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# **NUCLEAR LEGISLATION IN OECD COUNTRIES**

## **Regulatory and Institutional Framework for Nuclear Activities**

**Hungary**

## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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## NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1<sup>st</sup> February 1958 under the name of the OEEC European Nuclear Energy Agency. It received its present designation on 20<sup>th</sup> April 1972, when Japan became its first non-European full member. NEA membership today consists of 28 OECD member countries: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Norway, Portugal, the Republic of Korea, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities also takes part in the work of the Agency.

The mission of the NEA is:

- to assist its member countries in maintaining and further developing, through international co-operation, the scientific, technological and legal bases required for a safe, environmentally friendly and economical use of nuclear energy for peaceful purposes, as well as
- to provide authoritative assessments and to forge common understandings on key issues as input to government decisions on nuclear energy policy and to broader OECD policy analyses in areas such as energy and sustainable development.

Specific areas of competence of the NEA include safety and regulation of nuclear activities, radioactive waste management, radiological protection, nuclear science, economic and technical analyses of the nuclear fuel cycle, nuclear law and liability, and public information. The NEA Data Bank provides nuclear data and computer program services for participating countries.

In these and related tasks, the NEA works in close collaboration with the International Atomic Energy Agency in Vienna, with which it has a Co-operation Agreement, as well as with other international organisations in the nuclear field.

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## **HUNGARY**

This chapter was last revised in 2001 and is correct as of that date.

The NEA Secretariat is currently revising this chapter in close consultation with the national authorities and plans to issue a new version in the near future.

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## I. GENERAL REGULATORY REGIME

### 1. Introduction

At present there is one nuclear power station in Hungary, located at Paks, which is operated by Hungarian Power Companies Ltd. (*Magyar Villamos Művek Részvénytársaság* – formerly MVM, now MVM Rt.). The station's four units have a capacity of 1 840 MWe, generating about 40% of the country's domestic electricity production. The first Atomic Energy Act was promulgated in 1980 at the time of construction of this power station to ensure regulation of the industry. The four units at Paks came into service between 1983 and 1987 and have been subjected to what amounts to a continuous process of upgrading.

The legal regime applicable to nuclear activities in Hungary was previously governed by the Atomic Energy Act of 1980. On 10 December 1996, the Hungarian Parliament adopted a new Atomic Energy Act, which replaced the 1980 Act. The Atomic Energy Act of 1996 (hereinafter referred to as "the Act"), while preserving the basic principles of the 1980 Act, aims to conform to recent international rules and recommendations as promulgated by the International Atomic Energy Agency (IAEA) and the OECD Nuclear Energy Agency (OECD/NEA). It entered into force six months after its promulgation *i.e.* on 1 June 1997, with the exception of Sections 62-64 (concerning the Central Nuclear Financial Fund), which entered into force on 1 January 1998. As with the 1980 Act, different ministers are responsible for implementing the Act in their respective fields of jurisdiction by means of separate legal regulations. New regulations have been enacted since 1997 and thus the regulations which existed prior to that date are no longer applicable, with the exception of certain provisions of Ordinance No. 7 of 20 July 1988 regarding radioactive waste management, pending adoption of new regulations in this field.

The aim of the Act is not only to modernise Hungarian nuclear law, but also to harmonise Hungarian national law with international treaties to which Hungary is a party. The basic principles of the Act are to protect the population and the environment against the hazards generated by the peaceful uses of nuclear energy, and to improve the safety of all nuclear activities.

The Act provides that nuclear energy may only be used in the manner set out in legal regulations and under regular control by the authorities. The regulatory authorities are required, under the Act, to be independent from organisations having an interest in the promotion and development of the uses of nuclear energy [Section 5(2)].

The powers to implement the government's responsibility under the Act for the control and supervision of the safe utilisation of nuclear energy are vested in the Hungarian Atomic Energy Commission – HAEC (*Országos Atomenergia Bizottság*) and the Hungarian Atomic Energy Authority – HAEA (*Országos Atomenergia Hivatal*), as well as the ministers concerned

[Section 6(2)]. The HAEC is concerned with the development of policy, as well as the overall co-ordination and monitoring of activities in the nuclear field. Its members are comprised of senior officials of the ministries and public organisations performing regulatory tasks under the Act [Section 8]. The HAEA, on the other hand, is a regulatory authority and, as such, co-ordinates or performs the particular regulatory tasks necessary to ensure the safe application of nuclear energy [Section 17]. The responsibilities of the HAEA and HAEC are established in Government Decree No. 87/1997 (V.28) Korm.,<sup>1</sup> on Duties and Scope of Authority of the HAEC and on the Scope of Duty, Authority, and Jurisdiction for Imposing Penalties, of the HAEA. The Decree came into effect on 1 June 1997.

Various ministers and other authorities are responsible for enforcing those aspects of any particular licence granted by the HAEA which fall within their jurisdiction [Sections 19(2), 21-28 and 68]. These ministers and authorities are described, *infra*, in Part II of this study “Institutional Framework”, Section 1 “Regulatory and Supervisory Authorities”.

## **2. Mining Regime**

No radioactive ores are mined in Hungary and, accordingly, there is no legislation dealing specifically with the prospecting for and mining of such ores. General mining legislation would, therefore, apply [Act No. XLVIII of 1993, as amended by Act No. XII of 1997].

Under the Atomic Energy Act of 1996, the President of the Hungarian Mining Authority (*Magyar Bányászati Hivatal*) is empowered to enforce technical and safety aspects of mining, in so far as they relate to the activities licensed by the HAEA [Section 19(2)(h)] or licensed by the Minister for Health [Section 21(1)(g)].

## **3. Radioactive Substances, Nuclear Fuel and Equipment**

The Act states, as a general principle, that the user of nuclear energy is responsible for its safe application and compliance with safety standards [Section 10(1)]. Furthermore, the user is expressly obliged to provide the resources required for the safe use of nuclear energy [Section 10(2)].

To ensure that the user fulfils this obligation, a general regime of licensing is established under Chapter III of the Act. Where not regulated by this Act, the provisions of Act No. IV of 1957 on the General Rules of State Administration Procedures apply to the use of nuclear energy [Section 12(1)].

As regards the general regime under the Act, the HAEA has a co-ordinating role in regulating nuclear activities [Section 17(1)]. It has general responsibility for activities such as accountancy and control of nuclear materials, licensing the transport of radioactive materials as well as approval and inspection of transport packaging, co-ordination of research and development related to the safe use of nuclear energy and co-ordination of international co-operation related to the use of nuclear energy [Section 17(2)].

As will be discussed below in more detail (see, *infra*, Section 4 “Nuclear Installations”), the HAEA has particular responsibility for licensing and supervision of nuclear facilities

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1. “Korm.” is the abbreviation of the Hungarian word for “government”.

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[Section 17(2)(a)] and nuclear equipment. It also monitors the existence of a quality assurance system as prescribed in Section 11(2) of the Act.

The Minister for Health has responsibility for the licensing and monitoring of a wide variety of other nuclear activities. These include the ownership, manufacture, possession, storage, use and distribution of radioactive materials, as well as, *inter alia*, the ownership and use of facilities and equipment generating ionising radiation [Section 20(1)(a) and (c)]. This Minister has particular responsibility for radiation hygiene and for radioactive waste disposal facilities [Section 20(1)(d)-(h)] (see, *infra*, Section 6 “Radiation Protection” and Section 7 “Radioactive Waste Management”).

The Act does not apply to activities related to radioactive materials, nor to equipment which – due to the character and extent of ionising radiation that it can produce – does not qualify as hazardous to human life and health, or to the animate and inanimate environment [Governmental Decree No. 124/1997 (VII.18) Korm. on Radioactive Materials and Equipment Generating Ionising Radiation Exempted from the Scope of the Atomic Energy Act No. CXVI of 1996; Ordinance of the Minister for Health No. 23/1997 (VII.18) NM defining the Exemption Levels (Activity Concentrations and Activities) of Radionuclides].

In respect of both the licences issued by the HAEA and the licences issued by the Minister for Health, certain other ministers and authorities are empowered to enforce those aspects of the licence which fall within their jurisdiction. Similarly, there are provisions in the Act which give nominated ministers and authorities, some of which are the same as those nominated in the licensing provisions, the specific power to conduct inspections of or otherwise regulate those aspects of nuclear activities which fall within their jurisdiction. These various other ministers and authorities, and their respective areas of responsibility, are described in Sections 19(2), 21-28 and 68 of the Act.

In Hungary there is an itemised national accounting scheme, beginning with the production of radioactive materials, through to their disposal as radioactive waste. Under the executive orders of the Act, the Department of Nuclear and Radioactive Materials of the HAEA is responsible for the Central Registry of radioactive material as well as for the State System of Accountancy and Control of nuclear material through which the national accounting systems are maintained [Ministerial Ordinances No. 25/1997 (VI.18) IKIM and No. 39/1997 (VII.1) IKIM].

#### **4. Nuclear Installations**

##### ***a) Licensing and inspection, including nuclear safety***

In the definition section of the Act, a nuclear facility is defined as including a nuclear power plant, a nuclear district heating plant and a nuclear reactor for research and training [Section 2(g)]. Parliament’s preliminary approval is required to initiate activities for the construction of a new nuclear facility, or the addition of a further unit to an existing power plant [Section 7(2)].

Under the general regime of licensing, the HAEA is the regulatory body responsible for licensing the siting, construction, enlargement, commissioning, operation, modification, shutting down and decommissioning of a nuclear facility [Section 17(2)(a)]. The processing period for each of these licences should not exceed six months [Section 12(2)].

In addition, the HAEA is the regulatory authority for licensing of structures connected to nuclear facilities [Section 17(2)(c)]. The Act leaves many of the details of the regulatory scheme to be



governed by separate regulations. Thus, a government decree was adopted to deal with nuclear safety and the procedures the HAEA should follow to ensure compliance with the legislation [Decree No. 108/1997 (VI.25) Korm.]. Under this Decree, the Nuclear Safety Directorate (NSD) of the HAEA is nominated as the nuclear safety regulatory body, which makes decisions in the first instance in licensing, inspection and enforcement matters.

In respect of nuclear facilities, a permit from the NSD is required for: siting, construction (or enlargement), commissioning, operation, modification, permanent shutdown and decommissioning.

In respect of the equipment and nuclear fuel used in nuclear facilities, the NSD grants a general or specific permit for: manufacturing, importation, installation, commissioning (and operation), modification and decommissioning.

The NSD also grants permits for the construction, commissioning, maintenance, remodelling, rehabilitation, modification, expansion, use (other than for its original function) and demolition of nuclear buildings and structures.

In the interests of ensuring nuclear safety, the NSD is required, in all phases during the life cycle of nuclear facilities, to routinely inspect the following:

- the observance of provisions prescribed in applicable laws and regulations, including the quality assurance system of the nuclear facility;
- the fulfilment of conditions attached to licences; and
- the execution of instructions issued by the NSD.

The following nuclear safety regulations are set out in a five-volume appendix to the Decree, describing the mandatory safety requirements for nuclear facilities:

- Regulatory Procedures of Nuclear Power Plants;
- Quality Assurance of Nuclear Power Plants;
- Design Requirements of Nuclear Power Plants;
- Operation Requirements of Nuclear Power Plants;
- Regulation of Research Reactors.

Under the Act, a licence may be granted for a limited or an unlimited period of time and may be issued subject to conditions. A licence granted for a limited period may be extended upon request. A licence becomes void if it expires, if the conditions set out in the licence are not complied with, or if the nuclear equipment or facility is continuously out of operation beyond a period specified in the licence. The HAEA may withdraw a licence or limit its period of validity if the Authority determines that there has been a change in the safety conditions and level of risk which had served as the basis for issuing the licence in the first instance. Similarly, the HAEA may withdraw a licence, or limit its period of validity, if modifications to a nuclear facility or to nuclear equipment or systems are in breach of the licence to undertake the modifications [Section 14]. It should also be noted that the area surrounding a nuclear facility may be designated an exclusion zone, with restrictions on mining, land

use and water usage [Sections 34-37]. Governmental Decree No. 213/1997 (XII. 1) Korm. on the Exclusion Zone of a Nuclear Facility and a Radioactive Waste Disposal Facility contains detailed provisions on this matter.

In addition to the enforcement powers set out above, the HAEA is obliged to monitor compliance with licence conditions and safety regulations, keep records of inspections and, in the event of violations, may impose fines as prescribed by separate regulations [Section 15(1)-(4)]. The Act provides that no fine can be imposed beyond six months from the date the HAEA learns of the breach, or beyond two years from the date when the licensee should have complied with its obligations [Section 15(5)].

As part of the HAEA's licensing process, other relevant administrative bodies are authorised to participate within the scope of their responsibility as defined by separate regulations [Section 17(3)]. Some of the more important ministers and bodies involved in this process are expressly provided for, with reference in the Act to their areas of competence [Section 19(2)] (for details of their responsibilities see, *infra*, Part II of this Study "Institutional Framework", Section 1 "Regulatory and Supervisory Authorities"). The applicant is obliged to attach the other prescribed regulatory licences and approvals to the licence application [Section 19(3)].

The Act also provides that the HAEA is responsible for the nuclear safety inspection of nuclear facilities [Section 17(2)(b)]. As with the licensing function, this is intended to be supplemented by inspection and regulatory powers granted under the Act to other specified ministers and administrative bodies with particular areas of interest, most of whom are referred to in the previous paragraph [Sections 22-26]. The details of these inspection powers are as determined in separate legal regulations.

In addition, it is necessary under the Act to obtain the relevant licence from the Hungarian Energy Office (*Magyar Energia Hivatal*), pursuant to Act No. XLVIII of 1994 on the Production, Transport and Supply of Electric Energy, for the construction and lawful operation of a nuclear power plant [Section 33].

Personnel operating the Paks nuclear plant receive between two and three years of classroom and on-the-job training. They must also successfully complete five weeks of simulator training on the plant's full-scope simulator before taking the qualifying examination. Once qualified, the personnel receive a day of refresher training every five weeks and about 80 hours of simulator training every year. The regulatory requirements for education, training and retraining of employees is set out by Joint Ordinance No. 49 of 2 June 1998 of the Minister for Industry, Trade and Tourism and the Minister for Culture and Public Education.

Hungary was the first Eastern European country to request an Operational Safety Review Mission of its nuclear plant organised by the International Atomic Energy Agency, which was followed by other international review missions *e.g.* on safety upgrading, independent peer review of probabilistic safety assessment etc. The general judgement was that the design of the Paks nuclear power plant is up to the safety level of other western nuclear power plants constructed at the same time and that it is operated in a safe manner.

At the international level, Hungary ratified the 1994 Convention on Nuclear Safety on 18 March 1996.

**b) Emergency response**

Chapter IV of the Act deals with measures for the prevention of abnormal events and the elimination of their consequences. The user of nuclear energy is obliged to take immediate appropriate measures if an abnormal event occurs in the course of its activities and the level of ionising radiation released is or may be higher than the level permitted by the authorities [Section 42].

The termination of an abnormal event, the investigation of its causes, and the execution of measures necessary to prevent its repeated occurrence are primarily the responsibility of the user of nuclear energy. In order to prevent the occurrence of a nuclear emergency, to respond to or limit the consequences of an event that has occurred, as well as to restore the situation, the user of nuclear energy is obliged to:

- prepare a plan for emergency preparedness which has to be approved by the relevant authorities;
- establish the required conditions and verify the suitability of those conditions from time to time for an efficient emergency response; and
- co-operate with the relevant authorities to ensure adequate external assistance if the need arises [Section 43].

To the extent that the capabilities of the user of nuclear energy are exceeded in the event of a nuclear emergency, the necessary response measures become the responsibility of the authorities identified in the emergency preparedness and response plan [Sections 44 and 46].

The emergency management plan has undergone an essential change following the entry into force of Act No. LXXIV of 1999 on the Control and Organisation of the Protection against Catastrophes on 1 January 2000. Pursuant to this Act, a single leading body, the Governmental Co-ordination Committee, has been set up to deal with all types of catastrophe, as opposed to the former system where the leading role was assigned to different bodies depending on the nature of the emergency (in the case of nuclear accidents, a specific governmental committee was in charge of nuclear emergency preparedness). The Minister for the Interior heads the Governmental Co-ordination Committee; his deputy in the event of nuclear emergencies is the Director General of the HAEA (for details, see, *infra*, Part II of this Study “Institutional Framework”, Section 1 “Regulatory and Supervisory Authorities”).

Under the Act, the user of nuclear energy is obliged to report all abnormal events, or any accident resulting in personal injury, to the mayor with jurisdiction over the area, or the county or Budapest office of the State Public Health and Medical Officer’s Service (*Állami Népegészségügyi és Tisztiorvosi Szolgálat – SPHMOS*) with jurisdiction over the area, the police and the HAEA [Section 45]. The HAEA may stipulate further reporting obligations applying to nuclear facilities [Section 45(3)]. If the environment is contaminated, additional authorities must be notified [Section 45(1) and (2)].

The Act lays down the obligations of the State Public Health and Medical Officer’s Service in the event of an emergency, to prevent the proliferation of radioactive contamination and to avoid radiation injury [Section 47].

Hungary is a Party to the following conventions in the field of nuclear emergencies:

- 1986 Convention on Early Notification of a Nuclear Accident, ratified on 10 March 1987;
- 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency, ratified on 10 March 1987.

## **5. Trade in Nuclear Materials and Equipment**

Hungarian controls over the export and import of nuclear materials are in line with the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons. The governmental Decree on Nuclear Exports and Imports [Decree No. 121/1997 (VII.17) Korm.] updates the previous Decree of 1986. It includes the requirements and the trigger list of the Nuclear Suppliers Group (“London Club”), as well as the list of materials and equipment covered by the Non-Proliferation Treaty (“Zangger Committee List”). It also takes into account the regulations of the European Union. The HAEA is responsible for the licensing of nuclear exports and imports [Section 17(2)(h)]. For details on licensing of transport and approval of packaging, see, *infra*, Section 9 “Transport”.

## **6. Radiation Protection**

The HAEA has responsibility for licensing nuclear equipment with regard to ionising radiation protection requirements, as well as for monitoring the quality assurance system prescribed under the Act [Section 17(2)(d) and (e) of the Act]. This function is performed by the Nuclear Safety Directorate of the HAEA, which is entitled to conduct inspections at licensees’ and suppliers’ premises [Decree No. 108/1997 (VI.25) Korm.].

The Minister for Health is responsible for enforcing the health and radiation protection considerations arising from the activities licensed by the HAEA [Section 19(2)(f) of the Act]. In addition, through the State Public Health and Medical Officers Service, the Minister, as part of the radiation safety procedures, carries out:

- licensing and monitoring of all activities with radioactive materials; and
- licensing and inspection of non-nuclear facilities in which ionising radiation or radioactive material is utilised (including radioactive waste repositories) [Section 20(1)(a)-(d)].

The Minister also oversees radiation protection services established in facilities utilising nuclear energy, compliance with occupational safety requirements in the field of radiation protection and data collection and evaluation relating to the national radiation situation [Section 20(1)(e)-(h)].

The area surrounding a nuclear installation may be designated an exclusion zone, comprising restrictions on mining, and on land and water usage [Sections 34-37] (see also, *supra*, Section 4(a) “Licensing and inspection, including nuclear safety”).

Ordinance No. 16/2000 (VI.8) EüM of the Minister for Health on the Execution of Certain Provisions of the Act on Atomic Energy prescribes the health requirements and radiation protection standards applicable to all activities involving the use of atomic energy, in order to protect workers and the general public against the harmful effects of ionising radiation. According to this Ordinance, practices involving the release of ionising radiation shall not be licensed and maintained, unless it can be justified that the benefit for society offsets the radiation harm that they may cause. During practices

applying any radiation source, except for therapeutic medical exposures, protection and safety shall be optimised in order that the magnitude of individual doses, the number of people exposed and the likelihood of incurring exposure be kept as low as reasonably achievable. In the course of optimisation, economic and social factors shall be taken into account. The persons in charge of an establishment using atomic energy are required to draw up internal rules on radiation protection and to establish a radiation protection service [Section 10].

Maximum permissible doses of ionising radiation are set out for workers and certain members of the public [Section 3 and Annex 2]. Training of staff engaged in activities involving the use of atomic energy is also provided for [Section 8].

## **7. Radioactive Waste Management**

Under the Act, the Parliament's preliminary approval is required for the establishment of a new radioactive waste disposal facility [Section 7(2)].

The Minister for Health, through the State Public Health and Medical Officer Service, is responsible for licensing and monitoring the siting, construction, commissioning, operation, modification and closing of radioactive waste disposal facilities [Section 20(1)(d)]. Pursuant to Section 21 of the Act, other ministers and authorities are responsible for enforcing specified aspects associated with the licensing of the waste disposal facility. For details, see, *infra*, Part II of this Study "Institutional Framework", Section 1 "Regulatory and Supervisory Authorities".

A licence for the application of nuclear energy will only be granted if the safe interim storage or final disposal of the radioactive waste or spent fuel can be assured in accordance with the most recent scientific knowledge and experience [Section 38(1)]. Under the Act, the interim storage and final disposal of radioactive waste and spent fuel shall be considered safe if (a) the protection of human health and the environment is ensured during the whole period of these activities, and (b) the effect on human health and the environment is not higher beyond the country's borders than that accepted within the country [Section 38(2)].

Facilities for the interim storage or final disposal of spent fuel are nuclear facilities and the Nuclear Safety Directorate of the HAEA may regulate their operation. The interim storage of radioactive waste and spent fuel is licensed only for a limited period of time [Section 39]. In recognition of the importance of this issue on the national scale, the Act provides that the performance of tasks related to the final disposal of radioactive waste, as well as the interim storage and final disposal of spent fuel and decommissioning of a nuclear facility, will be restricted to an organisation designated by the government [Section 40].

The licensee is liable to cover the costs of the final disposal of radioactive waste, as well as the interim storage and final disposal of spent fuel (or, in the case of organisations funded by the national budget, the costs will be funded by the budget) [Sections 41 and 63(1)]. For this purpose the Central Nuclear Financial Fund (*Központi Nukleáris Pénzügyi Alap*) was established (as of 1 January 1998). The fund is managed by the HAEA and is a separate state fund pursuant to Act XXXVIII of 1992 on Public Finance, exclusively earmarked for financing the construction and operation of facilities for the final disposal of radioactive waste, as well as for the interim storage and final disposal of spent fuel, and the decommissioning of nuclear facilities [Section 62]. Payments into the fund by licensees of nuclear facilities will be determined in such a way that the fund fully covers all the costs arising from the waste management, interim storage and final disposal of spent fuel, both during the operation of

the facility and at the time of its decommissioning [Section 63(2)]. In the case of a nuclear power plant, payments made by the licensees to the fund should be taken into account when pricing electricity [Section 63(4)]. Order No. 67/1997 (XII.18) IKIM of the Minister for Industry, Trade and Tourism specifies the rules on the operation and administration of this Fund.

Governmental Resolution No. 2414/1997 (XII.17) Korm. authorises the Director-General of the HAEA to establish the Public Agency for Radioactive Waste Management (PURAM). In accordance with the relevant government decrees and resolutions [see Governmental Decree No. 240/1997 (XII.18) Korm. on Establishment of the Organisation Designated for Implementing Radioactive Waste Disposal and Spent Fuel, as well as Decommissioning of Nuclear Installations, and on the Financial Resources Necessary to Perform these Tasks], the PURAM attends to the planning, construction and management duties associated with the storage and disposal of radioactive waste and spent fuel. It is also responsible for activities related to the decommissioning of nuclear facilities, as well as for the operation of the Püspökszilágy Radioactive Waste Treatment and Disposal Facility and the Interim Storage Facility for Spent Fuel located at the Paks Nuclear Power Plant. The PURAM's duties include preparation of the annual, intermediate and long-range plans for the Central Nuclear Financial Fund.

Detailed regulations for radioactive waste management will be set out in a special Ministerial Ordinance currently under preparation. Until its entry into force the regulations laid down in Ordinance No. 7 of 20 July 1988 of the Minister for Health remain applicable, with the exception of those parts of Ordinance No. 7 which were already replaced by Ordinance No. 16/2000 (VI.8) EüM. Some special geological aspects are regulated by the Ordinance of the Minister for Industry, Trade and Tourism No. 62/1997 (XI.26) IKIM on the Geological and Mining Requirements for the Siting and Planning of Nuclear Facilities and Radioactive Waste Disposal Facilities.

In the past, spent fuel from the Paks plant was sent back to Russia for reprocessing. In 1992, however, Russia passed legislation prohibiting the import of foreign radioactive waste, and since that time the reshipment has required lengthy, case by case, negotiation. At the same time Ukraine became a transit state and a trilateral governmental agreement was concluded between the Russian Federation, Ukraine and Hungary to provide an appropriate legal framework for the shipments. With storage space in its spent fuel pools running low, and future acceptance of spent fuel by Russia uncertain, the Paks plant awarded a contract to GEC Alstom Engineering Systems in 1992 for the construction of a modular vault dry storage system. The HAEC issued a licence for the commissioning of the facility in February 1997. The first fuel assemblies were received by the facility in September 1997, and seven modules are currently in operation (each of which can store 450 assemblies) with a further four modules under construction.

In 1993, a national project was launched to select a site for the disposal of low and intermediate level waste from the nuclear power plant, and exploratory work is now under way to identify a site for detailed research. A site for a high-level waste repository in the Mecsek Mountains is also under preliminary study.

On 2 June 1998, Hungary ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. It has also been a Party to the 1972 London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter since 6 March 1976, following its ratification on 5 February 1976.

## **8. Non-Proliferation and Physical Protection**

Hungary ratified both the 1968 Treaty on the Non-Proliferation of Nuclear Weapons, on 27 May 1969, and the 1996 Comprehensive Nuclear Test Ban Treaty, on 13 July 1999. It also ratified the 1979 Convention on the Physical Protection of Nuclear Material on 4 May 1984.

As a non-nuclear weapon state it has subjected all of its nuclear activities to the provisions of the safeguards agreement, which it signed with the IAEA on 30 March 1972, and obliged itself to keep strict accountancy and control of all nuclear materials. The Act and its executive orders make the Director-General of the HAEA responsible for these actions. The General Nuclear Directorate (more precisely, the Department of Nuclear and Radioactive Materials) of the HAEA runs the State System of Accountancy and Control. Hungary signed the Additional Protocol to the Safeguards Agreement with the IAEA [Act No. XC of 1999] and it entered into force on 4 April 2000.

Hungary also contributes to the international control of nuclear materials through its export and import controls, which include the requirements and the trigger list of the Nuclear Suppliers Group, as well as the Zangger Committee list. It also takes into account similar regulations and controls of the European Union. Pursuant to Decree No. 121/1997 (VII.17) Korm. issued under the Act, in the case of nuclear exports or imports, the prior approval of the Department of Nuclear and Radioactive Materials of the HAEA is required in the general licensing procedure for internationally controlled goods and technologies carried out by the Export Control Office of the Ministry for Economic Affairs.

Express provision is made in the Act for the guarding and protection of nuclear facilities. This is stated to be the responsibility of the licensee, as required in separate regulations, through the use of armed security guards [Section 30(1)]. In addition, the Act provides for the possibility of protection of nuclear facilities, pursuant to separate legislative provisions, by the national security services [Section 30(2)]. The Act empowers the police to monitor compliance with regulations relevant to public security and domestic order [Section 30(3)]. The police, pursuant to separate regulations, are also responsible for issuing an approval, as a special authority, for nuclear facilities and facilities used for the final disposal of radioactive waste [Section 30(4)]. Similarly, the police, under separate regulations, issue licences for transporting fresh and spent nuclear fuel within Hungary and across its borders [Section 30(5)]. Further details are governed by separate regulations, namely Ordinance No. 47/1997 (VIII.26) BM of the Minister for the Interior on the Tasks of the Police in connection with the Use of Atomic Energy.

## **9. Transport**

The HAEA is responsible under the Act for the licensing of nuclear exports and imports, transport of radioactive materials in accordance with the regulations for the transport of dangerous goods, and for the approval and inspection of packaging of radioactive materials [Section 17(2)(h)-(j)]. The approval of the packaging and the notification of their transport are performed by the Department of Nuclear and Radioactive Materials of the HAEA, with the expert support of the Institute of Isotopes and the Surface Chemistry Research Centre of the Hungarian Academy of Sciences.

There are a number of relevant international transport regulations in force, implemented by the following:

- Ordinance No. 20/1979 (IX.18) of the Minister for Transport, Communication and Water Management, which implements the provisions of the European Agreement concerning the International Carriage of Dangerous Goods by Road;
- Ordinance No. 2/1982 (II.22) of the Minister for Transport, Communication and Water Management, which implements the provisions of the draft European Agreement on the International Carriage of Dangerous Goods by Inland Waterway; and
- Ordinance No. 12/1990 (IV.30) of the Minister for Transport, Communication and Water Management, which implements the provisions of the International Regulations concerning the Carriage of Dangerous Goods by Rail.

Further Ordinances by the Minister for Transport and Water Management include:

- No. 13/1997 (IX.3) KHVM on Promulgation of the Regulation on the Safe Transport by Railway of Spent Nuclear Fuel;
- No. 14/1997 (IX.3) KHVM on Transport, Carriage and Packaging of Radioactive Material, as amended by Ordinance No. 11/2000 (XI.10) KöViM.

## **10. Nuclear Third Party Liability**

Hungary was the first Eastern European State to become a Party to the 1963 Vienna Convention on Civil Liability for Nuclear Damage (accession on 28 July 1989) and to the 1988 Joint Protocol on the Application of the Vienna Convention and the Paris Convention (approved on 26 March 1990).

Chapter V of the Act implements these international obligations. Thus, there is strict liability, channelled to the licensee (operator) of the nuclear facility, for all nuclear damage, except as provided for by the Act [Sections 48(1) and 51]. In the case of international carriage, the location where the liability is transferred is required to be stated in the contract [Section 48(2)]. Exemptions from liability are limited to external causes (armed conflict, war, civil war, armed uprising or a grave natural disaster of an extraordinary character) or if the damage suffered by the injured party was caused by the injured party's gross negligence, or is the consequence of a wilful and unavoidable act or omission of the injured party which was expressly aimed at creating the danger [Section 49].

The liability of the licensee is limited to Special Drawing Rights (SDR) 100 million per nuclear accident arising in a nuclear facility, and SDR 5 million per accident arising during the transport or storage of nuclear fuel. Nuclear damage in excess of this amount will be compensated by the state, provided the total amount does not exceed SDR 300 million. Compensation will be paid in Hungarian currency, based on the official exchange rate with the SDR [Section 52].

Where damage is caused by another event jointly with the nuclear accident, and the two cannot be separated, the damage caused by the other event will be classed as nuclear damage. Two or more nuclear facilities operated at the same site by the licensee will be treated as one nuclear facility for the purposes of compensation [Section 53(4)].



If there is nuclear damage falling outside the scope of the Act, the person responsible for the release of ionising radiation is liable therefor under Section 345 of the Civil Code [Section 53(1)].

The licensee is obliged to provide for insurance or another form of financial security up to the amount of compensation specified in Section 52 of the Act [Section 54(1)]. The insurer or financial guarantor is not permitted to suspend or cancel the insurance or financial security without giving at least two months notice in writing to the HAEA and the licensee [Section 54(2)], or in the case of carriage of nuclear materials, it may not be cancelled or suspended during the period of carriage [Section 54(3)].

The amount of liability under Section 52 of the Act does not include the interest and costs associated with the nuclear damage, as determined by the relevant court [Section 56(1)]. If the amount available for compensation is not enough to satisfy the entitlements of the injured parties, then the amount due to each of them will be reduced proportionately [Section 56(3)].

Injured parties may claim their right to compensation within a three year limitation period, commencing on the date when the injured party learned or could have learned of the occurrence of the damage and the identity of the licensee responsible; the licensee shall not be liable for damage after ten years from the date of the occurrence of the nuclear accident [Section 57(1) and (2)]. If the nuclear damage was caused by an abnormal event resulting from nuclear material which was stolen, lost, jettisoned or abandoned at the time of the abnormal event, the period of limitation shall commence from the date of the abnormal event, but shall not exceed twenty years from the date of the events listed [Section 57(3)].

No compensation is due to any party that has received full compensation for the same nuclear damage under any other cause of action [Section 59]. The Municipal Court of Budapest has exclusive jurisdiction to judge compensation claims under the Act [Section 65(1)] Governmental Decree No. 227/1997 (XII.10) Korm. on the Features, Conditions and Amounts of the Insurance or Other Financial Security related to Liability for Nuclear Damage provides for further details.

As regards insurance against nuclear liability claims, eleven Hungarian Insurers representing the vast majority of the Hungarian insurance market's non-life capacity, established the Hungarian Nuclear Insurance Pool at the end of 1996, the so-called "Hungarian Atomic Pool". The Pool is based on the fundamental principles common to all nuclear pools and is organised and managed by the Hungaria Insurance Co., the largest of such companies. The Hungarian Pool provides third party liability coverage for the Paks nuclear power plant in accordance with the Act. Property insurance is expected to be provided in the future as well. The Paks nuclear power plant is the first Russian designed plant to have third party liability insurance cover.

## II. INSTITUTIONAL FRAMEWORK

### 1. Regulatory and Supervisory Authorities<sup>2</sup>

#### a) *Hungarian Atomic Energy Commission (HAEC)*

Under the Act, the Hungarian Atomic Energy Commission – HAEC (*Országos Atomenergia Bizottság*), as a governmental committee, has various roles which are described in broad terms [Section 8(2)]. In its policy role, it is obliged to take a position on government proposals and programmes involving the use of nuclear energy and on issues of national and international significance related to regulating the use of nuclear energy, nuclear safety and radiation protection. It is also required to monitor international trends in the field of nuclear energy and make proposals to the government for corresponding domestic measures [Section 8(2)(a)]. The HAEC co-ordinates activities related to the safe use of nuclear energy which fall within the scope of authority of the government, the HAEA and other bodies stipulated in the Act [Section 8(2)(b)]. Finally, in its role as controller, it monitors in particular the enforcement of regulations related to the use of nuclear energy, and, based on the findings arising out of its inspections, it initiates actions and makes proposals for amendment of the applicable legislation or draws up new draft legislation [Section 8(2)(c)].

The President of the HAEC is appointed by the Prime Minister. The members of the HAEC are senior officials of the Ministries and central public administration organisations performing regulatory tasks pursuant to the Act. They are appointed by the ministers and directors of the organisations concerned, with the agreement of the President of the HAEC [Section 8(1)]. The President of the HAEC presents an annual report to the National Assembly on the safe use of nuclear energy [Section 8(7)]. Presently, the President of the HAEC is the Minister for Economic Affairs, who performs this task independently of his responsibilities as Minister.

#### b) *Hungarian Atomic Energy Authority (HAEA)*

The Hungarian Atomic Energy Authority – HAEA (*Országos Atomenergia Hivatal*) plays a central role in the regulation of the use of nuclear energy in Hungary [Section 6]. Pursuant to the Act, it regulates certain activities (in particular, the licensing of nuclear facilities) and co-ordinates the regulation of other activities by Ministries and administrative bodies specified under the Act and regulations [Sections 17 and 19].

The Director-General and the Deputies of the HAEA are appointed by the Prime Minister. The government exercises supervision over the HAEA through the President of the HAEC [Section 8(6)], who is one of the members of the government [Section 8(1)].

Within the HAEA, the Nuclear Safety Directorate (NSD) makes decisions in the first instance on licensing and enforcement matters. The Director-General of the HAEA is the decision maker in the

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2. In addition to the ministers and authorities specifically listed, the building authority responsible for the area concerned is responsible for enforcing the general considerations related to regional planning and building [Sections 19(2)(g) and 21(f)].

event of an appeal against the decision of the NSD and there is the further possibility of a final appeal to the administrative court.

The NSD established a multipurpose Centre for Emergency Response, Training and Analysis equipped with hardware and software tools for independent analysis of abnormal events and accidents, giving estimations on the duration of incidents, and the possible escalation of the consequences of accident scenarios (by calculating source term), and by predicting environmental effects and proposing appropriate interventions. The centre also serves for the training of regulatory staff members using simulators and provides them with Probabilistic Safety Assessment based tools to assist in their everyday decision-making work.

The General Nuclear Directorate of the HAEA, through its Department of Nuclear and Radioactive Materials, runs the State System of Accountancy and Control of nuclear materials and the Central Registry of radioactive materials from their production to their disposal as radioactive waste.

The HAEA co-ordinates and supervises research and development in all fields of nuclear safety. It is also responsible for financing the scientific and technical work as support for the regulatory and nuclear emergency preparedness tasks.

**c) *Minister for Health***

The Minister for Health has responsibility for the licensing and monitoring of a number of nuclear activities specified in the Act [Section 20]. These include the ownership, production, possession, storage, use, and distribution of radioactive materials, as well as, *inter alia*, the ownership and use of equipment generating ionising radiation [Section 20(1)(a) and (c)]. Of particular importance is the Minister's power to licence and monitor radioactive waste disposal facilities [Section 20(1)(d)] and to supervise occupational radiation protection services and other matters related to radiation hygiene [Section 20(1)(e)-(h)].

**d) *Minister for the Interior***

The Minister for the Interior, through the offices of the National Police Force and the Directorate General for National Emergency Management (including the Fire Protection and Civil Defence Service), enforces those licensing aspects of nuclear facilities, nuclear equipment, radioactive materials and radioactive waste disposal facilities relating to public and domestic order, fire protection, physical protection, security, civil defence and nuclear emergency management [Sections 19(2)(a), 21(a) and 22].

**e) *Minister for Agriculture and Regional Development***

The Minister for Agriculture and Regional Development, through the offices of the Animal Health and Food Control Stations, enforces those licensing aspects of nuclear facilities, nuclear equipment, radioactive materials and radioactive waste disposal facilities associated with the use of nuclear energy relating to food, plant and animal hygiene, as well as soil protection [Sections 19(2)(b), 21(b) and 23].

**f) *Minister for Economic Affairs***

The Minister for Economic Affairs, through the Hungarian Geological Survey, enforces those licensing aspects of nuclear facilities, nuclear equipment, radioactive materials and radioactive waste disposal facilities relating to geology [Sections 19(2)(c) and 21(c)] and generally is responsible for the inspection of radioactivity of raw materials used or imported for the production of building materials [Section 24].

**g) *Minister for Transport and Water Management***

The Minister for Transport and Water Management, in respect of HAEA licences, enforces those licensing aspects of nuclear facilities and nuclear equipment and radioactive materials associated with water utilisation, protection of ground water and mitigation of water damage [Section 19(2)(d)] and, in respect of licences issued by the Minister for Health, including licences issued for radioactive waste disposal facilities, enforces those aspects related to traffic and transport as well as the previously mentioned matters relating to water supplies [Section 21(e)].

**h) *Minister for the Environment***

The Minister for the Environment, in respect of licences issued by the HAEA and by the Minister for Health, enforces those licensing aspects of nuclear facilities, nuclear equipment, radioactive materials and radioactive waste disposal facilities relating to environment protection, nature conservation and water quality protection [Sections 19(2)(e) and 21(d)] and is generally responsible for the inspection of the radioactive contamination of the air, land and water environments [Section 25].

**i) *Minister for Defence***

The Minister for Defence, as detailed in separate regulations, is responsible in defence matters for the control of handling of radioactive materials, as well as for the construction, operation and closing down of military facilities and equipment which fall within the scope of the Act. In respect of the Hungarian Army, the Medical Officer's Service of the Army performs the same tasks handled by the Minister for Health in the civilian context under Section 20 of the Act, other than in respect of radioactive waste disposal facilities or the central collection and processing of data relating to a national radiation situation [Section 26].

**j) *Minister for Education***

The Minister for Education is responsible for integrating into the National Master Curriculum the requirement to provide education on the scientific, technical and radiation protection aspects of the use of nuclear energy. The Minister also regulates higher and postgraduate education in the field of the application of nuclear energy in co-operation with the relevant professional institutions and ministers [Section 28].

**k) *President of the Hungarian Mining Authority***

The President of the Hungarian Mining Authority (*Magyar Bányászati Hivatal*) is responsible for enforcing the technical and safety considerations relating to mining under the licence regime administered by the HAEA [Section 19(2)(h)] and the licensing regime administered by the Minister for Health [Section 21(g)].

**l) *President of the National Measurement Authority***

The President of the National Measurement Authority (*Országos Mérésügyi Hivatal*), as determined in separate regulations, is required to perform the regulatory tasks related to measuring instruments in connection with the use of nuclear energy [Section 27].

**m) *Governmental Co-ordination Committee***

The Governmental Co-ordination Committee, responsible for emergency management, is headed by the Minister for the Interior; his deputy in the event of nuclear emergencies is the Director General of the HAEA. The Committee consists of high-ranking representatives of the ministries and national organisations involved in the particular catastrophe. Two sub-committees of the Governmental Co-ordination Committee – the National Defence Committee and the Operational Staff – serve as vehicles to assist decision-making in the event of a nuclear emergency. These sub-committees include expert representatives of the ministries and national organisations involved in nuclear emergencies among their members.

The Directorate General for National Emergency Management manages a Nuclear Emergency Information Centre which is also responsible for decision-making, together with the National Environmental Radiation Monitoring System and the Centre of Emergency Response, Training and Analysis of the HAEA. The HAEA furthermore serves as the International Contact Point.

**2. *Advisory Bodies***

***Scientific Board***

The Scientific Board is the advisory body of the HAEC and the HAEA on all matters of importance concerning the safe use of nuclear energy. It consists of prominent members of the Hungarian Academy of Sciences, research institutions and universities. It is convened two or three times a year and formulates directives on current issues.

**3. *Public and Semi-Public Agencies***

**a) *Institute for Electric Power Research (VEIKI)***

VEIKI was established in 1964. It has been functioning as a company with share capital since 1 January 1993, with its shares being fully owned by the state. The capital of the company is 330 million Hungarian Forint (HUF).

VEIKI is responsible for solving the operational problems of power plants (both conventional and nuclear). In the nuclear field its main duty is the independent evaluation of safety of VVER-type nuclear power plants, as well as the development of methods necessary for the evaluations. VEIKI acts as one of the technical support organisations of the HAEA.

About 10% of VEIKI's annual income comes from the state budget, with the major part of the remainder coming from contracts with domestic industry. Less than 10% of its budget is derived from international projects (PHARE, US DOE, IAEA, bilateral contracts).

**b) *Atomic Energy Research Institute (AEKI)***

AEKI is one of the research institutes of the Hungarian Academy of Sciences. It is responsible for independent nuclear safety research in Hungary and for the operation of the Budapest Research Reactor. An additional responsibility of AEKI is to act as the technical support organisation of the HAEA.

This Institute takes part in various European Union projects (4<sup>th</sup> and 5<sup>th</sup> Framework Programmes etc.).

**c) *Institute of Isotope and Surface Chemistry***

The Institute of Isotope and Surface Chemistry, within the Chemical Research Centre of the Academy of Sciences, provides expert advice through its laboratories to the HAEA and conducts related research and development in the following areas:

- illicit trafficking of nuclear and radioactive materials;
- safeguards-related measurement techniques;
- computerised accountancy of radioactive materials at national level;
- nuclear material accountancy at the level of a material balance area.

**d) *Department of Physical Chemistry of the University of Veszprém (Ve)***

The Department of Physical Chemistry of the University of Veszprém was established in 1950. The research activity of the Department in the field of nuclear corrosion processes started in 1980. During the initial period, special attention was paid to the water chemistry problems of VVER-type reactors, and a close relationship was built up between this Department and the Paks Nuclear Power Plant during the years. Since the early nineties, the Department has also developed co-operation activities with the Department for Energy of the Technical University of Budapest, resulting in the development of new secondary water chemistry of the Paks NPP.

In 1998, the Department became the technical support organisation for the HAEA. Its main research fields are primary and secondary water chemistry of VVER-type reactors, corrosion problems of stainless steel, concrete, and coatings.

**e) *Hungarian Power Companies Ltd. (MVM Rt.)***

The MVM company was restructured as part of the country's move towards a market economy. It became a company with share capital on 1 January 1992, with the government holding all the shares. MVM Rt. was a holding company with its subsidiaries consisting of eight generating corporations, six regional distribution corporations and one transmission system corporation. In April 1994, the Hungarian Parliament adopted a new electricity law, clearing the way for the sale of MVM Rt.'s non-nuclear subsidiaries.

In recent years there have been significant changes in the Hungarian power system and in the environment determining its operation. The system has operated under new regulations since 1995. The first phase of privatisation, which concerned each of the six regional power distribution companies and six of the eight power plant companies, has been completed. The majority of these companies have become the property of trade investors. The nuclear power station (Paks Nuclear Power Plant Ltd.) and the transmission system company (National Power Line Company Ltd.) are almost 100% owned by MVM Rt. The new regulations and the privatisation created the necessary conditions for operating the electricity industry in a competitive environment. The transformation of the industry was performed without jeopardising the security of the consumers' supply.

According to the regulations in force, the basic role of MVM Rt. is to control the operation of the national power system, as well as electricity transmission and wholesale. This includes *inter alia* electricity export and import. MVM Rt. purchases electricity from the power plants or import sources, and sells it to the distribution companies. During its operation, MVM Rt. must ensure the optimal utilisation of the power plants and the national grid, at the lowest possible cost.