

## **PART III. NATIONAL REPORTING GUIDELINES FOR CSD-14/15 THEMATIC AREAS**

### **B. ENERGY**

Government focal point: Mr. Josef Votruba, Eco-Energy Department, Ministry of Industry and Trade (e-mail: [votruba@mpo.cz](mailto:votruba@mpo.cz))

Responding ministry/office: Ministry of Industry and Trade, Ministry of the Environment

During the last 15 years, the Czech Republic has undergone a fundamental transformation of its economy, from the planned economy to the market one, and the energy sector has undergone these changes, too. Also important for the energy sector, which had been built as united or federal from the very beginning, was the split-up of the former Czechoslovakia into two republics, the Slovak one and the Czech one.

The energy sector has also changed substantially over this period. Energy efficiency for the supply and consumption has improved, with the national energy intensity (unit of primary energy supply per unit of GDP) decreasing by 17% from 1990 to 2002. Emissions have also fallen, with CO<sub>2</sub> emissions from fuel combustion decreasing by 24% from 1990 to 2003. The government has privatised almost the entire natural gas sector and the market reforms in the gas and electricity sectors have introduced competition and compliance with the relevant EU directives. The framework for reform is sound and includes a timetable for gradual market opening with fixed dates for the complete opening, non-discriminatory open access to all networks, elimination of subsidies for different customer classes and the establishment of an energy regulator. The Energy Regulatory Office (ERO) was established in January 2001. The government is to be commended for this work and is encouraged to continue with the process. New entrants to the electricity sector now capture 30% of the wholesale market in competition with the incumbent. In 2003, a new nuclear power plant was brought on line (Temelín), allowing the country to become major electricity exporter. In March 2004, the government released its new State Energy Policy (SEP) with long-term targets and strategies through 2030. The aim of the SEP is consistent with the IEA *Shared Goals*, seeking to achieve the three Es of energy policy: Energy security, Economic growth and Environmental sustainability.

Notwithstanding of the above-mentioned fundamental changes, the energy sector of the Czech Republic remained a stable part of the economy throughout that time. It is characterised by reliable supply of the primary energy sources (PES), of which more than 50% comes from the domestic resources. In the structure of PES consumption, the domestic raw material – coal – prevails reaching 40%, with 2/3 predominance of the brown coal; a 17% share falls on the nuclear fuel; the gaseous fuels cover about 22% of the PES consumption, and the liquid fuels about 16%. Renewable resources, other fuels, and the balance of electricity import - export cover the rest.

The above-stated structure predetermines, to a certain degree, the impact of the energy sector on the environment. Therefore, the main priorities of development in the past, besides transformation and liberalisation, were to reverse the development trends leading to the increasing harmful effect of the sector on the environment. The absolute priority and the first step in the modernisation of the power sector in the nineteen-nineties was “greening” the large generation facilities. After 1990, coal blocks with total power output of approx. 2000 MW were shut down and the remaining ones have undergone fundamental modernisation, either by means of replacement of boilers (17 fluidised bed boilers were built) or by means of installation of desulphurisation plants, more effective dust removal and

implementation of measures to decrease the emissions of nitrogen oxides. Furthermore, all the operated coal power plants have been desulphurised. More than CZK 60 milliard was spent on the “greening”. That stage was carried out approximately within the decade from 1990 to 2000. The positive effect on the forest growths following implementation of this programme is already noticeable at present. Even though this involved a capital-intensive programme, it was managed e.g. very efficiently and within the deadlines needed, indirectly following from the date of commencement of the Act on Air Protection, by the investor in desulphurisation and ash removal of the coal-fired generating stations, the electricity company CEZ, in co-operation with foreign contractors.

Having successfully coped with the “greening” of the power engineering, the objectives of the State Energy Policy ([www.mpo.cz/eng/](http://www.mpo.cz/eng/)) after 2000 and amended in 2004 had already somewhat altered their orientation, focusing on the following priorities:

- maximising the energy efficiency;
- independence, safety and sustainable development;
- securing maximum friendliness to environment; and
- completion of the transformation and liberalisation of the energy economy.

Having won the membership of the Czech Republic in the EU on 1 May 2004 had an important impact on these priorities, when - before that - the harmonisation of the legislation and standards had been under way for several years within the accession negotiations.

Each of the above stated priorities of the State Energy Policy has a number of partial goals, reflecting the degree of importance and responding primarily to the weaknesses of the present state of this sector:

- in spite of the progress achieved, the energy and electric-energy intensiveness of the GDP formation in the Czech Republic is still almost twofold against the average of the EU countries. High intensiveness is shown in particular by the transport, industry and construction industry;
- the dependence on energy imports grows;
- the oil reserves according to the OECD requirement up to the 90-day consumption are still insufficient;
- the Czech Republic has no problems to comply with the stipulated emission ceilings of SO<sub>2</sub> and NO<sub>x</sub> till 2010. Problem remains with the emission ceiling of VOC and with the specific emissions of CO<sub>2</sub> and NO<sub>x</sub> per inhabitant and per GDP, which still remain on a higher level in comparison with the EU countries;
- unused potential of energy savings;
- lingering coal-fired generating stations requiring renovation;
- low level of utilisation of renewable resources;
- energy and material dependence of the economy on the fluctuations of the prices of energies and raw materials with inevitable social impacts;
- side for permanent radioactive waste repository acceptable from the geological viewpoint and by the public.

The Czech Republic is gradually introducing system measures and, as a Member of the EU, implements continuously the *acquis communautaire* for the area in question. The legislation currently in force, together with the upcoming one, constitutes the main tools for implementation of the State Energy Policy. Besides the legislative tools, also the State Aid Programmes, in particular for energy savings, and State Attenuation Programmes for the mining sectors, long-term outlooks and conceptions, analytical, media and other measures are being used. The toolkit has a dynamic character, if needed, the tools are subject to elaboration based on monitoring and the actual performance of the State Energy Policy.

Three acts and/or their amendments determine the fundamental course of further development. Act No 458/2000 Coll., on the business conditions and state administration performance in the energy sector

and amending certain acts as it follows from the later amendments was amended immediately after the entry into the EU. The Law lays down the fundamental conditions for power sector transformation and liberalisation completion. In a sense it represents “the bible” for the electric-power engineering, gas engineering, and heating engineering. In the Czech Republic, all the EU Directives concerning liberalisation of the energy market were implemented by this Act. Another important Act is the Act No 180/2005 Coll., on support of electricity (and heat energy) generation from renewable energy sources. It is expected from the aforesaid Act that it will bolster the interest of the entrepreneurs in implementation of renewable sources and that it will bring the Czech Republic nearer to the indicative objective to achieve the 8% share from renewable sources in the gross energy consumption in 2010. The amendment of the Act No 406/2000 Coll., on energy saving management, will increase the pressure on energy efficiency, in particular on decrease of energy consumption for buildings. It will set up better preconditions for acceleration of the activation of the potential of energy savings, which is considerable, technically estimated at up to 30%. The Act has the aim to influence also the decrease of consumption in households; it contains so-called “energy labelling” of appliances, and overhaul of boilers and air-conditioning devices. All changes aiming at achieving energy savings are built on an official document called “Energy Audit”, which is a document dealing with expert opinion on the subject of audit by certified experts, the energy auditors.

Increasing energy efficiency leads to savings of the energy resources, decreasing the burden on the living environment, decrease of the growth of dependence on imported fuels and energy. It increases the competitive ability of the domestic products and services. The preconditions for further improvement in efficiency during development, transformation and consumption of energy are being gradually formed. However, their implementation is of a longer-lasting character. The most important area, which can significantly step up the efficiency of the transformation processes, will be the method of renovation of the coal-fired electricity and heat generating stations after 2010.

As far as decreasing energy demand is concerned, the development of the indicators (energy consumption in relation to the GDP) for the period 2000 – 2005 has gone through two phases. In 2000 through 2003, the energy efficiency stagnated and, in 2003, it reached the worst values within the period under review. In 2004 and 2005, the growth of energy efficiency resuscitated in all the indicators monitored. The improvement of the development of the energy efficiency indicators was caused mainly by the growth of the economy. However, also the effect of the aforesaid adopted tools influenced this positive change.

The results achieved in the area of energy consumption enhancement by means of the GDP formed in 2004 and 2005, the optimistic forecasts of further development of the economy, and the improvement of the system tools for activation of savings of the energy resources form favourable preconditions for the next period as for the overall increase of the energy efficiency.

The implementation of the important Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC is ensured in the Czech Republic. The total emissions of the greenhouse gasses are in principle stabilised more than 25% below the level of the reference year 1990 (with year-to-year fluctuations). The National Allocation Plan is broken down for industrial sectors and industrial enterprises. However, only the practice will show if this is an effective Trans-European tool for reduction of the CO<sub>2</sub> emissions according to the commitments of the Protocol from Kyoto. The system and material measures adopted form the preconditions for further reduction of all the basic emission types except for NO<sub>x</sub> emissions, where the compliance is conditioned by expeditious adoption of measures, in particular in the road transport.

Also acceptability of the changes in power sector from the social viewpoint must contribute to their equilibrium. The impacts on the social sphere are evaluated in particular based on the development of the

employment situation in the energy sectors, and further based on the influence of the prices of fuels and energy on consumption (expenses) of different household types and the entrepreneurial realm.

According to expected reality of 2005, the employment in both the coal industry and the electric-energy sector will be lower by 22% against 2000. The employment in the coal industry declined more rapidly than had been presumed in 2002; on the contrary, in the electric-energy sector it declined more slowly. In the gas industry, which has the lowest staffing numbers of all energy sectors, the rate of the employment decrease will be the highest, by 35%, and it will be more considerable than it was presumed in 2002. However, the energy sectors have in principle already completed restructuring, which has projected in the employment situation. In the period after 2005, only smaller drops in employment will already occur and the year-to-year drop should fluctuate around the level of ca 0.5% annually.

The prices of all forms of energy in the Czech Republic are market prices and they are close to the price level of the other European countries. The gap in the prices of the energy forms for the households against the average of the EU countries is higher than in the prices for the industry. After the relatively low increases of energy prices in 2003 and 2004 influenced, *inter alia*, by the development of market in the network energy sectors, in 2005, a marked increase and destabilisation of the global energy prices occurred, which gives rise to strong impulses to their rise also in the Czech Republic, and that for all categories of consumers (hence including the households). This anticipated increase is estimated in the order of up to 10 to 20% annually in the nearest years.

Reducing the energy intensity within the systems of production and consumption (by increasing their efficiency) is one of the basic approaches of Framework of Programmes on Sustainable Consumption and Production of the Czech Republic (<http://rvur.vlada.cz>), which was approved by Government Council for Sustainable Development in June 2005.

The positive experience from the past 5 years, when – after the transformation of the whole economy of the Czech Republic within the decade 1990 through 2000 – the course to reliable energy supply, growth of the economy and sustainable development was started by means of the State Energy Policy, can be summed into the following activities:

- Recognition of the existing state of the power sector, *inter alia* by means of comparison with foreign countries, its positive and negative aspects, obstacles, opportunities, and risks.
- Specification of the medium-term and the long-term development objectives in the form of the State Energy Policy approved by a government resolution, with outlook for the next 30 years.
- Determination of the tools for achievement of the objectives and their implementation into the everyday practice.
- Regular monitoring and evaluation of the actual development.
- Carrying out corrections of the objectives and of the tools used.