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NUCLEAR LEGISLATION IN OECD COUNTRIES

Regulatory and Institutional Framework for Nuclear Activities

Belgium

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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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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BELGIUM

This chapter was last revised in 2003 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

There are currently seven units producing nuclear energy through the use of Pressurised Water Reactors (PWR) in Belgium, four located in Doel and three in Tihange, with a total installed capacity of 5 728 MWe. The reactors, owned and operated by Electrabel, provided 57% of the total electricity production in 2002.

In addition, there are four research reactors operating in Belgium. At the Nuclear Energy Research Centre (*Centre d'études de l'énergie nucléaire* – CEN) in Mol-Dessel there is a zero-power reactor (BR1), a material test reactor (BR2) and a research pressurised water reactor (BR3), which is in the process of being decommissioned. There is also a research reactor (THETIS) located at the University of Gand.

Belgonuclaire, a firm operating out of Mol-Dessel, specialises in the production of mixed oxide fuel (MOX) for light water reactors. Finally, a portion of the radioactive waste produced in Belgium is treated by Belgoprocess, a branch of the National Organisation for Radiactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF). A study on the storage of vitrified high-level waste and spent fuel deep geological repository on the Nuclear Energy Research Centre is in progress. The waste is currently stored in Belgoprocess' temporary storage facilities.

In Belgium, nuclear energy is not a state monopoly. Most nuclear power production is in private hands, although under the surveillance of public authorities.

The principal federal authority for nuclear activities is the Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire* – AFCN), a public interest organisation under the authority of the Minister for Home Affairs.

The legislative and regulatory framework has evolved in line with developments in nuclear science and technology. Until 1994, the pillar of Belgian nuclear legislation was the Act of 29 March 1958 on Protection of the Public against the Hazards of Ionising Radiation, as amended. In implementation of this act, the Royal Order of 28 February 1963 laying down General Regulations concerning the Protection of the Public and Workers against the Hazards of Ionising Radiation, as amended, constituted the basic law regulating the nuclear field as a whole. In particular, it governed the licensing of nuclear installations, radiation protection, radioactive waste management, the import, transit and distribution of radioactive substances as well as their transport, and appropriate penal provisions. On 15 April 1994, the parliament passed an Act on the Protection of the Public and the Environment against Radiation and relating to the Federal Agency for Nuclear Control. This act,

which has been amended several times since 1994, repeals and replaces the basic Act of 29 March 1958.

On 1 September 2001, the Royal Order of 20 July 2001 containing the General Regulation on the Protection of the Public, Workers and the Environment against the Hazards of Ionising Radiation was promulgated; thereby replacing the former Order of the same title from 1963. As of this date the Act of 1994 and its Executory Orders came into effect and the AFCN became operational.

Belgium underwent a significant change in its energy policy on 31 January 2003 with the adoption of the Act on the Phase-out of Nuclear Energy for the Purposes of the Industrial Production of Electricity. It is appropriate to mention here the role played by the Commission for the Analysis of the Modes of Electrical Production and Redeployment of Energy (AMPERE Commission) that was instituted by the Royal Order of 19 April 1999. This Commission was appointed to examine the feasibility of implementing a plan under which nuclear power plants would be shut down after 40 years of service. Its mandate concerned studying the general economic and energy context, the demand for electricity in Belgium and electricity production technologies.

The final report of the AMPERE Commission was published in October 2002. The Commission concluded, “to ensure the operational safety of the electro-nuclear sector, public safety and health, it is necessary to maintain a scientific and technological capacity which will allow electricity producers to ensure that their production takes place in the most efficient manner possible and under optimum safety conditions.”

The Act of 31 January 2003 only applies to the industrial production of electricity that results from the fission of nuclear fuel. It provides that the oldest nuclear power plant (namely Doel 1) will be deactivated beginning in 2015. The other plants will then follow according to the date upon which they entered into service, so that in 2025, no nuclear power plants will be in operation in Belgium.

Two closely related principles are established in the second chapter of the Act:

- Section 3 states that no new nuclear power plant for the industrial production of energy resulting from the fission of nuclear fuel may be established or operated;
- Section 4 states that existing nuclear power plants should be deactivated and may no longer produce industrial electricity 40 years after their entry into service. In practice, this provision refers to the four nuclear power plants at Doel and the three plants at Tihange.

The act provides that all individual operating licences for the industrial production of electricity, granted in the past for an unlimited period, will expire 40 years after the date of entry into industrial service of the installation concerned. Section 9 of the act empowers the King to postpone the planned closure of nuclear power plants in the case of *force majeure* and, if necessary, to authorise the construction of new nuclear power plants (upon Royal Order examined in the Council of Ministers).

The Act of 31 January 2003 makes some amendments to the Act of 15 April 1994 on Protection of the Public and the Environment against Radiation and relating to the Federal Agency for Nuclear Control and the Act of 29 April 1999 on the Organisation of the Electricity Market.

The Act of 11 April 2003 on funds for the dismantling of nuclear power plants and the management of irradiated fissile materials in such plants completes this framework.

2. Mining Regime

Belgian regulations concerning prospecting and the export of ores contain no special provisions regarding nuclear ores.

3. Nuclear Installations

a) Licensing and inspection, including nuclear safety

The basic Belgian legislation in the field is found in the Royal Order of 20 July 2001 establishing the General Regulations on Protection of the Public, Workers and the Environment against the Dangers of Ionising Radiation, which implements the above-mentioned Act of 15 April 1994, as modified.

Civil nuclear installations are categorised in Classes I to IV according to their nature and the quantity of radioactive substances held at the installation. Installations within Classes I to III are subject to a prior licensing system consisting of two phases. First, one must obtain a licence for the establishment and operation of the site permitting construction of the installation. Second, one must receive confirmation of this licence after delivery of the installation, which thereby allows for the delivery of radioactive substances to the installation and its start-up. Class IV installations, which use smaller quantities of radioactive materials, are exempt from this system.

Since the adoption of the Act of 31 January 2003 on the Phase-out of Nuclear Energy for the Purposes of the Industrial Production of Electricity, no new nuclear power plants may be built and/or put into operation for the purpose of producing industrial electricity. In addition, the nuclear power plants in use will be shut down forty years after the date of their entry into service and may not be used to produce electricity after that time.

Class I installations include nuclear reactors (with the exception of reactors for the production of industrial electricity, which are now prohibited); installations in which the quantities of fissile substances processed or held are above half the minimum critical mass; plants for the reprocessing of enriched or non-enriched irradiated nuclear fuel; centres where the primary activity of the company is to collect, treat, condition, store or manipulate radioactive waste; and final disposal sites for radioactive waste. Licensing requests for Class I installations are sent to the Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire* – AFCN), and detailed requirements for such requests are found in the General Regulations [Section 6.2]. The decision to grant a licence for a Class I installation is made by the King, in the form of an order countersigned by the Minister of the Interior [Sections 6.1 and 6.7] with advice of the Scientific Board of the Agency and the European Commission [as provided for under Section 37 of the Euratom Treaty]. The ruling is made following a public inquiry and consultation with the Board of Aldermen (*collège échevinal*) of the communities located within a five-kilometre perimeter around the installation, as well as a Provincial Executive Body (*députation permanente du Conseil provincial*) [Sections 6.3 and 6.6]. The Scientific Board may affix conditions to its authorisation, for example, making authorisation contingent upon the results of a safety report [Section 6.7].

Licenses to establish and operate Class II installations are granted by the AFCN upon consultation with the Board of Aldermen of the community located within a range of 100 metres surrounding the installation [Section 7.3.1]. Certain Class II installations require an environmental

impact study, for example those in which radioactive substances are produced from irradiated fissile material and where such material is processed for sale, and particle accelerators or installations that use or hold radionuclides whose activity total exceeds 500 000 times the fixed exemption level. In addition, before granting a licence, the Agency takes into consideration the opinion of the Board of Aldermen from the community or communities located within a range of 500-metres surrounding the installation and a public inquiry is made in the community. If the installation may affect a neighbouring state, it should be consulted. Finally, pursuant to Section 37 of the Euratom Treaty, the Agency solicits the opinion of the European Commission [Section 7.3.2].

Class III nuclear installations, such as those in which certain X-ray producing machines are used, must be notified to the AFCN to obtain a licence for their establishment and operations [Section 8].

The installations in which professional activities making use of natural radioactive sources are performed [Section 4] must be notified to the Agency within a set time limit [Section 9]. The Agency can impose corrective measures if the fixed dose limits for the public and exposed professionals are, or may be, exceeded [Section 9.3].

In the case of ceasing all activity, the operators of Class I, II and III installations, as well as the operators performing professional activities which use natural radioactive sources, must notify the Agency and the National Organisation for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles enrichies* – ONDRAF) [Section 17.1]. The dismantling of Class I and II installations is subject to authorisation delivered by the King or AFCN [Section 17.2].

The Law of 15 April 1994 entrusts the AFCN with the mission to inspect nuclear installations [see Part 2 “Institutional Framework” *infra*]. It now undertakes all investigations that were previously performed by two public services, namely, the Special Committee on Ionising Radiation and Provincial Advisory Committees on Nuclear Installation.

Supervision to ensure observance satisfactory operation of safety and protection systems in nuclear installations is entrusted to experts in the particular firm’s health service. The operators of Class I installations are required to employ their own health service, headed by an expert certified by the AFCN, which inspects the performance of such services. In Class II and III installations, the operator is not subject to the same requirement, however, if a Class II installations employs such a service headed by an expert certified by the AFCN, then it is subject to a similar inspection. Where there is no such service, inspections are entrusted to accredited private bodies that are supplemented by a final inspection at the AFCN level. Nuclear inspectors examine the operator’s compliance with regulations and make use of private recognised bodies for the assessment.

At the international level, Belgium ratified the 1994 Convention on Nuclear Safety on 13 January 1997.

b) *Protection of the environment against radiation effects*

There is no specific legislation in Belgium concerning the protection of the environment against radiation. This subject is dealt with throughout the whole of related legislation, and in particular the Royal Order of 20 July 2001 containing the General Regulation on the Protection of the Public,

Workers and the Environment against the Hazards of Ionising Radiation. Notably, Part IV “Radioactive Waste” [Chapter III] includes provisions [Sections 34(1), 34(2), 34(3), 36(1) and 37(3)] which prohibit the release of liquid radioactive waste into surface waters, soil, sewers or underground conduits and prohibits the discharge of radioactive substances in the atmosphere in the form of gas, dust, smoke or vapour, when their radionuclide content or radioactive substances exceed a certain maximum permissible concentration. They also prohibit the storage of radioactive waste on the surface or underground.

c) *Emergency response*

Section 72 of the General Regulation on the Protection of the Public, Workers and the Environment against the Hazards of Ionising Radiation governs emergency response.

A Royal Order of 17 October 2003 on emergency response to nuclear risks in Belgian territory succeeds the prior plan laid down by the Royal Order of 27 September 1991. This emergency plan is to serve as a guide for the measures to be taken whenever necessary to protect the public and the environment [Annex, Section 1(2)]. It establishes the duties of the different services and bodies, in accordance with their responsibilities under national laws and regulations, and describes the general organisation. The plan is to be supplemented by intervention plans at the different levels involved: the provincial authorities, the communal authorities and the different institutions concerned [Annex, Section 1(3)(2)]. It is the Minister of the Interior’s responsibility to decide on projects thus established [Section 2]. This Minister is also responsible for co-ordinating all measures required to implement the emergency plan [Annex, Section 2(1)(1)]. The Federal Agency for Nuclear Control is responsible for examining radioactivity for the entirety of the territory. It is also charged with co-ordinating in the establishment and updating of the national emergency plan for nuclear risks. The AFCN organises a consultative group for the emergency plan and presides over it. In case of an accident, it is this group’s task to put into effect all logistical means necessary, in terms of manpower and material, to evaluate the situation of land at risk of radiation contamination or which has been contaminated by radioactive waste.

The plan mainly concerns large nuclear installations and the transport of nuclear fuels and radioactive materials, although lower risks from other activities are also covered [Annex, Sections 1(3)(1) and 1(3)(2)].

At the international level, it is of relevance to note that Belgium is a Party to both the 1984 Convention on Early Notification of a Nuclear Accident and the 1984 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency since 4 January 1999.

d) *Decommissioning*

Pursuant to the Royal Order of 30 March 1981 determining the Duties and Conditions of Operation of the Public Body Responsible for Radioactive Waste and Fissile Materials Management (ONDRAF) modified by the Royal Decree of 16 October 1991, ONDRAF is the institution with jurisdiction over the decommissioning of nuclear installations.

All nuclear installation operators, including anyone applying to operate a nuclear installation, must provide ONDRAF with all information relating to the planned decommissioning of their

installation; the nature and quantities of resulting waste and the date of the waste's transfer to ONDRAF. Such information must be provided within a reasonable time and in any case no later than three years before the installation's final closure. ONDRAF shall also establish, in consultation with the operators concerned, the financing conditions for decommissioning nuclear installations that have been closed-down and for the management of their waste. The operators of nuclear power plants are exempted from this provision, but must provide ONDRAF access with the information necessary to carry out its responsibilities in this regard.

ONDRAF shall come to an agreement with each operator of a nuclear installation defining the nature of this information. In case the operator, or the party financially responsible for the installation to be closed down, wishes to transfer the carrying out of these activities, ONDRAF and the operator negotiate an agreement defining the technical and financial terms of shutting down the installation.

Financing for the cleaning-up of the Eurochemic re-treatment pilot plant, the Nuclear Energy Research Centre (*Centre d'études de l'énergie nucléaire – CEN*) installations (including the former "Waste" Department installations such as BR 1, BR 2, BR 3, high- and medium-level activity laboratories, etc.) and the National Radioisotope Institute (*Institut national des radioéléments – IRE*) installations, including the resulting waste, are insured as follows:

Regarding the former Eurochemic plant and the former "Waste" department (called passive BP 1/BP 2), Section 432 of the provisional law of 24 December 2002 provides for the levy of an excise tax, called federal dues, which is calculated on the basis of kWh consumed. These dues constitute a fund intended to finance responsibilities resulting from the decommissioning of the BP 1 and BP 2 sites at Mol-Dessel, as well as the treatment, processing, storage and evacuation of accumulated radioactive waste. The manager of the group shall collect the amount owed as dues and transfer the portion pertaining to BP 1 and BP 2 to ONDRAF who is responsible for their management and cleaning-up.

Beyond the amount fixed for the year 2003, the Royal Order of 24 March 2003 states that the amount intended for the financing of cleaning-up reactors, to be deducted on the basis of kWh consumed, shall be fixed by a Royal Order deliberated in the Council of Ministers on the basis of a five year financing plan set-up by ONDRAF. This plan shall be submitted to the Minister responsible for energy issues, at the latest, six months before the beginning of the period concerned. The manager of the group shall transfer a quarter of the amount to a special ONDRAF bank account at the end of each trimester. This Royal Order was adopted 19 December 2003 and published 31 December 2003 in the Official Journal of Belgium.

Regarding the other CEN installations, the Royal Order of 16 October 1991 regarding the Rules of Control and Mode of Subsidising and Modifying the Status of the Centre defines the *passif technique* in the same way as the debits of BP 1/BP 2. It further states that the Ministers responsible for economic and energy issues shall plan in their annual budgets the grants earmarked for the Centre's *passif technique*. These grants shall be transferred to a special ONDRAF account.

Finally, the Royal Order of 16 October 1991 establishing the IRE Rules of Control and Mode of Subsidising and Modifying the Status of the Centre, contains the same provisions for the former installations of the IRE as those described above for the CEN.

4. Trade in Nuclear Materials and Equipment

Belgium is active in the nuclear equipment and services market and participates in various industrial undertakings in this field.

The Royal Order of 20 July 2001 laying down the general Regulation on Protection of the Public, Workers and the Environment against the Dangers of Ionising Radiation contains provisions relating to radioactive material and nuclear equipment, and in particular [Section 1]:

- to the import, production, manufacture, possession, transport, and use for commercial, industrial, scientific, medical or other purposes, of apparatus, equipment or substances capable of emitting ionising radiation;
- to the offer for sale or assignment for consideration or free of charge, of substances capable of emitting ionising radiation or of apparatus or equipment containing such substances.

The order applies to all natural or legal persons who build and operate nuclear installations using fissile substances, radionuclides or apparatus generating X-rays, facilities for the storage and reprocessing of nuclear fuels and particle accelerators. A licensing system is laid down for each of these activities.

Persons and firms involved in the import into, or transit through Belgium of radioactive substances and apparatus emitting ionising radiation, must be duly licensed by the Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire* – AFCN) [Section 38(1)]. Licences may be either general or specific, and are granted for a given period. Licensing applications must include certain information such as the identity of the applicant, the types of use, the characteristics of the substances and apparatus involved and the insurance policy covering third party liability [Section 38(2)]. Special accounting procedures are used with regard to the delivery of radioactive substances [Section 41]. Importers and distributors are required to supply the AFCN on a monthly basis with information about imports and deliveries made and the consignees involved [Section 42].

Persons in possession of nuclear substances must take the necessary measures to prevent their theft, loss or misuse [Section 66]. Should the need arise, it is the Minister of Interior's responsibility to prohibit the distribution of certain radioactive substances [Section 64(4)].

The order also lays down the special conditions governing the import, transit, export and processing of radioactive wastes.

5. Radiation Protection

The basic legislative instruments in Belgium governing the field of radiation protection are the Act of 15 April 1994 on Protection of the Public and the Environment against the Dangers of Ionising Radiation, and on the Federal Agency for Nuclear Control [*Moniteur belge* of 29 July 1994], as modified, and the Royal Order of 20 July 2001 containing the General Regulation on the Protection of the Public, Workers and the Environment against the Hazards of Ionising Radiation [*Moniteur belge* of 30 August 2001].

The Royal Order of 20 July 2001 ensures the implementation of the Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation and Council Directive 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionising radiation in relation to medical exposure. The order aims to ensure the protection of workers, the public and the environment against the risk of exposure to ionising radiation, emanating from natural or artificial sources, which are associated with practices or professional activities posing such a risk, with emergency interventions or with long-term exposure.

In practice, it reinforces the protection of exposed workers, the general public, apprentices and students as well as the protection for mothers performing breastfeeding. Stricter dose limits are set up for all categories of exposed persons. The Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire* – AFCN) may revise the current practices whenever new and important knowledge concerning their effectiveness or their consequences is obtained. A new concept, dose constraint, has been introduced as an additional restriction upon doses under which only one source, practice or task can be issued or required of individuals, even when the dose limits are respected.

Chapter VI of the Royal Order regulates the use of ionising radiation sources for medical purposes. The protection provided in the order's scope of application is widened and the application of the principles of justification and optimisation reinforced by very detailed prescriptions.

The principal mission of the Federal Agency for Nuclear Control [Sections 14 to 27 of the Act of 15 April 1994] is to make sure that the population and the environment are protected in an effective way against the danger of ionising radiation. In this context, it proposes laws and regulations and ensures that these laws and regulations are observed.

The Agency is responsible for gathering scientific and technical documentation, as well as distributing neutral and objective information in the domain of nuclear safety and radiation protection. It also promotes and co-ordinates the research and development work for these disciplines.

Several government bodies and various agencies are concerned with radiation protection questions, such as the Higher Council for Public Health and the Higher Council for the Enhancement of Workplaces.

Finally, the Medical Inspectorate of the Federal Public Service for Employment, Labour and Social Dialogue gathers data relating to the irradiation of professionally exposed workers to ionising radiation and distributes its conclusions. Accredited doctors assure the medical supervision of workers.

The Royal Order on the Protection of Workers against the Hazards of Ionising Radiation was adopted on 2 April 2002 and entered into force on 20 June 2002. It amends the Royal Order of the same title of 25 April 1997 in order to harmonise the Belgian legislation with the provisions of Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionising radiation during their activities in controlled areas.

Pursuant to this royal order, a radiological passport is established for each outside worker operating in controlled areas. Outside workers are subject to an evaluation of their exposure and to medical surveillance, details of which are recorded in the radiological passport. The dosimetric data of each worker is considered to be personal medical information and is protected. The royal order

specifies the tasks of the Industrial Health and Medicine Department and the physical protection services of nuclear operators.

The Interministerial Commission for Nuclear Safety and State Security in the Nuclear Field draws up co-ordination plans for the various ministerial departments concerned with a view to improving the health protection of workers and the public. The Industrial Health and Medicine Department of the Ministry of Employment and Labour collects data on the radiation received by persons exposed to ionising radiation in the course of their work and draws relevant inferences.

The Royal Order on the Treatment of Food and Food Ingredients by Ionising Radiation of 12 March 2002, which entered into force on 14 March 2002, amends the Royal Order of 20 July 2001 establishing General Regulations for the Protection of the Population, Workers and the Environment against the Dangers of Ionising Radiation. It repeals the Order of 16 July 1980 regulating the treatment by ionising radiation of food for human and animal consumption. The royal order aims furthermore to implement Directive 1999/2/EC of the European Parliament and of the Council of 22 February 1999 on the approximation of the laws of the Member States concerning foods and food ingredients treated with ionising radiation, Directive 1999/3/EC of the European Parliament and of the Council of 22 February 1999 on the establishment of a Community list of foods and food ingredients treated with ionising radiation and Directive 2000/13/EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs.

Pursuant to this order, operators of irradiation facilities are required to participate in dosimetric controls and they must maintain a register for each batch of foodstuffs treated. The import and export of foodstuffs treated by ionising radiation are regulated by the order. Their import is permitted where the irradiation has taken place at an authorised installation pursuant to the list published in the Official Journal of the European Communities. Where this is not the case, import is subject to a licence granted by the Federal Agency for Nuclear Control.

6. Radioactive Waste Management

The Radiation Protection Order of 20 July 2001 contains a number of provisions concerning radioactive waste and waste storage [Chapter II, Part II, and Chapter III, Part IV].

Under the licensing regime, detailed information has to be given about the measures to be taken for the storage, treatment and disposal of any radioactive waste, whether in liquid, solid or gaseous form [Sections 6.2, 7.2 and 8.2].

The Order of 16 October 1991, amending the Royal Order of 30 March 1981 laying down the tasks and rules of procedure of the National Organisation for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF) (see *infra* Part II “Institutional Framework”) regulates the relationship between ONDRAF and the operators of nuclear installations. All persons in possession of radioactive waste or who operate installations producing such waste, including those who plan to build such installations, must provide ONDRAF with all the necessary information.

ONDRAF concludes an agreement with the operators of nuclear installations, whom it considers to be regularly producing a significant quantity of radioactive waste, which relates to the

implementation of the general radioactive waste management programme and lays down the rights and obligations of the parties concerned.

In addition, an agreement is concluded between the person in possession of the waste and the Organisation relating to the taking over of the radioactive materials by ONDRAF for processing, storage and transport. These agreements specify in particular the arrangements for the transfer of responsibility and the financial and technical conditions that apply.

The Act of 11 April 2003 on the Reserve Fund for the Dismantling of Nuclear Power Plants and the Management of Fissile Irradiated Materials in Nuclear Power Plants was adopted 11 April 2003. Under the terms of this Act, Synatom, the Belgian corporation for nuclear fuel, assures cover for the costs of dismantling nuclear power plants and costs tied to the management of the irradiated fissile material in these plants. To this end, the corporation keeps sufficient funds in its accounts for dismantling and managing irradiated fissile materials.

The operators of nuclear power plants are required to transfer any funds to Synatom that they have already collected, as well as any amount that they should add to these funds for the future operation of the power plant, until they constitute a sufficient amount.

Dismantling will be carried-out by the operators for Synatom, and dismantling costs will be charged to the reserved funds under the control of the latter. If, during the dismantling operations, the funds prove to be insufficient to pay dismantling costs, the operators will transfer to Synatom the amount necessary to cover costs of dismantling at the time it is due.

The funds for the management of irradiated fissile materials are increased annually by Synatom according to the quantity of the irradiated fissile materials produced in the corresponding year. The same conditions apply to this management as for dismantling.

The Royal Order of 2 October 1997 implements Council Directive 92/3/Euratom of 3 February 1992 on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community. In this respect, the Order sets out a model uniform document for the supervision and control of these transfers.

7. Non-Proliferation and Physical Protection

a) International aspects

Any persons or enterprises in any way producing, using or storing source and special fissile materials on Belgian territory must comply with the provisions in Chapter VII “Safeguards (Security Control)” of the Treaty establishing the European Atomic Energy Community and its implementing regulations, which form an integral part of Belgian law [Act of 2 December 1957].

They must also allow and facilitate inspections and checks by the International Atomic Energy Agency (IAEA) in order to verify the results obtained by the safeguards system of the European Atomic Energy Community [Act of 20 July 1978].

In addition, on 9 February 1981, an act was adopted laying down a prior licensing system for the export of nuclear materials and equipment as well as of technological data, the details of which

were to be specified in a royal order in the light of the international agreements entered into by Belgium in the nuclear field. This was done by the Royal Order of 12 May 1989 relating to the transfer to non-nuclear weapon states of nuclear materials, equipment, technological data and derivatives.

After obtaining the opinion of an advisory committee composed of representatives of the various ministries concerned, the Minister holding the portfolio of Energy verifies that the transfers will be carried out exclusively with a view to the peaceful use of atomic energy and subject to the required controls (safeguards system – physical protection) and in compliance with Belgium's commitments under the 1968 Treaty on the Non-proliferation of Nuclear Weapons, which it ratified on 2 May 1975. Belgium also ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 29 June 1999, as well as the 1979 Convention on the Physical Protection of Nuclear Material on 6 September 1991.

b) *National control and security measures*

Under the Act of 4 August 1955 concerning state security in the field of nuclear energy, research, materials and production methods carried out or used by institutions, establishments or physical or legal persons which have at their disposal information, documents or nuclear materials obtained either directly from the government or with its permission and which, in the interests of the defence of the national territory and of state security, come under the rules of secrecy, must comply with the security measures laid down in the Royal Order of 14 March 1956.

These measures govern the fitting out, protection and surveillance of premises, the classification of documents and materials, the safe-keeping of documents and the preservation of materials, the determination of criteria for their dissemination and the requirements for conducting an activity in or entering premises where such research and work is carried out [Order of 14 March 1956, as amended by Order of 18 October 1974].

In principle, Belgian nationality is required in this respect. Nevertheless, an exception may be made by decision of the Minister holding the portfolio of Energy if the foreign applicant possesses specialised knowledge.

Section 37 *bis* of the Royal Order of 20 February 2001 containing the General Regulation on the Protection of the Public, Workers and the Environment against the Hazards of Ionising Radiation provides that, without prejudice to the provisions of the Royal Order of 1956 concerning implementation of the abovementioned 1955 Act, it is prohibited to enter the sites or premises referred to in the said order or to visit them without the specific permission of the person in charge of the enterprise or his deputy. Official inspectors are exonerated from the obligation to seek such permission.

Section 19 of the Act of 2 April 2003 modifying the Law of 15 April 1994 repeals the Law of 4 August 1955. However, as Section 19 has not yet entered into force, the Act of 4 August 1955 still applies until a royal order is issued to bring Section 19 into force.

In addition, the disclosure of manufacturing secrets and inventions relating to the nuclear field which are not subject to the Act of 4 August 1955 but whose disclosure is declared jointly by the Minister holding the portfolio of Energy (responsible for industrial property) and the Minister of National Defence to be contrary to the interests of the defence of the territory or of state security, is prohibited, or else the conditions in which they may be exploited are temporarily determined and

controlled by the said Ministers in accordance with the Act of 10 January 1955 relating to the disclosure and use of inventions and manufacturing secrets concerning the defence of the territory or state security. Prohibitions or limitations may be partly or totally lifted at any time by joint decision of the ministers who issued them. An application may be made by the holder of the rights for the prohibition or limitation to be lifted.

The purpose of the Act of 17 April 1986 on implementation of the Convention on the Physical Protection of Nuclear Material is to implement Sections 7 and 8 of the Convention of 3 March 1980 in Belgian national law. Section 7 requires Contracting Parties to provide penalties for a number of serious criminal offences with respect to nuclear material. Section 8 specifies the cases in which measures Contracting Parties must take measures to establish their jurisdiction over such offences. The 1986 Act therefore specifies that sanctions for these offences must be inserted into the Penal Code. It also states that provisions must be inserted into the Code of Criminal Procedure to the effect that Belgian courts have jurisdiction to hear cases in which such offences are committed in the territory of Contracting Parties to the Convention or on board a vessel or aircraft registered in one of those states if suspect is within national territory and the government of Belgium has made no arrangements with the state concerned regarding extradition.

8. Transport

The transport of nuclear materials in general is governed by the amended Royal Order of 20 July 2001 laying down the General Regulation on the Protection of the Public, Workers and the Environment against the Hazards of Ionising Radiation.

The requirements laid down by the royal order embody the IAEA Regulations for the Safe Transport of Radioactive Materials, the International Regulations concerning the Carriage of Dangerous Goods by Rail (RID), the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), the IMO International Maritime Dangerous Goods Code, the Ordinance concerning the Transportation of Dangerous Goods on the River Rhine (ADNR) and the Technical Instructions for the Safe Transport of Dangerous Goods by Air of the International Civil Aviation Organisation (ICAO) [Act of 24 January 1973, Act of 10 August 1960, Royal Order of 14 January 1960 as amended by Royal Order of 5 March 1971, Royal Order of 2 December 1971 as amended by Royal Orders of 29 December 1976, 1 February 1977, 24 December 1978 and 7 September 1979].

A licence issued by the Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire – AFCN*) is required for the transport of radioactive substances. Licences may be of a general nature, when the carrier transports radioactive substances on a regular basis, specific, where the carrier occasionally transports such substances, or special, in the case of substances with a level of radioactivity above certain thresholds.

The AFCN is also empowered to verify that all decisions authorising transportation are correctly applied and respected. In case of violation, the Agency may demand immediate corrective actions or, if need be, withdraw transportation authorisation and thereby restrict it. If necessary, it issues a verbal order. The AFCN also assures the certification of drivers of vehicles transporting radioactive substances.

Lastly, the National Organisation for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF) is responsible for organising the transport of radioactive waste from the installations producing it and for the transport of enriched fissile materials or plutonium-bearing materials whose quantity and enrichment rate exceed certain limits set by Section 2(2)(2)(a) of the Royal Order of 30 March 1981 as amended by the Royal Order of 16 October 1991; this may also cover surplus quantities of fresh or spent fuel it should take over.

9. Nuclear Third Party Liability

Belgian rules on nuclear third party liability are contained in the Act of 22 July 1985 on Third Party Liability in the Field of Nuclear Energy published in the *Moniteur belge* of 31 August 1985, modified by the Act of 11 July 2000 [*Moniteur belge* of 4 October 2000]. This act implements the 1960 Paris Convention and the 1963 Brussels Supplementary Convention, ratified by Belgium on 3 August 1966 and 20 August 1985 respectively.

The 1985 Act, as modified, lays down the principle of strict liability, limited in amount and time, channelled to the operator of a nuclear installation. In this respect, Section 7 of the act establishes the maximum amount of the operator's liability for nuclear damage at Belgian francs (BEF) 12 billion [Section 7(1)]. This sum is equivalent to approximately 300 million euros. The King is empowered to raise or reduce this amount in order to fulfil Belgium's international obligations as well to take into account low risk installations or transport, however he may not set a level lower than that required by the Paris Convention [Section 7(2)]. Pursuant to the terms of the act, the operator is obliged to take out an insurance policy, or another form of financial guarantee, to cover his liability up to the amount set out in the act [Section 8]. The act further establishes, as a corollary of this obligation, a procedure whereby the King recognises the operator as such [Sections 9 to 13].

Although the act provides that the operator remains liable during the carriage of nuclear substances, it does not exclude the possibility of transferring liability to the carrier [Section 14]. In any event, the carrier is required to hold a certificate stating that he satisfies the financial security conditions [Section 15].

Section 23 of the act establishes a prescription period of ten years from the date of the nuclear incident in respect of the right to claim compensation. Beyond this period, the state is responsible for the payment of compensation in respect of claims for damage which are time-barred, within a maximum period of 30 years from the date of the incident.

Several orders have been adopted to implement the 1985 Act, in particular:

- the Royal Order of 28 April 1986, determining the financial security certificate for transport of nuclear substances, whose purpose is to ensure that financial security certificates (given to all carriers of nuclear substances by the operator liable) comply with the Paris Convention requirements in this respect, as prescribed by the 1985 Act;
- the Ministerial Order of 9 March 1987 on the register concerning nuclear installations, which aims to implement Section 13 of the 1985 Act regarding the obligation to make available to the public the register containing the texts granting recognition to the operators of nuclear installations. This register contains a certified copy of the royal orders of recognition and a card of the installations indicating the limits of each site. It

may be consulted at the Federal Public Service for Economy, SME's, Self-Employed and Energy. The local authority for the territory where the installation is located must comply with a similar obligation.

At the international level, Belgium ratified the 1971 Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material on 15 June 1989.

II. INSTITUTIONAL FRAMEWORK

1. Regulatory and Supervisory Authorities

a) *Federal Agency for Nuclear Control (AFCN)*

i) *Legal Status*

The Federal Agency for Nuclear Control (*Agence fédérale de contrôle nucléaire* – AFCN) is a public body with legal personality (Category C public interest group), established by the Act of 15 April 1994 on Protection of the Public and the Environment against Radiation and Relating to the Federal Agency for Nuclear Control. This status grants the Agency broad independence, which is indispensable for the impartial carrying out its responsibilities for the public good. The AFCN has been completely operational since 1 September 2001, the date on which the Royal Order establishing General Regulations for the Protection of the Population, Workers and the Environment against the Dangers of Ionising Radiation came into force. This order brought into effect the Act of 15 April 1994 and lays out the circumstances and methods under which the Agency is to carry out its mission. It comprises the majority of Belgium's regulations in the area of protection of the public and the environment against the dangers of ionising radiation.

ii) *Responsibilities*

The AFCN's mission [Sections 14 to 17 of the Act of 1994] is to ensure that the public and the environment are effectively protected against the dangers of ionising radiation. In this context, it puts forth proposals for laws and regulations and makes certain that they are observed. It is responsible for managing a wide range of requests for authorisation and, if needed, makes suggestions or decisions with an opinion from its scientific board or other advisory body. The AFCN also carries out the monitoring, control and inspection of all practices and activities involving ionising radiation, including activities for the control of nuclear materials meant to guarantee that they are used only for their intended purpose (non-proliferation guarantee).

The AFCN participates in the work programme of international organisations (such as the European Union and the International Atomic Energy Agency) in which directives, recommendations and international regulations are formed. It manages the "Telrad" group for monitoring radiation in

Belgian territory, and plays an important role in the operation of the nuclear emergency plan, notably in regards the effects of an accident and communicating with the public and media.

The AFCN is responsible for maintaining scientific and technical documentation as well as distributing neutral and objective information in the area of nuclear safety and radiation protection. It encourages research and development projects in these same fields.

iii) Structure

The AFCN is run by a Council of Administration, whose members (comprised of equal numbers of French and Flemish speakers) are appointed by the King upon recommendation by the government. The Director-General is likewise appointed by the King upon recommendation by the government. He is assisted by three department heads (Regulation and Authorisation, Monitoring and Control, Administration and Finance). The Agency employs specialised personnel who either come from its own recruitment efforts or as the result of different ministries who loan their agents and experts (Minister of Social Affairs, Public Health and the Environment, Minister of Employment and Work, Minister of Foreign Affairs and Minister of Justice).

The AFCN also has a scientific board [Section 37 of the Act of 15 April 1994; Royal Order of 18 December 2002] that is responsible for advising the Agency on issues concerning its monitoring policy, and more specifically to provide a preliminary opinion on authorisations for new nuclear installations or the renewal of such authorisations. The Council membership is composed of scientists nominated by the competent ministry for a period of six years.

The provisional law of 12 December 1997 [*Moniteur belge* 18 December 1997] modifies Section 45 of the Act of 15 April 1994, which governs the transfer of personnel from two services to the Agency: the Service for Technical Security of Nuclear Installations of the Minister of Employment, Labour and Social Cohesion and the Service for Protection against Ionising Radiation of the Minister of Social Affairs, Public Health and the Environment.

The costs of the AFCN are financed by licensing fees [Royal Order of 24 August 2001 fixing the amount and the manner of license fees payments in application of the regulations on ionising radiation] paid by the people and firms that request an authorisation required by regulation or who are subject to controls and inspections performed by the Agency.

b) Federal Public Service for Home Affairs

The Ministry of the Interior was designated by the Royal Order of 3 July 1995 as the authority competent in matters concerning technical security of nuclear installations. The Order of 7 August 1995 attributes competence to him in the area of protecting the public and the environment from the dangers resulting from ionising radiation.

Pursuant to Section 81 of the Order of 20 July 2001, the tasks previously bestowed upon the Service for Protection against Ionising Radiation and the Service for Technical Security of Nuclear Installations were transferred to the Federal Agency for Nuclear Control, under the authority of the Ministry for Home Affairs.

Responsibility for emergency policy in the case of an accident in a nuclear power plant or in another nuclear installation belongs to the Federal Public Service for Home Affairs. On this basis, the Royal Order of 17 November 2003 was promulgated to provide emergency plans for nuclear risks inside Belgium.

c) *Federal Public Service for Economy, SME's, Self-Employed and Energy*

The Minister holding the portfolio of Energy is responsible for nuclear energy in the same manner as he is for other types of electricity production.

The Minister is also responsible for the export of nuclear materials, nuclear equipment and nuclear technology information and their by-products. The export of nuclear materials is subject to certain conditions, including permission from the Federal Public Service.

The Minister holding the portfolio of Economic Affairs is responsible for supervising ONDRAF.

d) *Federal Public Service for Employment and Labour*

The Minister of Employment and Labour is responsible for the safety and health of workers exposed to the dangers inherent in nuclear installations. He approves the dosimeters to be worn by the workers exposed to ionising radiation in the course of their work.

He is the supervisory authority for the Industrial Health and Medicine Department, which is responsible for the protection and medical supervision of workers. Responsibility for technical monitoring of nuclear installations was transferred to the Federal Agency for Nuclear Control.

e) *Federal Public Service for Defence*

The Minister of National Defence has general authority over nuclear activities in military establishments.

f) *Federal Public Service Foreign Affairs, Foreign Trade and Development Co-operation*

The Minister of Foreign Affairs is responsible for all international matters concerning nuclear energy. In particular, he handles negotiations for Belgium's adhesion to, or participation in, international, bilateral or multilateral agreements and treaties and represents Belgium in international organisations.

Jointly with the other ministers involved, the Minister of Foreign Affairs is also responsible for international trade matters and for ensuring that Belgium's international commitments are honoured.

g) *Minister for Science Policy*

The Minister for Science Policy is responsible for generally co-ordinating the Federal government's activities relating to science policy. He shares the responsibility for nuclear research with the Minister holding the portfolio of Energy [Royal Order of 18 May 1971].

2. *Advisory Bodies*

a) *Interministerial Commission for Nuclear Safety and State Safety in the Nuclear Field*

The Interministerial Commission for Nuclear Safety and State Security in the Nuclear Field (*Commission interministérielle de la sécurité nucléaire et de la sûreté de l'État dans le domaine nucléaire*) was set up by the Royal Order of 15 October 1979. For administrative and financial purposes, the Commission is under the auspices of the Minister of Public Health. The Commission comprises ten members, including the president of the Special Commission for Ionising Radiation and nine members nominated by the ministries concerned. The mission of this Commission is to seek ways of ensuring the protection of workers and the public against any hazards that might arise from activities connected with the use, processing, storage and transport of radioactive substances both within and outside installations where such activities are carried on. The Commission consults experts whom it may invite to attend its meetings in an advisory capacity, whenever it considers they might be able to help resolve a specific problem. The amendments to the Royal Order of 15 October 1979 introduced by the Royal Order of 14 February 1984 provide that the government of the Brussels-Capital Region, the Walloon government and the Flemish government may, if they so wish, each appoint a delegate to take part in the Commission's meetings in an advisory capacity. The Commission sends a report to the government at least twice per year to keep it informed of its activities.

b) *Higher Council for Public Health*

The Higher Council for Public Health (*Conseil supérieur d'hygiène*) is under the auspices of the Minister of Social Affairs, Public Health and the Environment. It may submit opinions to the public health authorities on any matter concerning public health and environment, including the domain of ionising radiation.

c) *Higher Council for Safety, Hygiene and Enhancement of Workplaces*

This Higher Council (*Conseil supérieur de sécurité, d'hygiène et d'embellissement des lieux de travail*) provides opinions, of its own initiative or upon demand, concerning measures taken by firms on safety in the workplace, physical and mental health of workers, ergonomics, improvement of working conditions and actions undertaken in regard of the environment.

d) *Advisory Commission for the Non-Proliferation of Nuclear Weapons*

In order to ensure that international agreements on the non-proliferation of nuclear weapons are honoured, Belgian law has imposed a licensing system on exports of nuclear materials and equipment, nuclear technological data and their by-products [Act of 9 February 1981].

Licences are granted by the Minister responsible for Energy after obtaining the opinion of this Advisory Committee (formerly the *Commission consultative pour l'exportation des matières et équipements nucléaires, ainsi que des données technologiques nucléaires*) on the non-proliferation of nuclear weapons, responsible for ensuring that the transfer concerned is intended for the peaceful use of nuclear energy.

The members of this Committee are appointed by the King and represent the chief ministries involved.

Leading scientists may be requested by the Committee to give their opinions on specific matters.

e) *Federal Council for Science Policy*

Pursuant to the Royal Order of 8 August 1997, the mission of the Council is:

- to submit opinions on the proposals for collaboration provided for in Section 6 *bis*, paragraph 3, of the Special Act of 8 August 1980 on Institutional Reforms;
- to formulate, on its own initiative or upon request of the federal or regional governments, opinions and recommendations concerning questions pertaining to science policy at the national level while taking account of the European and international contexts; and
- to formulate, at the request of the federal government, opinions on science policy issues pertaining to the competence of the federal authority provided for in Section 6 *bis*, § 2, 1-4, of the above-mentioned Special Act.

f) *Electricity and Gas Regulatory Committee (CREG)*

This Commission is an independent organisation with legal personality created by the Act of 29 April 1999 on the Organisation of the Electricity Market. This Commission is endowed with the responsibility to council public authorities regarding the functioning of the electricity market, on the one hand, and a function of general monitoring of the application of related laws and regulations on the other.

Pursuant to the Act of 29 April 1999 on the Organisation of the Electricity Market, the Commission shall establish a strategic plan on the means of producing electricity in collaboration with the General Energy Directorate of the Federal Public Service for Economy, SME's, Self-Employed and Energy, *le Bureau fédéral du plan*, the Interdepartmental Commission for Sustainable Development and the regional governments. The strategic plan, designed as a ten year outlook to be adjusted every three years, is submitted for approval to the Minister holding the portfolio of Energy, and shall contain the following elements:

- an estimate of the evolution of demand and identification of the production requirements that result;
- a summary of the developments of choices of primary energy sources taking care to ensure an appropriate diversification of fuel;
- a summary of favoured sources of production taking care to promote technologies which produce few greenhouse emissions; and
- an evaluation of the obligations of public services in the area of electricity production.

3. Public and Semi-Public Agencies

a) *Institute of Science for Public Health*

The Royal Order of 6 March 1968 establishing the Institute as a state scientific establishment defines one of its tasks as the study of scientific problems relating to the prevention and correction of factors likely to impair the health and well being of mankind.

In practice, the Institute is the Ministry of Public Health's laboratory and scientific service. Its task is to supply permanent scientific assistance in various fields, including that of radioactivity, to the authorities concerned with public health and environmental protection at national, regional and local levels.

The Institute may, in the performance of its duties, call on the co-operation of outside bodies (CEN, universities, etc.).

b) *Nuclear Energy Research Centre (CEN)*

The development of nuclear energy applications, which resulted in the Nuclear Energy Applications Research Centre being faced with increasingly complex and diversified activities involving heavy investment which private industry could no longer finance on its own, led the Belgian government to replace this non-profit-making association, set up on 19 April 1952, by the Nuclear Energy Research Centre (*Centre d'études de l'énergie nucléaire* – CEN), a public service (*établissement d'utilité publique*) with administrative headquarters in Brussels and scientific facilities in Mol.

i) *Legal status*

The Royal Order of 23 July 1957 [amended subsequently by Royal Orders of 4 August 1958 and 7 March 1963] founded the Nuclear Energy Research Centre as a public service. The relationship between the CEN and the national government was regulated by a Convention concluded between the Centre and the Minister holding the portfolio of Energy on 1 February 1963. It provided in particular that the Minister was the supervisory authority of the CEN. This Convention was replaced by a Royal Order of 16 October 1991 which lays down the rules for supervising the Centre and provides for its funding. The royal order also amended its Statute.

In accordance with the Special Act on institutional reforms of 8 August 1988 amending the Act of 8 August 1980, the Special Act for financing the communities and regions of 16 January 1989 and the Royal Order of 16 October 1991 concerning the transfer of some of the tasks, assets, rights and obligations of the Nuclear Energy Research Centre to the Flemish region, the Centre's responsibilities, except for nuclear tasks and administration of the nuclear fuel cycle, were transferred to the Flemish region together with the physical and real property corresponding to the tasks transferred and the members of staff involved.

ii) Responsibilities

The CEN is historically a nuclear research centre, with specific responsibility for basic and applied research (nuclear reactor and fissile fuel safety, radiation protection, safe processing and storage of radioactive waste, protection of nuclear infrastructures from attack, nuclear energy applications, update of scientific documentation, etc.). It therefore offers a major scientific and technical resource potential in the nuclear field, and its role is to pass that potential on to other bodies concerned and to industry.

iii) Structure

The CEN is run by a board of directors with a chairperson, two vice-chairpersons and a maximum of ten other members. A director-general is responsible for carrying out the decisions taken by the board.

iv) Financing

The CEN's budget is funded by public appropriations derived primarily from the budget of the Federal Public Service for Economy, SME's, Self-Employed and by its own revenue in the form of fees for services rendered and research contracts.

c) National Radioisotope Institute (IRE)

Because of the growth in the applications and uses of radioisotopes, the government set up a specialised national body: the National Radioisotope Institute (*Institut national des radioéléments* – IRE), based in Fleurus.

i) Legal status

The Royal Order of 20 October 1971 set up the National Radioisotope Institute as a public service. Its relationship with the national government was regulated by a Convention between the Institute and the Minister holding the portfolio of Energy signed on 28 July 1980. This Convention provided in particular that the IRE is subject to the control of the Minister. It was replaced by the Royal Order of 16 October 1991 laying down the rules relating to the supervision and financing of the National Radioisotope Institute, and amending its Statute.

In accordance with the Special Act on institutional reforms of 8 August 1988 amending the Act of 8 August 1980, the Special Act for financing the communities and regions of 16 January 1989 and the transfer of several activities within the competence of the Walloon region to private companies, the Institute only carries out work related to the nuclear fuel cycle.

ii) Responsibilities

The main tasks of the IRE are:

- to produce and condition radioisotopes;
- to study, promote and encourage applications of radioisotopes;
- to study and develop techniques for processing the radioactive waste arising from such activities; and
- to study, from the standpoint of radiation protection, the safety of persons employed in Belgian firms and institutes using and applying radio-isotopes.

iii) Structure

The IRE is run by a board of directors consisting of a chairperson, two vice-chairpersons and ten other members. A director-general is responsible for carrying out the board's decisions.

d) Higher Institute for Emergency Planning

The Higher Institute for Emergency Planning (*Institut supérieur de planification d'urgence*) was set up by the Royal Order of 29 July 1991 in pursuance of national legislation on protection against major industrial risks and Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency.

i) Legal status

The Institute is a public institution placed under the supervision of the Minister of the Interior.

ii) Responsibilities

The Institute's duties include:

- organising training for emergency planning and assistance;
- promoting the exchange of ideas on emergency planning between the authorities and operators of installations preventing potential major risks (including nuclear installations); and
- disseminating adequate and regularly updated information to persons involved in emergency assistance about the risks they incur and the protection measures to be taken.

In the performance of its duties, the Institute organises conferences and seminars, sets up study groups and undertakes simulation exercises.

iii) Structure

The board of the Institute includes representatives of the different ministries and regional authorities concerned and of various industries, as well as scientists and insurers. Members are appointed for a period of six years by the Minister of the Interior on the proposal of the Minister, regional governments and the institution or body concerned.

iv) Financing

The Institute's operating costs are included in the budget of the Minister of the Interior and of the Civil Service.

e) National Organisation for Radioactive Waste and Enriched Fissile Materials (ONDRAF)

In pursuance of Section 179(2) of the Act of 8 August 1980 relating to the 1979-80 budget proposals, as amended by the Act of 11 January 1991, Belgium set-up a National Organisation for Radioactive Waste and Enriched Fissile Materials (*Organisme national des déchets radioactifs et des matières fissiles* – ONDRAF). The tasks and operating conditions of this Organisation were laid down in the Royal Order of 30 March 1981, amended by a Royal Order of 16 October 1991.

Until ONDRAF began operations in 1982, responsibility for radioactive waste management lay with the waste producers in accordance with the licence granted to them by the authorities. In this context, the "Waste" Department of the Nuclear Energy Research Centre (CEN), which undertook the processing of radioactive waste, played an important role. ONDRAF was set up in order to ensure the long-term coherence and safety of the management of all radioactive waste produced in Belgium. The functions of the "Waste" Department were transferred to ONDRAF, which in turn transferred the operation to its subsidiary Belgoprocess. Since the transfer, several installations of the "Waste" department have been closed down and replaced by new installations.

i) Legal status

ONDRAF is a financially independent public body and legal entity. It is answerable to the Ministers responsible for Economic Affairs and Energy [Order of 16 October 1991, Section 6(3)]. It is also supervised by two government representatives, one appointed by the Minister holding the portfolio of Energy, and the other by the Minister of Employment and Labour, and these representatives take part in the meetings of the board of directors.

ii) Responsibilities

Under the act, ONDRAF is responsible for the management of all radioactive material, wherever its place of origin, as well as certain tasks related to the management of enriched fissile material, plutonium-bearing materials, irradiated fuel and the decommissioning of nuclear installations

that have been closed down. The act specifically states that the Organisation may not take charge of waste from a foreign source without first receiving permission from its authorised supervisor.

ONDRAF's tasks include:

- the organisation of transporting processed and non-processed waste;
- the treatment and processing of radioactive waste on behalf of producers who have no equipment approved for such use, as well as the approval and monitoring of the operations necessary for the processing of radioactive wastes at the site of producers who do possess such equipment;
- the storage of radioactive waste outside the producers' facilities;
- the disposal of processed radioactive waste;
- the creation and maintenance of a qualitative and quantitative inventory of processed and non-processed waste, as well as forecasts of the short, medium and long-term production of waste;
- establishing criteria for accepting processed and non-processed waste on the basis of general rules proposed and approved by competent authorities;
- the definition, in dialogue with producers, of the methods for the treatment and processing of non-processed radioactive wastes; and
- the assurance that the quality of radioactive waste conforms to accepted criteria.

In the area of management of surplus quantities of enriched fissile material, plutonium-bearing materials and irradiated or fresh fuel, the Organisation:

- periodically collects the information necessary to allow it to evaluate when and how it shall eventually take possession of these surplus quantities;
- establishes criteria for accepting these surplus quantities with a view to their storage on the basis of general rules proposed and approved by competent authorities; and
- ensures that the properties of the surplus quantities conform to the criteria of acceptance referred to above.

ONDRAF sees to the following aspects of decommissioning closed-down nuclear installations:

- gathering and evaluating all information that allows the Organisation to set-up management programmes for resulting waste;
- approval of the decommissioning plan for contaminated installations;
- carrying-out the decommissioning plan at the request of the operator, or failing this on its own initiative.

With regard to decommissioning, the Organisation follows the development of methodologies and techniques for dismantling and the associated costs, with a view to the approval and the eventual carrying-out of decommissioning programmes.

In order to carry out its tasks, ONDRAF draws up a general programme for radioactive waste management, prepares an inventory of all existing nuclear installations and the sites containing radioactive substances [Act of 12 December 1997]. This responsibility includes the establishment of a register, to be updated every five years, of the locations and state of every nuclear installation and site containing radioactive substances, an estimate of the cost of their decommissioning and cleaning-up, and an evaluation of the sufficiency of financing for these future operations.

Section 9 of the Act of 12 December 1997 states that the Organisation's costs for setting-up the register shall be covered by a licence fee paid by operators of nuclear installations and the persons in possession of radioactive sources or, by way of default, the owners. The amounts of the licence fees were set by the provisional law of 30 December 2001 [Section 90]. This law also sets-up the procedures to follow for the payment of the license fee as well as how to appeal against its levy.

In general terms, ONDRAF provides a public service. Its duties give it no right to encroach on the domain of the authorities responsible for protection or state security in the nuclear field. It must comply with the legislation in force and is subject to the national controls exercised by Minister of Home Affairs, which has certain powers in such matters, and to the international controls exercised within the framework of Euratom and the IAEA.

iii) Structure

ONDRAF is run by a board of directors made up of a chairperson, two vice-chairmen and a maximum of eleven other members selected for their scientific or professional knowledge in the Organisation's fields of activity [Royal Order of 16 October 1991, Section 7(1)].

The chairperson and vice-chairpersons are appointed by the King after consideration by the Council of ministers and on the proposal of the Minister holding the portfolio of Energy.

The other members of the board come either from the Ministerial departments and bodies concerned, or from the scientific and technical world. They are appointed by the Minister holding the portfolio of Energy, after consideration by the Council of Ministers.

Before taking any decision concerning waste management policy or financing, the board hears the opinion of a Standing Technical Committee made up of representatives of the waste producers.

iv) Financing

ONDRAF's income is made up of appropriations from the Ministry of Economy for use as working capital, bequests and grants made to it, statutory and regulatory payment for services rendered, subsidies and occasional revenues. The cost of ONDRAF's activities is recovered in full from the firms and bodies which have benefited from its services.

ONDRAF is obliged to balance its books. It may, however, be authorised to take out loans to finance its investments.

In furtherance of its programme of information and communication ONDRAF created ISOTOPOLIS, an information centre on radioactive waste, which is set-up nearby the site where radioactive waste is treated.

f) Synatom

Section 179, paragraph 1 of the Act of 8 August 1980 on Budgetary Proposals for 1979-80 authorises the state to own at least a 50% stake in a company whose shares are held by both public and private investors, when it manages activities related to the nuclear fuel cycle, with the exception of the management of radioactive waste. The particular company targeted by this legislation was the *Société belge des Combustibles Nucléaires Synatom*, also called Synatom. The participation of the state in Synatom was governed by the Royal Order of 8 March 1983.

Under the Act of 22 July 1993, Belgium decided to sell, among other holdings, its stake in Synatom. The relations between Synatom and the state were thereafter governed by the Royal Order of 10 June 1994 granting a share of Synatom providing privileges to the state. This order summarises the special rights that the state possesses as a result of its privileged share. These rights are:

- to deny certain transfers of property; and
- to name two representatives from the federal government to the Board of Directors of Synatom. These representatives have the right to appeal all Board decisions that it considers to be contrary to the guidelines of the national energy policy to the Minister holding the portfolio of Energy, and that compromise the objectives of the government concerning the supply of energy.

The Royal Order of 10 June 1994 repealed the Order of March 8 1983.