CZECH REPUBLIC

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1. GENERAL INFORMATION

1.1. General Overview

The Czech Republic (CR) is together with Slovakia successor country of former Czechoslovakia, which was divided by January 1, 1993. The country is situated in the centre of Europe and has a mild climate. It has almost no gas or oil and very limited hydro resources.

The CR is a relatively small country of 78 864 square kilometres (land area is 77 276 km^2) with 10.3 million inhabitants according to a 2001 (March) census (see Table 1). The population is slightly declining.

TABLE 1. POPULATION INFORMATION

	1960	1970	1980	1990	2000	2001	Growth rate (%) 1980 To 2001
Population (millions)	9.6	9.8	10.3	10.3	10.3	10.3	0.0
Population density (inhabitants/km²)	121.1	124.3	130.4	130.7	130.2	130.1	

Predicted population growth rate (%) 2001 to 2010	-1.2
Area (1000 km²)	78.9
Urban population in 2001 as percent of total	63.0 (1)

Source: IAEA Energy and Economic Database.
(1) Source: Czech Statistical Office (including cities with more than 5,000 inhabitants)

1.2. Economic Indicators

The development of the Czech economy since the year 1989 is characterized particularly by the process of the economic reform. In the year 1991, the main processes of the reform were started, such as liberalization of prices, de-monopolization of the foreign trade, introduction of the internal convertibility of the Czech crown and the beginning of privatization of small enterprises (e.g. shops, restaurants and workshops). This was completed during 1992 and 1993 and privatization of large enterprises commenced.

The years 1990-93 are characterized by a substantial drop of economy caused, partially, by external influences (loss of market in former Soviet block, recession in Western Europe) and internal changes (restructuring of the production and loosening of property rights). The economic growth was restored in the year 1994. In the same year, the exigencies of primary energy sources (PES) consumption needed for Gross Domestic Product (GDP) dropped significantly for the first time and continued dropping in subsequent years. The economic growth slowed down in 1997 and was almost zero until 1999 because of still ongoing privatization accompanied by weakness of governing structures and cyclic course of economic activity. At present, the economic growth is slowly increasing (see Table 2).

The energy intensity increased during the decrease of economic activity due to a significant share of inevitable energy consumption in industry (e.g. heating of buildings, hot water preparation and lighting) and the increase in consumption of electricity in households. For the whole time period concerned, the dynamics of reduction in final energy consumption did not reach the level of economy performance decrease. The energy intensity for electricity is almost constant because of increase in consumption of households, which were under-equipped.

TABLE 2. GROSS DOMESTIC PRODUCT (GDP)

	1980	1990	2000	2001	Growth rate (%) 1980 To 2001
GDP (millions of current US$)	29,103	34,880	49,305	47,492	2.4
GDP (millions of constant 1990 US$)	28,379	34,880	34,502	34,425	1
GDP per capita (current US$/capita)	2,830	3,384	4,800	4,629	2.4

Source: IAEA Energy and Economic Database.

1.3. Energy Situation

Table 3 presents the Czech energy resources and Table 4 its energy balance. Both primary and final energy consumption have decreased in 2000 in comparison to 1990. It is a good signal, which demonstrates the increasing efficiency of the economy. The decrease in the final energy consumption is larger than for the primary energy.

The structure of the consumption has changed even more substantially. (Brown) coal remained the main source of the energy. It still covers more than 50% of the primary energy sources. Regardless of the continuing trend of a decreasing rate, coal will remain significantly important in the future too; based on the present forecast, coal will cover about 40% by the year 2005. In 2000, the structure of primary energy consumption was: 54% of coal, 19% of crude oil and 20% of natural gas. Nuclear energy covers 7% and contribution of commercial renewables and hydro is almost negligible (see Table 4). Coal is partially exported and almost all crude oil and natural gas have to be imported.

Significant changes are taking place in the coal mining industry, mainly the restructuring process connected with the final stage of the privatization process. The main obstacle in closing down of ineffective mines is social (unemployment).

Coal is still the main energy source in final energy consumption. Petroleum products due to road transport increase cover about 19%. The share of natural gas is almost the same thanks to its use for households and heat production is required mainly by environmental legislation.

The energy sources for electricity production are quite stable for several years since the nuclear power station (NPP) Dukovany is in full operation and the main hydro potential, which can not be further increased, was utilized: fossil fuel (mostly coal) plants provided 78.3% of total electricity generation, the only NPP Dukovany 18.5% and hydro plants only 3.1% in 2000. After the NPP Temelin is commissioned, nuclear power engineering will have covered approximately 40% of electricity production in the Czech Republic.

TABLE 3. ESTIMATED ENERGY RESERVES

	Estimated energy reserves in 1999 (Exajoule)					
	Solid	**Liquid**	**Gas**	**Uranium (1)**	**Hydro (2)**	**Total**
Total amount in place	106.21	0.46	0.14	3.82	1.16	111.80

(1) This total represents essentially recoverable reserves.

(2) For comparison purposes a rough attempt is made to convert hydro capacity to energy by multiplying the gross theoretical annual capability (World Energy Council - 2002) by a factor of 10.

Source: IAEA Energy and Economic Database.

TABLE 4. ENERGY BALANCE

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Indicator	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000[1]
Domestic natural resources	**1 731**	**1 627**	**1 511**	**1 481**	**1 380**	**1 410**	**1 403**	**1 347**	**1 284**	**1 156**	**1 232**
Solid fuel	1 572	1 471	1 360	1 324	1 218	1 254	1 241	1 189	1 119	985	1 064
Liquid fuel	2	3	3	5	5	6	6	7	7	8	7
Gaseous fuel	8	12	8	8	8	8	8	7	7	7	7
Primary heat and electricity	148	141	140	144	148	142	148	143	150	156	154
Imports	**592**	**613**	**579**	**605**	**661**	**726**	**803**	**779**	**780**	**744**	**736**
Solid fuel	45	81	47	45	45	63	81	62	45	41	42
Liquid fuel	317	266	335	318	365	351	369	361	384	355	343
Gaseous fuel	210	258	197	239	245	270	321	323	321	316	320
Exports	**159**	**153**	**331**	**342**	**349**	**397**	**389**	**376**	**366**	**363**	**355**
Solid fuel	105	133	300	303	296	341	313	292	271	266	243
Liquid fuel	22	15	16	28	46	34	42	45	55	51	44
Gaseous fuel	24	0	0	0	0	0	2	2	1	1	1
Gross consumption of primary energy resources	**2 076**	**1 938**	**1 789**	**1 749**	**1 668**	**1 750**	**1 823**	**1 745**	**1 659**	**1 621**	**1 629**
Solid fuel	1 348	1 251	1 121	1 057	985	1 006	1 016	977	883	825	882
Liquid fuel	356	300	318	306	312	322	342	305	313	326	310
Gaseous fuel	226	252	221	250	244	279	318	324	322	327	319
Primary heat and electricity	146	132	129	137	147	143	148	139	141	144	118
Final consumption, total	**1 303**	**1 217**	**1 096**	**1 092**	**1 054**	**1 091**	**1 152**	**1 099**	**1 047**	**1 052**	**992**
Non-energy materials	60	44	81	57	60	67	66	41	31	7	30

[1] preliminary data
Source: Czech Statistical Office

1.4. **Energy Policy** (an excerption from an official document Energy Policy)

The energy policy of the CR is prepared by the Ministry of Industry and Trade as a draft open document with a horizon of 15 to 20 years and as such it is submitted by the Ministry to the government for approval. Compliance with the energy policy of the State is evaluated by the same Ministry within intervals not longer than two years; the Ministry informs the government on the evaluation results and proposes eventual modifications.

The key strategic targets of the energy policy include the determination of the basic conception of long-term development of the energy sector and determination of the essential legislative and economic environment, which would encourage electricity generators and distributors to prefer environment-friendly behaviour. On the consumption side, the long-term strategic targets of the energy policy include a gradual reduction of the volumes of energy and raw materials needed by the economy to the level of advanced industrial countries. This target should be achieved, in particular, by a support to new production technologies with minimum need for energy and raw materials and with maximum utilization of the energy and raw materials through national work. In the tertiary sphere, the need for energy should be reduced mainly through support to programmes leading to energy savings and to greater utilization of alternative energy and raw material sources in supplying the population with energy.

The main open issues of the energy sector, including the proposed solutions are:

- Adjustment of the prices of energy commodities and services and the tariff structure relating thereto (future development of the prices of electricity, natural gas and centralized heating).

Issue addressed	Solution proposed	Note
Still existing (cross) subsidies to the prices of electricity and natural gas for the households; impact of subsidized prices on the prices for other users and for the utilities; absence of suitable tariff systems for the central supply of heat, gas and electricity.	Year-on-year growth of energy prices respecting the cost analyses performed according to the decision of the government 1250/1999 on further progress in adjusting prices of electricity and natural gas (removing the subsidies to energy prices for the households before the year 2002). Definitive settlement of the issue of energy prices and tariff structure in respect of the households by the end of 2002; a new tariff system for electricity and gas which will enter into force gradually after 1.1. 2000 (for households during 2000).	Adjustment of prices will take place in a socially bearable manner.

- Procedure of the privatization of the state ownership interests in the key energy companies while maintaining a reasonable state influence.

Issue addressed	Solution proposed	Note
Completing the privatization of the electricity and gas distribution companies.	To prepare conditions for privatization in accordance with the branch consolidation.	Concrete time and material plan of privatization will be prepared before 2/2000 and in accordance with the other decision of the government. The task will be fulfilled by the Ministry of Finance in co-operation with the National Property Fund and the Ministry of Industry and Trade.
Maintaining the influence of the State in the transmission grid and in the system of electricity central control (dispatching).	Separation of the transmission system - creating of a company independent on electricity generation and distribution.	Need to decide on how to secure the State's ownership interest in such a new company.
Privatization of the CEZ, a.s.	Privatization of CEZ a.s. will take place in 2002 after adaptation of the electric power sector to the conditions of the new legislation.	Concrete time and material plan of privatization will be prepared before 2/2000 and in accordance with the other decision of the government. The task will be fulfilled by the Ministry of Finance in co-operation with the National Property Fund and the Ministry of Industry and Trade.
S.p. Transgas (as operator of the gas lines of the transit system, the backbone high-pressure gas lines and underground gas storage facilities).	S.P. Transgas will be transformed into a corporation owned by the State and its position in the gas market will be strengthened.	The task will be fulfilled by the Ministry of Finance in co-operation with the National Property Fund and the Ministry of Industry and Trade.
Privatization of companies in the refinery industry: Cepro, a.s. MERO CR, a.s. Unipetrol, a.s.	 To leave 100 % state share. To leave 100 % state share. A proposal for the company's holding privatization will be submitted. Completion of the privatization of the holding's subsidiaries is expected to be performed as the first step.	Cepro, a.s. and MERO CR, a.s. are companies of strategic importance (also with implications for national defence of the state), engaged in distribution of liquid media and their storing and protecting.

- Establishing an independent regulator and defining its relationship to businesses (regulation framework).

Issue addressed	Solution proposed	Note
Provide regulation in the electricity, gas and heat supply sectors; specification of the obligations imposed on the grounds of public (general economic) interest, regulation of the business activities of natural monopolies (transmission, distribution, system services); protection of transparent and non-discriminating market competition.	Requirements will be specified in the framework of the preparation of the new energy act concerning the regulator's activities and tasks of the economic regulation, including the regulated businesses' duty to provide contributions to the activities of the regulator. Before the new energy act enters into force, the current regulation regime will apply.	Need to secure the legal aspects of: • regulatory framework • independence and objective attitudes of the regulator • financial resources for the regulator.

- Laying down the rules for the development of the internal electricity and gas market (on the basis of EU Directives).

Issue addressed	Solution proposed	Note
Securing the function of independent regulator which function must be performed by the State through such a created body.	Functioning of the independent regulatory body in compliance with the government's policy statement for the period up to 2001-2002.	Need for prior formation of a regulatory framework (see previous point).
Introduction of the rules for the electricity and gas market.	Successive opening of the market. The target solution is reg. TPA in the electricity area and negotiated TPA in the gas area for s.p. Transgas and reg. TPA for distribution companies.	Improved competitiveness of the economy and well secured standard of living of the population, including solution of the employment issue.

- Creating a well-functioning, non-discriminatory, transparent and motivating system of support to possible energy savings, use of renewable resources and electricity and heat co-generation units.

Issue addressed	Solution proposed	Note
Creating a well-functioning, system of support to possible energy savings, use of renewable resources and electricity and heat co-generation units.	To implement the State Programme of energy saving and use of renewable sources according to Government resolution No. 480/1998 To realize the National programme in this sphere based on the act on energy economy, including the systems ensuring financial means. To ensure programme's efficiency and control so that energy and environmental benefits are adequate to the resources invested, while maintaining a long-term feasibility to the national budget as well as opportunities of further financial sources.	The functioning system must be fair and transparent, must encourage the recipient to increase effectiveness and must not deform competition in the energy market. The support systems will be compatible with the procedures used in EU countries and will be suitable to the actual conditions prevailing in the Czech Republic.

- Nuclear power.

Issue addressed	Solution proposed	Note
Further development of the nuclear power sector.	Further development of the nuclear power sector will be evaluated within the context of economically and environmentally optimum exploitation of the coal deposits with respect to projections of demand for the end usage of energy and, within that framework, demand for electricity.	The nuclear power sector can significantly contribute to the fulfilment of the UN Framework Convention on the reduction of the emissions of greenhouse gases. Further development of the nuclear power sector is one of the possible ways of meeting the need for electricity after the year 2015.

The legislative framework of the key targets of the energy policy includes:

- a new Energy Act (responsibility of the Ministry of Industry and Trade and Ministry of Environment);
- the Energy Management Act (responsibility of the Ministry of Industry and Trade and Ministry of Environment);
- the Act 189/1999/Coll. on emergency oil reserves, solutions to the states of emergency need for oil and amendments to certain related laws (the act on emergency oil reserves entered into force by November 1, 1999).

This complete set of laws must enter into force in 2000-2001, with respect to the "pre-entry" negotiations, in order to be able to prepare the Czech energy sector for the conditions of the internal EU market sufficient time in advance. However, the specific purpose of the Energy Act as well as act on energy management had to be ready by the end of 1999 as a basic prerequisite for the application of EC legislation.

The framework scenario of the development of energy sector in the Czech Republic is based on the following premises:

- Continued operation of the Dukovany nuclear power plant without limitation over the whole time horizon. Both units of the Temelín nuclear power plant will be set in operation: the first unit will be put in test operation in 2001 and the second unit in 2002. Taking into account the successive commissioning of both units, the utilization of their rated capacity will be lower during the first years of operation;
- Heating plant units in which heat generation is combined with electricity generation are planned to be successively commissioned. Besides these, a number of smaller co-generating units are being built within both the public utilities and private industrial companies. As of the year 2000, up to 100 MW of rated capacity will be added in this way. Another slight increase in the rated capacity in the facilities held by independent producers and by industrial companies is expected after 2000. The declining availability of energy sources will be made up for by new sources, some of which will have already been built to use imported fuels (depending, of course, on the trade balance of the State); nevertheless, available domestic sources will continue being used at the maximum possible rate;
- All the existing and newly built power plants and power and heating plants are, or will be, equipped with facilities for the protection of environment, as required by the laws in force. No new large hydro power stations are planned to be built because the potential of water energy is already utilized at a high rate;
- Greater usage of renewable energy sources will be stimulated by the State Programme of Energy Savings and Usage of Renewable Sources. The spectrum of such sources includes both the traditional ones - mainly the small hydro power plants - and a wide range of their sources (biomass, wind energy, heat pumps and also geothermal energy and solar energy. Energy saving programmes will be strongly supported;
- The general electricity generation system will rely on nuclear energy, on the exhaustion of the remaining reserves of coal, on the use of gas in co-generating units, on the current level of electricity generation in hydro power stations and on support to more intensive usage of renewable resources;
- The limited domestic availability of coal will not enable the existing coal-fired power plants to continue operating once their de-sulphuring units past their useful life. In the period of 2008-2020, it will be possible to retrofit only part of the existing capacity of the traditional coal-fired power plants, extending their useful life by another 15 years or so (until 2030 to 2035);
- The scenario does not reckon with the possibility of releasing part of the coal reserves to which the environmental limits apply, hence, no new large power generating units which would use domestically extracted coal are planned to be built;

- It follows from the above that any new power plants which will be built after 2015 (2020) will have to use primary sources other than Czech coal. These may include, for example, nuclear units with flexibly regulated power output; however, such units must pay off and must be acceptable to the general public. The nuclear units will work at a basic level of load, serving as a stabilizing element of the electricity system.

2. ELECTRICITY SECTOR

2.1. Structure of the Electricity Sector

Approximately 70% of the electricity production is concentrated in CEZ, a.s., (Czech Power Company), the joint - stock company: ten coal power plants, Nuclear Power Plants (NPP) Dukovany and Temelín, large hydro power plants and two pumped-storage hydro power plants (thirteen in total), three wind power plants and one solar power station. The remaining 30 % of the electrical power production is provided by plants owned by independent producers (e.g. Elektrárna Opatovice a.s., Elektrárna Kolín a.s.) or by auto producers in industry and local heat producers (co-generation) and by eight regional utilities (0.5%). CEPS, a.s., a daughter company of CEZ owns the backbone high voltage power transmission system (400 kV and 220 kV lines) and dispatching center. One year after the privatization of CEZ, a.s., CEPS, a.s. will be a fully independent company.

The electricity distribution is provided by eight electrical power distribution companies (utilities). They have a regional monopoly except for large consumers connected directly to high voltage grid. Utilities can buy electricity from small hydro and wind plants.

The Act No. 458/2000 Coll. (Energy Act) regulates the business in the electrical power sector. According the Energy Act, the electricity generation, distribution, transmission and electricity trading is subject of licensing.

2.2. Decision Making Process

All major energy companies were converted to share-holding companies and major portion of shares is held by state, a part of the rest was given to municipalities. In last years, many municipalities sold their owner rights mostly to foreign energy companies. Governmental Resolution No. 967/2000 sets the procedure of privatization of the resting state share in electricity sector. In a long-term perspective, the state influence in the energy sector is anticipated, only, in a form of indirect measures (legislation, pricing, tax) and regulating natural monopolies in particular industries.

The Act No. 406/2000 Coll. on energy management stipulates the rights and obligations of natural and legal persons in the management of energy, in particular electricity and heat, as well as gas and other fuels. It shall contribute to the economical use of natural resources and protection of the environment, as well as to more efficient use of energy, enhanced competitiveness, more reliable energy supplies, and to the sustainable development of society.

2.3. Main Indicators

Table 5 shows the electricity production and installed capacity and Table 6 the energy related ratios.

2.4. Electricity Market

The Act No. 458/2000 Coll. (Energy Act) on Business Conditions and Public Administration in the Energy Sectors establishing a new regulatory regime regulates the business in the electrical power sector.

The Energy Regulatory Office (ERO) defined in the Energy Act is a separate state organisation under the responsibility of the Prime Minister and is established as the administrator Office to exercise

regulation in the energy sector. Its operating costs are covered by the state budget approved every year by the Parliament. The general mission of ERO is to support economic competition and protect consumers' interests in energy sector, aiming to meet all reasonable requirements for energy supply. For comparison of the Czech Industry Structure and Regulation see Table 7.

TABLE 5. ELECTRICITY PRODUCTION AND INSTALLED CAPACITY

Indicator	Unit	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000[1]
Electricity production, total	GW·h	60 527	59 293	58 882	58 705	60 847	64 257	64 598	65 112	64 692	73 466
Steam power plants	GW·h	47 138	45 398	44 652	43 949	46 326	48 208	48 903	48 762	49 106	57 550
Hydroelectric power plants	GW·h	1 257	1 638	1 596	1 776	2 274	2 403	2 080	1 884	2 215	2 313
Nuclear power plants	GW·h	12 132	12 250	12 627	12 977	12 230	12 850	12 494	13 178	13 357	13 590
Internal combustion engines and gas turbines	GW·h	-	7	7	3	17	796	1 121	1 288	14	13
Installed capacity, total	MW	14 957	14 499	14 227	13 851	13 803	14 974	15 103	15 513	15 216	15 324
Steam power plants	MW	11 626	11 277	11 028	10 652	10 594	10 896	10 954	11 112	11 270	11 431
Hydroelectric power plants	MW	1 360	1 400	1 402	1 396	1 399	2 014	2 050	2 033	2 153	2 097
Nuclear power plants	MW	1 760	1 760	1 760	1 760	1 760	1 760	1 760	1 760	1 760	1 760
Internal combustion engines and gas turbines	MW	211	62	37	43	50	304	339	608	33	36

[1] preliminary data
Source Czech Statistical Office.

TABLE 6. ENERGY RELATED RATIOS

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Energy consumption per capita (GJ/capita)	200	188	173	169	161	169	177	169	161	157	158
Electricity per capita (MW·h/capita)	6.04	5.87	5.75	5.70	5.68	5.89	6.23	6.27	6.32	6.28	7.13
Nuclear/Total electricity (%)	20	20	21	21	22	20	20	19	20	21	18
Ratio of external dependency (%)[1]	21	16	14	15	19	19	23	23	25	24	23
Load factor of electricity plants (%)											
- Total	47	46	47	47	48	50	49	49	48	49	55
- Thermal	46	46	46	46	47	50	51	51	50	50	57
- Hydro	12	11	13	13	15	19	14	12	11	12	13
- Nuclear	82	79	79	82	84	79	83	81	85	87	88

[1] Net import / Total energy consumption
Source Czech Statistical Office

3. NUCLEAR POWER SITUATION

3.1. Historical development

The nuclear power era in the former CSFR has started off in the 50s because of the lack of oil resources. A heavy water gas-cooled reactor was built and operated in Jaslovské Bohunice (now Slovakia). The further development of nuclear power in the Czech Republic was determined by the influence of former Soviet Union in Eastern Europe.

In the 70s, WWERs 440 of Soviet design were built and the Czech industry was involved in the production of NSSS components and partly in primary circuit - e.g. vessel, control rod drive mechanism. The Czech industry became the supplier of these parts in other Eastern European countries (e.g. 20 reactor vessels were made by Skoda). In the 80s, construction of the WWERs 1000 started. In 1993, a resolution was adopted to change the reactor control system (I&C) to meet the state-of-art criteria of unit control.

TABLE 7. COMPARISON OF THE CZECH INDUSTRY STRUCTURE AND REGULATION: IMPACT OF 2000 ENERGY ACT

Area	Old	New
Generation	a) CEZ, 67% state owned company produces 71% of the electricity production b) IPP supply remaining 29% must sell direct to respective local distributor based on CEZ price (some sell to CEZ)	a) Free entry for generators (authorisation procedure). b) Licensed generators free to contract with eligible customers and third parties.
Transmission	a) Transmission owned by a CEZ subsidiary CEPS (since 1999). b) No access to HV transmission allowed for either IPP or distributors c) System (ancillary) services charged to distributors based on the amount of power purchased from CEZ	a) CEPS becomes the Transmission System Operator (TSO). To be spun off as separate company from CEZ. b) Regulated Third Party Access regulated by network regulator through license. c) Postage stamp pricing will be adopted. d) Ancillary services charges are based on total power consumed. Tender process for services proposed.
Dispatch/Market Operator	a) Dispatch managed by the Central Dispatch Centre (UED).	a) UED will be replaced by Electricity Market Operator overseen by a multi stakeholder board.
Distribution	a) Distribution and supply bundled in 8 distributors created in 1990 as joint stock companies. Approximately 50% state owned. b) Distributors are obliged to purchase IPP generation at prices comparable to prices from CEZ. c) Wholesale and retail prices are the same for all distributors despite the cost differences.	a) Distribution services managed by independent distribution services operator b) Regulated non-discriminatory Third Party Access c) Distributors will be able to contract with any generator. d) Distribution tariffs are expected to reflect differences in costs. e) Distributors will be obligated to purchase CHP and renewable electricity generation.
Supply and End User Choice	a) Distributors are also suppliers. b) A small number of wholesale electricity traders. c) Retail tariffs are regulated.	a) Phased implementation of end user choice according to annual demand: > 40 GW·h in 2002, > 9 GW·h in 2003, ≥ 0.1 GW·h in 2005, all customers in 2006. b) Distributors licensed to act as exclusive, regulated suppliers for captive customers. c) Prices for eligible customers unregulated. d) Tariffs for captive customer expected to reflect cost differences among distribution companies.
Regulator	a) The Energy Regulatory Administration sets prices that are approved by Ministry of Finance.	a) New sector regulator Energy Regulatory Office (ERO) sets tariffs for access and use of the networks, market operator and for captive customers.
International Trade	a) HV grid trade limited to CEZ b) Limited MV (110 kV) direct import by distributors	a) Open access to export electricity. b) Imports open but subject to reciprocity conditions. c) Temporary limit on imports to protect domestic companies/consumers against adverse financial impact.
Public Service Obligations	Distributors are obligated to serve consumers.	Distributors are obligated to serve captive customers and to provide access for eligible customers. Distributors who have to supply beyond scope of their license to may receive compensated through government fund.
Renewables	Distributors have an obligation to purchase renewable electricity (price not specified) as well as CHP electricity.	Distributors have an obligation to purchase renewable electricity (price not specified) as well as CHP electricity.

3.2. Status and Trends of Nuclear Power

In the Czech Republic, there are four units operating at Dukovany (EDU-Elektrárna Dukovany) nuclear power plant. The units are Russian WWER 440/V213 type PWRs with the total installed

power of 1760 MW(e). The production of the plant represents currently about 20 % of the total electricity production in the Czech Republic.

The construction of Temelín nuclear power plant (two units with WWER 1000/ V320 type with the total installed power of 2000 MW(e)) is in the stage of completion. The Unit 1 and Unit 2 were completed and now they are in test operation. Table 8 shows the current status of the Czech nuclear power plants.

The CEZ, a.s. finances directly the completion of Temelín nuclear power station, the planned upgrading of Dukovany station and the construction of a spent fuel storage facility. The CEZ, a.s. is using its own resources and credits, without, however, any direct financial participation of the state. The exception is a guarantee of the state for World Bank loan. As soon as Temelín nuclear power station commences operation, the proportion of nuclear electricity produced in the Czech Republic will approximately double and it will exceed 40 %. The construction of another nuclear power plant is, however, very unlikely in the forthcoming years (see Energy Policy).

TABLE 8. STATUS OF NUCLEAR POWER PLANTS

Station	Type	Net Capacity (MW)	Operator	Status	Reactor Supplier
DUKOVANY-1	WWER	412	CEZ - EDU	Operational	SKODA
DUKOVANY-2	WWER	412	CEZ - EDU	Operational	SKODA
DUKOVANY-3	WWER	412	CEZ - EDU	Operational	SKODA
DUKOVANY-4	WWER	412	CEZ - EDU	Operational	SKODA
TEMELIN-1	WWER	912	CEZ - ETE	Operational	SKODA
TEMELIN-2	WWER	912	CEZ - ETE	Under Construction	SKODA

Station	Construction Date	Criticality Date	Grid Date	Commercial Date	Shutdown Date
DUKOVANY-1	01-Jan-79	12-Feb-85	24-Feb-85	03-May-85	N/A
DUKOVANY-2	01-Jan-79	23-Jan-86	30-Jan-86	21-Mar-86	N/A
DUKOVANY-3	01-Mar-79	28-Oct-86	14-Nov-86	20-Dec-86	N/A
DUKOVANY-4	01-Mar-79	01-Jun-87	11-Jun-87	19-Jul-87	N/A
TEMELIN-1	01-Feb-87	11-Oct-2000	21-Dec-2000	31-Mar-2002	N/A
TEMELIN-2	01-Feb-87	31-May-2002	2nd half 2002	1st half 2003	N/A

Source: IAEA Power Reactor Information System; CEZ.

The National Property Fund (NPF), i.e. the state owns 67.6 % of the CEZ, a.s. shares, privatized in the year 1992. The fund delegated the shareholding rights to the Ministry of Industry and Trade. The remaining CEZ shares are traded on the Stock Exchange. They are owned, at present, by companies and corporations (27%) and individuals (2.6%).

The UJV-Rez, a.s. (the Nuclear Research Institute Rez) was privatized in the year 1992. At present, about 52.4% of the shares is owned by the CEZ, a.s., (Czech Power Company). The SE, a.s., (Slovac Power Company) holds 27.8%, the Škoda JS, a.s. 17.4% and about 2.4% is owned by the local municipality.

The Škoda - Jaderné strojírenství (JS), s.r.o. is 100 % owned by Škoda, a.s., where a group of private owners (including major banks) hold a major share, since 1992.

According to the Atomic Act (at present, the Act No. 18/1997 Coll. has been amended with Act No. 13/2002 Coll. and Act No. 310/2002 Coll.), the CEZ, a.s. should, under the state control, prepare both financial and technical means for decommissioning of its nuclear facilities and it should provide payments to the Czech National Bank (the State Bank of the Czech Republic) to accumulate means necessary for a preparation and construction of a spent fuel repository that should be approximately put into operation in 2030.

At present, the costs of future decommissioning of an nuclear power plant and disposal (deposit) of spent fuel are not directly reflected in the electricity prices and the nuclear power plant utility

creates provisions based on its consideration, from the net profit to its reserve fund, under the state control.

3.3. Current Policy Issues

Both Czech nuclear power plants, i.e. Temelín and Dukovany, are built, operated and owned by the CEZ, a.s. The nuclear research reactors at Rez are operated and owned by the Nuclear Research Institute (UJV-Rez, a.s.). The university nuclear research reactor, in Prague, is operated and owned by Technical University CVUT.

Investment projects of CEZ, a.s. are based on its business plan and they are financed from CEZ, a.s., own resources. The only state budget obligation is represented by the Czech government guarantee provided to the US Eximbank, regarding the loan from the Citibank, for Westinghouse supplies to Temelín nuclear power plant.

The decision whether spent fuel is to be reprocessed is, in principle, left to its owner. At present, the CEZ, a.s. does not consider the reprocessing as economical. Due to the fact that the preparation of a final repository of radioactive waste is the responsibility of the state, the procedure of both the CEZ, a.s. and the state, regarding the reprocessing issue must be co-ordinated in the long-term.

Within the Dukovany nuclear power plant complex, a shallow land repository of radioactive waste is operated, designed to accommodate all future low and intermediate radioactive wastes from both nuclear power plants and also a cask-type (CASTOR) interim storage of spent fuel.

Nuclear safety and radiation protection in the Czech Republic are supervised by the national regulatory authority - the State Office for Nuclear Safety (SÚJB). It was established on 1st January 1993 as a follow-up organization of the former Czechoslovak Atomic Energy Commission. The responsibilities of the SÚJB concerning nuclear safety, the licensing of nuclear facilities, including fuel and waste treatment facilities, and nuclear safeguards are given by the Act No. 18/1997 Coll.

An environmental impact assessment of a nuclear installation project, as well as, of another civil construction including other significant sources of ionizing radiation, is determined in, especially, three following laws:

- The Act No. 50/1976 Coll. (the Civil Construction Act) determines procedures of the Civil Construction Office - an administrative body making decisions in regard to the siting, construction and operation. Licence concerning nuclear installation needs approval of the SUJB. The Act has been amended and the last changes are included in the Act No. 59/2001 Coll;
- The Act No. 244/1992 Coll. (Environmental Impact Assessment, EIA) determines that, prior to an administrative decision, the environmental control bodies, including the Ministry for the Environment, issue an official attitude to the environmental impact assessment (even if the attitude is not binding for the final decision of an administrative body). Within the EIA process, a public hearing is required. A formally established group of citizens may become a participant of the procedure according, also, to the above mentioned Act. The Act has been amended with the Act No. 100/2001 Coll. and the changes have entered into force in 2002;
- The Act No. 18/1997 Coll. (at present, the Atomic Act . has been amended with Act No. 13/2002 Coll. and Act No. 310/2002 Coll. for the purpose of harmonization with the EU legislation), concerning the state supervision on the nuclear safety, together with associated regulations, determines, apart from others, procedures of the SÚJB when issuing the approval according to the Civil Construction Act. Prior to an issue of the approval, the SÚJB considers safety analysis including a proof that the construction impact on the population and environment will not exceed limits determined by this Office.

The above stated activities are subject to a strict regulation, on non-proliferation of nuclear weapons and business aspects pertaining to uranium and fuel.

3.4. Organizational Chart of the SÚJB

The organizational structure of the SÚJB is presented on the following Figure 1.

4. NUCLEAR POWER INDUSTRY

4.1. Supply of NPPs

Most of the equipment and all construction parts of both NPPs were produced inside of the country or in Slovakia (second part of former Czechoslovakia). Fuel, I&C system and main circulation pumps are main exceptions. The original design of both NPPs is Russian but during construction of the NPP Temelín it was substantially changed (I&C system, fuel). Also at the NPP Dukovany a substantial improvement has been done.

The first research reactor was delivered to UJV Rez from former Soviet Union but after two reconstructions it is almost entirely produced in the CR (the fuel is again an exception). The two other small research reactors were designed in the country using some parts and experience of Russian technology.

4.2. Operation of NPPs

The CEZ, a.s., owns and operates Dukovany nuclear power plant and ensures its personnel training. Maintenance service are supplied both by CEZ itself and by many other companies from which the most important are listed in Appendix.

The CEZ, a.s., is building the Temelín nuclear power plant and the main contractors are: Škoda Praha, a.s., Škoda Jaderné strojírenství, s.r.o., EZ Praha, a.s., Královopolská strojírna, a.s., Vodní stavby Bohemia, a.s., WEC ETE, Modranská potrubní, a.s., Regula Praha, a.s.

4.3. Fuel Cycle, Spent Fuel and Waste Management Service Supply

The uranium for the fuel of the Dukovany nuclear power plant is supplied by a domestic producer, with the exception of one-year consumption of the Russian uranium for nuclear fuel, purchased a few years ago. Both conversion and enrichment services, together with fuel fabrication, for Dukovany nuclear power plant are purchased in Russia.

For the Temelín nuclear power plant, the fuel for the initial loading was already supplied and contracts for a few reloadings are signed. The uranium for the initial fuel load has been supplied by Russia, conversion and enrichment have been provided by Russia and the United Kingdom and fuel fabrication took place in the USA. For the fuel reloads of the Temelín nuclear power plant, Czech uranium is ensured. Conversion will be done in France and Canada and enrichment and fuel fabrication in the USA.

The fuel for the Czech research reactors, including the uranium, comes from the Russian Federation.

Uranium mining in the Czech Republic is according to Government Resolution No. 750/1999 declining. The present yield is 600 metric tonnes uranium metal from both underground mining and chemical lixiviation. The production will decline to 50-150 t/year during the next one or two decades after terminating the underground mining in the year 2004. The uranium is processed into a form of a

chemical concentrate (yellow cake). There are no other uranium processing plants in the Czech Republic.

The storage of spent fuel is ensured by its originators, i.e. CEZ, a.s. with regard of spent fuel from the nuclear power plants, and UJV-Rez, a.s. with regard of spent fuel from the research reactors. The spent fuel storage capacity in the reactor pools is sufficient for 6 years of operation of each nuclear power plant unit. At the Dukovany nuclear power plant, an interim dry cask-type spent fuel storage facility with capacity of 600 tonnes of uranium was put in operation, in 1995. Currently, another interim storage facility for spent fuel from the Dukovany nuclear power plant is being prepared, with a projected operation start-up in 2005.

High-level waste and spent nuclear fuel classed as waste are unsuitable for disposal in existing repositories. The construction of a deep geological repository is proposed in the draft of the "Concept of Radioactive Waste and Spent Nuclear Fuel Management in the Czech Republic", prepared by RAWRA (the Radioactive Waste Repository Authority) together with a number of other organizations. The Concept was completed by the Ministry of Industry and Trade for government discussion. Based on a preliminary timetable, approval for the final disposal facility site is expected in 2015, construction start of the repository approximately in 2020. The commissioning of the repository is scheduled for roughly 2065.

The issue of reprocessing spent fuel remains open. A decision to reprocess or directly dispose spent fuel (after its conditioning) as a waste is suspended for the time of its storage in the interim storage facility, envisaged for the time of 40 to 50 years.

In UJV-Rez, a.s. a new spent fuel interim storage facility was put into operation in 1996, with sufficient capacity for the entire life of the operating research reactors.

A shallow land repository of radioactive waste is operated by CEZ a.s. within the Dukovany nuclear power plant complex. It is designed to accommodate all future low and intermediate radioactive wastes from both the Dukovany and Temelín nuclear power plants.

4.4. Research and Development Activities

The responsibility for the research state policy in the area of nuclear energy is divided between the Ministry of Industry and Trade of the Czech Republic and the State Office for Nuclear Safety.

Most activities in the area of nuclear energy research and development are performed by UJV-Rez, a.s., (Nuclear Research Institute) and Czech Technical University in Prague. The Nuclear Fuel Institute owned by Skoda a.s. performs specialized research of fuel element cladding. Several institutes of the Czech Academy of Science and other universities such as West Bohemia University in Plzen are marginally included in the nuclear power research.

4.5. International Co-operation in the Field of Nuclear Power Development and Implementation

The Czech Republic is a member of a number of international nuclear organizations including the International Atomic Energy Agency, Nuclear Energy Agency (NEA) as well as other bilateral and multilateral organizations such as WANO.

It takes part in international research activities organized by international organizations like NEA, ISOE, INEX, IRS and programmes of CERN, Dubna, etc.

The relatively large volume of the nuclear safety related technical support continued to come from the IAEA and European Union. The Czech Republic participates in the IAEA programme of technical co-operation and in the PHARE Programme, especially Regional PHARE Nuclear Safety

programme, from the EU. The Czech Republic is now a member of the 5th Framework Programme of the EU. Several research organizations like UJV Rez have successfully submitted requests for grants.

Apart from receiving support, the Czech Republic has also been providing support by financing (via the IAEA) technical assistance projects in Armenia, Bulgaria and Georgia in 2001. In 2002, technical and financial assistance to Armenia, Georgia and Ukraine through the IAEA is also planned.

Of particular importance was the so-called IAEA Extra-budgetary Programme, aimed at enhancing nuclear safety of WWER reactors. For some of the activities, SÚJB, CEZ, a.s. and other Czech organizations were involved in this programme. Within this framework, with active participation of other WWER operating countries, lists of design shortcomings established in the individual types of WWER reactors were prepared. These shortcomings were step-by-step analysed and subsequently repaired or removed.

The Czech Republic also receives significant support from the USA. Risk Monitor for the Dukovany nuclear power plant, a probabilistic computer model, was applied to WWER units. The US NRC assists the SÚJB by providing computer codes like RELAP, MELCOR etc. at very advantageous rates and with expert consultation in the process of the NPP Temelín licensing.

Japanese assistance is concentrated on training. Czech experts took part in several weeks training in Japan in the area of nuclear safety and seismic resistance of nuclear power plants.

With respect to technical and industrial co-operation, there are many activities based on bilateral contracts that are not subject to any centralized review.

5. REGULATORY FRAMEWORK

5.1. Safety Authority and Licensing process

The State Office for Nuclear Safety (SÚJB), as Czech Republic's national regulatory authority in nuclear safety and radiation protection field was established as of 1st January 1993 by the Act No. 21/1992 Coll. It is a follow-up organization of the former Czechoslovak Atomic Energy Commission. The legal framework of the SÚJB is given by Act No. 18/1997 Coll., on the Peaceful Utilization of Nuclear Energy and Ionizing Radiation (Atomic Act). The other legal documents specifying powers of SÚJB are listed in the paragraph Main National Laws and Regulations.

The SÚJB is an independent central body of the state administration with its own budget. It is headed by a Chairman appointed by the Czech Government (as a body) and the Chairman can, on request, be present at the government meeting. Regulatory decisions of the SÚJB (except of fines) cannot be changed by any other governmental body. Deputy Chairmen, Directors of Departments and Heads of Divisions are appointed by the Chairman of the SÚJB.

The Chairman acts at the same time as the Nuclear Safety Inspector General. He appoints the SÚJB nuclear safety and radiation protection inspectors. The inspectors' authorities, to perform their function, are stipulated in the provisions of Act No. 18/1997 Coll.

The SÚJB has 189 employees and two institutes are subordinated financially and as a technical support. The organizational chart of the SÚJB is presented in Figure 1.

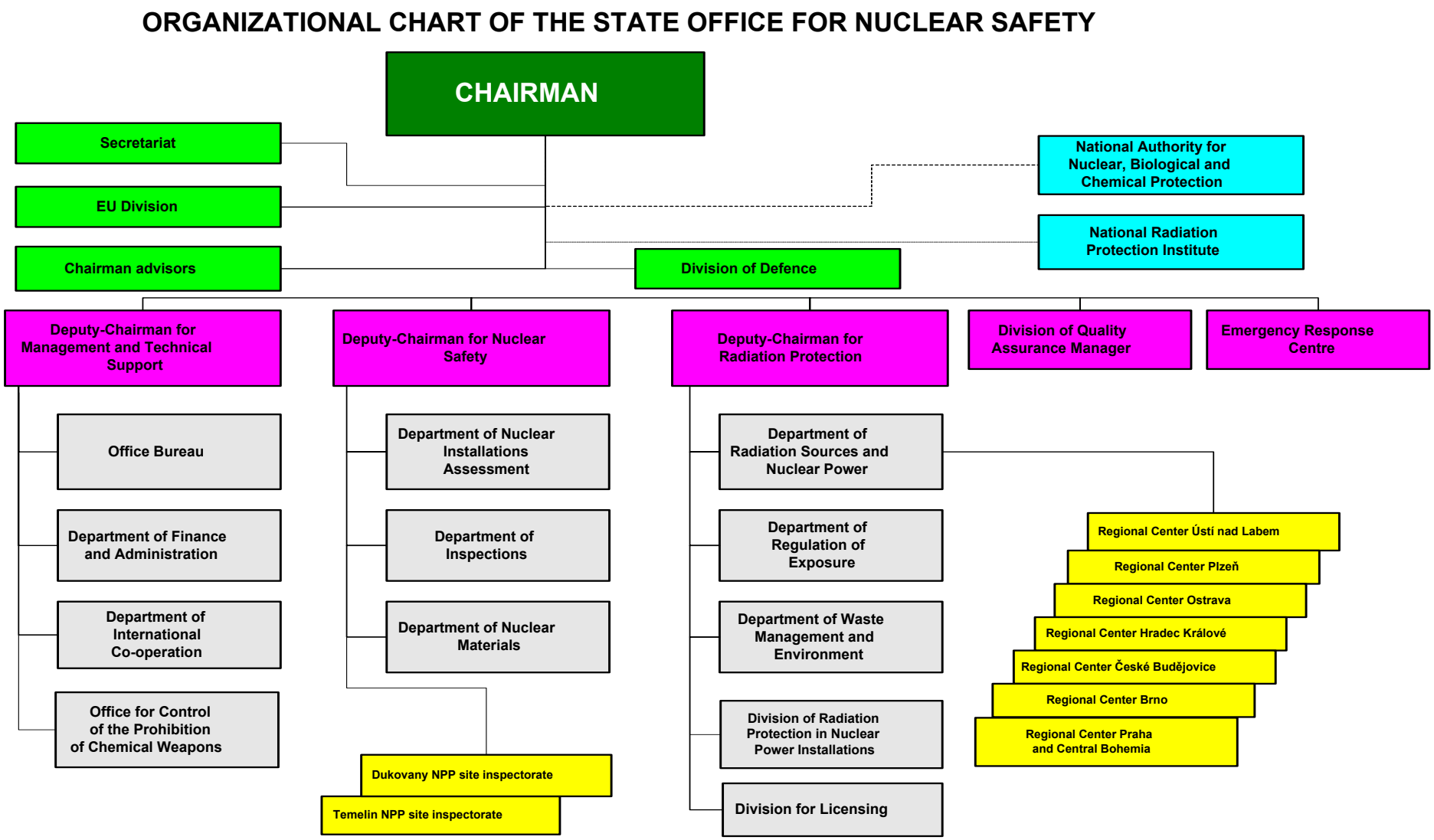

FIG. 1. Organizational Structure of the SÚJB.

5.2. Main National Laws and Regulations

At present, the Czech legislation in the sphere of nuclear energy and ionizing radiation consists of the following:

- Act No. 18/1997 Coll. (Atomic Act) on the State Supervision over the Nuclear Safety of the Nuclear Installations. The act corresponds, to a sufficient extent, with the reciprocal legislation of European Union member countries. Now, the Act is amended with Act No. 13/2002 Coll. and Act No. 310/2002 Coll.

- Act No. 458/2000 Coll. (Energy Act) on Business Conditions and Public Administration in the Energy Sectors and on Amendment to Other Laws.

- Decree of the SÚJB No. 142/1997 Coll., on Type-Approval of Packaging Assemblies for Transport, Storage, and Disposal of Radionuclide Sources and Nuclear Materials, on Type-Approval of Ionizing Radiation Sources, and on Type-Approval of Protective Devices for Work Involving Ionizing Radiation Sources and other Devices for Ionizing Radiation Source Handling (on Type-Approval). Now the Decree is replaced with Decree of the SÚJB No. 317/2002 Coll.

- Decree of the SÚJB No. 143/1997 Coll., on Transportation and Shipment of Specified Nuclear Materials and Specified Radionuclide Sources. Now the Decree is also replaced with Decree of the SÚJB No. 317/2002 Coll.

- Decree of the SÚJB No. 144/1997 Coll., on Physical Protection of Nuclear Materials and Nuclear Facilities and their Classification.

- Decree of the SÚJB No. 145/1997 Coll., on Accounting for and Control of Nuclear Materials and their Detailed Specification. Now the Decree is amended with Decree of the SÚJB No. 316/2002 Coll.

- Decree of the SÚJB No. 146/1997 Coll., Specifying Activities Directly Affecting Nuclear Safety and Activities Especially Important from Radiation Protection Viewpoint, Requirements on Qualification and Professional Training, on Method to be Used for Verification of Special Professional Competency and for Issue Authorizations to Selected Personnel, and the Form of Documentation to be Approved for Licensing of Expert Training of Selected Personnel. Now the Decree is amended with Decree of the SÚJB No. 315/2002 Coll.

- Decree of the SÚJB No. 147/1997 Coll., Laying Down a List of Selected Items and Dual Use Items in Nuclear Sector. Now the Decree is replaced with Decree of the SÚJB No. 179/2002 Coll.

- Decree of the SÚJB No. 184/1997 Coll., on Radiation Protection Requirements. Now the Decree is replaced with Decree of the SÚJB No. 307/2002 Coll.

- Decree of the SÚJB No. 214/1997 Coll., on Quality Assurance in Activities Related to the Utilization of Nuclear Energy and in Radiation Activities, and Laying Down Criteria for the Assignment and Categorization of Classified Equipment into Safety Classes.

- Decree of the SÚJB No. 215/1997 Coll., on Criteria for Siting Nuclear Facilities and Very Significant Ionizing Radiation Sources.

- Decree of the SÚJB No. 219/1997 Coll., on Details of Emergency Preparedness of Nuclear Facilities and Workplaces with Ionizing Radiation Sources, and on Requirements on the Content of On-Site Emergency Plans and Emergency Rules. Now the Decree is replaced with Decree of the SÚJB No. 318/2002 Coll.

- Decree of the SÚJB No. 106/1998 Coll., on Nuclear Safety and Radiation Protection Assurance during Commissioning and Operation of Nuclear Facilities.

- Decree of the SÚJB No. 195/1999 Coll., on Basic Design Criteria for Nuclear Installations with Respect to Nuclear Safety Radiation Protection and Emergency Preparedness.

- Decree of the SÚJB No. 196/1999 Coll., on Decommissioning of Nuclear Installations and Working Places with Important and Very Important Sources of Ionizing Radiation.

- Decree of the SÚJB No. 324/1999 Coll., on Limits of Concentration and Amount of Nuclear Material for which Nuclear Liability Requirements does not apply.

- Decree of the SÚJB No. 319/2002 Coll., on Function and Organization of National Radiation Monitoring Network.

- Decree of the SÚJB No. 419/2002 Coll., on Personal Radiation Passports.

- Decree of the Government No. 224/1997 Coll., on Payments of Radioactive Waste Producers to the Nuclear Account.

- Decree of the Government No. 11/1999 Coll., on Emergency Planning Zone.

- Unregistered regulation issued by Ministry of Trade and Industry - Statut No. MPO 9/97 on the Radioactive Waste Repository Authority.

5.3. International, Multilateral and Bilateral Agreements

The Czech Republic succeeded into the Agreement between the government of the Czechoslovak Socialist Republic and the International Atomic Energy Agency (IAEA) concerning a number of agreements indicated below.

AGREEMENTS WITH THE IAEA

• Nuclear Proliferation Treaty related safeguards agreement INFCIRC Nº 541	Entry into force:	11 September 1997
• Additional Protocol	Entry into force:	1 July 2002
• Improved procedures for designation of safeguards inspectors		Accepted
• Supplementary agreement on provision of technical assistance by the IAEA	Succeeded: (Notification of succession was received on 1 July 1998)	1 January 1993
• Agreement on privileges and immunities	Succeeded:	27 September 1993

OTHER RELEVANT INTERNATIONAL TREATIES etc.

• Nuclear Proliferation Treaty	Succeeded:	1 January 1993
• EURATOM	Non-member	

• Treaty for prohibition of nuclear and other mass-destruction weapons located on sea and ocean bottoms and underground		
• Convention on physical protection of nuclear material	Entry into force:	1 January 1993
• Convention on early notification of a nuclear accident	Entry into force:	1 January 1993
• Convention on assistance in the case of a nuclear accident or a radiological emergency	Entry into force:	1 January 1993
• Vienna convention on civil liability for nuclear damage	Entry into force:	24 June 1994
• Joint protocol	Entry into force:	24 June 1994
• Protocol to amend the Vienna convention on civil liability for nuclear damage	Signature:	18 June 1998
• Convention on supplementary compensation for nuclear damage	Signature:	18 June 1998
• Convention on nuclear safety	Entry into force:	24 October 1996
• Joint convention on the safety of spent fuel management and on the safety of radioactive waste management	Entry into force:	18 June 2001
• ZANGGER Committee	Member	
• Nuclear export guidelines	Adopted by former CSFR	
• Acceptance of NUSS codes	Accepted by former CSFR	
• Nuclear Suppliers Group	Member	

BILATERAL AGREEMENTS

- The Agreement between the Government of the CSSR and the Government of Austria on the Issues of Common Interest Related to Nuclear Safety and Radiation Protection
- The Agreement between the Government of the CSFR and the Government of Germany on the Issues of Common Interest Related to Nuclear Safety and Radiation Protection
- The Agreement between the Government of the CSFR and the Government of Hungary on the Issues of Common Interest Related to Nuclear Safety and Radiation Protection
- The Agreement between the Government of the CSFR and the Government of USA on Co-operation in Peaceful Uses of Nuclear Energy
- The Agreement between the Government of the CR and the Government of the Russian Federation on Co-operation in the Nuclear Energy Field

- The Agreement between the Government of the CR and the Government of Canada on Co-operation in the Peaceful Uses of Nuclear Energy
- The Agreement between the Government of the CR and the Government of the Slovak Republic on Co-operation in the State Regulation of Nuclear Safety and Nuclear Materials
- The Agreement between the Government of the CR and the Government of Ukraine on Co-operation in the Nuclear Energy and Nuclear Industry
- The Agreement between the Government of the CR and the Government of Ukraine on Co-operation in the Transport of Nuclear Materials between CR and Russian Federation over the territory of Ukraine
- The Agreement between the Government of the CR and the IAEA on Safeguards
- The Agreement between the Nuclear Installations Safety Directorate (France) and the State Office for Nuclear Safety (Czech Republic) for the Exchange of Information and Co-operation in the Regulation of Nuclear Safety
- The Agreement between the United States Nuclear Regulatory Commission and the Czech Republic State Office for Nuclear Safety on Exchange of Technical Information and Co-operation in Nuclear Safety
- The Agreement between the United States Nuclear Regulatory Commission and the Czech Republic State Office for Nuclear Safety on Application of Thermohydraulic Codes (CAMP)
- The Agreement between the United States Nuclear Regulatory Commission and the Czech Republic State Office for Nuclear Safety on Co-operation in the Framework of Program of Severe Accident Research
- Statement of Intent concluded between Minister of Science and Technology of the Republic of Korea on one side and Deputy Minister of Industry and Trade of the CR and the Chairman of the State Office for Nuclear Safety of the CR on the other side
- The Agreement between the Health & Safety Executive of the United Kingdom of Great Britain and Northern Ireland and the Czech Republic State Office for Nuclear Safety on Exchange of Information
- The Agreement on Co-operation in the Area of State Supervision of Nuclear Safety and Peaceful Utilisation of Atomic Energy between the Federal Regulatory Authority of the Russian Federation (Gosatomnadzor) and the Czech Republic State Office for Nuclear Safety
- The Agreement between the Federal Ministry for Environment, Nature Conservation and Nuclear Safety of the Federal Republic of Germany and the State Office for Nuclear Safety of the Czech Republic on Exchange of Information
- The Agreement between the CIEMAT (Spain) and the Czech Republic State Office for Nuclear Safety on Evaluation of Computer Technology Used for Measuring and Control Systems in Nuclear Safety of Nuclear Power Plants for the Purpose of Licensing Process
- The Arrangement between the State Office for Nuclear Safety of the Czech Republic and the Slovenian Nuclear Safety Administration for the Exchange of Information.
- The Arrangement between the State Office for Nuclear Safety of the Czech Republic (SÚJB) and the United States Nuclear Regulatory Commission (USNRC) for the Exchange of Technical Information and Cooperation in Nuclear Safety Matters
- The Arrangement between the State Office for Nuclear Safety of the Czech Republic and the State Commission for Nuclear Supervision of Ukraine on Cooperation in the Area of State Administration and Supervision of Nuclear and Radiation Safety in Uses of Nuclear Energy

REFERENCES

[1] IAEA Energy and Economic Data Base (EEDB).

[2] IAEA Power Reactor Information System (PRIS).

[3] Czech Statistical Office.

Appendix

DIRECTORY OF THE MAIN ORGANIZATIONS, INSTITUTIONS AND COMPANIES INVOLVED IN NUCLEAR POWER RELATED ACTIVITIES

NATIONAL ATOMIC ENERGY AUTHORITY

Ministry of Industry and Trade
Energy Division
Na Františku 32
110 15 Praha 1 – Staré Město
Tel: (+420 2) 248 51 111
http://www.mpo.cz/

State Office for Nuclear Safety
(Státní úřad pro jadernou bezpečnost - SUJB)
Senovážné námésti 9
110 00 Prague 1
Czech Republic
Tel: (+420 2) 216 24 111
Fax: (+420 2) 216 24 704
http://www.sujb.cz/

Ministry of Environment
Vršovická 65
100 10 Praha 10
Tel.: (+420 2) 6712 1111
http://www.env.cz/

Czech Society for Radiation Protection
c/o State Office for Nuclear Safety
Tel: (420 2) 241 72 738

POWER UTILITIES

Czech Power Board
Praha

Power Company ČEZ, a.s.
Jungmannova 29
111 48 Praha 1
Tel: (+420 2) 2408 1111
Fax: (+420 2) 2408 2440
http://www.cez.cz/

Dukovany Nuclear Power Plant
http://www.cez.cz/jedu/

Temelín Nuclear Power Plant
http://www.cez.cz/jete/

NUCLEAR RESEARCH INSTITUTES

Nuclear Research Institute Řež plc
250 68 Řež u Prahy
Fax: (+420 2) 20940567
Tel: (+420 2) 20941102, 20940885, 20940179, 20940351, 20941119, or 66171111
http://www.nri.cz/

National Radiation Protection Institute
Šrobárova 48
100 00 Praha 10
Tel: (+420 2) 6731 1239
Fax: (+420 2) 6731 1410
http://www.suro.cz/cz/index.html

National Institute for Nuclear, Chemical and Biological Protection
Pribram – Kamenná
262 31 Milín
Tel: (+420 306)91 321, 322, 323
http://www.sujchbo.cz

Research Institute of Fuel and Energy Complex
VUPEK
Praha

Energoprojekt Praha, a.s.
Vyskočilova 3
140 21 Praha 4
Tel: (+420 2) 41006 730, 111
Fax: (+420 2) 41006 739
http://www.egp.cz

Škoda – UJP Praha, a.s.
Nad Kaminkou 1345
156 10 Praha – Zbraslav
Tel: (+420 2) 5792 1822, 0273
Fax: (+420 2) 5792 1760
http://www.skoda-ujp.cz

Nuclear Physics Institute (Academy of Sciences)
http://hp.ujf.cas.cz/

Institute of Plasma Physics
http://www.ipp.cas.cz/

MANUFACTURERS AND SERVICES

Škoda Praha, a.s.
M. Horákové 109/116
160 00 Praha 6
Tel: (+420 2) 24396 111, 666

Škoda Jaderné strojírenství (JS), a.s.
Orlík 266
316 06 Plzeň
Tel: (+420 19) 704 1111

EZ Praha, a.s.
Na Poříčí 5-7
111 74 Praha 1
Tel: (+420 2) 33026 111

Královopolská strojírna, a.s.
divize R.I.A. Křižíkova 68
660 90 Brno
Tel: (+420 5) 7125 400

Vodní stavby Bohemia, a.s.
Primátorská 36/323
180 00 Praha 8 - Libeň
Tel: (+420 2) 838 418 53
Fax: (+420 2) 838 406 42

Modřanská potrubní, a.s.
Komořanská 326/63
143 140 Praha 4 - Modřany
Tel: (+420 2) 4097 111

OTHER ORGANIZATIONS

Academy of Sciences of the Czech Republic (ASCR)
http://www.cas.cz/

Czech Nuclear Forum
http://www.nuclear-forum.cz/

Czech Nuclear Society
(Ceská Nukleární Spolecnost)
http://www.csvts.cz/cns/

UNIVERSITIES

Czech Technical University in Prague
Headquarters
Zikova 4
166 36 Praha 6 – Dejvice

Tel: (+420 2) 2435 1111
http://www.cvut.cz/ascii/index.html

Czech Technical University in Prague
Faculty of Nuclear Sciences and Physical Engineering
Břehová 7
11566 19 Praha 61 -– Staré Město

Tel: (+420 2) 2435 1111
http://www.fjfi.cvut.cz/en/index.html

Charles University
Faculty of Mathematics and Physics
Ke Karlovu 3/5
121 16 Praha 2

Tel: (+420 2) 2191 1289
Fax: (+420 2) 2191 1292
http://www.mff.cuni.cz

West Bohemia University
Univerzitní 8
306 14 Plzeň

Tel: (+420 19) 7491 111
Fax: (+420 19) 279 222
http://www.fst.zcu.cz/page15.html