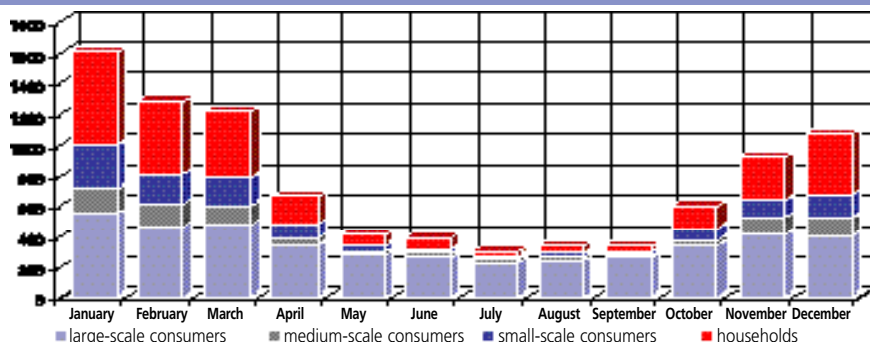
In 2006, RWE Transgas, s.c. extended the long-term contract for natural gas

deliveries from the Russian Federation up to 2035, in annual volumes of up to 9.0 billion cu. m.

The VEMEX, s.r.o. company signed in 2007 a five-year contract for natural gas deliveries to the Czech Republic with Gazpromexport, providing for annual volumes of 0.5 billion cu. m and stipulating that both the time covered by the contract and the annual quantities can be doubled.

WINGAS and VNG, large companies operating not only in the Federal Republic of Germany, but also in many other countries, and supplying some large domestic customers especially in the north of Bohemia, have direct long-term contracts with gas producers as well. The Czech Republic is also an important transit country for the transport of natural gas to the European Union countries (Germany and France). It transports approximately 28 billion cu. m of natural gas for these states annually, and its system is linked to the transit system of the Slovak Republic by which gas is supplied to Austria, Italy, Hungary and Slovenia. The transit of natural gas for other EU countries provides a significant safety guarantee that gas supply to the Czech Republic will not be at risk because it would threaten at the same time several other major gas consumers in large EU states. In this context it is highly important that the contract for natural gas transportation with the Russian producer is valid until 2035.

Consumption overview by categories of customers in 2007



Source: Ministry of Industry and Trade of the Czech Republic (statistics)

■ Czech Republic – Ideal Place for Production of Solar Panels

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CzechInvest, the state-run investment and business development agency, is very active in energy industry support. Large foreign companies manufacturing solar panels have entered or are entering the Czech market with CzechInvest's participation. In energy production proper the Agency's commitment takes the form of work with the structural funds of the European Union. The main energy industry line of CzechInvest's activity is support for the manufacturers of solar panels. Use of solar energy is a very modern way of obtaining energy,

demand for solar panels has been growing lately, and this trend is likely to continue or even intensify in future.

Bright Future

Nowadays, extracting energy from renewable sources is very attractive among others, thanks to incentives from the European Union. When joining the EU, the Czech Republic committed itself to generate 8% of energy from renewable sources in 2010, and by 2020 the EU requires its members to have a full 20% share of renewables. The Czech Republic is contributing to this goal by its support for the construction and operation of facilities using renewable sources, and by its very generous policy in the construction of these power plants. The purchase price of one megawatt-hour of electricity, firmly fixed, is very attractive for investors. The greatest advantage is that this fixed price is guaranteed for a period of twenty years. This is by far not the end of the list of the means of support. Producers of electricity from renewable sources can choose between a guaranteed price or the use of the so-called green bonus. The latter may, but may not be, more advantageous than the fixed price, and thus it is up to the producer's business skill which system is the more advantageous one for him. Last but not least, it should be noted that the

Czech Republic provides contributions to the construction of photovoltaic power plants. The respective programme, known as "Ecoenergy", enables investors after building a solar power station to recover part of the costs. Another round of applications for the programme will start in October 2008.

Production of Solar Panels

The building of solar power plants naturally boosts the demand for solar panels. The energy industry in the area of renewable sources is developing very fast, fuelled by subsidised prices. Our country offers many advantages compared to production abroad. Even with the growing living standards our wage costs are still relatively low and thus production costs are lower than in western countries. In addition, we can boast a pool of well-educated technical staff and a long-time production tradition. Last but not least, it is important that our main export partner in solar panels is Germany. Logistics costs are thus much lower than imports from, for example, Asia. At present, there are four major producers of solar panels operating in the Czech Republic. The first is the Japanese firm Kyocera, which opened its first European plant manufacturing solar panels in Kadaň in October 2005. The main investor of the second company, O&M Solar, was the Japanese firm Onamba. Next is Germany's RWE Schott Solar, where production started three years ago. Solartec, a purely Czech firm and the longest operating one in our market of the four, has more than a fifteen-year experience in the production of photovoltaic panels. In addition to solar panels production, there is quite a large number of firms in the Czech market engaged in the assembly of solar power plants.



Guaranteed purchasing price of clean energy attracts investors

Electroenergetics – a Branch of Crucial Importance

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The Department of Electroenergetics is a part of the Faculty of Electrical Engineering at the Czech Technical University in Prague. It educates specialists in the generation, distribution, and transmission of electrical energy, and its use. Training is also provided in power industry management. Emphasis is placed especially on broad-ranging qualifications and global knowledge of the energy sector. Graduates in electroenergetics are indispensable for the operation of the sector and much sought-after on the domestic labour market as well as abroad.

Student Exchanges Work Both Ways

Demand for experts in high voltage power systems is rising steeply. The studies offer many ways of widening experience. One of them is study and training abroad. Foreign studies can be arranged through the ERASMUS programme or on the basis of a system of bilateral agreements, which provide for mutual recognition of study fees. Another attractive possibility is training rounds, where students become acquainted with the operation of a certain company. This experience can be used for example in the preparation of theses. The study of electroenergetics also attracts foreign students. The university has good relations with foreign schools and admits foreign students. Students from almost all of Europe are attending courses here, and also represented are countries from the Middle East and Africa. Students from the United States and South America or trainees from China are no exception either. An attractive possibility for foreign students is also a certificate of successful graduation, and a double degree diploma. Foreign students are also enrolled for doctoral degrees. Some foreign countries do not have accredited doctoral degree programmes in electroenergetics, and thus studies in the Czech Republic are a way for their students to enhance their knowledge.

School and its Partners

The department cooperates with partner

companies, which include e.g., CEZ, PRE, E.ON and ČEPS. However, the school is trying not to rely exclusively on the private sector, it cooperates closely with the Ministry of Industry and Trade. Very good cooperation exists with the Czech-German Chamber of Commerce, and its participation in Euroenergy courses is also beneficial. The department works on interesting and important projects. For example, it has been included in the Ministry of Education project dealing with the development and enhancement of energy systems' safety and reliability. It is also involved in research tasks of the Grant Agency of the Czech Republic, which deal with metal heat treating, forging, and melting. The

where the department is preparing the visualisation of the entire process. Hydrogen laboratories have been set up and the department is running educational programmes on the use of renewable energy sources. The Department also participates in research into the so-called Smart Networks, distribution networks that are capable of regulating themselves. These networks, which are equipped with artificial intelligence centres, are much more reliable than the usual systems. A pilot project of smart networks is under preparation, financing is expected from European Union funds. This project is linked with cooperation with the CzechInvest agency, which is engaged in



Student working in a modern laboratory

department's services are also frequently used in judicial disputes, where it prepares expert opinion reports. The school has high recognition in this area. Also significant is its cooperation with the Academy of Sciences of the Czech Republic, its Grants Agency and Institute of Thermomechanics.

Electroenergetics Department Participates in Major Projects

One of the schemes in which the Electroenergetics Department is currently involved is a project for a hydrogen, powered ship in Hamburg, Germany,

helping the Department to find partners for research. The Department is also involved in research projects for industry, which range from basic surveys of problems to complete computer user outputs, and are thus all-round and comprehensive. In future the Department will work to further increase the attractiveness of its study branches and their modernisation, to provide a broad range of knowledge on the first two levels of studies, and to lead students in the select specialisations in their doctoral studies.

■ Legislation Will Influence the Future of Nuclear Power

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After quite a long time in which the construction of nuclear power plants stagnated, while fossil fuels have continued to be exhausted and nuclear power plants have achieved competitiveness and acceptable safety, it is expected that nuclear power stations with improved types of light water moderated and cooled reactors will be constructed. The revived interest in nuclear power is due among others to the excellent operating results of the existing power plants, their competitiveness even in the deregulated market, and especially to the need to ensure steady supplies of energy not only at reasonable prices, but especially with the use of low carbon technologies, which can help reduce man's influence on climatic change. However, views on the benefits and risks of nuclear power still diverge considerably.

State Supervision Plays Important Role in Nuclear Power

At the end of June 2008, there were 439 nuclear units with a total installed capacity of 372 GWe in operation in thirty countries. 36 more units, which are under construction in thirteen countries, represent the installed capacity of 30 GWe. In EU-27, 148 nuclear units operate in 15 countries. In 2007, EU member

states generated 28% of all electricity in nuclear power plants. The Czech Republic brought into the enlarged EU four units in the Dukovany nuclear power plant, and two in the Temelín nuclear power station. Their total installed capacity is 3 760 MWe. This input was the highest of the newly acceding countries. The future of nuclear power is influenced by three principal aspects, more or less inter-related: political, economic, and legislative. Of similar importance to the economic aspects is the legislative one, that is the framework and extent of state regulation in the sector. Stability and clearly defined and effective demands of the state supervision are what can have an important impact on the future of the nuclear power industry. It is not the task of the office to restrict the development of nuclear power, but to draft legislation in such a way as to enable a safe peaceful use of nuclear power.

Harmonisation Is Continuing

Significant progress has been made within the EU in the drafting and approval of harmonised basic standards for protection against radiation and waste management, but agreement on common safety standards for nuclear facilities has not been achieved. However, considerable progress has been recorded

in the harmonisation of objectives and requirements in the different areas of nuclear safety, and in their evaluation. A major role in this is played by the Western European Nuclear Regulators' Association (WENRA), currently presided over by the Czech Republic, and the newly founded High Level Group on Nuclear Safety and Waste Management. The Czech Republic also actively cooperates in the drafting of IAAE standards and recommendations, which then form the basis for national regulations in most member states. State regulation in the area of safe use of nuclear energy is performed by the State Office for Nuclear Safety (SÚJB), established by law taking effect on 1 January 1993 as an independent body of state administration. The SÚJB performs state administration and supervision in the use of nuclear energy and ionising radiation, in radiation protection and in the area of nuclear weapons non-proliferation and observance of the ban on chemical, bacteriological, and toxin weapons. The basic objective of SÚJB's activities is protection of individuals, the population, and the environment in the use of nuclear energy and sources of ionising radiation. By performing state administration and supervision the SÚJB contributes to limiting safety and radiation risks, controlling radiation and preventing, limiting, and mitigating the consequences of accidents involving possible harmful effects of ionising radiation. In the next fifteen to twenty years, Europe is not probably facing a boom of nuclear power plants construction. Current estimates speak about newly installed capacities of approximately 5 GW by 2015 and 11 GW by 2020. Despite the growing awareness that developed countries operating nuclear power industries have no adequate replacement for this source in the short term, the political and economic environment, with a few exceptions, does not offer sufficient certainty and attractiveness that would entice investors.



Temelín nuclear power plant

■ Energy Centres, Future of Regional Power Supply

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The company BIOMAC Ing. Černý, s.r.o. was founded in 2000, but the owner, Zdeněk Černý, and his colleagues have been in the branch of fuel production from biomass since 1990. While still in the state-owned UNEX enterprise, they designed the first Czech briquetting technology, BL-1, pressing wood biomass into ecobriquette fuel. During the development, the company added to its original purpose - servicing and repairs of foreign briquetting machinery - also the manufacture and sale of ecofuel, which proved a prudent step to take. The company is building its own briquetting facilities directly in wood-processing plants, where there is a sufficient quantity of clean and quality raw material. Cheap sulphur coal in the Czech Republic compels the company to export 95% of its output to other pro-ecology oriented countries, where biomass fuel has been a tradition for many years. BIOMAC sells both its own and purchased ecofuel not only to neighbouring Austria, but also Italy, Switzerland, France, Belgium, Germany, and Denmark. With standardised fuel quality, targeted commercial strategy, and assisted by the CzechTrade export agency, BIOMAC is becoming a direct supplier to the European retail chains OBI, HORNBACH, BAUHAUS, BAUMAX, ÖBAU, MERKUR, SPAR, and others.

Awards and Successes

In 2006, this export activity earned the company third place in the "DHL Export Prize", and it also became "The 2006 CzechTrade Most Successful Client". Besides its own production, BIOMAC purchases and sells abroad products of other Czech and Slovak producers of biomass fuel. During the company's existence, the range was extended from wood briquettes to bark briquettes, energy wood chips, fireplace wood, and fire lighting chips. Between 2001 and 2007, the company increased its annual turnover twentyfold and it now amounts to almost EUR 12 million. For its



BIOMAC wood ecobriquettes

activities in the ecofuel branch, BIOMAC won in 2007 the "Olomouc Region Company of the Year" award, and a special prize of the jury in the national finals of the "Entrepreneur of the Year Award", organised by the global Ernst & Young company.

Number One in the Branch in Europe

In the spring of 2008, the company put into operation the thirtieth briquetting line and the annual production in all its plants has thus climbed to more than 120 000 tonnes of wood briquettes. BIOMAC has thus become number one producer of briquettes from biomass in Europe. The year 2008 has also brought a turn in the fulfilment of the company's long-term ambition, which is the return of the produced ecofuels to the Czech Republic and gradual replacement of sulphur coal in Czech rural areas. Nowadays this is facilitated by the state environmental policy as well as the environmental tax imposed from Brussels, which has made fossil coal more expensive than biomass fuel. In a price comparison with brown coal, the winner is now clearly

biomass fuel, also due to a higher calorific value (up to 19 MJ/kg), almost zero ash content (0.33%), and zero sulphur. Besides wood and bark ecobriquettes, Czech households are also being supplied with wood pellets (pressed granules of 6 mm diameter), which allow automatic-fed burning of biomass, i.e. the same comfort as when burning natural gas or heating oil. This direction will enable the company to further expand in the construction of new ecofuel manufacturing facilities using vegetable waste from farm production and forestry. BIOMAC has a vision of "Biomass Energy Centres" processing all wood and vegetable waste from small areas, which will bring the Czech Republic not only an increase in ecological renewable fuels, but also higher employment in rural areas and lower dependence of the Czech state on foreign energies, now imported at a high cost. Indeed, one two-kilogram BIOMAC briquette made from domestic biomass contains the same energy as 1 cu. m of foreign natural gas or 1 litre of heating oil. The first "Biomass Energy Centre" is already being designed and operation is to start by the end of 2009. ■

■ CEZ Among Europe's Top Ten Energy Giants

Eva Nováková, ČEZ, a. s., eva.novakova@cez.cz, www.cez.cz

The strategic goal of the CEZ Group is to become the leader on the electricity markets of Central and Southeast Europe. Besides electricity and heat production, its activities include telecommunications, information technology, nuclear research, design, construction and maintenance of energy facilities, mining of raw materials and processing of energy by-products. The parent company and core of CEZ Group is the largest electricity producer in the Czech Republic, the CEZ, joint stock company. CEZ Group ranks among the ten largest energy groups in Europe, in terms of both installed capacity and number of customers. Besides the Czech Republic, its home, CEZ Group operates in more than ten countries in Central and Southeast Europe.

Strengthening Positions

In 2005, CEZ Group launched its foreign expansion, succeeding in the privatisation proceedings for Romanian and Bulgarian distribution networks. One year later, its production portfolio was enlarged by power plants in Poland and Bulgaria. In

December 2007, CEZ Group formed strategic alliance with the MOL group of Hungary, focusing on the construction of gas-fired power stations. Cooperation with MOL is an opportunity for CEZ to strengthen its position on the electricity markets of Central and Southeast Europe, moreover with the contribution of a strong locally established partner having experience in the gas industry. At the beginning of July 2008 CEZ, working with a local Turkish partner, succeeded in the privatisation proceedings for the Turkish distribution network Sedas, which serves more than 1.3 million customers in north-western Turkey. CEZ Group is thus successfully continuing its foreign expansion, which forms one of its priorities.

CEZ Serving Over 8 Million Customers and Extending its Portfolio of Sources

CEZ Group's enlargement with regional power distributors in the Czech Republic and an increase in its shares in other major companies, such as Severočeské doly (North-Bohemian Mines) and Skoda

Praha have significantly diversified the Group's activities and strengthened its position in the energy market. In the Czech Republic, CEZ Group supplies electricity to almost 3.5 million users. The Bulgarian distribution companies serve almost 2 million clients, in Romania CEZ Group supplies electricity to 1.4 million customers. The Turkish distributor Sedas adds another 1.3 million customers. The production of CEZ Group is based on the use of an energy mix, it owns and operates nuclear, coal-fired, and water-powered plants and uses renewable sources. The portfolio of generating facilities with the installed capacity of 12 298 MW in the Czech Republic was extended in 2006 by the purchase of two Polish power plants of the electricity companies Elektrownia Skawina S. A. and Elektrociepłownia Chorzów ELCHO Sp. z o. o., with the overall installed capacity of 830 MW. The purchase of the Varna hard coal-fired power plant in Bulgaria added 1 260 more MW to the installed capacity of the CEZ Group's power stations.

Implementation of Company Strategy Is the Way to Stability

The emphasis on business efficiency and the successes of CEZ Group to date in increasing the performance of the firms acquired in Southeast and Central Europe are paying off and changing into a growing market value. CEZ's successful business operations in the Czech Republic and abroad bring its stockholders a long-term reasonable profit. On a European scale, CEZ Group is the most profitable and at the same time the least indebted power company. This is favourably reflected in the price of CEZ shares, which is one of the best developing prices among the shares of energy companies in Europe. The excellent economic results stem from the conscientious implementation of the company strategy, which includes successful foreign acquisitions in Southeast Europe, systematic optimisation of costs, and performance orientation.



Počerady thermal power plant

VÍTKOVICE CYLINDERS – Leader of the European Market and Development

Eva Kijonková, VÍTKOVICE CYLINDERS, a.s., eva.kijonkova@vitkovice.cz, www.vitkovice.cz

VÍTKOVICE CYLINDERS, a.s. is number one on the European market of high-pressure steel cylinders and at the same time one of the most important subsidiaries in the almost 30-member international VÍTKOVICE HOLDING group. The company manufactures over half a million steel cylinders annually, 95% of which are exported. VÍTKOVICE CYLINDERS is also the leading producer and supplier of steel balls for the grinding of ores, sand, coal, lime or gold in Central and West Europe. The company gained this position thanks to its purchase and takeover two years ago of 100% share of the traditional almost one-hundred-year-old German firm Kordt & Rosch GmbH, based in Plettenberg near Dortmund.

Alternative Vehicle Propulsion

VÍTKOVICE CYLINDERS was the first company in the world this year to produce a special 120 litre cylinder, 390 millimetres in diameter, moreover on a line of its own construction, which is made neither from drawn plates nor tubes. No similar product created by the method of reverse extrusion from steel billets exists anywhere in the world and this one is the result of VÍTKOVICE CYLINDERS' know-how. The expected investment is approximately EUR 43,22 million. VÍTKOVICE CYLINDERS has worked for some 13 years on the research and development of the unique production equipment. The project is so exceptional that it won the highest investment incentive designated by the CzechInvest agency and the Ministry of Industry and Trade for a Czech recipient in the Moravia-Silesia Region in 2006. The annual volume of production of the special pressure cylinders designed for the propulsion of vehicles by natural gas, methane, and hydrogen will be worth tens of millions of EUR. Most of the output will be exported. Thanks to its



Pressure vessel, VÍTKOVICE CYLINDERS

relationship with the Argentinean firm Cidegas, VÍTKOVICE CYLINDERS is already now an important player in alternative vehicle propulsion on the Latin American market. It also has offices in Malaysia, South Africa, and Mexico. Its range of high-pressure steel cylinders is complemented with comprehensive solutions of filling stations and natural gas-fuelled vehicles. The company's standard supplies include turnkey deliveries of natural gas filling stations – from small ones with 1.3 cu. m/ hour or 3.4 cu. m/hour flow rate, to 100 cu. m/hour stations up to those for buses with flow rates of several thousand cubic metres per hour. The company itself is using natural gas-propelled vehicles.

Strategic Development and Innovation

In addition to being a leader on the global market of high-pressure steel vessels and grinding balls, the decisive projects of VÍTKOVICE CYLINDERS are addressing the global fuel and energy crisis. The company is concluding strategic alliances and

acquisition contracts, which are aimed at the development and production of equipment for the propulsion of vehicles by natural gas, methane, and hydrogen. It also wants to build a research and development centre for the conversion of vehicles to natural gas, and from 2010 will be ready to manufacture vessels for the hydrogen programmes of the world's top car producers. In the area of alternatives for transport the company will cooperate with its sister firm VÍTKOVICE MILMET (formerly Fabrika Butli Technicznych Milmet, S.A.) in Sosnowiec, Poland. The investment of VÍTKOVICE HOLDING group in Milmet is one of the largest Czech investments in Poland. There is thus a chance of doing interesting business in the area of transport not only for the two firms, but also for other members of the Vítkovice engineering holding complex. At present, over ten million vehicles using natural gas or propane/butane as fuel are operated in the world and their number will continue to increase. About 50 car makers already have serial productions of natural gas-fuelled cars. VÍTKOVICE CYLINDERS, as part of the VÍTKOVICE HOLDING company, is working to be as close to these projects as possible.

At the end of this year, VÍTKOVICE CYLINDERS expects a total output worth approximately EUR 60 million, which will be about 25% more than in 2007. The company has been profitable over the long term.

■ Dalkia Making Intensive Use of Renewable Sources

Laurent Barrieux, Dalkia Česká republika, a.s., info@dalkia.cz, www.dalkia.cz

Dalkia in the Czech Republic is a traditional producer and supplier of heat and electricity for inhabitants, enterprises, and institutions in a number of municipalities in the Czech Republic. In addition, it offers its clients management of all energies and other services related to the operation of buildings.

Dalkia, a member of the Veolia Environment transnational group, has been doing business in the Czech Republic since 1991 and at present employs 2 700 staff in the country. It includes the companies Dalkia Česká republika, Olterm&TD Olomouc, AmpluServis, and Elektrárna Kolín. Dalkia in the Czech Republic always concludes long-term partnerships with its clients in the regions where it is operating – those of Moravia-Silesia, Olomouc and Ústí nad Labem, and in Prague.

With its professional know-how and constant technological modernisation Dalkia Česká republika helps to improve the environment in the Czech Republic, which is one of its priorities. More on this subject from Mr Laurent Barrieux, CEO, Dalkia Česká republika:

Large industrial corporations are under the spotlight in the area of environmental protection. What measures are you taking in this respect?

Environmental protection and pollution prevention are some of the priorities of Dalkia Česká republika, which we declare in our Sustainable Development Policy. We prefer heat and electricity cogeneration, because their combined production is much more environmentally friendly and much higher energy efficient. Aware of its environmental commitments, our company has invested considerable financial resources to make its facilities ecologically sound and meet all the legislative requirements. Most production plants are certified according to the international standard ISO 14001. Production facilities are using above all low-sulphur hard coal from the Karviná mines, which also helps to maintain employment in the region.

What is your attitude to biomass burning?

We started to use biomass at the heating plant in Krnov in 2003, and then in Olomouc and Karviná, and by now environmentally-friendly fuels have replaced coal at almost all our facilities which have the necessary technology. Burning biomass helps us to fulfil our environmental goals in the Czech Republic, because it greatly contributes to the lowering of carbon dioxide and sulphur dioxide emissions. In 2007, we released 38 416 tonnes of CO₂ emissions less thanks to biomass combustion.

What kinds of biomass does your company use most frequently?

In 2007 we burned several types of biomass: wood – sawdust and chips, husks from oilseed pressing, bran, straw pellets, and bad grass seed. The Krnov division makes considerable use of uteusha dock, a highly ecological perennial which grows over two metres tall and yields are about one hundred tonnes of dry



Laurent Barrieux, Director General, Dalkia Česká republika

matter per hectare. We are thus simultaneously helping farmers in the region, with whom we have signed several long-term agreements on biomass delivery.

Can you give figures on the biomass quantities being burned?

Last year, Dalkia Česká republika facilities burned 427 746 GJ of biomass, which is approximately 34 000 tonnes. These figures are lower than in 2006, the reason being a lack of biomass on the market and the related rise in ecological fuel prices. It is not just for this reason that we prefer the so-called energy mix, which is co-burning biomass with classical fuels at one facility. This method of energy production is more efficient and enables us to better control the risk connected with dependence on fuel suppliers.

ŠKODA PRAHA Invest and ŠKODA PRAHA – Strong Partnership on Czech Market of Power Plant Deliveries

Olga Dvorecká, ŠKODA PRAHA a.s., ŠKODA PRAHA Invest s.r.o., olga.dvorecka@skodapraha.cz, www.skodapraha.cz, www.spinvest.cz

ŠKODA PRAHA a.s., a member of the CEZ Group – one of the largest energy concerns in Central and Southeast Europe, is a prominent Czech company with business successes in the energy sector reaching as far back as the early 1950s. During its existence, ŠKODA PRAHA has designed and delivered to 25 countries over a hundred power plants with an overall capacity exceeding 38 000 MW. In 2005, ŠKODA PRAHA founded the company ŠKODA PRAHA Invest s.r.o., which has soon become a player of similar importance on the energy market. ŠKODA PRAHA Invest is the general contractor for

the current most important power industry project in the Czech Republic: rehabilitation of the production capacity of CEZ. In 2008, ŠKODA PRAHA Invest became a 100% subsidiary of CEZ, and thus confirmed its full integration with this major business association, the CEZ Group. The combination of the strong know-how of the ŠKODA PRAHA brand and the modern effective management of ŠKODA PRAHA Invest makes the two companies a prominent and vigorous power engineering contractor and supplier on the Czech and international energy market.

Basic Credo – Turnkey Deliveries

ŠKODA PRAHA Invest and ŠKODA PRAHA excel especially in the design and deliveries of complete power plants (conventional and nuclear power stations, steam-gas cycle plants and peaking facilities). The mission statement of both companies is to supply clients with customised energy solutions and turnkey deliveries, to their complete satisfaction. The basic parameters of such works are high technical quality, efficiency, cost-effectiveness, and environmentally friendly operation. Both companies are certified in compliance with the EN ISO 9001:2000



Tušimice thermal power plant



Ledvice thermal power plant

and EN ISO 14001:2004 standards. Their development is based on the principle of close interaction of economic growth, promotion of interests of the parties involved in the business operations of the companies (employees, suppliers, communities), observance of ethical aspects of enterprise and, last but not least, protection of the environment.

ŠKODA PRAHA Invest: Longer Life for Power Plants

During 2006-2007 ŠKODA PRAHA Invest won three major contracts to deliver comprehensive rehabilitation of the production portfolio of the CEZ, company in the Czech Republic. The company is the general contractor for the rehabilitation of the Tušimice II power station, where the gradual complete renewal of four units of the plant, divided into two phases, will prolong its life-cycle up to the year 2035, raise the power plant's efficiency from 33 to 38%, and significantly lower its emission and pollution parameters as

well. The same expectations are associated with the project for the complete rehabilitation of the Prunéřov II power plant, where the company will renew three power units of the station, and its life-cycle will thus also be extended by 25 to 30 years. ŠKODA PRAHA Invest is also the general contractor of the design for the



Tušimice thermal power plant

construction of a new supercritical 660 MW unit at the Ledvice site, which is to be put into operation in 2012 with the expected life-cycle of 40 years.

ŠKODA PRAHA: Focus on Trade and Vietnam

In contrast, ŠKODA PRAHA has defined its present business focus which is – following the full integration with the CEZ Group and the need to determine its place in the group – development and commercial preparation of designs for the building and reconstruction of conventional and nuclear power plants in the Czech Republic and abroad, especially for subsequent implementation by the ŠKODA PRAHA Invest. In this line of business ŠKODA PRAHA, as a trade firm, will take advantage of its know-how, reputation and brand built over many decades, when its key references include general contractor deliveries for the Temelín, Dukovany, and Mochovce nuclear power plants, supplies of power plants to China, Egypt, Turkey, and Cuba, as well as other countries. Besides developing projects for ŠKODA PRAHA Invest, the ŠKODA PRAHA now occupies itself with one of crucial opportunities for the Czech and Slovak energy industries, namely the delivery of several energy units for the fast developing Vietnamese electricity market, and is doing so with full support of the governments of both countries. ■

Photo: ŠKODA PRAHA archives

RWE Offers Clearly Stated Advantages

Pavel Grochál, RWE Transgas, pavel.grochal@rwe.cz, www.rwe.cz

RWE Group in the Czech Republic supplies natural gas to almost 2.3 million customers. Its managing company is RWE Transgas, which is responsible for the purchase and transit and wholesale of natural gas. The gas is sold through six regional gas companies.

RWE Group comprises 21 companies in the Czech Republic and, despite the complete opening of the market and the entry of rival firms, it succeeds in maintaining over 70% share of the end users' market.

Security, Reliability, Stability

The RWE Group, serving more than 30 million customers, is a key player in the European gas and power industries. It is the third largest energy utility, the largest producer of electrical power, and one of the largest suppliers of natural gas. Thus, it is a matter of course that one of RWE's priority areas is to secure stable deliveries. From the viewpoint of the Czech Republic, great assurance for reliable natural gas supplies is provided by long-term contracts concluded by RWE with Russia's Gazprom last year. They guarantee customers of the group assured supplies of approximately 200 billion cu. m of natural gas up to 2035. Natural gas supplies to the Czech Republic are secured also by RWE's long-term contracts with Norwegian producers. In addition, several new projects will be available for future supplies. Russian natural gas is to flow newly to domestic customers by the Gazela pipeline. RWE is preparing its construction to follow the completion of the Nord Stream gas pipeline, which is to lead to Europe from Russia on the Baltic Sea bed. A new gas pipeline, Nabucco, is to bring natural gas to Europe from the area of the Caspian Sea. RWE, which will be directly involved in the construction, has officially announced the intention to

link this new natural gas source to the domestic gas transport system. What is more, the acquisition of new LNG (liquefied natural gas) technologies will make it possible in future to transport natural gas for RWE customers practically from the whole world.

Services with Added Value

The main priorities of the Czech Republic's State Energy Concept are independence, safety, and sustainable development. Enhancement of energy efficiency is the cheapest, safest, and fastest way to achieve them. The RWE group is the first energy concern in the

houses. The purpose of the services is to inspire customers to behave responsibly to the environment in using energy, and at the same time to teach them how to save it.

Customer Care Being Transformed

The area of customer care in the RWE group is seeing fundamental changes in the Czech Republic. Emphasis is placed on continued presence in the regions, with respect to new market demands. Within the group's restructuring, this objective is pursued also by the founding of a separate company, RWE Zákaznické služby (Customer Services). It has been



One of RWE's priority areas is to secure stable deliveries

Czech Republic to subscribe to the energy efficiency concept. It has prepared the Saving Energy (Šetřím energii) project, under which consumers in the households and small-businesses category are advised how to save for example on heating a family home, a house or workshop. Local government, medium-sized and large customers are not left aside either. The group offers them financial

contributions to vehicle gas conversion, and to ecological and energy-efficient solutions for the heating of both new buildings and old

running all the 45 RWE customer points in the regions of the Czech Republic from a single centre since the beginning of the year. In ten of them, RWE's services are provided jointly with the CEZ group. These customer centres operate as one-stop shop for dealing with all affairs connected with electric power and natural gas consumption. It is thus a practical example that time formerly needed for administrative processing of a case of energy consumption is being reduced. Motivated by the same intention, i.e. to offer customers quick answers to their questions, RWE launched this year the operation of a modern call centre staffed by a hundred operators.

RWE Group in the Czech Republic (2007 figures)

Profit after tax: CZK 16 billion (EUR 577.6 million)
 Consolidated earnings CZK 95.4 billion (EUR 3.4 billion)
 Total of 5 096 employees in the Czech Republic

■ Outlook in Nuclear Energy Research and Development

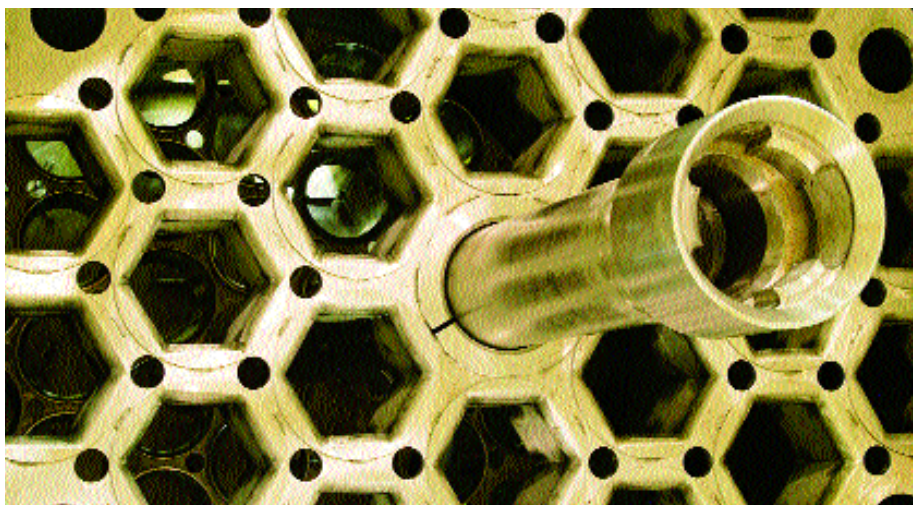
Ivo Váša, Ústav jaderného výzkumu Řež a.s. (ÚJV), vas@ujv.cz, www.nri.cz

Nuclear power plants in Europe generate about 31% of electric energy. The Council of Europe has defined three main priorities of an integrated strategy for power generation and the environment: increased safety of energy supplies, availability of energy at reasonable prices, sustainability of the environment and global climate. Nuclear power is considered important in covering the increase in society's energy needs, while meeting the requirements of the above mentioned objectives. The 31% share of electricity from nuclear power represents a "saving" of almost 900 million tonnes of CO₂ that would escape to the air from manufacture based on fossil fuels.

Interest in Nuclear Power is Growing

Currently we are witnessing the revival of interest in nuclear energy, which is world wide and exists on two levels. One is the prolongation of safe and economical operation of existing nuclear power plants, the other is research and development in the so-called advanced nuclear systems, classified as Generation III (GEN III, III+) and Generation IV (GEN IV). Based on evolutionary improvements of existing systems and technologies, they are expected to be more cost-effective and competitive with other energy sources, and show enhanced safety, lowering of the production of radioactive waste and radiation exposure of staff, and a better waste management.

Nuclear power plant operators in the world have already worked out sets of requirements that new nuclear reactors (light-water GEN III, III+) have to meet, the Czech Republic participates in the group of European electricity companies. Generation III units include e.g. the European Pressurized Reactor (EPR) type, which is being built in both Finland and France. The development of fourth generation (GEN IV) nuclear systems was initiated in the USA before 2000. This initiative has grown into multifaceted international activities (especially the GIF). The GIF has also been joined by the IAEA (and also EURATOM where the Czech



Interior reactor, Dukovany nuclear power plant

Republic, represented by ÚJV Řež a.s., participates in GIF cooperation). The international integration of capacities and financial resources is a new phenomenon in this phase of the revival. New programmes of support for the development of advanced reactors have also emerged in the IAEA, OECD, EU, and so have national research programmes.

Fourth-Generation Nuclear Systems

The GIF international forum has formulated the main objectives for the Generation IV systems. They should supply energy at a competitive price and capital risk of the investment should be low. Compared to present types, their construction should take a substantially shorter time and the probability of nuclear accidents should be lowered dramatically. Radiation exposure for staff and populations should be reduced to a minimum. The volume of waste should

be minimised too. An important goal is increased protection against the abuse of nuclear materials for armaments, or its absolute exclusion. The GIF forum has drafted a timetable specifying the research and development themes, the times when they will be addressed, and the need for funding. Deployment of Generation IV systems is not expected until after the year 2030. In the EU, the Sustainable Nuclear Energy Technology Platform (SNE-TP) was launched in 2007 with the purpose to back short-, medium- and long-term development of technologies utilising nuclear fission energy for sustainable energy production. ÚJV Řež a.s. is represented on the SNE-TP Governing Board and Secretariat. It can be justifiably assumed that the international effort in the development of safe and economically efficient nuclear power systems will secure a sufficient potential of resources for EU countries to meet the growing energy needs. ■

Organisations mentioned in the article and their abbreviations:

IAEA – International Atomic Energy Agency, www.iaea.org
 EURATOM – European Atomic Energy Community, ec.europa.eu/euratom
 OECD – Organisation for Economic Cooperation and Development, www.oecd.org
 SNE-TP – Sustainable Nuclear Energy Technology Platform, www.snetp.eu
 GIF – Generation IV International Forum, www.gen-4.org

Poll of Successful Companies Operating in the Power Industry Sector

ČEPS, a.s.

Elektrárenská 774/2, 101 52 Praha 10, phone: +420 211 044 111, fax: +420 211 044 568, e-mail: ceps@ceps.cz, www.ceps.cz

Turnover: CZK 14.5 billion – approx. EUR 505 million
 Number of employees: 455
 Contact: Ms Jana Jabůrková
 e-mail: jaburkova@ceps.cz
 Export: Austria, Germany, Poland, Hungary, Slovakia, Slovenia

ČEPS, a.s. is the exclusive operator of the transmission grid (400 kV and 220 kV power lines) on the territory of the Czech Republic, on the basis of a licence for electricity transmission. It runs 39 substations with 67 transformers which transfer electrical energy from the transmission system to the distribution network, and 3 000 kilometres of 400 kV lines and 1 450 kilometres of 220 kV lines. ČEPS provides transmission services and system services within the Czech Republic's electricity network. With its system services, ČEPS ensures the balance of electricity generation and consumption in real time. With its transmission services, ČEPS ensures internal and cross-border transfers of electrical energy. ČEPS is one of the most important companies in the Czech electricity market, and its operations have been actively contributing over the long term to the formation of a liberalised electricity market in both the Czech Republic and Europe.

The European Commission has prepared the so-called third energy package. Does ČEPS have the ambition to influence the shape of the electricity market in the EU?

ČEPS is one of the most important commenting points within the Czech Republic's energy portfolio, and by this activity in legislative and technical matters participates in the shaping of the electricity market in the country. We consider ČEPS' active involvement in the drafting and commenting of legal regulations on the activities of European transmission systems operators as an inherent part of our work. ČEPS has initiated a draft amending the regulation of conditions for access to the grid for cross-border electricity trading. At present, international electricity deals must not be subject to any charges. In case demand for profiles on cross-border lines does not exceed supply, a trade is realised free of charge. Costs are subsequently divided among the different



ČEPS transmission system

Photo: ČEPS archives

transmission systems. ČEPS believes that this situation is not correct and it has thus prepared a draft for a change to introduce a unified tariff for international electricity transfers. It should provide for transmission costs to be paid by the entity which has placed an order for the international trade and earned a profit from it.

The need to intensify international cooperation among the operators of transmission systems in Europe is now being discussed. What contribution is ČEPS making to the fulfilment of these demands?

Besides other international activities, ČEPS organised the annual meetings of the European Electricity Transmission Systems Operators (ETSO) association in Prague in June 2008. The participants approved the Prague Declaration of Intent on the creation of a new all-European association, ENTSO-E (European Network of Transmission System Operators for Electricity). The new association will meet the requirements contained in the draft third liberalisation package and increase the level of coordination of existing regional associations. Transmission systems operators expect from the new association a substantially enhanced cooperation and the creation of technical and trade codes.

ČKD Blansko Wind a.s.

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Contact: Mr Rostislav Lesniak
 e-mail: rostislav.lesniak@ckdblansko.cz
 Export: Finland, Bulgaria, Poland

ČKD Blansko Wind, a.s. was founded in 2006 as a subsidiary of ČKD Blansko Holding, a.s., which is a member of the consolidated J&T group. Its main line of activity is deliveries of wind power plants in cooperation with the Finnish producer, WinWinD Oy. We

offer the WWD 1 version (output per unit 1 MW, tower height up to 70 metres and rotor diameter up to 64 m), and WWD 3 (3 MW output per unit, tower height up to 100 m, rotor diameter up to 100 m).

You are using the most modern technology in your products. Can you be more specific?

The WinWinD technology is based on the progressive Multibrid

concept, which uses the advantages of state-of-the-art direct drive with the compactness of the traditional high-speed gear of classical wind power plants. The supplied turbines based on the Multibrid technology provide customers with one of the highest prized values – high reliability and easy maintenance.

You participated in the construction of the largest wind farm in Central Europe to date. What are the features of this project?

Pražská energetika, a.s.

Na Hroudě 1492/4, 100 05 Praha 10, phone: +420 267 055 555, fax: +420 267 310 817, e-mail: pre@pre.cz, www.pre.cz

Turnover: CZK 11 billion – approx. EUR 397 million
Number of employees: 1400
Contact: Mr Petr Holubec, e-mail: petr.holubec@pre.cz
Export: Germany

The PRE Group, with its juridical predecessors, has been connected with the history of the capital of the Czech Republic for 111 years. Pražská energetika, a.s. is the third largest electricity trader on the Czech energy market and its subsidiary, PREdistribuce, a.s., supplies electricity to the capital city, Prague, and the neighbouring town of Roztoky. The company provides its more than seven hundred thousand clients with services meeting the requirements of the third millennium.

What methods are you using to communicate with your clients? What do you do to make cooperation between clients and your company faster and more effective?

As a matter of course we are striving to save time for our clients, and this is why PRE places emphasis mainly on electronic communication. Having the comfort of their office or home, PRE clients can submit and settle practically all their requests regarding energy by the internet, email or phone. In the case of large customers PRE prefers personal contacts and individual approach, so that to achieve their maximum satisfaction.

What is your objective for the future? How will you try to achieve it?

In the ever more competitive environment of the Czech

The 6 MW pilot wind power plant at Pchery near Kladno was put into operation in April 2008. The wind farm of two towers with WWD 3 technology of 3 MW output per unit is the largest wind power plant erected in the Czech Republic and Central Europe. Rotors of 100 m diameter are used to drive the turbines. An essential feature is the output optimisation by the adjustment of the rotor blades and on-line communication with the service centre by the monitoring system compatible with the SCADA systems.

electricity industry, PRE is determined to keep its positions in the domestic market. This will not be possible without constant improvement of services, customer care, and extending the range of service activities. One of the ways is PRE's cooperation with transnational chains and so-called international clients. Because one of PRE's majority owners is the German company EnBW, frequent contacts also exist with electricity customers from abroad who have operations in the Czech Republic.



PRE control hall

Photo: PRE archives

TTS holding s.r.o.

Průmyslová 163, 674 01 Třebíč, phone: + 420 568 837 611, fax: + 420 568 840 035, e-mail: info@tts.cz, www.tts.cz

Turnover: CZK 410 million – approx. EUR 16.4 million
Number of employees: 90
Contact: Mr Richard Horký; e-mail: horky@tts.cz
Export: Slovakia 30% (in 2007)

TTS eko, s.r.o. specialises in the development, design, delivery, and assembly of 1 MW to 8 MW industrial biomass combustion boilers (wood, straw) and biomass-fired electricity generating systems using the ORC technology. The main line of activity of the company TTS energo, s.r.o. is the operation of the heat management system of the town of Třebíč.

In 2006 you completed the project of the SEVER Heating Plant, one of the largest in the Czech Republic. What are the installations?

The heating plant's installations now include a 3 MW woody biomass-fired boiler, a 7 MW thermooil boiler burning woody biomass together with electricity generation by the ORC system of 1 MW capacity, and the last installed 5 MW boiler burning straw bales. A storage container of 1800 cu.m allows to manage peak consumption periods. Supplementary sources are natural gas-fired boilers (2x6 MW) and boilers with combined light fuel oil/natural gas burners (2x5 MW).

All activities in Třebíč are now focused on the completion of the JIH Heating Plant. Can you describe this project briefly?

The south of the town is an area of both housing estates and a complex of industrial facilities processing metals and wood. The JIH Heating Plant was built at the turn of the 1960's and

1970's. The old technology, including boilers and a mazut tank, have been removed. The basic source is now new straw-fired boilers VESKO-S. Both boilers operate in an automatic regime,

fuel is fed by an automatic overhead crane. The facility is supplemented with a gas-fired boiler of 2x6 MW capacity, designed to cover peak period consumption.

EGÚ Brno, a. s.

Hudcova 487/76a, 612 48 Brno-Medlánky, phone: +420 541 511 511, fax: +420 541 511 611, e-mail: info@egubrno.cz, www.egubrno.cz

Turnover: CZK 83 million – approx. EUR 2.99 million
 Number of employees: 67
 Contact: Mr Zdeněk Špaček, e-mail: zdenek.spacek@egubrno.cz
 Export: Poland, Slovakia, Bulgaria, Rumania

EGÚ Brno, a.s., which has been engaged for over 55 years in engineering activities connected with the technical, technological, environmental, and economic aspects of the operation of electricity networks. Its attention is focused mainly on effective use of renewable sources, digital gauging systems, ecological structures of transmission grids, transformer diagnostics, safety and reliability of electricity supplies, analyses of electricity networks of the full voltage range, and regulation including price and tariff setting.

Is your company involved in the everyday operation of the power industry?

Yes, it is, especially in the economic area, where every electricity distributor and customer meets daily with the prices of electricity

and their amounts. Since market principles were applied to electricity, our company has been participating in the preparation of materials for the setting of regulated electricity prices that are announced by the Energy Regulatory Office at the end of every year by a regulation decree for the next year.

Where do you think the energy industry is to be directed in future?

Paradoxically, the basic problem of the Czech energy industry is not its present situation, but the critical condition in the preparation and securing of the future development of the energy industry connected with ensuring the necessary reliability and safety of energy supplies over the long term. This year, the situation is, so to say, coming to the crunch regarding the addressing of the key problems of the Czech power industry, which are ensuring sufficient capacity of the power system in the period after 2015, while at the same time ensuring a sufficient volume and structure of primary sources for the production of electricity and centralised heat.



Power Industry Sector Fairs and Exhibitions

Events taking place in the Czech Republic

CONSTRUCTION AND OPERATION OF BIOGAS STATIONS

8th international conference on biogas

9 - 10 October 2008

Conference hall of AURORA Spa, Dukelská 145, 379 01 Třeboň

e-mail: aqua@trebon.cz, www.czba.cz

HYDROTURBO 2008

International conference on hydropower

13 - 16 October 2008

Sport Hotel Hrotovice, Hrotovice

e-mail: renata.patova@cez.cz,

www.cez.cz/en/cez-group/media/hydroturbo-conference.html

ELEKTROFEST PRAHA

Fair of industrial electrical equipment, electronics, and energy industry

30 - 31 October 2008

Praha – Top Hotel, Czech Republic

e-mail: nasadil@omnis.cz, www.omnis.cz

EKOENERGIE OLOMOUC

Exhibition connected with a conference on renewable energy sources

6 - 8 November 2008

Olomouc – Flora Exhibition Grounds

e-mail: nasadil@omnis.cz, www.omnis.cz

INFOTHERMA

Specialised exhibition on heating, energy saving, and use of renewable sources in small and medium-sized buildings

19 - 22 January 2009

Černá louka Ostrava Exhibition Grounds

e-mail: kostelny@inforpres.cz, www.infotherma.cz

Official participation of the Czech Republic in international fairs and exhibitions abroad

ALMATY – POWER KAZAKHSTAN

International energy fair

4 - 6 November 2008

e-mail: power@iteca.kz, www.powerexpo.kz/en/2008

Important Contacts

Ministries		
Ministry of Industry and Trade	www.mpo.cz	mpo@mpo.cz
Ministry of the Environment	www.env.cz	info@env.cz
State Institutions		
Energy Regulatory Office	www.eru.cz	eru@eru.cz
State Office for Nuclear Safety	www.sujb.cz	podatelna@sujb.cz
Associations and Unions		
Association of Energy Managers	www.aem.cz	aem@aem.cz
Association for District Heating	www.tscr.cz	tscr@tscr.cz
*Association of Energy Auditors	www.aeaonline.cz	aea@aeaonline.cz
Centre for Transport and Energy	www.cde.ecn.cz	cde@ecn.cz
SEVEEn, o.p.s. – Středisko pro efektivní využívání energie /Energy Efficiency Centre/, o.p.s.	www.svn.cz	seven@svn.cz
Research Organisations and Institutes		
Nuclear Research Institute Řež	www.nri.cz	krz@ujv.cz
Energy Research Centre, VŠB – Technical University of Ostrava	www.vsb.cz/vec	vec@vsb.cz
Department of Environmental Engineering, Czech Technical University	utp.fs.cvut.cz	broz@fsid.cvut.cz
Universities		
Czech Technical University, Department of Electrical Power Engineering	k315.feld.cvut.cz	tlusty@fel.cvut.cz
Czech Technical University, Faculty of Nuclear Sciences and Physical Engineering	www.fjfi.cvut.cz	Jan.Adamek@fjfi.cvut.cz
VŠB – Technical University of Ostrava, Department of Power Engineering	www.vsb.cz/ke	zdenek.kadlec@vsb.cz
Brno University of Technology, Faculty of Electrical Engineering and Communication	www.feec.vutbr.cz	rousova@feec.vutbr.cz
University of West Bohemia in Plzeň, Department of Electrical Power Engineering and Ecology	www.fel.zcu.cz	kee@kee.zcu.cz
University of West Bohemia in Plzeň, Department of Power System Engineering	www.kke.zcu.cz	cerna@kke.zcu.cz
Other		
*ENERGETIKA CZ – All you want to know about energy	www.energetika.cz	ekowatt@ekowatt.cz
ENERGETIK – Energy Information Centre	www.energetik.cz	info@energetik.cz
*i-EKIS – Internet Energy Consulting and Information Centre	www.i-ekis.cz	admin@i-ekis.cz
*Energy Information System	www.eis.cz	eis@eis.cz
EkoWATT – centre for renewable energy sources and saving	www.ekowatt.cz	ekowatt@ekowatt.cz
*INFOENERGIE – portal on energy management	www.infoenergie.cz	info@infoenergie.cz

* sites only in the Czech language