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# **N**uclear Legislation in OECD Countries

**Regulatory and  
Institutional Framework  
for Nuclear Activities**

**France**



# France

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## I. General regulatory framework

### 1. General

#### a) The French nuclear power programme and its main players

France has a large number of nuclear power plants as a result of the huge programme started in the early 1970s just after the first oil shock. Its 58 reactors in operation on 19 sites generate almost 80 % of the electricity produced in France. In 2006, these reactors supplied 450 TWh of electricity, 78.4 % of the total generated there. Electricité de France (EDF), which is now a public limited company with a public service mission to supply electricity, owns the vast majority of the commercial reactors; GDF-Suez has stakes in a few of them. With the exception of the Phénix fast breeder reactor (233 MWe), all the reactors in operation are pressurised water reactors (PWR) of three standard types: 34 reactors have a capacity of 900 MWe, 20 have a capacity of 1 300 MWe and 4 a capacity of 1 450 MWe. In April 2007, France commissioned EDF to build a 3rd generation EPR (European pressurised reactor) at Flamanville in the Manche region with a view to renewing its power generation fleet. This is expected to be completed by 2012. Construction of a 2<sup>nd</sup> EPR on the Penly site has also been announced.

The Atomic Energy and Alternative Energies Commission (*Commissariat à l'énergie atomique et aux énergies alternatives* - CEA), a public research establishment set up in 1945, operates 13 research reactors in France. The main ones are the Phénix reactor (final shut down in the autumn of 2009), the SCARABEE integrated reactor and the OSIRIS reactor.

With the shutdown of Phénix, the CEA's materials and fuel irradiation experiments will be continuing using the experimental facilities available abroad as well as the 100 MWe Jules Horowitz (JHR) under construction in Cadarache (Bouches-du-Rhône) that is expected to begin operations in 2014. Construction of a prototype fourth generation fast neutron reactor is also planned by 2020.

AREVA SA was created on 4 September 2001, based on the structure of CEA-Industrie (which has since become AREVA). It is a holding company majority-owned by the CEA and created from the merger of CEA-Industrie and FRAMATOME SA. The AREVA group is a major player in the nuclear energy market. It is involved in the entire nuclear cycle: the front end, with the operation of uranium mines, uranium conversion and enrichment and the design and production of nuclear fuels; "reactors and services", with in particular the design and construction of nuclear reactors; the back end, with fuel processing and recycling activities.

AREVA NC (formerly *Compagnie générale des matières nucléaires* – COGEMA, created in 1976), is the world's top 3rd producer of uranium, with a 14 % share of the market. It supplies nearly half the world's nuclear power plants from its uranium mines in operation in Canada, Kazakhstan and Niger. Other mines are being developed in Central Africa, Namibia, Mongolia, South Africa, Jordan, Gabon, Senegal and Canada.

AREVA NP (formerly FRAMATOME, created in 1958) is a world leader in the design and construction of nuclear power plants, nuclear fuel and the provision of services associated with these activities. It is responsible for building an EPR in Finland (Olkiluoto) and France (Flamanville).

With regard to the back end of the cycle, France's policy is to remove spent fuel to recover the uranium and plutonium for re-use and thus reduce the volume of high-level wastes for storage. High-level waste is currently vitrified and stored pending the planned opening in 2025 of a deep geological waste repository by the National Radioactive Waste Management Agency (*Agence nationale pour la gestion des déchets radioactifs* - ANDRA), following the decision due to be taken by the Parliament in 2015. ANDRA also has to open a repository for low-level long-lived radioactive waste, primarily radium-bearing waste and graphite waste, by 2020. A repository is now in

operation in the Aube region for low-level and medium-level waste, taking over from the repository in the Manche region which closed in 1994. ANDRA's storage facilities also include the first repository dedicated to the storage of very low-level waste, which it opened in 2003.

In order to supervise nuclear activities, an important reform was introduced in 2001 strengthening the institutional arrangements with respect to security, monitoring and environmental health warnings. One particular initiative was the creation of the Institute for Radiation Protection and Nuclear Safety (*Institut de radioprotection et de sûreté nucléaire* - IRSN). The IRSN, a new public utility company (an EPIC – *établissement public à caractère industriel et commercial*), was created by merging the Office for Protection against Ionising Radiation (*Office de protection contre les rayonnements ionisants* – OPRI) and the Institute for Protection and Nuclear Safety (*Institut de protection et de sûreté nucléaire* – IPSN), formerly part of the CEA. Régime minier.

### **b) French nuclear law**

The use of radioactive elements, whether natural or artificial, is governed by the provisions of the Public Health Code, which constitutes a general legislative and regulatory framework. However, there are also various specific legal rules and provisions applicable to certain substances, activities or installations concerning them. For example, the installations in which radioactive elements are used are classified in three main categories: basic nuclear installations (*installations nucléaires de base* - INB), installations classified for environmental protection purposes (*installations classées pour la protection de l'environnement* - ICPE) in which activities using radioactive substances are carried out and defence-related nuclear installations and activities (*installations et activités nucléaires intéressant la défense* - IANID).

In 2006, Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety (TSN Act) provided France with a comprehensive legislative arsenal, allowing the Nuclear Safety Authority (*Autorité de sûreté nucléaire* - ASN) to become an independent authority and providing a legislative framework for basic nuclear installations (INB) (regulating each life cycle phase, monitoring, sanctions). Nuclear regulation had hitherto been piecemeal, with a number of general provisions being introduced as technologies had developed and atomic energy expanded. The TSN Act is therefore a particularly important piece of legislation which guarantees legal certainty in the nuclear sector and one of the objectives of which (nuclear transparency) is presented as a guarantee of improved nuclear safety and of its acceptability.

## **2. Mining Regime**

French nuclear mining law is governed by the Mining Code and its implementing legislation. The Code contains few specific provisions on nuclear substances (Articles 6, 19, 22, 51, 53, 68, 81, 135 and 141). Here, as with other substances, the French State does not have a monopoly for prospecting and mining. In practice, all uranium mines have now closed in France; all the old mining sites have been placed under surveillance.

The legal framework established by the provisions of the Mining Code is supplemented by two Decrees: Decree No. 2006-649 of 2 June 2006 on mining works, underground storage works and the policing of mines and underground storage; Decree No. 2006-648 of 2 June 2006 on mining concessions and underground storage concessions. A special procedure has been laid down for the issue and control of mining concessions for substances of use in nuclear energy: the CEA organises and monitors the prospecting and mining of the raw materials required, in co-operation with the Ministerial Departments concerned; it gives its opinion on the issue, extension, cancellation and authorisation to transfer or relinquish any licence for these substances.

Act No.93-3 of 4 January 1993 concerning quarries made general amendments to the Mining Code and to Articles L. 511-1 *et seq* of the Environment Code pertaining to installations classified for environmental protection purposes (ICPE). It specifies that the start-up of installations (defined by Decree of the Council of State), presenting a significant risk of pollution or accident, or of

quarries and waste storage facilities, whether after an initial licence or after a licence for a change of operator, is subject to the provision of financial guarantees (Article L. 516-1 of the Environment Code). A Departmental Quarries Commission is set up in each *Département* (Article L. 515-1 of the same Code). This Commission reviews applications for licences to operate quarries and issues a reasoned opinion thereon.

### 3. Radioactive Substances and Nuclear Equipment

#### a) Regulatory diversity

As stated in the introduction, the use of radioactive elements, whether natural or artificial, is governed by the provisions of the Public Health Code, which constitutes a general legislative and regulatory framework. However, there are also various specific legal rules and provisions applicable to certain substances or activities concerning them. For example, radioactive elements:

- are included in Table A of toxic products in the regulations on the import, trade, possession and use of poisonous substances (Article R. 5149 of the Public Health Code);
- are covered, as radioactive materials (Class 7), by the general regulations concerning the carriage of hazardous substances (Order of 29 May 2009 on the land transport of dangerous goods (the "TMD Order"));
- require most establishments handling them to be classed as installations classified for environmental protection purposes (ICPE) (Articles L. 511-1 *et seq* of the Environment Code), basic nuclear installations (Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety) or defence-related nuclear installations and activities (Defence Code);
- appear in the provisions of the Mining Code (see paragraph 2 above);
- are subject to the provisions of the Public Health Code and the Employment Code, as well as other legislation and regulations on radiation protection;
- are, at the end of their life, covered by the provisions on radioactive waste (Articles L. 542-1 *et seq* of the Environment Code introduced by the Planning Act No. 2006-739 of 28 June 2006 concerning the sustainable management of radioactive materials and waste).

The Public Health Code lays down:

- general rules for licensing or notification for all nuclear activities, defined as activities involving a risk of exposure of people to ionising radiation emanating either from an artificial source, whether substances or devices, or from a natural source in cases where natural radionuclides are processed in view of their radioactive, fissile or fertile properties, and for interventions to prevent or reduce a radiological risk following an accident or contamination of the environment (Articles L. 1333-1 *et seq*);
- specific provisions regulating exposure to ionising radiation from natural sources (Articles R. 1333-13 *et seq*);
- the conditions governing the acquisition, distribution, import, export, transfer, taking back and disposal of radioactive sources (Articles R. 1333-45 *et seq*);
- the procedures for the protection of persons exposed to ionising radiation for medical or medico-legal purposes (Articles R. 1333-55 *et seq*).

**b) Radioactive sources**

Under Article L. 1333-9 of the Public Health Code, the IRSN is responsible for establishing and updating a list of ionising radiation sources. The IRSN draws up this list on the basis of:

- information provided by anyone responsible for a nuclear activity on the characteristics of the sources, identification of the places they are held or used and the references of their suppliers or acquirers;
- a copy of the receipt for the notifications and licences mentioned respectively in Articles R. 1333-20 and R. 1333-45 of the Public Health Code, supplied by the authority that issued the licence or received the notification.

Specific provisions of the Public Health Code (Articles R. 1333-45 *et seq*) set out the conditions governing the acquisition, distribution, import, export, transfer, taking back and disposal of radionuclides in the form of radioactive sources, products or devices containing them, including medicines, consumer goods and construction materials for which a derogation authorising a radionuclide content has been granted.

The acquisition or transfer, against payment or free of charge, on a temporary or permanent basis, of radionuclides in the form of radioactive sources, products or devices containing them, is accordingly subject to certain rules:

- it is only possible for a person in possession of a notification receipt issued pursuant to Article R. 1333-20 of the Public Health Code or a licence as mentioned in Article R. 1333-45 of that same Code;
- prior registration with the Institute for Radiation Protection and Public Safety (IRSN) is necessary on a form issued by that body;
- a three-monthly statement of transfers and acquisitions must be sent by each supplier to the IRSN;
- in the case of import or export from or to countries that are not members of the European Community, the operation must be registered beforehand with the IRSN. The exporter or importer completes and attaches to its registration request a form issued by the IRSN, which is submitted in support of the customs declaration.

The possession of radionuclides in the form of radioactive sources, products or devices containing them is similarly subject to specific obligations:

- the holder must be able to justify at all times the origin and destination of radionuclides present in his establishment for whatever reason. To that end, he implements a tracking system in his establishment so that he knows the list of products in his possession at all times;
- all appropriate measures must be taken to prevent unauthorised access to radioactive sources, their loss, theft or any damage by fire or water.

Sealed radioactive sources are subject to special rules with regard to the end of their life. Article R. 1333-52 of the Public Health Code states that such a source is deemed to have expired not later than ten years after the date of first registration on the supply form or, failing that, after the date it first came on the market, unless an extension is granted by the competent authority.

Any user of sealed radioactive sources is required to arrange for the sources that have expired or are at the end of their useful life to be taken back by the supplier of sealed radioactive sources, products or devices containing them. The supplier is thus under an unconditional

obligation to collect on request any sealed source that he has distributed, particularly when that source has expired or when the holder ceases to have any further use for it. The supplier must therefore have a storage site with sufficient capacity to receive the sources at the end of their useful life during the period preceding their disposal or recycling.

The supplier can either dispose of, or arrange for the disposal of, the sources taken back in a facility authorised for that purpose, or return them to his supplier or to the manufacturer. He must declare to the Nuclear Safety Authority (ASN) and the IRSN any sealed source, product or device containing them that he failed to return within the required time.

The supplier is also required to produce a financial security to cover the costs of recovering and disposing of the source at the end of its useful life in the event of default. The amount of this financial security is established on the basis of a national scale which defines, for each group of sources, the cost of recovering sealed radioactive sources and products or devices containing them. The groups of radioactive sources are determined on the basis of the nature of the radionuclide, the source's initial activity and the existence or absence of a disposal chain in France.

### **c) Medical activities**

The Public Health Code contains numerous provisions on medical activities dedicated to ensuring the best possible protection of medical staff and patients:

- Articles R. 1333-55 to R. 1333-74 regulate the protection of persons exposed to ionising radiation for medical or medico-legal purposes, based on the principles of justification for exposure and optimisation during that exposure;
- Articles R. 5212-1 *et seq* define the legal framework concerning medical devices vigilance, whose purpose is to monitor incidents or incident risks arising from medical devices, including exposure to ionising radiation.

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

Nuclear installations and equipment comprise: basic nuclear installations (INB), installations classified for environmental protection purposes (ICPE) in which activities using radioactive substances are carried out, nuclear pressure equipment (ESPN) and defence-related nuclear installations and activities (IANID).

### **a) Basic nuclear installations (INB)**

Basic nuclear installations are subject to the provisions of Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety (TSN Act). The licensing system which applies to them is set out in the implementing Decree No. 2007-1557 of 2 November 2007 concerning basic nuclear installations and the monitoring, with regard to nuclear safety, of the transport of radioactive substances (called the "Procedures Decree").

In accordance with Article 28 of the TSN Act and Decree No. 2007-830 of 11 May 2007 on the nomenclature of basic nuclear installations (called the "Nomenclature Decree"):

- nuclear reactors, meaning devices in which a self-sustaining nuclear chain reaction is initiated and controlled;
- plants used for preparing, enriching, manufacturing, processing or storing nuclear fuels or for processing, storing or stockpiling radioactive waste complying with the characteristics defined by the INB Nomenclature Decree No. 2007-830 of 11 May 2007;
- installations containing radioactive or fissile substances and complying with the characteristics defined by the INB Nomenclature Decree No. 2007-830 of 11 May 2007;

- particle accelerators complying with the characteristics defined by the INB Nomenclature Decree No. 2007-830 of 11 May 2007;

Facilities and installations required for the operation of an INB and located within its perimeter, including those listed in one of the categories included in one of the nomenclatures set out in Articles L. 214-2 (the "IOTA Nomenclature", concerning installations, structures, works and activities subject to the legislation on water and aquatic environments) and L. 511-2 (the "ICPE nomenclature") of the Environment Code, are deemed to be part of that installation and are subject to the provisions of the Act of 13 June 2006.

In contrast, facilities and installations included in one of the above-mentioned nomenclatures which are located within the perimeter of an INB but which are not required for its operation remain subject to the provisions of the Environment Code. However, the Nuclear Safety Authority (ASN) exercises the powers relating to individual decisions and monitoring provided for by these provisions.

Under Article 4 of the TSN Act, the independent administrative authority the ASN is involved in monitoring nuclear safety and radiation protection and informing the public in these areas. The ASN is particularly responsible for monitoring compliance with the general rules and specific requirements concerning nuclear safety and radiation protection to which the INBs are subject. This surveillance is carried out by nuclear safety inspectors which it appoints from its staff. These inspectors are sworn-in and bound by professional secrecy. Their duties and functions and the conditions for performing them are set out in Article 40 of the TSN Act and in Decree No. 2007-831 of 11 May 2007 laying down the procedures for the appointment and certification of nuclear safety inspectors.

*i) Creation of a basic nuclear installation*

The TSN Act makes creation of an INB subject to licensing. A licence is given by a Decree issued on the basis of a report by the Ministers responsible for nuclear safety (Minister of Ecology, Energy, Sustainable Development and Sea and Minister of the Economy, Finance and Employment) after the ASN has given its opinion and a public enquiry has been held.

The licence application, accompanied by the supporting documents set out in Article 8 of the Procedures Decree, is lodged with the Ministers by the person responsible for operating the installation. That person assumes the status of operator as soon as the application has been lodged. He sends the ASN a copy of the application and the supporting documents.

The supporting documents include an impact assessment, preliminary safety report, risk management assessment, plan for dismantling the installation, site reinstatement and subsequent surveillance.

The Ministers responsible for nuclear safety transmit the licence application and supporting documents to the Prefect in the *Département* in which the local consultations and the public enquiry have to be organised.

The Prefect concerned refers the application to a public enquiry. The public enquiry procedure is laid down in Articles R. 123-1 *et seq* of the Environment Code, subject to the specific provisions contained in Article 13 of the Procedures Decree.

When part of the territory of a foreign State is within five kilometres of the boundary of the proposed installation or, even though this distance condition is not met, when the Prefect considers, on his own initiative or at the request of the authorities of a foreign State, that the installation may have significant impacts on the environment of that State, he notifies that State of the opening of the public enquiry and sends it a copy of the public enquiry dossier. The foreign authorities have a period of time in which to indicate their intention to take part in the public enquiry.

The Prefect consults the General Council and the Municipal Councils in each *Département* and *Commune* where the public enquiry is taking place. He also consults the appropriate local water board and the local information board as provided for in Article 22 of the TSN Act (see Public Information below).

After the public enquiry has ended, the Prefect sends to the Ministers responsible for nuclear safety the report and the conclusions of the public enquiry, his opinion on the application and the results of the consultation process.

The Ministers transmit a draft decree to the operator who has 15 days in which to submit his observations.

The content of the decree authorising creation is set forth in Article 16 of the Procedures Decree. It contains information on the identity of the operator, the nature of the installation and its maximum capacity, its boundary and commissioning time and licence period if it is time-limited. It also lays down the key elements required for the protection of people and the environment and sets the frequency of safety reviews.

For the purposes of commissioning the INB thus created, the operator must submit a data package to ASN. The contents of that data package are set out in Article 20 of the Decree of 2 November 2007.

#### *ii) Operation of a basic nuclear installation (INB)*

Operation of an INB is subject to general operating rules. These rules are laid down by Ministerial Orders, including:

- the Order of 26 November 1999 laying down the general technical requirements relating to the limits and modes of sampling and discharges subject to licence, carried out by basic nuclear installations;
- the Order of 31 December 1999 laying down the general technical regulations designed to prevent and limit nuisances or external risks resulting from the operation of basic nuclear installations;
- the Order of 10 August 1984 laying down the provisions relating to the quality of the design, construction and operation of basic nuclear installations. The provisions of the Order are further explained in a Circular published on the same date.

In addition, for the purposes of implementing each decree authorising creation of an INB, the ASN defines technical requirements for the design, construction and operation of the INB, in compliance with the general rules laid down by the regulations mentioned above. It specifies as necessary the requirements relating to water sampling, effluent discharges into the natural environment and the prevention or limitation of public or environmental nuisances from the installations.

The ASN's decisions prescribing the technical requirements are published in the ASN's Official Bulletin. Decisions setting the limits applicable to effluent discharges from the installation into the natural environment must be approved by the Ministers responsible for nuclear safety.

#### *iii) Modification of a basic nuclear installation*

The Procedures Decree sets out various procedures for modifying INB licensing and operating conditions, which are left to the initiative of the ASN or the operator:

- to protect the interests mentioned in Article 28-1 of the TSN Act (safety, public health and sanitation, protection of nature and the environment), the ASN can amend, supplement or abolish an INB's requirements (Article 25-I of the Procedures Decree);
- if, because of an exceptional situation, continued operation of an INB requires a temporary modification to certain requirements, and if such operation constitutes a public need, the ASN can decide on that modification under a shortened form of procedure (Article 25-II of the Procedures Decree);
- when the operator is planning a modification to his installation which does not constitute a significant modification to it or a modification of the general operating rules or the installation's internal emergency plan which could affect the interests mentioned in I of Article 28 of the TSN Act, he must notify the ASN (Article 26 of the Procedures Decree). This notification is accompanied by a data package containing all the necessary supporting information. The operator may not implement his project until a six-month period has elapsed without the ASN's express consent. The ASN may exempt the operator from having to give this notification to carry out minor operations, provided that the operator puts in place an internal control system guaranteeing sufficient quality, autonomy and transparency. The conditions for implementing this exemption are laid down by an ASN Decision of 11 July 2008 on the process of implementing internal authorisation systems in basic nuclear installations;
- an operator who wishes to modify an INB boundary has to lodge an application with the Ministers responsible for nuclear safety. The application must be supported by a data package containing the information set out in Article 30 of the Procedures Decree;
- a request to change operator must be lodged with the Ministers responsible for nuclear safety supported by a data package containing the information set out in Article 29 of the Procedures Decree;
- an operator who wishes to make significant modifications to his installation must submit a full licensing application to the Ministers responsible for nuclear safety, under the same conditions as for an initial INB creation authorisation application. The application is considered on the same basis as a creation authorisation application and the licence is approved following the same process. A significant modification to an INB is defined as a change in its nature or an increase in its maximum capacity, a modification of the elements essential to safeguard the interests protected by the TSN Act which are set out in the decree authorising creation, or the addition of a new INB within the boundary of the installation.

The provisions of the decree authorising creation may also be modified, at the request of the operator and the ASN, under the conditions laid down in Article 32 of the Procedures Decree.

*iv) Final shutdown and dismantling of a basic nuclear installation*

The operator of an INB wishing to permanently cease operation of his installation must inform the Ministers responsible for nuclear safety and the ASN. The operator must submit an updated dismantling plan to the ASN no less than three years before the planned date for final shutdown of the INB. Then, no less than one year before the planned final shutdown date, he must submit a final shutdown and dismantling authorisation application to the Ministers accompanied by a data package containing the information set out in Article 37 of the Procedures Decree. The operator must send a copy to the ASN.

The final shutdown and dismantling authorisation application is subject to the same procedure as the creation authorisation application. The provisions concerning modifications to the INB during the course of operation are also applicable to modifications concerning an INB during the course of final shutdown or dismantling or after dismantling but before decommissioning.

The content of the decree authorising final shutdown and dismantling of an INB is set out in Article 38 of the Procedures Decree.

The operator of a dismantled INB which no longer requires the monitoring measures provided for by the TSN Act must submit a decommissioning application to the ASN along with a data package, the content of which is set out in Article 40 of the Procedures Decree. The operator must inform the Ministers of his application.

The ASN submits the decision on decommissioning an INB to the Ministers for approval. Decommissioning entails loss of INB status.

v) *Public information*

Article 1 of the TSN Act defines nuclear transparency as “all the provisions taken to guarantee the public’s right to reliable and accessible information about nuclear safety”. Title III of the Act is devoted to public information. It sets out the content of the right to information on nuclear safety and radiation protection (Articles 18 to 21), the conditions for operation of the local information boards which have to be created for each INB (Article 22) and creates a High Committee for Transparency and Information on Nuclear Safety (Articles 23 to 27) (see the Institutional Framework section for details on this Committee).

The public right to information, as set out in the above-mentioned Articles 18 to 21, includes:

- the right of any person to obtain, from the operator of an INB or the carrier of radioactive substances or the holder of such substances when the quantities thereof exceed the levels laid down by decree, all the information held, whether received or compiled by them, on the risks related to the exposure to ionising radiation that could result from this activity and the safety and radiation protection measures taken to prevent or reduce these risks or exposures, under the conditions set out in Articles L. 124-1 to L. 124-6 of the Environment Code;
- the obligation on operators to produce a public report each year. The nature of the information contained in this report is set out in Article 21 of the Act.

A local information board is created for any site containing one or more INB. The local information board’s remit is general follow-up, information and discussion in the field of nuclear safety, radiation protection and impact of nuclear activities on persons and the environment as far as the site installations are concerned. The local information board widely disseminates the results of its work in a form accessible to the greatest number.

The composition of the local information boards and their remit and powers are set out in Article 22 of the TSN Act and in Decree No. 2008-251 of 12 March 2008 on local information boards for basic nuclear installations.

vi) *Financial provisions*

**Tax on basic nuclear installations**

Since 1 January 2000, each INB has been liable to an annual tax (Article 43 of the 2000 Finance Act No. 99-1172 of 30 December 1999). This tax is payable by the operator from authorisation to create the installation through to the decommissioning decision. From the calendar year following authorisation for final shutdown and dismantling of an installation, the flat rate tax applicable to that installation is halved.

The amount of tax levied on each installation is calculated on the basis of a flat rate tax with a multiplier applied. The multipliers are laid down by Decree No. 2000-361 of 26 April 2000

concerning the tax and additional taxes to which basic nuclear installations are liable under Article 43 of the 2000 Finance Act.

The President of the ASN is responsible for processing and assessing the tax on INBs. In 2006, this tax amounted to EUR 350.4 million.

### **Additional taxes**

The Planning Act No. 2006-739 of 28 June concerning the sustainable management of radioactive materials and waste created three additional taxes over and above the tax on INBs.

These taxes must be used to fund research into radioactive waste management. They must also provide economic support for the Meuse/Haute-Marne underground research laboratory operated by the National Radioactive Waste Management Agency (ANDRA). The amount of these additional taxes, respectively called the research, support and technological transfer taxes, is determined for each category of installation by applying a multiplier to a flat rate tax. The multipliers are laid down by the above-mentioned Decree of 26 April 2000.

These taxes are payable by the operator from authorisation to create the installation through to the decommissioning decision. No reduction is possible. The additional taxes are collected under the same conditions as the tax on INBs.

### **Funding nuclear costs**

Under Article 20 of the Planning Act No. 2006-739 of 28 June concerning the sustainable management of radioactive materials and waste, INB operators are under an obligation to carefully assess the costs of dismantling their installations and the costs of managing their spent fuels and radioactive waste. They must make funding provision for these costs and exclusively allocate the necessary assets to cover that provision with adequate liquidity and security.

The conditions for implementing Article 20 are set out in Decree No. 2007-243 of 23 February 2007 and the Order of 21 March 2007 on secure funding arrangements to cover nuclear costs.

Article 20 of the Act only applies to INBs. However, the Decree of 23 February 2007 extends the Act's obligations to the operators of individual installations within basic nuclear installations classified as secret (INBS).

### **b) Installations classified for environmental protection purposes (ICPE) using radioactive substances**

Civilian nuclear installations other than INBs are subject to the general regime for installations classified for environmental protection purposes (ICPE) laid down in Articles L. 511-1 *et seq* of the Environment Code. These installations are subject to licensing or notification, as specified in the nomenclature appended to Article R. 511-9 of the Environment Code, depending on the scale of the nuisance or hazard that they pose. The majority of ICPEs in which activities using radioactive substances are carried out appear in the nomenclature under headings No.s 1715 and 1735.

Heading 1715 concerns the preparation, manufacture, processing, packaging, use, warehousing, stockpiling or storage of radioactive substances, in the form of sealed or unsealed radioactive sources, other than installations mentioned in heading 1735, INBs and INBSs. Heading 1700 states that these operations are classified under the ICPE nomenclature when they are carried out in an industrial or commercial establishment in which at least one installation is subject to licensing under another nomenclature heading.

Heading 1735 concerns the warehousing, stockpiling or storage of radioactive substances, in the form of solid wastes from uranium, thorium or radium bearing ores and their treatment

products not containing isotope enriched uranium 235 and where the total quantity exceeds one tonne.

ICPEs are the responsibility of the Minister for the Environment. The operating licence is granted by Prefect's Order following a public inquiry and consultation with the local authorities involved. When the risks could potentially affect more than one *Département* or region, the licence is granted by the Minister, where necessary after seeking the opinion of the Higher Council for Classified Installations (*Conseil supérieur des installations classées*).

The procedure applicable to the application for a licence to operate an ICPE is detailed in Articles R. 512-1 *et seq* of the Environment Code.

The conditions for operating ICPEs that require a licence are laid down in the Prefect's Order granting that licence, which must comply with the Order of 2 February 1998 on water sampling and consumption and all types of emissions in respect of installations classified for environmental protection purposes subject to licensing. Its main requirements concern:

- noise and vibrations;
- prevention of air pollution;
- prevention of water pollution;
- waste management;
- prevention of other risks, particularly fire and nuclear risks.

The operation of ICPEs that require notification must comply with the standard orders or Ministerial orders setting out the general requirements applicable to certain nomenclature headings.

Application of the provisions of the Environment Code for the ICPE licensing and notification procedure does not exempt operators from having to comply with the general provisions of the Public Health Code concerning ionising radiation, particularly those mentioned in Articles L. 1333-1 *et seq* and those concerning prevention of the risks of exposure to ionising radiation contained in Articles R. 4451-1 *et seq* of the Employment Code.

Lastly, the Order and Circular of 10 May 2000, concerning the prevention of major accidents involving hazardous substances or preparations present in certain categories of installations classified for environmental protection purposes that require a licence, transposes into French law the Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (Seveso II Directive).

### **c) Nuclear pressure equipment (ESPN)**

Nuclear pressure equipment is defined as pressure equipment that is "specifically designed for nuclear use, failure of which may cause an emission of radioactivity" (Decree No. 99-1046 of 13 December 1999 on pressure equipment, Article 2.1V).

An Order of 12 December 2005 (Order of 12 December 2005 concerning nuclear pressure equipment) states that equipment must meet the following conditions to be classed as nuclear pressure equipment:

- be used or intended to be used in an INB, other than an INBS;
- play a direct role in confining radioactive substances under its normal operating conditions;

- lead to the release of activity above 370 MBq in case of failure.

ESPNS are classified at three levels (N1 to N3), depending in particular on the scale of the radioactive emissions that may result from their failure.

They are also classified in five categories (from 0 to IV), depending on risks other than those justifying their level classification N1, N2 or N3, particularly risks associated with the temperature and pressure of the fluids they contain.

The operator of an INB must hold the list of ESPNS used in the installation and justify the level and category that he assigns to this equipment.

The administrative authorities responsible for monitoring them are the nuclear safety inspectors appointed by the Nuclear Safety Authority (ASN).

#### **d) Defence-related nuclear installations and activities (IANID)**

##### *i) General principles*

The following are classed as IANIDs within the meaning of Article R.\* 1333-37 of the Defence Code:

- basic nuclear installations classified as secret (INBS);
- nuclear military systems;
- sites and installations for nuclear testing related to defence;
- the former nuclear test sites in the Pacific;
- carriage of fissile or radioactive materials associated with nuclear weapons and naval nuclear propulsion.

Article 2-III of the TSN Act sets out the legal framework applicable to IANIDs and to the equipment and installations within their boundaries:

- IANIDs are not subject to the provisions of the TSN Act (with the exception of Article 1 which defines the concepts of nuclear safety and security, radiation protection and transparency);
- the equipment and installations required to operate a defence-related nuclear installation and located within its boundary are deemed to be part of that installation. They are not subject to the provisions relating to the IOTA Nomenclature (Articles L. 214-1 to L. 214-6 of the Environment Code), the provisions relating to the ICPE Nomenclature (Part 1 of Book V of the Environment Code), or to the licensing or notification rules for radioactive sources introduced by Article L. 1333-4 of the Public Health Code;
- the equipment and installations located within the boundary of a defence-related nuclear installation which are not necessary for its operation are subject to the provisions of the afore-mentioned Environment Code and Public Health Code.

The competent authority for defence-related nuclear installations and activities is the Delegate for Nuclear Safety and Radiation Protection for Defence-Related Nuclear Activities and Installations (DSND), who comes under the Defence Minister and the Minister for Industry. The DSND's remit is set out in Articles R.\* 1412-1 to R.\* 1412-6 of the Defence Code. The responsibilities of the DSND include:

- monitoring application of the regulations:
  - on nuclear safety, carrying out an inspection of these installations and activities;
  - laid down to provide radiological protection for the public and employees, in particular the appropriateness of technical measures implemented within the context of protection against ionising radiation;
  - pertaining to radioactive sources held and used in the installations mentioned in Article R.\* 1333-37 of the Defence Code.
- examining the licence applications mentioned in Articles R.\* 1333-42 and R.\* 1333-63, establishing the corresponding nuclear safety and radiation protection requirements and advising the Defence Minister and the Minister for Industry;
- proposing to the Defence Minister and the Minister for Industry, or taking, within the scope of the powers assigned to him, any nuclear safety and radiation protection measures that are necessary to prevent accidents or incidents involving those installations or activities and to limit their consequences;
- playing a part in informing the public on matters within his area of expertise, in compliance with national defence requirements.

*ii) Basic nuclear installations classified as secret (INBS)*

The classification “basic nuclear installation classified as secret” is granted by a Prime Ministerial Decision on the proposal of the Defence Minister or Minister for Industry for their respective installations. These installations are subject to the provisions of the Defence Code concerning defence-related nuclear installations and activities (Articles R.\* 1333-40 *et seq*).

The INBS classification is granted when at least one of the installations sited within the boundary of an INBS (called an “individual installation”) has the technical characteristics laid down by the Order of 31 July 2007 implementing Article R.\* 1333-40 of the Defence Code and prescribing the technical characteristics for the individual installations of a basic nuclear installation classified as secret, is related to national defence and warrants special protection against nuclear proliferation, malicious acts or disclosure of classified information.

INBSs are defined by their boundaries, as set out on the plan appended to the classification decision.

Creation of an INBS is subject to issue of a licence under a decree enacted on the report on the competent Minister.

The Defence Code also contains the provisions applicable to the procedures for:

- authorising creation of a new individual installation (Article R.\* 1333-46 of the Defence Code);
- commissioning individual installations (Article R.\* 1333-47 of the Defence Code);
- licensing and notification for equipment and installations located within the boundary of the INBS, whether or not necessary for its operation (Article R.\* 1333-47-1 of the Defence Code);
- modifying the INBS, changing boundary and operator (Article R.\* 1333-48 of the Defence Code);

- final shutdown and decommissioning of an INBS (Articles R.\* 1333-50 and R.\* 1333-51 of the Defence Code).

The conditions for INBS operation are set out *inter alia* in:

- an Order of 26 September 2007 laying down the general technical regulations designed to prevent and limit nuisances or external risks resulting from the operation of basic nuclear installations classified as secret;
- an Order of 1 October 2007 defining the conditions for lightning protection in basic nuclear installations classified as secret and operations and maintenance installations associated with nuclear military systems.

Under Article R.\* 1333-38 of the Defence Code, information boards are created by Order of the Defence Minister or the Minister for Industry for the sites where the INBSs concerned are in operation in order to inform the public about the impact of nuclear activities on health and the environment.

Where there is a local information board for an INB and an information board for an INBS for the same site, these two boards exchange all relevant information and may hold joint meetings.

### *iii) Defence-related nuclear test sites and installations (SIENID)*

Pursuant to Article R.\* 1333-37 of the Defence Code, the list of SIENIDs is given by an Order of 26 November 2009 laying down the list of defence-related nuclear test sites and installations.

An Order of 24 November 2009 laying down the procedure for classification and declassification and licensing for operation of defence-related nuclear test sites and installations (SIENID) sets out the conditions for including a site on the SIENID list and also specifies the content of the application for a licence to operate installations, structures, works and activities located or carried out within the SIENID boundary which the operator has to send to the DSND at the same time as the classification request.

The legal regime for installations, structures, works and activities located or carried out within the SIENID boundary, which are not necessary for its operation, is laid down in Article R.\* 1333-67-2 of the Defence Code. The legal regime for installations, structures, works and activities which are necessary for operation of the SIENID is laid down by a second Order of 24 November 2009 prescribing the procedures for licensing and notification for installations, structures, works and activities located or carried out within the boundary of defence-related nuclear test sites and installations (SIENID) and necessary for their operation.

### *iv) Nuclear military systems (SNM)*

Pursuant to Article R.\* 1333-37, an Order of 10 March 2008 defining nuclear military systems states that these are nuclear military systems on air bases and on nuclear and non-nuclear powered ships. Under this Order, SNM include carrier-based aircraft carrying nuclear weapons.

The provisions applicable to SNMs are laid down in Articles R.\* 1333-61 to R.\* 1333-67 of the Defence Code.

### *v) Carriage of fissile or radioactive materials for defence purposes*

The provisions relating to the carriage of fissile or radioactive materials for defence purposes are laid down in Article R.\* 1333-67-4 of the Defence Code.

Under this Article:

- the carriage of fissile or radioactive materials for defence purposes is performed under the responsibility of the Defence Minister;
- the DSND is competent for activities and installations associated with nuclear weapons and naval nuclear propulsion. On that basis, he is the competent authority for the purposes of the regulations governing the carriage of dangerous goods.

#### e) **Emergency plans**

Act No. 2004-811 of 13 August 2004 on the modernisation of civil protection (which repealed Act No. 87-565 of 22 July 1987 on the organisation of civil protection, forestry protection against fire and the prevention of major risks) is based on the following principles:

- anticipating, preventing and knowing the risks;
- protecting the public;
- organising the response to events.

The safety arrangements put in place by the Civil Protection Act are based on the existence of three main types of plan:

- the *Commune* Protection Plan, whose content and procedures are laid down by Decree No. 2005-1156 of 13 September 2005 on the *Commune* Protection Plan, issued pursuant to Article 13 of Act No. 2004-811 of 13 August 2004 on the modernisation of civil protection.

Under the authority of the Mayor, this plan defines the *Commune's* organisation for alerting, informing, protecting and supporting the public with regard to known risks. The plan includes a risk survey and assessment at *Commune* level. It integrates and supplements the information documents produced as part of prevention initiatives.

The risk assessment covers all known risks to which the *Commune* is exposed. It is based in particular on the information collected during the process of compiling the major risks report for the *Département*, which is prepared by the *Département* Prefect, the prevention plans for foreseeable natural risks or the Special Action Plans approved by the Prefect concerning the *Commune* area.

The *Commune* Protection Plan supplements the ORSEC plans for general protection of the population.

- the ORSEC Plan, whose content and procedures are laid down by Decree No. 2005-1157 of 13 September 2005 on the ORSEC Plan, issued pursuant to Article 14 of Act No. 2004-811 of 13 August 2004 on the modernisation of civil protection. The ORSEC Plan organises the mobilisation, implementation and co-ordination of the actions of all public and private parties involved in the general protection of the population;
- the Special Action Plans, whose content and procedures are laid down by Decree No. 2005-1158 of 13 September 2005 on Special Action Plans for certain fixed structures or installations, issued pursuant to Article 15 of Act No. 2004-811 of 13 August 2004 on the modernisation of civil protection, supplemented by two Orders (Order of 5 January 2006 on information required to prepare the Special Action Plan, issued pursuant to Article 4 of Decree No. 2005-1158 of 13 September 2005 and the Order of 5 January 2006 concerning public consultation on the draft Special Action Plan for certain

installations, issued pursuant to Article 8-II of Decree No. 2005-1158 of 13 September 2005).

The Special Action Plans (*plans particuliers d'intervention* - PPI) are prepared to protect the public, property and the environment, to respond to the specific risks associated with the existence and operation of structures or installations within a localised fixed area. They implement civil protection policy guidelines with regard to resource mobilisation, information and alerting, exercises and drills. They constitute a component of the special arrangements within the *Département* ORSEC plan.

The characteristics of installations or structures posing risks for which a PPI has to be prepared include:

- sites containing at least one basic nuclear installation whether classified secret or not;
- installations classified for environmental protection purposes for which servitudes could be created in the public interest.

In addition, Article L. 1333-6 of the Public Health Code states that licensing an activity which could cause an incident or accident likely to be detrimental to people's health through exposure to ionising radiation may be conditional upon preparing an Internal Emergency Plan setting out the organisation and resources for responding to different types of situation.

Pursuant to this provision, Article 20 of Decree No. 2007-1557 of 2 November 2007 concerning basic nuclear installations and the monitoring, with regard to nuclear safety, of the transport of radioactive substances states that the operator of a basic nuclear installation (INB) must submit the Internal Emergency Plan (*plan d'urgence interne* - PUI) to the Nuclear Safety Authority for the purposes of commissioning the installation. Preparation of a PUI is therefore mandatory for INBs.

The PUI defines the organisational measures, response methods and resource requirements that the operator must deploy in an emergency situation to protect employees, the public and the environment from ionising radiation and preserve or restore the installation's safety.

If a PPI has been prepared, the PUI must specify the procedures for implementing the measures incumbent on the operator under the PPI. The PUI must take into account the measures to be taken by the operator in the event of an accident as defined in the installation's safety report. A joint PUI may be prepared for several neighbouring basic nuclear installations with the same operator on the initiative of the operator or at the request of the Nuclear Safety Authority.

Where appropriate, it may replace the Internal Operation Plan (POI) introduced by Article R. 512-29 of the Environment Code for installations classified for environmental protection purposes (ICPE) located within the perimeter of the basic nuclear installation. The POI defines the organisational measures, response methods and resource requirements that the operator of an ICPE must deploy to protect employees, the public and the environment. It is mandatory for ICPEs subject to servitudes in the public interest.

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

### **a) General provisions**

Trade in nuclear technologies, materials and equipment is a highly sensitive area. France has developed regulations in this respect to closely monitor the movement of materials and ensure the safety of these materials and of the establishments in which they are held (see sub-section 8 "Non-Proliferation and Physical Protection") and to control exports and imports.

The export and import of nuclear materials and equipment involve general policy decisions taken at the highest level. The Nuclear Policy Council, created by Decree No. 2008-378 of 21 April 2008 (replacing the Council for Foreign Nuclear Policy), is tasked with defining the main planks of nuclear policy and ensuring that they are implemented, with particular regard to exports and international co-operation. The Council is chaired by the President of the Republic and has twelve members: the Prime Minister, the Minister of Foreign Affairs, the Defence Minister, the Ministers for Energy, the Economy, Industry, Foreign Trade, Research and Budget, the Chief of Staff of the Armed Forces, the Secretary General for National Defence and the Chairman of the Atomic Energy Agency (CEA).

The French authorities exercise very strict control over the import and export of sensitive products, substances, materials and equipment. Lists of sensitive products are published in the Official Journal in the form of a notice.

Articles L. 1333-1 *et seq* of the Defence Code provide for the import, export and development, possession, transfer, use and transport of nuclear materials to be subject to licensing and control. Articles R. 1333-1 *et seq* of the Defence Code set out, *inter alia*, the conditions for obtaining this licence and the obligations incumbent on the licence holder.

More generally, France has adopted the AIEA system of safeguards to ensure that the nuclear equipment it exports is not used for military purposes. Act No. 92-574 of 1 July 1992 authorised the accession of France to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons, which came into force in France on 3 August 1992.

The export of dual-use goods and technology – i.e. products, including software and technology, which can be used for both civilian and military purposes, including all products which may be used both for non-explosive purposes and in some way for the manufacture of nuclear weapons or other explosive nuclear devices – is subject to regulation. The provisions applicable are set out in Decree No.2001-1192 of 13 December 2001 concerning the control of export, import and transfer of dual-use goods and technology and two Orders issued on the same date (Order of 13 December 2001 on the control of exports to non-member countries and the transfer of dual-use goods and technology to Member States of the European Union and Order of 13 December 2001 on the issue of an international import certificate and delivery verification certificate for importing dual-use goods and technology), issued pursuant to Council Regulation (EC) No. 428/2009 of 5 May 2009 setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items. The Community Regulation states that an authorisation is required to export the goods or technology listed in Annex 1 thereto, which determines which goods or technology are considered to be dual-use. This list is regularly updated. The authorisation provided for by the Community Regulation is granted by the competent authorities of the Member State where the exporter is established; in France, this authorisation is granted by the Directorate General of Customs and Indirect Taxation (SETICE). This authorisation may be an individual, global or general authorisation, as the case may be. In French law, the Decree and Order of 13 December 2001 on the issue of an international import certificate and delivery verification certificate for importing dual-use goods and technology specifies the formalities to be completed by persons exporting goods or technology to non-member countries or transferring them to Member States of the European Union. Importers of dual-use goods from non-member countries into the European Union must apply for an international import certificate to enable their foreign supplier to obtain an export licence from their national authorities, then a delivery verification certificate proving that the item has arrived at its destination. This certificate is issued by the Minister for Customs, in accordance with the conditions laid down by the Order.

## **b) Patents**

In France, nuclear industrial property is subject to the normal legal rules set out in the Industrial Property Code.

The only nuclear regulations which deal with invention patents are in Decree No. 72-1158 of 14 December 1972 relating to the Atomic Energy Commission (CEA), which states that invention

patents arising from CEA activities are to be filed in its name (Article 7). Inventors may receive an award, details of which are determined by the Chairman, having regard to the opinion of the Atomic Energy Committee or in accordance with rules approved by it.

There are special provisions in the Industrial Property Code (Articles R. 612-26 *et seq*) for inventions relating to national defence or economic development, including those involving nuclear technologies. The State may, by decree, wholly or partially expropriate patents in return for payments to the inventor. Likewise, it may *ex officio* grant licences to certain bodies for patents related to national defence.

## 6. Radiation protection

French radiation protection regulations have their origins in various norms, standards or recommendations, such as the recommendations of the International Commission on Radiological Protection (ICRP) or the standards of the International Atomic Energy Agency (AIEA), in particular the International Basic Safety Standards for Protection against Ionising Radiation and for the Safety of Radiation Sources (Safety Series No. 115).

They are also based on rules adopted at Community level: the 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; Council Directive 90/641/Euratom of 4 December 1990 on the operational protection of outside workers exposed to the risk of ionizing radiation during their activities in controlled areas; 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 ionizing radiation; Council Directive 97/43/Euratom of 30 June 1997 on health protection of individuals against the dangers of ionizing radiation in relation to medical exposure.

The rules concerning radiation protection are contained both in the Public Health Code, with regard to the general principles and protection of the public (Chapter III "Ionising Radiation" of Title III of Book III of the legislative part) and in the Employment Code (Chapter I "Prevention of the risks of exposure to ionising radiation" of Title V of Book IV of the fourth part of the legislative part) with regard to workers.

Three fundamental principles defined in Article L. 1333-1 of the Public Health Code underpin any nuclear activity as defined in this Article ("activity involving a risk of exposure of people to ionising radiation emanating either from an artificial source, whether substances or devices, or from a natural source in cases where natural radionuclides are or have been processed because of their radioactive, fissile or fertile properties, and any interventions to prevent or reduce a radiological risk following an accident or contamination of the environment"):

- the justification principle: a nuclear activity or an intervention must only be undertaken or performed if justified by the benefits that it produces, particularly in health, social, economic or scientific terms, when set against the risks inherent in the exposure to ionising radiation to which the persons could be subject;
- the optimisation principle (ALARA principle=As Low As Reasonably Achievable): the exposure of people to ionising radiation as a result of a nuclear activity or an intervention must be maintained at the lowest level that it is reasonably possible to achieve taking into account current technological knowledge, economic and social factors and, where applicable, the medical objective sought;
- the limitation principle: the exposure of people to ionising radiation as a result of a nuclear activity must not take the sum of the doses above the limits laid down by regulations, except where the exposure to which that person is subject is for medical or biomedical research purposes.

## a) Protection of the public

### i) Principles

In France, the general measures for protecting the public against ionising radiation are set out in Articles R. 1333-1 *et seq* of the Public Health Code.

Under the provisions of the Code, the establishment head or company head is responsible for providing the individual responsible for a nuclear activity with all the resources necessary to achieve and maintain an optimum level of protection of the public against ionising radiation.

In addition, the intentional addition of artificial or natural radionuclides to construction products, consumer goods and foodstuffs is banned under the Code. The Code also bans the use in the manufacture of consumer goods or construction products of materials and waste from a nuclear activity that are contaminated or potentially contaminated by radionuclides.

### ii) Dose limits

The sum of effective doses received by any member of the public as a result of nuclear activities must not exceed 1 mSv in a year. The permitted limits on equivalent dose for the lens of the eye is 15 mSv in a year and for the skin 50 mSv in a year, averaged over any 1 cm<sup>2</sup> area of skin, regardless of the area exposed.

These dose limits do not apply *inter alia* to the exposure of patients as part of their medical diagnosis or treatment, the exposure of individuals or response personnel in an emergency, the exposure of workers or the exposure of individuals to ionising radiation from natural sources.

The effective dose is defined in Article 1 of the Order of 1 September 2003 defining the methods of calculating effective doses and equivalent doses resulting from the exposure of individuals to ionising radiation, as the "sum of effective doses resulting from external and internal exposure to ionising radiation". The equivalent dose is defined in the Annex to Decree No. 2002-460 of 4 April 2002 as "the dose absorbed by tissue or an organ, weighted according to radiation type and energy". The Order of 1 September 2003 defines the methods of calculating effective doses and equivalent doses.

Estimates of doses resulting from external exposure and the intake of radionuclides are made for the population as a whole and for reference groups of the population in all places where such groups may occur.

### iii) National network to measure radioactivity in the environment

The Public Health Code also sets up a national network to measure radioactivity in the environment. The role of this network is to be instrumental in estimating doses resulting from ionising radiation to which the public is exposed and to inform the public.

It compiles:

- the results of measurements of radioactivity in the environment taken either by the Institute for Radiation Protection and Nuclear Safety (IRSN), or by laboratories approved by the Nuclear Safety Authority (ASN) for such measurements;
- briefing documents on assessment of doses received by the public.

This network collects together all the results of measurements of radioactivity in the environment required by legislative or regulatory provisions or those taken by the ASN, by territorial communities, Government departments or public establishments or any group or other private body.

iv) Radon risk

Under Articles R. 1333-13 *et seq* of the Public Health Code, in geographical areas where radon from natural sources could be measured in high concentrations in places open to the public, the owners or, failing that, the operators of those places are required to measure the activity of radon and the descendants of radon in premises where the public is likely to stay for significant periods. The *Départements* affected by radon measurement and the categories of places open to the public are set out in the Order of 22 July 2004 on the conditions for managing the radon risk in public places.

**b) Protection of workers**

i) Principles

The provisions of the Employment Code (Articles R. 4451-1 *et seq*) create a single radiation protection regime for all workers (salaried or not) who could be exposed to ionising radiation within the course of their work.

Article R. 4451-7 states that the employer takes the general administrative and technical measures, in particular as regards the organisation of work and working conditions, required to prevent work accidents and occupational illnesses which could be caused by exposure to ionising radiation.

ii) Competent person for radiation protection

Under Article R. 4456-1 of the Employment Code, the employer must appoint at least one competent person for radiation protection when the presence, handling, use or storage of a sealed or unsealed radioactive source or an electrical generator of ionising radiation causes a risk of exposure for the workers of the establishment and for those of outside contractors or unsalaried workers working in this establishment.

In accordance with Article R. 4456-3 of the Employment Code, in establishments including at least one basic nuclear installation and in establishments including an installation or an activity subject to licensing under Article L. 1333-4 of the Public Health Code or Articles L. 511-1 *et seq* of the Environment Code, the competent person for radiation protection must be chosen from among the workers in the establishment. When more than one competent person for radiation protection is appointed because of the nature of the activity and the scale of the risk, they must be brought together in an internal department called the competent department for radiation protection, separate from the establishment's production departments and operations departments.

iii) Dose limits and categorisation of workers

The sum of effective doses received by external and internal exposure must not exceed 20 mSv over 12 consecutive months, except where exemptions have been allowed to take account of previously justified exceptional exposures or emergency occupational exposures. The equivalent dose limits for the various exposed parts of the body are: 500 mSv for the hands, forearms, feet and ankles; 500 mSv for the skin and 150 mSv for the lens of the eye.

Workers exposed to ionising radiation are classified in two categories depending on the dose that they might receive (effective dose above or below 6 mSv in a year). These workers are given radiation protection training. They also undergo individual dosimetric monitoring appropriate to the mode of exposure (external, internal and natural radioactivity). In addition, workers carrying out

activities in controlled areas undergo operational dosimetric monitoring. If one of the exposure limit values is exceeded, the occupational health doctor and the employer are immediately informed by one of the bodies responsible for monitoring the workers' exposure to ionising radiation.

*iv) Delineating different areas in installations*

After conducting a risk assessment and seeking the advice of the competent person for radiation protection, an employer in possession of a source of ionising radiation must delineate different areas: monitored area (could receive an effective dose exceeding 1 mSv in a year), controlled area (could receive an effective dose exceeding 6 mSv in a year), specially regulated or prohibited area. The purpose of this delineation is to inform workers about the level of the risk in a specific area. The employer defines the collective and personal protective measures (Order of 15 May 2006 on the conditions for delineating and signing monitored and controlled areas and specially regulated or prohibited areas on the basis of exposure to ionising radiation, and to the health and safety and maintenance rules imposed in those areas).

*v) Exposure to natural radioactivity and radon*

Special rules apply to occupational exposure associated with natural radioactivity. They concern exposure resulting from the use or storage of materials containing natural radionuclides (Order of 25 May 2005 on occupational activities using raw materials naturally containing radionuclides not used because of their radioactive properties), exposure to radon of geological origin, or exposure to ionising radiation on board aircraft in flight (Order of 8 December 2003 laying down the conditions for implementing protection against ionising radiation for workers assigned to activities on board aircraft in flight).

Under Articles R. 4457-6 *et seq* of the Employment Code, in establishments where the workers are exposed to radon activity because of the location of their workplaces, the employer is required to ask an approved body or the IRSN to measure that activity. The results must then be communicated to the ASN and the IRSN.

An ASN Decision, approved by the Ministers for Employment and Agriculture, sets the radon concentration levels above which the employer has to take action to reduce exposure as far as reasonably possible.

An Order of 7 August 2008 gives a list of activities or categories of occupational activities concerned by the provisions of Article R. 4457-6 of the Employment Code (workers exposed to radon activity because of their workplace location).

**c) Radiation protection inspectors**

Two inspection bodies are competent in the field of prevention of the risks associated with ionising radiation: the radiation protection inspectors and the labour inspectors. Circular DGT/ASN No. 13 of 16 November 2007 on co-ordinating the action of radiation protection inspectors and labour inspectors and controllers in the field of prevention of the risks associated with ionising radiation sets out the conditions for co-ordinating the inspection work of these two inspection bodies.

**Radiation protection inspectors**

Radiation protection inspectors are referred to in Articles R. 1333-98 *et seq* of the Public Health Code. There are currently a hundred or so radiation protection inspectors appointed from within the ASN staff by joint order of the Ministers for Health and Employment (Decree No. 2006-694 of 13 June 2006 laying down the procedures for appointing, certifying and swearing-in radiation protection inspectors and amending the Public Health Code (regulatory provisions)). They are certified and competent throughout the geographical area in which they perform their inspection duties in one or more of the following sectors of activity: medical, industry and other activities.

These inspectors are responsible for:

- processing cases concerning the procedures for notification and licensing nuclear activities and certification applications from bodies involved in measurement or technical inspections in nuclear activities;
- checking application of these rules and procedures.

The radiation protection inspectors may ask the head of the establishment where sources of ionising radiation are prepared, manufactured, held or used requiring a licence or notification to provide any information required to apply these rules.

### **Labour inspectors**

Under the provisions of Article L. 8112-1 of the Employment Code, the labour inspectorate is a generalist inspection system whose purpose is to ensure the protection of workers. Its powers and duties are general since it operates both in the field of individual and collective labour relations as well as health and safety and work organisation. The labour inspectors are responsible, together with the police, for deciding that an offence has been committed in breach of these provisions.

The powers of the radiation protection inspectors and the labour inspectors include being able to enter the premises and installations inspected in order to carry out their duties.

### **d) Protection of individuals in a radiological emergency**

On 26 September 1986 in Vienna, France signed the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident. These two Conventions, published respectively by Act No. 88-1252 of 30 December 1988 and Decree No. 89-361 of 2 June 1989, came into force on 6 April 1989.

In domestic law, specific provisions for the protection of individuals in a radiological emergency are set out in Articles R. 1333-75 to R. 1333-88 of the Public Health Code.

A radiological emergency is defined as an event which could lead to an emission of radioactive materials or a level of radioactivity which could affect public health. This event may be the result of an accident or a malicious act.

Protection of the public against the dangers of ionising radiation in an accident or radiological emergency is achieved through implementing specific actions (or countermeasures) appropriate to the nature and extent of the exposure.

In the specific case of nuclear accidents, these actions were defined in the Interministerial Circular of 10 March 2000 amending the Special Action Plans (*plans particuliers d'intervention - PPI*) for basic nuclear installations to include response levels expressed in terms of doses. These levels are reference points for the public authorities (Prefects) who have to decide locally what actions to take on a case-by-case basis. These actions are:

- sheltering if the predicted effective dose exceeds 10 mSv;
- evacuation if the predicted effective dose exceeds 50 mSv;
- administration of stable iodine if the predicted thyroid dose might exceed 100 mSv.

These response levels were restated in the Order of 13 October 2003 on response levels in a radiological emergency, implementing Article R. 1333-80 of the Public Health Code. The reference exposure levels for individuals responding in a radiological emergency are also defined in Article R. 1333-86 of the Public Health Code.

With regard to the exchange of information on a European level, the ECURIE system (European Community Urgent Radiological Information Exchange) was introduced by Council Decision 87/600/EURATOM of 14 December 1987 on Community arrangements for the early exchange of information in the event of a radiological emergency. If a Member State detects a radiological emergency, this system allows it to notify the Commission and Member States which are affected or are likely to be affected and provide them with the available information.

## **7. Radioactive Waste Management**

### **a) General regulations**

The general regulations concerning waste are laid down in Articles L. 541-1 *et seq* and D. 541-1 *et seq* of the Environment Code.

The definition of waste is given in Article L. 541-1. For the purpose of the Environment Code:

- waste is any residue from production, processing or use, any substance, material, product or more generally any movable goods discarded or which its holder intends to discard;
- ultimate waste is waste whether resulting from waste processing or not, which cannot, given the technical and economic circumstances of the time, be processed further, notably by extracting anything of value or reducing its polluting or hazardous nature.

Article L. 541-2 of the Environment Code requires any producer or holder of waste to dispose of it in such a way as to avoid any harmful effects. Operation of a waste storage facility is subject to a licence issued by Prefect's Order under the regulations for installations classified for environmental protection purposes (ICPE) and to the provision of financial securities by the operator of the facility (Articles R. 516-1 *et seq* of the Environment Code).

### **b) Radioactive waste regulations**

France first introduced legislation specifically relating to radioactive waste in 1991 in the form of Act No. 91-1381 of 30 December 1991 on research into radioactive waste management. This act set three research objectives for the management of high-level waste (partitioning and transmutation, repository in deep geological formations and long-term storage), with a 15-year timeframe to carry out this research.

At the end of this 15 year period, Planning Act No. 2006-739 of 28 June 2006 concerning the sustainable management of radioactive materials and waste was enacted on the basis of the findings of this research. It also added a separate chapter on radioactive waste to the Environment Code (Articles L. 542-1 *et seq*), which starts by setting out the main principles governing their management:

- the sustainable management of any radioactive materials and waste, resulting notably from the operation and dismantling of installations using radioactive sources or materials, shall be carried out with a concern to protect human health, safety and the environment;
- relevant means to ensure the final safety of radioactive waste shall be developed or implemented with a view to preventing or limiting the responsibilities to be borne by future generations;
- any producer of spent fuel and of radioactive waste shall be liable for those substances, without any prejudice to the liability of their holders as people responsible for nuclear activities.

Activities related to radioactive waste require an official licence and are subject in particular to the provisions of the Environment, Public Health and Employment Codes.

Any nuclear installation, whether producing radioactive waste incidentally or intended for managing or storing such waste, requires a construction licence. Depending on the level of activity of the radionuclides produced or handled in the installation and their quantity, the licence will be issued under the regime applicable to installations classified for environmental protection purposes (Articles L. 511-1 *et seq* of the Environment Code) or that applicable to basic nuclear installations (Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety). Licences are accompanied by technical conditions relating to the design, construction and operation of the installation.

There are thus several radioactive waste disposal facilities in France operated by the National Radioactive Waste Management Agency (ANDRA):

- a disposal facility for very low-level radioactive wastes: this is an installation classified for environmental protection purposes subject to licensing under Articles L. 514-1 *et seq* of the Environment Code, operated in the Aube *Département*;
- a disposal storage centre for short-lived intermediate level and low level radioactive wastes: this is a basic nuclear installation operated in the Aube *Département*. A centre for the same types of waste was in operation in the Manche region from 1969 to 1994. It is now in the surveillance phase.

The above-mentioned Act of 28 June 2006 establishes a programme of investigations and studies for long-lived high level or intermediate level radioactive waste along the same lines as had been done previously in Act No.91-1381 of 30 December 1991 on research into radioactive waste management. The programme addresses the following three complementary areas:

- partitioning and transmutation of long-lived radioactive elements: the corresponding studies and investigations must be carried out in association with those conducted on the new generations of nuclear reactors and on the accelerator-driven reactors dedicated to the transmutation of waste, in order to provide an assessment of the industrial prospects of those systems by 2012 and to commission a pilot facility before 31 December 2020.
- reversible waste disposal in a deep geological formation: the corresponding studies and investigations, conducted *inter alia* at the underground research laboratory operated by ANDRA in Meuse / Haute-Marne, must be carried out with a view to selecting a suitable site and designing a repository in such a way that, on the basis of the conclusions of those studies, the licence application for such a repository pursuant to Article L. 542-10-1 of the Environment Code can be reviewed in 2015 and, subject to that licence, that the repository can be commissioned in 2025.
- storage: the corresponding studies and investigations must be carried out with a view to creating new storage facilities or modifying existing ones by 2015 at the latest.

Lastly, to complete the range of solutions adopted to manage radioactive waste, ANDRA has to open a repository for low-level long-lived radioactive waste, such as radium-bearing waste and graphite waste.

To ensure that the system is appropriate to meet the requirements, Article L. 542-1-2 of the Environment Code mirrors the provisions applicable to "traditional" waste: a National Radioactive Material and Waste Management Plan takes stock of existing modes for managing radioactive materials and waste, lists the foreseeable requirements of storage or disposal facilities, details the required capacities of such facilities together with corresponding storage times and, in the case of radioactive waste for which no final management mode exists, determines the objectives to be achieved.

On that basis, the National Plan organises the implementation of investigations and studies on the management of radioactive materials and waste by prescribing deadlines for implementing new management modes, creating new facilities or modifying existing facilities in order to fulfil the regulatory requirements and objectives.

The first version of this Plan was published in 2007. It has to be updated every three years by the Government. It is transmitted to Parliament, which in turn refers it for review to the Parliamentary Office for Evaluation of Scientific and Technological Options.

In addition, Article L. 542-2 of the Environment Code prohibits the disposal in France of radioactive waste from a foreign country and the disposal of radioactive waste from the processing of spent fuel and radioactive waste from a foreign country. No spent fuel or radioactive waste may be brought onto France's national territory except for processing, research or transfer between foreign countries. Bringing substances in for processing can only be authorised within the framework of intergovernmental agreements and provided that no residual radioactive waste obtained after processing those substances is stored in France beyond the term prescribed by such agreements.

### **c) Discharge of effluents**

Article 28 of Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety and Decree No. 2007-1557 of 2 November 2007 concerning basic nuclear installations and the monitoring, with regard to nuclear safety, of the transport of radioactive substances lay down the procedure to be applied for all liquid and gaseous discharges from basic nuclear installations and from installations classified for environmental protection purposes within the perimeter of a basic nuclear installation and necessary for its operation.

Liquid and gaseous discharges must therefore be considered in the application for a licence to create the basic nuclear installation generating them and, in particular, in the impact assessment, the specific content of which is detailed in Article 9 of the above-mentioned Decree of 2 November 2007.

Discharges from an installation classified for environmental protection purposes within the perimeter of a basic nuclear installation but not necessary for its operation are governed by a decision to grant an operating licence made by the Nuclear Safety Authority (ASN) and published in its Official Bulletin.

A licence to create an installation which could discharge radioactive effluents into the environment can only be granted after receiving the opinion of the Commission of the European Communities issued pursuant to Article 37 of the Treaty Establishing the European Atomic Energy Community (Euratom Treaty) or, in the absence of such an opinion, after six months has elapsed following reference of the matter to the Commission.

The ASN can prescribe technical requirements pertaining to the design, construction or operation of the basic nuclear installation. These requirements, published in the ASN Official Bulletin, may relate *inter alia* to the conditions under which the installation can undertake water sampling or direct or indirect discharge of effluents into the environment whether radioactive or not, or to the management and disposal of waste, radioactive or not, produced by the installation or disposed of or stored therein.

When the requirements set limits applicable to the discharge of effluents into the environment, the ASN must submit its decision to the Ministers responsible for nuclear safety for approval.

Monitoring discharges and their compliance with the ASN's requirements is part of the role of the nuclear safety inspectors appointed by the ASN from among its staff.

An Order of 26 November 1999 lays down the general technical requirements related to the limits and modes of sampling and discharges subject to licence, carried out by basic nuclear installations. These requirements concern:

- limits and technical requirements for water sampling and liquid and gaseous discharges;
- means of analysing, measuring and controlling licensed activities, as well as the monitoring of their impact on the environment;
- information of state authorities on sampling and discharges carried out and their impact on the environment;
- controls carried out by the Institute for Radiation Protection and Nuclear Safety (IRSN) and state services; and
- public information.

Individual licence orders must comply with these general requirements as a minimum, but may include more stringent requirements.

## **8. Non-Proliferation and physical protection**

France has pledged to combat the proliferation of nuclear weapons, notably through its accession to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons, which came into force in France on 3 August 1992. France also ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 6 April 1998. This instrument is not yet in force. To this end, it has adopted measures to prevent and control the dissemination of nuclear materials and techniques.

The French arrangements for the protection and control of nuclear materials are set out in the Defence Code which refers to fusible, fissile or fertile materials and any material containing one or more fusible, fissile or fertile elements, excluding ores (Article L. 1333-1). The fusible, fissile or fertile elements concerned are plutonium, uranium, thorium, deuterium, tritium and lithium 6 (Article R. 1333-1).

### **a) Materials not used for the nuclear deterrent**

Articles R. 1333-1 *et seq* of the Defence Code provide for the protection of these nuclear materials against loss, theft, diversion or any act aimed at tampering with them, damaging them or dispersing them. This protection requirement extends to installations (premises or structures) where they are held, to the safety arrangements protecting these installations and to those used for the carriage of these materials.

Under these provisions, the import, export and development, possession, transfer, use and transport of nuclear materials are subject to licensing and control. Articles R 1333-3 *et seq* of the Defence Code set out, *inter alia*, the conditions for obtaining this licence and the obligations incumbent on the licence holder.

The licence is issued by the Minister of Defence for nuclear materials intended for defence requirements and by the Minister for Energy for materials intended for any other use within six months of the application being made. The Minister of Defence and the Minister for Energy consult the Minister of the Interior on licence applications and the Minister of Foreign Affairs on those involving import or export movements. The minister consulted has two months in which to give his opinion. Should there be no reply the opinion is assumed to be favourable.

The Minister for Energy delegates his responsibilities in relation to nuclear materials to his Ministry's Senior Official for Defence and Security (*Haut fonctionnaire de défense et de sécurité* - HFDS-Energy). To fulfil this role the HFDS-Energy has specific resources within the Defence,

Security and Economic Intelligence Department (*service de défense, de sécurité et d'intelligence économique* - SDSIE) at the Ministry of Ecology, Energy, Sustainable Development and Sea. This Department includes a Nuclear Security Division (Article 2.9 of the Order of 9 July 2008 organising the central administration of the Ministry of Ecology, Energy, Sustainable Development and Territorial Development) whose role as stated in Article 2.9.3.1 of the above-mentioned Order of 9 July 2008 is to:

- define the procedures for protecting nuclear materials, installations and transport and checking their implementation;
- define the procedures for protecting radioactive sources. To that end, it draws up the regulations applicable in these areas;
- review the applications for licences to possess and transport nuclear materials provided for in the Defence Code;
- organise the accounting for these materials;
- ensure compliance with the protective measures imposed on operators, in particular by expediting inspections on the sites;
- liaise with the players in the nuclear industry at all times.

The Nuclear Security Division is responsible for the protection of nuclear materials and installations and for the protection of nuclear transport.

When the quantities of nuclear materials are below the levels set for the licence but above certain defined levels, a simple notification to the competent minister is sufficient (Article R. 1333-9).

The licence states, for each activity authorised:

- the conditions to which it is subject;
- the period of validity;
- the maximum quantities and maximum flows of nuclear materials covered;
- the physical protection measures required for establishments and installations to protect the nuclear materials that they contain.

Compliance with these specifications is monitored by the administrative authority which can suspend or withdraw the licence in the event of failure to comply, after giving the licence holder formal notice to submit his observations in writing.

The licence holder is responsible for:

- accounting and physical monitoring of the nuclear materials;
- confinement, surveillance and physical protection of the nuclear materials and installations, premises or devices containing such materials;
- protection of materials during transport.

These regulations must allow the competent minister to verify effectiveness and reliability in this regard, centralise materials accounting and, where necessary, be informed forthwith on the nature and quantity of missing or surplus materials (Article R. 1333-11 of the Defence Code).

The competent minister may at any time order a physical inventory of the nuclear materials held by the licence holder and a comparison with the accounting results.

Any transport of nuclear materials is subject to an implementing agreement. The agreement request must be submitted to the Deputy Director General of the Institute for Radiation Protection and Nuclear Safety (IRSN), who also has the authority to issue this agreement, except in the case of transport from or to a foreign country where the agreement has to be given by the competent minister (Article R. 1333-17 of the Defence Code).

Any incident or accident affecting the carriage of nuclear materials must be immediately reported by the carrier to the IRSN, who informs the police and competent minister forthwith.

Compliance with these specifications is monitored by officials specially authorised for that purpose on an individual basis by the Minister for Energy in the case of materials and installations coming under the Ministry for Energy or by the Minister of Defence in the case of materials and installations coming under the Ministry of Defence (Articles R. 1333-71 and R. 1333-75 of the Defence Code).

The Order of 14 March 1984 lays down measures for the follow-up, confinement, surveillance and physical protection of nuclear materials subject to a notification requirement. Notifications must be sent to the IRSN which centralises the information and, where necessary, prescribes the conditions to be complied with pursuant to implementation of the Order.

Moreover, Act No.89-434 of 30 June 1989 supplementing Act No. 80-572 of 25 July 1980 on the protection and control of nuclear materials and supplementing the Code of Criminal Procedure, extended the jurisdiction of the French criminal courts to allow them to try related offences committed in a foreign country (Article 689-4 of the Code of Criminal Procedure).

It should be noted that compliance with the legislation on the protection and control of nuclear materials does not establish any entitlement to exemption from implementing the other regulations in force (radiation protection, rules for managing radioactive sources, transport of hazardous substances, secrecy, etc.).

#### **b) *Materials used for the nuclear deterrent***

Because of the highly sensitive nature of this subject, nuclear materials used for the nuclear deterrent are covered by specific provisions in the Defence Code, relating *inter alia* to their control (Articles R\*. 1411-7 to R\*. 1411-11).

The means of nuclear deterrence are under government control and the materials used for the nuclear deterrent fall within the scope of that control. By control is meant all the measures, classified as secret for national defence purposes, aimed at ensuring that the means of nuclear deterrence are available to the President of the Republic in any circumstances. This is the Prime Minister's responsibility as the President's guarantor of that control (Article R\*. 1411-7 of the Defence Code).

Under Article R\*. 1411-8 of the Defence Code, government control is exercised in the following three complementary, inextricably linked areas:

- engagement of nuclear forces;
- conformity of use;
- integrity of the means of nuclear deterrence, of which the nuclear materials are a part.

The Minister of Defence is the authority responsible for government control of the integrity of the means of nuclear deterrence. To exercise that control, he has an implementation chain and a

security chain. These two chains act independently from each other. Since the integrity of the means of nuclear deterrence is within the remit of the CEA, the implementation chain is entrusted to the Chairman and the security chain to the High-Commissioner for Atomic Energy (Article R\*. 1411-9 of the Defence Code).

## **9. Transport**

The regulations applicable to transport in the nuclear field introduce a licensing and notification regime which depends on the nature of the consignment (a), and the rules specific to each mode of transport (b).

### **a) Licensing and notification regime**

The licences or notifications required differ depending on whether the consignment concerns radioactive materials, nuclear materials or radioactive substances. These different legal regimes apply cumulatively.

#### ***Transport of radioactive materials***

Under Article R. 1333-17-II of the Public Health Code, the carriage of radioactive materials is subject to licensing or notification under the conditions set out in Article R. 1333-44 of that same Code. This Article states that "without prejudice to the regulations concerning the carriage of dangerous goods, companies carrying consignments of radioactive goods are, in respect of transportation on national territory, subject to a notification requirement or licensing by the Nuclear Safety Authority".

National territory extends to France's territorial sea boundaries. Sea transport is therefore also covered by these provisions. Authorisations for the transport of radioactive materials by air issued pursuant to Article R. 330-1-1 of the Civil Aviation Code serve in lieu of licensing.

For the purposes of these regulations, a radioactive material is a substance containing natural or artificial radionuclides whose level of activity or activity concentration warrants radiation protection control as provided for in the Public Health Code (Article L. 542-1-1 of the Environment Code). This definition is supplemented by the definitions given in Annex 13-7 of the Public Health Code.

#### ***Transport of nuclear materials***

Article L. 1333-1 of the Defence Code defines nuclear materials as being fusible, fissile or fertile materials and any material containing one or more fusible, fissile or fertile elements, excluding ores, which are listed in Article R. 1333-1 of the same Code. This list includes: plutonium, uranium, thorium, deuterium, tritium and lithium 6, as well as the chemical compounds containing one of these elements, excluding ores.

Article R. 1333-2 of the Defence Code states that the provisions for the protection and control of nuclear materials "apply without prejudice to the other regulations that apply to nuclear materials, in particular those concerning radiation protection and the carriage of dangerous goods".

Under the provisions of Article L. 1333-2 of the Defence Code, transport of the nuclear materials listed above is subject to licensing or notification on the basis of the thresholds laid down in Articles R. 1333-8 and R. 1333-9.

The ministers competent to issue licences are the Minister of Defence for materials intended for defence requirements and the Minister for Energy for materials intended for any other use. The Minister of the Interior is also consulted on licence applications and the Minister for Foreign Affairs on those involving import or export movements (Article R. 1333-3).

Moreover, any transport of nuclear materials by any mode other than modes exclusively using private roads closed to public traffic, carried out by an operator holding the licence required under above-mentioned Article R. 1333-3, is subject to an implementing agreement issued by the Deputy Director General of the Institute for Radiation Protection and Nuclear Safety (IRSN) (Article R. 1333-17).

Special measures must be taken for certain categories of materials.

Lastly, any incident or accident affecting the transportation of nuclear materials must be immediately reported to the IRSN who informs the police and competent minister forthwith (Article R. 1333-19).

### ***Transport of radioactive substances between member states of the European Union***

The transfer of radioactive substances within the European Union is governed by the Council Regulation (Euratom) No 1493/93 of 8 June 1993 on shipments of radioactive substances between Member States.

It applies to shipments of sealed sources and other relevant sources, whenever the quantities exceed certain levels (laid down by 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 ionizing radiation).

Shipment is defined as transport operations from the place of origin to the place of destination, including loading and unloading of radioactive substances.

Under the provisions of Article 4 of the above-mentioned Euratom Regulation 1493/93, a holder of sealed sources who intends to carry out a shipment of such sources, or to arrange for such a shipment to be carried out, shall obtain a prior written declaration by the consignee of the radioactive substances to the effect that the consignee has complied, in the Member State of destination, with all applicable provisions implementing Directive 96/29/Euratom and with relevant national requirements for safe storage, use or disposal of that class of source.

### ***b) Methods of transport***

#### ***Land transport***

Land transport includes road, rail and inland waterway transport and is regulated by the Order of 29 May 2009 on the land transport of dangerous goods (the "TMD Order") transposing into French law Directive 2008/68/EC of the European Parliament and of the Council of 24 September 2008 on the inland transport of dangerous goods.

This Order amalgamated the Orders of 1 June 2001 on the transport of dangerous goods by road (the "ADR Order"), 5 June 2001 on the transport of dangerous goods by rail (the "RID Order") and 5 December 2002 on the transport of dangerous goods by inland waterways (the "ADNR Order").

The TMD Order defines and supplements, for France, the conditions for applying the European Agreement concerning the International Carriage of Dangerous Goods by Road entered into on 30 September 1957 ("ADR"), the Regulation concerning the International Carriage of Dangerous Goods by Rail ("RID") annexed to the Protocol of 3 June 1999 for the Modification of the Convention concerning International Carriage by Rail (COTIF) of 9 May 1980, and the European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways entered into on 26 May 2000 ("ADN").

It applies to the national or international transport of dangerous goods in France by the three modes mentioned above, including loading and unloading operations, transfer from one mode of transport to another and the stops necessitated by the circumstances of transport.

It also applies to the transport of dangerous goods concerning the Ministry of Defence, save for specific provisions defined by joint directive by the Minister of Defence and the Minister responsible for the land transport of hazardous substances. However, fissile and radioactive materials associated with nuclear weapons activity and nuclear naval propulsion are excluded from the scope of this Order.

Furthermore, the TMD Order does not apply to the transport of dangerous goods wholly within an enclosed area.

Lastly, it is stated that the TMD Order applies without prejudice to the specific provisions applicable to the transport of dangerous goods laid down *inter alia* by the Highway Code and by the regulations concerning sea ports and transportable pressure equipment and by the regulations specific to certain types of hazardous goods, such as nuclear materials, explosives, hazardous waste, foodstuffs, or by the regulations on volatile organic compound (VOC) emissions.

The TMD Order lays down the rules applicable to the transport of each class of dangerous goods, radioactive materials being in class 7. The responsibilities of everyone involved in the transport operation are also defined (notably consignor, consignee, carrier).

Any organisation whose business includes the land transport of dangerous goods has to appoint a Safety Advisor for the Transport of Dangerous Goods whose main task is to seek by all appropriate means and all appropriate action to facilitate the conduct of transport activities.

Where a decision or issue of a certificate is required for the transport of radioactive and fissile materials for civilian use, the competent authority is the Nuclear Safety Authority (ASN). The ASN must also be informed of events concerning the transport of radioactive materials.

The above rules are supplemented by the Order of 21 March 1995 regulating the carriage of dangerous goods through the Channel Fixed Link. This Order regulates access on the French side of the Channel Fixed Link by trains and road vehicles carrying dangerous goods. It defines which of these dangerous goods are accepted for carriage through the tunnels and, where applicable, the conditions governing their carriage.

### **Sea transport**

Sea transport is governed by various international conventions and instruments to which France has acceded:

- International Convention for the Safety of Life at Sea adopted in London on 1 November 1974 (SOLAS), in particular Chapter VII on the carriage of dangerous goods;
- International Convention for the Prevention of Pollution from Ships (MARPOL), Annex III of which concerns, *inter alia*, radioactive materials;
- International Maritime Dangerous Goods Code (IMDG) of the International Maritime Organization (IMO), whose aims include ensuring application of Chapter VII of the SOLAS Convention. This Code is supplemented by the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships (INF Code).

In addition to these conventions, there are the following national legislative and regulatory provisions:

- Act No. 83-581 of 5 July 1983 concerning the safety of life at sea, accommodation on board ships and the prevention of pollution;
- Decree No. 84-810 of 30 August 1984 concerning the safety of life at sea, accommodation on board ships and the prevention of pollution;

- Decree No. 85-185 of 6 February 1985 regulating the passage of foreign ships through French territorial waters;
- Decree No. 2001-1199 of 10 December 2001 publishing Resolution MSC 88 (71) adopting the International Code for the Safe Carriage of Packaged Irradiated Nuclear Fuel, Plutonium and High-Level Radioactive Wastes on Board Ships;
- Order of 23 November 1987 concerning ship safety, and the attached regulation concerning ship safety. The requirements applicable to the carriage of packaged dangerous goods by sea are attached at Section 411. This Section supplements and gives force of law to the provisions of the IMDG code.

The applicable regulations for sea ports are the Sea Port Code (Articles L. 332-1 and L. 332-2), the Order of 14 May 1999 on the National Transport Safety and Sea Port Committee and Local Port Safety Committees, and the Order of 18 July 2000 regulating the carriage and handling of hazardous substances in sea ports, whose provisions include the requirement imposed on the consignor and the carrier to obtain various licences.

### **Air transport**

Air transport is governed by the Convention on International Civil Aviation signed in Chicago on 7 December 1944.

Also applicable at national level are the Civil Aviation Code (Articles R. 321-2 to R. 321-13), the Order of 1 September 2003 concerning infrastructures, facilities and training in the field of air transport safety and certain conditions for accreditation status as a regulated agent, known consignor, known establishment and technical approval body, and the Order of 12 November 2003 concerning air transport safety measures.

### **Transport by post**

Transport by post is governed by the Universal Postal Convention signed in Seoul on 14 September 1994.

It is also subject to the provisions of the Order of 22 March 2001 on consignments of radioactive materials through the post which defines the specific rules for the transport of radioactive materials through the post in France.

This Order only concerns national transport and expressly prohibits the international transport of radioactive materials through the post.

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

French law on third party liability in the field of nuclear energy is derived from a combination of, on the one hand, two international conventions which under the Constitution are directly integrated into the domestic legal system on ratification and, on the other hand, independent national provisions:

- Paris Convention of 29 July 1960, as amended, on third party liability in the field of nuclear energy was ratified by France on 9 March 1966 with the aim of providing adequate and equitable compensation for persons who suffer damage caused by nuclear incidents;
- Brussels Supplementary Convention of 31 January 1963, as amended, supplementing the Paris Convention, ratified by France on 30 March 1966, introducing a complementary system of compensation out of public funds for cases where the amount of compensation under the Paris Convention was insufficient;

- Act No. 68-943 of 30 October 1968, as amended, on third party liability in the field of nuclear energy.

Furthermore, in addition to the legislation on land installations, there is legislation specifically applying to nuclear ships in the form of Act No. 65-956 of 12 November 1965 on the third party liability of the operators of nuclear ships, supplemented by Decree No. 69-690 of 19 June 1969. The liability regime is based on that of the Act of 30 October 1968.

Lastly, with regard to maritime transport, France ratified the 1971 Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material on 2 February 1973.

The Paris Convention introduces a special system of strict liability for nuclear damage, derogating from the ordinary law of third party liability on a number of points.

## **1. Scope**

### **a) Geographical scope**

The Paris Convention applies to nuclear incidents occurring in the territory of contracting states and to damage suffered in such territory, unless otherwise provided by the legislation of the contracting party in whose territory the nuclear installation of the operator liable is situated, which is not the case for French legislation.

The Paris Convention defines a nuclear accident as “any occurrence or succession of occurrences having the same origin which causes damage, provided that such occurrence or succession of occurrences, or any of the damage caused, arises out of or results either from the radioactive properties, or a combination of radioactive properties with toxic, explosive or other hazardous properties of nuclear fuel or radioactive products or waste or with any of them, or from ionising radiations emitted by any source of radiation inside a nuclear installation.”

### **b) Installations subject to the nuclear third party liability regime**

French law defines the operator as being the individual or legal entity, public or private, that operates a civil or military installation coming within the scope of the Paris Convention and covered by the regulations on basic nuclear installations (INB).

It also states that when one or more INBs and any other installation in which radioactive materials are held have the same operator and are located on the same site, they are considered to be a single nuclear installation.

### **c) Transport**

The regime introduced by the Paris Convention and the Act of 30 October 1968 also sets out the liability of the operator, as the consignor or consignee, for damage caused by an accident occurring during the transport of nuclear substances.

### **d) Damage covered**

Compensation is payable for damage to or loss of life of any person and damage to or loss of any property, other than the nuclear installation itself and any other nuclear installation on the same site and any property on that same site which is used in connection with any such installation.

## **2. General principles of the nuclear third party liability regime**

### **a) Legal channelling of liability to the operator**

The operator is exclusively liable for damage to or loss of life of any person and damage to or loss of any property caused by a nuclear accident. Any actions for damages can therefore only be brought against him. The corollary to the channelling solution is that the rights of recourse open to the operator or his insurer are strictly delimited, as are the cases of exoneration from liability.

### **b) Strict liability**

The legal regime introduced by the Paris Convention and adopted in the Act of 30 October 1968 introduced into French law the principle of strict liability on the nuclear operator regardless of fault, relieving the victim of the burden of proving the liability of the operator and making the operator strictly liable for any nuclear accidents occurring in his installation or during transport on his behalf.

It is relevant to state, however, that the Paris Convention does allow the operator to have a conventional right of recourse against another party to a contract if the accident was caused by an intentional act or omission, but this may not operate against the victim.

### **c) Liability limited in amount**

The liability of the operator is limited to:

- 15 million SDR (special drawing rights) in the Paris Convention for an accident occurring in an installation, and 600 million Francs, or EUR 91 469 410, in French law;
- 5 million SDR in the Paris Convention for transport or a low-risk installation, and 150 million Francs, or EUR 22 867 353, in French law.

Over and above the amount of the operator's liability, victims are compensated under the conditions and within the limits laid down by the Brussels Supplementary Convention:

- up to 175 million SDR by the State in whose territory the installation is located;
- Up to 300 million SDR by the contracting parties to this Convention, including France, whose own financial contribution under the method of calculation used currently stands at approximately 34 %.

### **d) Operator's insurance or financial security**

Article 7 of the Act of 30 October 1968 requires each operator to have and maintain insurance or other financial security for an amount corresponding to his liability for an accident. This financial security must be approved by the Minister of the Economy and Finance.

No insurer or other financial guarantor shall suspend or cancel the insurance or financial security without giving at least two months notice in writing to the Minister responsible for atomic energy.

Should the victims of a nuclear accident be unable to obtain compensation for their damage from the insurer, financial guarantor or operator, the compensation burden will shift to the State up to the amount of EUR 91 469 410 and without prejudice to any possible additional amounts.

### **e) Liability limited in time**

Article 15 of the Act of 31 October 1968 states that the victim may seek compensation within 3 years from the date the victim knew, or reasonably ought to have known, of the damage and the

operator liable. The right of compensation under the Paris Convention is extinguished if no action is brought within ten years from the date of the accident.

The State also pays compensation for damage where a claim could not be made because the damage appeared after this ten year period. However, there are two conditions: the claim must be made within a maximum period of 5 years (making a total of 15 years) and the total amount of compensation paid may not exceed the maximum amount of compensation allowed under the law.

#### **f) Exclusive jurisdiction**

In accordance with the exclusive jurisdiction rule for nuclear damage laid down in the Paris Convention, jurisdiction over actions lies exclusively with the Paris Regional Court (*Tribunal de Grande Instance*).

### **3. Amendment of the Paris and Brussels Conventions**

Protocols amending the Paris and Brussels Conventions were signed in Paris on 12 February 2004. Their purpose was to ensure that increased compensation funds would be available to compensate a larger number of victims of nuclear accidents based on a broader definition of damage.

Although these protocols have yet to enter into force, their approval was authorised in France by Act No. 2006-786 of 5 July 2006. They have already been transposed into national law (Article 55 of Act No. 2006-686 of 13 June 2006 on nuclear transparency and safety, whose provisions will be applicable upon entry into force of the Protocol amending the Paris Convention) in order to bring French law into line with the new legal regime thus introduced.

## **II. Institutional Framework**

### **1. Regulatory and supervisory authorities**

#### ***The Nuclear Safety Authority***

##### *i) Legal status*

The Nuclear Safety Authority (ASN), an independent administrative authority created by Act No. 2006-686 of 13 June 2006 on transparency and nuclear safety in the nuclear field ("TSN Act"), is responsible for the supervision of civil nuclear activities in France.

Control of nuclear safety in France in 1973 was the prerogative of the Central Service for the Safety of Nuclear Installations (SCSIN), attached to the Minister for Industry. This service became in 1991 the Directorate for the Safety of Nuclear Installations (DSIN), attached to the ministers of industry and the environment. On February 22, 2002, DSIN's scope was extended to radiation protection. The Directorate General for Nuclear Safety and Radiation Protection (DGSNR) replaced DSIN and the Divisions of Nuclear Safety and Radiation Protection (DSNR) replaced regional DINs. The ASN was dependent from the ministers respectively of industry, environment and health.

On June 13, 2006, Act No. 2006-686 on transparency and security in the nuclear field transformed the status of the ASN, giving it that of an independent administrative authority, now independent from Ministers.

*ii) Skills*

The ASN ensures, on behalf of the state, control of nuclear safety and radiation protection in France to protect workers, patients, public and the environment from risks associated with the use of nuclear power. It also contributes to information towards citizens (Title II, Article 4 of Law TSN).

The change of status in June 2006 making the ASN an independent administrative authority has not fundamentally changed the scope and content of missions exercised until then by the Directorate General for Nuclear Safety and Radiation Protection (DGSNR) and Divisions of Nuclear Safety and Radiation Protection (DSNR).

The missions of the ASN revolve around three core "historical" matters:

-Regulation: ASN is responsible for contributing to the development of regulations, providing advice to Government on draft decrees and ministerial decisions of regulatory technical nature;

-Control: ASN is responsible for verifying compliance with the rules and regulations to which are subject facilities or activities under its control;

-Information towards the public: ASN is responsible for participating in public information, including in cases of emergency.

Moreover, in case of emergency, the ASN is responsible for assisting the Government, particularly by addressing its recommendations to the competent authorities on actions to take on the medical and health fields or in respect of civil security. In such situations, the NHA is also responsible for informing the public about the safety status of the installation concerned and the possible release into the environment and risks to human health and the environment.

*iii) Structure*

ASN status changed on November 13, 2006, after the first meeting of the College of Commissioners, pursuant to Act No. 2006-686 of 13 June 2006 on transparency and nuclear safety.

It is managed by a board of five commissioners which defines the general policy of ASN in nuclear safety and radiation protection.

The ASN staff, led by the Director General, is at the central level, the Executive Committee, the General Secretariat, the Mission expertise and animation (MEA) as well as directions and, at the territorial level, the eleven regional divisions. The heads of services form, with members of the Executive Committee, the ASN Management Board.

**a) President of the Republic**

The President of the Republic ensures respect for the Constitution, to which the 2004 Charter of the Environment has been added. (S)he is the guarantor of national independence, territorial integrity and observance of treaties.

**Council for Nuclear Policy**

The Council for Nuclear Policy (Conseil de Politique nucléaire, or CPN) was established by Decree No. 2008-378 of 21 April 2008, to replace the Council for Foreign Nuclear Policy (Conseil de Politique nucléaire extérieure, or CPNE).

Chaired by the President of the Republic, the CPN has a broader remit than the CPNE whose role was limited to framing different aspects of foreign nuclear policy, especially as regards export of sensitive nuclear technology, equipment and products.

The CPN lays down the broad courses of action concerning nuclear policy and ensures their implementation in the area of exports and international cooperation, industrial and energy policy and policies for research, security, safety and environmental protection.

The Council consists of 12 members: the Prime Minister, the ministers responsible for energy, the economy, industry, external trade, research and for the budget, as well as the ministers for foreign affairs and defence, the Army Chief of Staff, the Secretary General for Defence and National Security, and the Administrator-General of the Atomic Energy Commission (CEA). Following a decision by its chair, the CPN may also hear submissions from qualified prominent persons and industrialists in the nuclear sector.

The Secretary General of the Office of the President of the Republic handles secretariat duties for the Council.

### ***Council for Defence and National Security***

The Council for Defence and National Security (Conseil de Défense et de Sécurité nationale, or CDSN) was established by Decree No. 2009-1657 of 24 December 2009 on the Council for Defence and National Security and on the General Secretariat for Defence and National Security. Provisions concerning the CDSN have been incorporated into the Defence Code. Under Article L. 1121-1, the CDSN is chaired by the President of the Republic, for whom the Prime Minister may deputise.

The responsibilities of the CDSN are laid down in Article R. \* 1122-1 of the Defence Code. It sets out and determines the general strategy for military programming, dissuasion, conduct of foreign operations, planning responses to major crises, intelligence, economic and energy security, the programming of internal security in the interests of national security, and action to combat terrorism.

In its plenary form and besides the President of the Republic who chairs it, the CDSN consists of:

- the Prime Minister;
- the Minister for Defence;
- the Minister for the Interior;
- the minister responsible for economic affairs;
- the minister responsible for the budget;
- the minister for foreign affairs, and where appropriate and if convened by the President, other ministers regarding matters within their remit (Article R.\* 1122-2 of the Defence Code).

The CDSN may meet as a smaller group whose membership is determined by its chairperson in line with the items on its agenda. It may also bring together specialists (Article R.\* 1122-3 of the Defence Code). In either case, its secretariat duties are handled by the Secretary General for Defence and National Security (Article R.\* 1122-5 of the Defence Code).

### ***b) Prime Minister***

The Prime Minister directs the operation of the government. In so doing, he or she not only plays a leading role in the adoption of important decisions at governmental level, but is also the chairperson of the specialised committees in the field of nuclear energy.

### **Inter-ministerial Committee for Nuclear or Radiological Emergencies**

The Inter-ministerial Committee for Nuclear Safety (Comité interministériel de la Sécurité nucléaire, or CISN) was established by Decree No. 75-713 of 4 August 1975. Under Decree No. 2003-865 of 8 September 2003, the CISN was replaced by the Inter-ministerial Committee for Nuclear or Radiological Emergencies (Comité interministériel aux Crises nucléaires ou radiologiques, or CICNR). The provisions governing the CICNR are now contained in Articles D. 1333-68 and D. 1333-69 of the Defence Code.

The task of the CICNR is to propose to the Prime Minister the measures to be taken “in the event of an accident occurring in a major nuclear installation, a major nuclear installation classified as secret, during the transport of nuclear or radioactive materials concerning the civilian sector or defence or any military nuclear system, and in the event of an attack or threatened attack having or potentially having nuclear or radiological consequences”.

The CICNR may therefore meet, at the request of the Prime Minister, if a nuclear or radiological emergency has arisen concerning the civilian or defence sectors, but also in a preventative manner, should there be the threat of an attack.

The CICNR brings together around the Prime Minister the ministers for foreign affairs and for defence, as well as the ministers responsible for the environment, industry, the interior, health and transport. Secretariat duties for the Committee are handled by the Secretary General for Defence and National Security.

The Secretary General for Defence and National Security plays a key role in the foregoing organisational arrangements. In conjunction with the ministries and services concerned, he or she is responsible – in the fields referred to in the first paragraph of Article D. 1333-68 of the Defence Code – for the following:

- ensuring the inter-ministerial consistency and coordination of measures planned in the event of accident or a bomb attack or to counter evil intention or the threat of such an attack;
- ensuring sound planning of the exercises organised by the *departments* concerned;
- managing exercises of major interest and ensuring their evaluation by the relevant departments in order to make any improvements deemed necessary.

The Secretary General for Defence and National Security also has to be informed without delay of any accident, attack or threat of a nuclear or radiological nature. He or she then prepares a report for the President of the Republic and the Prime Minister.

Article D. 1333-69 of the Defence Code states that the ministries, establishments, advisory bodies and nuclear operators concerned shall if necessary assist the Secretary General for Defence and National Security in carrying out the above-mentioned tasks.

### **General Secretariat for Defence and National Security**

The General Secretariat for Defence and National Security (Secrétariat général de la Défense et de la Sécurité nationale, or SGDSN) forms a department of the Prime Minister. Its tasks are specified in Articles R. 1132-1 to R. 1132-3 and D. 1132-4 to D. 1132-6 of the Defence Code.

The SGDSN handles secretariat duties for the CDSN and assists the Prime Minister in discharging his or her responsibilities in the area of defence and national security. In this respect, its main tasks are:

- to activate and coordinate inter-ministerial work concerned with policy for defence and national security and the public policies which support it;

- to monitor developments in crises and international conflicts liable to affect the interests of France in the realm of defence and national security and to study the measures that might be taken;
- to propose, circulate, enforce and regulate the measures needed to protect the confidentiality of national defence;
- to prepare the inter-ministerial planning of defence and national security, ensure that it is implemented and supervise the inter-ministerial exercises putting it into effect;
- to ensure that actions undertaken in relation to scientific research policy and technological projects relevant to defence and national security are fully consistent, and to help protect strategic national interests in this field.

### ***Euratom Technical Committee***

The Euratom Technical Committee (Comité technique Euratom, or CTE) was established by Decree No. 2005-1283 of 17 October 2005, which set up an expert committee to provide the General Secretariat for European Affairs (Secrétariat général aux Affaires européennes, or SGAE), itself also established by the 17 October 2005 Decree, with the technical support needed to fulfil its responsibilities in matters relating to the application of the Treaty establishing the European Atomic Energy Community.

Under the authority of the Prime Minister, the SGAE carries out the following tasks:

- subject to the responsibility of the minister for foreign affairs as regards foreign policy and joint security:
  - it informs and prepares the official views to be expressed by France within the EU institutions and the OECD. It carries out the inter-ministerial coordination required for this purpose. It forwards instructions from the government to the officials responsible for stating France's position in dealings with these institutions;
  - it ensures that government commitments vis-à-vis the European institutions are implemented by all ministerial departments;
  - it implements, with the General Government Secretariat (Secrétariat général du Gouvernement, or SGG), the procedures incumbent on the government for compliance with Article 88-4 of the Constitution;
  - it handles secretariat duties for the inter-ministerial committee on Europe.
- it is responsible, in cooperation with the SGG, for inter-ministerial monitoring of the transposition of directives and framework decisions;
- it coordinates, with the minister responsible for European affairs, the inter-ministerial arrangements for informing the European Parliament about government positions in negotiations;
- it coordinates inter-ministerial arrangements for monitoring the French presence within the European institutions.

The SGAE circular of 24 October 2005 on inter-ministerial working procedures for enforcement of the EURATOM Treaty names it the "Euratom Technical Committee" and sets out its tasks.

### **Administration of the CTE is handed to the Atomic Energy Commission**

In providing technical support for the SGAE, the CTE coordinates technical aspects of implementing the provisions of the Euratom Treaty, including the servicing and monitoring of technical groups and committees for all chapters of the Treaty. It is also fully responsible for monitoring implementation of nuclear materials inspections carried out in France by the European Commission for which it acts as informant in this area. The CTE coordinates implementation of the agreements between France, the Atomic Energy Commission (CEA) and the International Atomic Energy Agency (IAEA) on the enforcement of safeguards in France.

In carrying out its tasks, the CTE takes part in coordination meetings with the ministries concerned and, where needed, with the Community (EU) authorities. It may request the collaboration of appropriate public servants and experts. As regards inspections, it jointly chairs the meetings convened by the SGAE to prepare the work of the EU Council Atomic Questions Group.

### **Atomic Energy Committee**

The existence of this Committee is mentioned here merely for the record, as it was created under the legislation establishing the Atomic Energy Commission (CEA), so its role is discussed in the section on the CEA.

Under Decree No. 70-878 of 29 September 1970 on the CEA, the Atomic Energy Committee, apart from its CEA-related duties, may be asked to look into general nuclear policy matters.

This Committee is chaired by the Prime Minister or a minister appointed by the latter to deputise for him or her as chair or, otherwise, by the Administrator-General of the CEA. It consists of 11 *ex officio* members: the Administrator-General of the CEA, the Army Chief of Staff, the Secretary General of the Ministry for Foreign Affairs, the Delegate-General for Weaponry, the Secretary General for Administration of the Ministry for Defence, the director general for energy and climate, the director general for competitiveness, industry and services, the budget director, the delegate for the nuclear safety and radiation protection of defence-related activities and installations, the director general of research and innovation, and the chairperson of the management board of the National Scientific Research Centre (Centre national de la Recherche scientifique, or CNRS); a person of standing selected by the Prime Minister, a person of standing selected by the minister for the environment, and four experts in science and industry, one of whom acts as High Commissioner.

The president of the Nuclear Safety Authority can, where necessary, attend meetings of the Committee whenever (s)he considers it helpful in supplementing the information required to perform the tasks which the position involves. The Committee may ask to hear the person concerned.

### **c) Minister for Industry**

The minister responsible for industry is the Minister of Economic Affairs, Industry and Employment (Ministre de l'Économie, de l'Industrie et de l'Emploi, or MEIE); the tasks of this office are governed by Decree No. 2007-996 of 31 May 2007. Under this Decree, the MEIE is in charge of nuclear safety jointly with the minister responsible for ecology and energy. In this context, the incumbent devises and implements the policy for nuclear safety, including the transport of radioactive and fissile materials for civil purposes.

In carrying out the tasks involved, the MEIE has authority over:

- the directorate general for competitiveness, industry and services (DGCIS), jointly with the Minister for Ecology, Energy, Sustainable Development and Marine Affairs (Ministre de l'Écologie, de l'Énergie, du Développement durable et de la Mer, or MEEDDM) (Decree No. 2009-37 of 12 January 2009). This directorate includes an industry department, with a sub-directorate for the transport equipment, energy and eco-industry sectors (Order of 26 January 2009). Within this sub-directorate, the energy

technologies bureau devises and implements policies for the ministry relating to the whole industrial sector of facilities for the production, transport and conversion of energy. It is also active in the industrial sectors concerned with gas, oil/oil-related, and nuclear facilities;

- the General Council for Industry, Energy and Technology (Conseil général de l'Industrie, de l'Énergie et des Technologies, or CGIET) (Decree No. 2009-64 of 16 January 2009). This Council has responsibility in the field of energy, mining and mineral resources and use of the subsoil. The "safety and risks" section of the CGIET deals with matters relating to prevention, anticipation and handling of all kinds of risk, especially in the fields of nuclear safety and the policing of mining activities (Order of 16 January 2009).

The minister for industry has authority over the MEEDDM directorate general for the prevention of risks, when the latter assumes its responsibilities in the area of nuclear safety and radiation protection, jointly with the ministers for the environment and for health (Decree No. 2008-680 of 9 July 2008 on the organisation of central administration within the Ministry for Ecology, Energy, Sustainable Development and National and Regional Development, Article 8).

Furthermore, through the enforcement of Article R.\* 1333-37 of the Defence Code, the minister for industry is jointly responsible, with the minister for defence, for nuclear safety and radiation protection in the case of "defence-related nuclear installations and activities" (IANID).

The minister for industry is responsible for issuing licences concerning IANID under his or her authority (collectively known as *IANID-industrie*). The minister is responsible in particular for licensing any new individual installation (Article R.\* 1333-46 of the Defence Code), as well as similarly authorising liquid wastes, gas emissions and water abstraction in major nuclear installations classified as secret (Article R.\* 1333-51-1 of the Defence Code).

The minister is further responsible for proposing to the Prime Minister the classification of the installations under his or her authority as major nuclear installations classified as secret (Article R.\* 1333-40 of the Defence Code).

Together with the ministers for health, defence, the environment and research, the minister for industry jointly supervises the Institute for Radiation Protection and Nuclear Safety (IRSN) (Decree No. 2002-254 of 22 February 2002 relating to the IRSN).

The delegate for the nuclear safety and radiation protection of defence-related activities and installations (DSND).

The DSND reports to the ministers for defence and for industry. This delegate is appointed by decree on the basis of a joint proposal by both these ministers for a five-year period renewable. All tasks of the DSND as well as the administrative organisation of his or her departments are specified in Articles R.\* 1412-1 to R.\* 1412-6 of the Defence Code. The delegate is the authority for nuclear safety in the case of defence-related activities and installations.

In this respect, the DSND is responsible in particular for:

- studying and proposing to the ministers for defence and for industry the policy for nuclear safety and radiation protection applicable to defence-related nuclear installations and activities (IANID) and for supervising its enforcement (Article R.\* 1412-1 of the Defence Code);
- proposing to the ministers any adjustments to the regulations, which (s)he considers necessary, especially as regards the prevention and control of risks that IANID may pose for persons, property and the environment (Article R.\* 1412-1 of the Defence Code);

- managing the enforcement of regulations regarding radiation protection and radioactive sources possessed and used by IANID (Article R.\* 1412-1 of the Defence Code);
- investigating licensing applications planned for major nuclear installations classified as secret (installations nucléaires de base secrètes, or INBS) and military nuclear systems, establishing the corresponding official guidelines for nuclear safety and radiation protection, and giving his or her opinion to the ministers for defence and for industry (Article R.\* 1412-1 of the Defence Code) ;
- taking part in informing the public in areas within his or her remit, and in compliance with national defence requirements.

#### **Nuclear Engineering Terminology and Neology Commission**

The Nuclear Engineering Terminology and Neology Commission (*Commission de Terminologie et de Néologie de l'Ingénierie nucléaire*) reports to the minister responsible for industry (Order of 23 May 1997 on the establishment of the specialised nuclear engineering terminology and neology commission). The Commission is responsible for drawing up an inventory of the gaps in French nuclear engineering vocabulary, taking into account user needs, for proposing the necessary terms and for monitoring the harmonisation of terms between French-speaking countries.

#### **d) Minister responsible for Ecology and Energy**

The minister responsible for ecology and energy is the Minister for Ecology, Energy, Sustainable Development and Marine Affairs (MEEDDM), who is in charge of green technologies and negotiations on climate; the remit of the minister is determined by Decree No. 2007-995 of 31 May 2007. In conjunction with the minister for industry, the minister for ecology and energy is the minister jointly responsible for nuclear safety.

In this context, the minister performs the following tasks:

- in the field of environmental policy:
  - (s)he is responsible for the protection, the policing and the management of waters as well as the policing of classified installations and the policy for reducing and processing waste, in liaison with the ministers concerned (Decree No. 2007-995 of 31 May 2007, Article 1);
  - (s)he devises and implements jointly with the minister for industry, nuclear safety policy, including aspects related to the transport of radioactive and fissile materials for civil purposes (Decree No. 2007-995 of 31 May 2007, Article 1);
- in the field of energy and raw materials, the minister determines the policy for energy and raw materials, mainly in order to maintain the security of supply, combat global warming, and ensure the competitiveness of the economy. (S)he prepares the actions concerning this last aim jointly with the Minister of Economic Affairs, Industry and Employment (Decree No. 2007-995 of 31 May 2007, Article 1).

The administrative structure headed by the MEEDDM is governed by Decree No. 2008-680 of 9 July 2008 on the organisation of central administration within the Ministry for Ecology, Energy, Sustainable Development, and National and Regional Development, and the Order of 9 July 2008 with the same name.

Furthermore, in order to perform tasks concerned with policy for energy and raw materials and with industrial safety, the MEEDDM shares authority, with the Minister of Economic Affairs, Industry and Employment, over the directorate general for competitiveness, industry and services when carrying out his or her responsibilities in the area of industrial safety, and can call upon the CGIET (Decree No. 2007-995 of 31 May 2007).

The directorates with responsibility for the field of nuclear safety and radiation protection are the following.

### **Directorate General for Energy and Climate**

The directorate general for energy and climate (Direction générale de l'Énergie et du Climat, or DGEC) includes the directorate for energy which incorporates the sub-directorate for the nuclear industry (SDIN) (Decree No. 2008-680 and Order of 9 July 2008, Articles 4). The sub-directorate for the nuclear industry is responsible for:

- preparing and implementing – subject to the responsibilities of the Nuclear Safety Authority and the directorate general for the prevention of risks – government decisions concerning the civil nuclear sector, and for helping to draft and adapt legislation pertaining to this sector;
- supervising the Atomic Energy Commission and the National Radioactive Waste Management Agency (ANDRA), and preparing the representation of the ministry within the social bodies of AREVA and its subsidiaries;
- monitoring all enterprises in the civil nuclear sector and encouraging the development of their activities;
- contributing to the activities of international and Community (EU) organisations in the nuclear sector;
- helping to monitor exports of sensitive materials and nuclear equipment, issuing licences and permits prior to the transfer of radioactive waste and used nuclear fuels, and taking part in the coordination of activity to prepare for the transport of waste from foreign spent fuel reprocessing;
- developing and implementing the plan for sustainable management of radioactive materials and waste, and ensuring the supervision of long-term nuclear warheads which is provided for in Law No. 2006-739 of 28 June 2006 on a programme for the long-term management of radioactive materials and waste;
- implementing the environment code provisions concerned with the management of used fuels and radioactive waste from abroad (Articles L. 542-2-1 and L. 542-2-2 of the Environment Code).

Article R. 542-73 of the Environment Code establishes, under the authority of the director general for energy (at the DGEC), an industrial coordination committee for radioactive waste, with effect from 16 January 2010 and until 15 January 2015.

This committee expresses opinions and recommendations regarding the organisation, development and optimisation of procedures for the management of radioactive waste, and monitors the funding made available to build, operate and ensure the surveillance of disposal centres for such waste. The committee consists of:

- the director general responsible for energy in the ministry for energy, or his or her representative, who is the committee chairperson;
- the director general of ANDRA, or his/her representative;
- a representative designated by each of the main enterprises operating major nuclear installations, the list of which is fixed by order of the minister for energy.

### **Directorate General for the Prevention of Risks**

The directorate general for the prevention of risks (Direction générale de la Prévention des Risques, or DGPR) includes the department of technological risks, within which the mission for nuclear safety and radiation protection (Mission de la Sûreté nucléaire et de la Radioprotection, or MSNR) has been incorporated (Decree No. 2008-680 and Order of 9 July 2008, Articles 8).

The MSNR contributes to state operations in the field of nuclear safety and radiation protection. In particular and in liaison with the Nuclear Safety Authority (Autorité de Sûreté nucléaire, or ASN), the mission proposes government policy in this field, excluding defence-related activities and installations, and the protection of workers against ionising radiation. It monitors ASN activities for the ministers responsible for nuclear safety and radiation protection.

In cooperation with the ASN and subject to the latter's own responsibilities, the MSNR is responsible for:

- preparing, where appropriate in association with the administrative authorities concerned, all legislation or regulations, all decisions or official approvals, and all measures incumbent on the ministers responsible for nuclear safety and radiation protection;
- contributing, in liaison with the departments of the ministry responsible for public safety, to the preparation of national emergency plans in the event of accident on a nuclear installation or transported radioactive materials or, more generally, an accident liable to jeopardise people's health through their exposure to ionising radiation, whether it occurred in France or could affect French territory;
- helping the ministers responsible for nuclear safety and radiation protection in their efforts to inform people and communicate with them about subjects concerned with nuclear safety and radiation protection;
- contributing to preparation of the positions to be adopted by France in international and Community (EU) discussions;
- supervising the work of the Institute for Radiation Protection and Nuclear Safety (IRSN);
- monitoring proposals of the ASN concerned with the funding needed to carry out its tasks.

Through the ASN in particular, the MSNR possesses information conducive to greater knowledge of the field of nuclear safety and radiation protection, including research and development activity, as well as opinions and views which it may also seek from the various players concerned. The mission may arrange for all kinds of instructive studies to be carried out in this field, especially by the ASN.

Furthermore, under the legislation on installations classified for environmental protection purposes (ICPE), the MSNR is responsible for monitoring radioactivity issues affecting these installations, and proposing measures and regulations in this domain. In cooperation with the National Radioactive Waste Management Agency (ANDRA) and the DGEC, the mission proposes the priorities for state intervention as regards the rehabilitation of radioactive orphan polluted sites.

When carrying out its duties in the area of nuclear safety and radiation protection, the DGPR is under the joint authority of the ministries for the environment, industry and health (Decree No. 2008-680 of 9 July 2008, Article 8).

### **Department for Defence, Security and Economic Intelligence**

The department for defence, security and economic intelligence comes under the secretariat general of the MEEDDM. It includes a nuclear safety department (Order of 9 July 2008, Article 2.9).

The department for nuclear safety includes “the mission for the protection of nuclear materials” and “the mission for the protection of nuclear transport”. It is responsible for:

- determining methods and procedures for the protection of nuclear materials, installations and transport operations, and supervising their implementation;
- determining methods and procedures for protecting radioactive sources, and preparing the regulations applicable for this purpose;
- investigating licensing applications for the possession and transport of nuclear materials specified in the Defence Code, and organising appropriate accounting procedures in relation to these materials;
- ensuring compliance with the protection measures required of operators, especially by carrying out prompt inspection of sites and liaising constantly with those active in the nuclear sector.

### **e) Minister for Research**

The minister responsible for research is the Minister for Higher Education and Research (Ministre de l'Enseignement supérieur et de la Recherche, or MESR); his/her official duties are specified in Decree No. 2007-1001 of 31 May 2007. This minister is mainly responsible for proposing and implementing government policy in the field of research and technology, in conjunction with the other ministers concerned. The minister is involved in promoting and furthering the use of new technology.

The minister for research supervises the Institute for Radiation Protection and Nuclear Safety (IRSN) jointly with the minister for defence and the ministers for industry, the environment and health (Decree No. 2002-254 of 22 February 2002 relating to the IRSN, Article 2).

In carrying out his or her tasks, the MESR has authority in particular over the directorate general for research and innovation, which is charged with devising the national strategy for research and innovation (the latter in cooperation with the ministry for industry).

The director general for research and innovation is a member of the Atomic Energy Committee (Decree No. 70-878 of 29 September 1970, as amended, on the Atomic Energy Commission, Article 3).

### **f) Minister for Health**

The minister responsible for health is the Minister for Health, Youth and Sports; the duties of this office are specified in Decree No. 2007-1002 of 31 May 2007. Under the decree, the minister is responsible for drawing up and implementing jointly with the other ministers concerned, the regulations pertaining to the policy for protecting health against the various risks that might affect it.

Together with the ministers for the environment and for industry, the minister for health has authority over the directorate general for the protection of risks (DGPR), when it carries out its responsibilities in the area of radiation protection (Decree No. 2008-680 of 9 July 2008, Article 8).

The minister shares the task of supervising the Institute for Radiation Protection and Nuclear Safety (IRSN) with the minister for defence and the ministers responsible for industry, the

environment and research (Decree No. 2002-254 of 22 February 2002 relating to the IRSN, Article 2).

### **g) Minister for Public Safety**

The minister responsible for public safety is the Minister for the Interior, Overseas Territories and Local and Regional Authorities; the duties of this office are specified in Decree No. 2007-997 of 31 May 2007.

### **Directorate for Public Safety**

The minister for the interior prepares and implements government policy in the area of internal security. In performing these tasks, the minister has authority over the directorate for public safety, which replaced the directorate for civil defence and public safety (Order of 9 July 2008 amending the Order of 29 December 2006 on internal organisation of the directorate for civil defence and public safety).

Law No. 2004-811 of 13 August 2004 for modernising public safety states that public safety measures aim to prevent all types of risk and to protect persons, property and the environment against accidents, disasters and catastrophes (Article 1).

The director of public safety runs the departments which are responsible for:

- the preparation, coordination and implementation of measures to protect people, the prevention of all kinds of civil risk, and the planning of public safety measures (Decree No. 85-1057 of 2 October 1985 on the organisation of central administration within the Ministry of the Interior and of Decentralisation, Article 6);
- the means of implementing public safety measures (Decree No. 85-1057 of 2 October 1985, Article 6).

The directorate for public safety includes the sub-directorate for the management of risks (Order of 22 March 2005 on the organisation and official duties of the directorate for public safety). This sub-directorate is responsible for:

- ensuring consistency in the preparation, the response and the feedback from experience, for coping with all possible circumstances caused by catastrophes or breakdown in national life. In these matters, the sub-directorate initiates and supports the action of state representatives in the areas of defence and in the *départements*;
- contributing to the focus of studies and research tending to limit the impact of risks and threats. The sub-directorate assists the director of public safety in the latter's tasks as a member of the executive committee of the National Council for Public Safety;
- setting out the framework for planning emergency help, and contributing to the preparation of civil defence measures laid down by the senior public official for defence and safety. The sub-directorate contributes to the policy for informing people and heightening their awareness of risks and threats, and devises and implements the warning system. It also contributes to national policy for the conduct of civil defence and public safety, organises feedback and assists with the provision of training in risk and crisis management;
- activating and coordinating the oversight of public safety in liaison with defence area headquarters and other national operational centres, as well as the European Commission information and monitoring centre. It administers on an ongoing basis the operational centre for inter-ministerial crisis management and, following a decision by the minister, the inter-ministerial crisis committee;

- replying to requests for help from area prefects or foreign states through the mobilisation of appropriate public or private resources, and forming public safety support missions;
- taking part in the shaping and development of the information and communication systems implemented in the public safety chain of operations.

The sub-directorate for risk management includes the major risks office (Order of 29 December 2006 on internal organisation of the directorate for civil defence and public safety, Article 3), which incorporates the National Support Mission for Nuclear Risk Management (MARN). Its tasks are indicated in the circular of 20 November 1995 on establishment of the nuclear risk support mission (MARN) responsible to the civil defence and public safety director. It constitutes a support mission in crisis situations and collaborates with the minister for the interior and with the prefects.

The preparation of preventive measures and the implementation of measures necessary to deal with major risks and catastrophes are addressed under the emergency plans, including the "Orsec plans" (organisation of the public safety response).

### **Central Office for the Prevention of Organised Crime**

This Office was set up within the ministry for the interior (general directorate for the national police force, central directorate for criminal investigation) (Decree No. 2006-518 of 6 May 2006 on the establishment of a central office for the prevention of organised crime, Article 2).

It has the twofold task of preventing and prosecuting unlawful acts or offences concerning the possession of nuclear materials.

### **h) Minister for Defence**

Under Article R.\* 1333-37 of the Defence Code, the Minister for Defence draws up jointly, with the minister for industry, the policy for nuclear safety and radiation protection concerned with defence-related nuclear installations and activities (IANID).

In this respect:

- the minister sets the aims and corresponding requirements regarding nuclear safety and radiation protection which have to be satisfied by these installations and activities, with due regard for their different situations and their patterns of implementation;
- the minister lays down the regulations for nuclear safety and radiation protection, and in particular the general technical regulations, which apply to these installations and activities;
- the minister sees that the appropriate measures are taken to ensure the protection of people, property and the environment against the dangers or drawbacks arising from the establishment, the operations, the shutdown and dismantling of these installations, as well as from the activities involved.

He or she is especially responsible for:

- compliance with the regulations introduced to ensure the protection from radiation of the public and staff;
- the prevention and control of all kinds of pollution or risk.

The Minister for Defence is responsible for issuing licences concerning IANID under his or her authority (the so-called *IANID-défense*). The minister is responsible in particular for licensing any

new individual installation (Article R.\* 1333-46 of the Defence Code), as well as similarly authorising liquid wastes, gas emissions and water abstraction in major nuclear installations classified as secret (Article R.\* 1333-51-1 of the Defence Code).

The minister is further responsible for proposing to the Prime Minister the classification of the installations under his or her authority as major nuclear installations classified as secret (Article R.\* 1333-40 of the Defence Code).

The Minister for Defence is responsible for the nuclear safety of the military nuclear systems and major nuclear installations classified as secret that (s)he operates. Conduct of the duties involved is entrusted to the Delegate-General for Weaponry, the Chief of Staff of the Navy and the Chief of Staff of the Air Force (Order of 27 November 2003 on organisation of the Ministry for Defence for the operation of military nuclear systems and major nuclear installations classified as secret, as far as nuclear safety is concerned).

Together with the ministers for health, industry, the environment and research, the minister for defence carries out joint supervision of the Institute for Radiation Protection and Nuclear Safety (IRSN) (Decree No. 2002-254 of 22 February 2002 relating to the IRSN).

#### ***Delegate for the nuclear safety and radiation protection of defence-related activities and installations (DSND).***

The DSND comes under the authority of both the minister for industry and the minister for defence. All this delegate's tasks are indicated above, under the duties of the minister responsible for industry (MEIE).

#### ***Council for Nuclear Defence***

A Council for Nuclear Defence in the field of defence-related nuclear activities (Conseil de l'Exploitation nucléaire de la Défense pour les activités nucléaires intéressant la défense, or CEND) has been set up under the Minister for Defence (Order of 13 March 2002 establishing a Council for Nuclear Defence). The task of the CEND is to ensure the consistency of the measures taken by the Ministry for Defence in relation to the requirements of nuclear security and operational, industrial and financial imperatives. It also gives opinions and recommendations with regard to these measures. The CEND is chaired by the Army Chief of Staff.

#### ***i) Minister responsible for Work***

The minister responsible for work is the Minister for Work, Social Relations, the Family, Solidarity, and Towns and Cities. The official tasks of the office are established by Decree No. 2007-1000 of 31 May 2007. Under this decree, the minister prepares and implements regulations governing the working conditions of wage-earners, especially as regards protection from radiation.

In the case of technical matters, the minister responsible for work is supported, under an agreement, by the Institute for Radiation Protection and Nuclear Safety to which it has transferred via regulatory channels the management of a database containing all results from the radiological monitoring of workers exposed to ionising radiation (SISERI).

An inspectorate specialising in radiation protection was set up under Law No. 2004-806 of 9 August 2004 concerned with public health policy. These radiation protection inspectors have the task of ensuring, in the same kind of way as labour inspectors, that the labour regulations relating to radiation protection are properly enforced. They are appointed from among officials at the Nuclear Safety Authority (ASN).

A circular of the directorate general for work (DGT)/ASN No. 13 of 16 November 2007 describes the methods and procedures for coordinating the activity of the radiation protection inspectorate and of the labour inspectors, who now all share responsibility for the protection of workers from radiation.

### **j) Minister for Foreign Affairs**

The minister responsible for foreign affairs is the Minister for Foreign and European Affairs. The central administrative structure of the ministry for foreign affairs includes a general secretariat headed by the Secretary General of the ministry and a directorate general for political affairs and security, which incorporates the directorate for strategic affairs, security and disarmament (Decree No. 2009-291 of 16 March 2009 on the organisation of central administration within the Ministry for Foreign and European Affairs).

Incorporated in turn within the foregoing directorate for strategic affairs, security and disarmament is the sub-directorate for nuclear disarmament and non-proliferation. This body is responsible for devising the policy for nuclear non-proliferation, and delivery systems for weapons of mass destruction, as well as the policy for nuclear disarmament. The sub-directorate also monitors measures for control and counter-proliferation in these areas. In addition it deals with matters relating to space security and anti-missile defence (Order of 16 March 2009 on the organisation of central administration within the Ministry for Foreign and European Affairs, Articles 1 and 9).

## **2. Specialised Committees or Boards**

The previous section on the powers of the main ministries with responsibilities in the nuclear field described the roles of the Council for Nuclear Policy, the Inter-ministerial Committee for Nuclear or Radiological Emergencies, the Euratom Technical Committee and the Atomic Energy Committee. On the other hand, the Advisory Commission on Major Nuclear Installations, the Special Commission for Major Nuclear Installations classified as Secret, the Higher Council for Nuclear Safety and Information, and the Higher Committee for the Transparency of Information on Nuclear Security, which are not official ministerial committees, are dealt with separately below.

### **a) Advisory Commission on Major Nuclear Installations**

Reporting to the ministers responsible for nuclear safety, this commission was established under Article 1 of the Decree of 2 November 2007. It replaced the Inter-ministerial Commission for Major Nuclear Installations which had existed since 1963.

The commission is consulted by the ministers responsible for nuclear safety, for its opinion on draft decrees concerning applications for licences to establish, alter, permanently shut down, and dismantle major nuclear installations. It is also consulted about draft decrees on major nuclear installations and the transport of radioactive substances and about draft ministerial regulations, except those granting official approval, as well as on regulatory decisions of the Nuclear Safety Authority (ASN). Furthermore, each of the ministers responsible for nuclear safety and radiation protection may refer to the commission any matter concerning major nuclear installations.

The commission is chaired by a member of the Council of State, and its vice-chairperson is the CEA High Commissioner (HCEA).

The commission consists of 19 regular members and 15 deputy members, who are appointed for five years by order of the ministers responsible for nuclear safety. The chair of the ASN, or his or her representative, may attend its meetings and make observations to those present. The commission may obtain assistance from qualified persons in studying a given matter and undertake any form of consultation it considers appropriate.

### **b) Special Commission for Major Nuclear Installations Classified as Secret**

The Special Commission for major nuclear installations classified as secret (INBS) was established under Article 4 of Decree No. 99-873 of 11 October 1999 on major nuclear installations classified as secret; the provisions relating to it have been subsequently codified under Articles R.\* 1333-54 *et seq.* of the Defence Code. It was consulted for its opinion on applications for licences to

establish, alter, permanently shut down or dismantle INBS, as well as on any other documents concerning these installations.

However, the provisions concerning this commission have been rescinded since 9 June 2009, under Article 17 of Decree No. 2006-672 of 8 June 2006 on the creation, composition and functioning of administrative commissions of an advisory nature.

**c) Higher Council for Nuclear Safety and Information**

Reporting to the minister for industry, the Higher Council for Nuclear Safety and Information (Conseil supérieur de la Sûreté et de l'Information nucléaires, or CSSIN) was established by Decree No. 87-137 of 2 March 1987. It replaced the Higher Council for Nuclear Safety which had been set up in 1973 (Decree No. 73-278 on the creation of a Higher Council for Nuclear Safety).

The official duties of the CSSIN cover (Article 1) all matters relating, first, to nuclear safety and the provision of information to the public and the media on the safety of nuclear installations and, secondly, to the provision of information to the public in the event of an incident or accident occurring in a nuclear installation. The council is empowered to make recommendations on ways of improving nuclear safety.

Since the establishment of the Higher Committee for the Transparency of Information on Nuclear Safety under Article 23 of Law No. 2006-686 of 13 June 2006 on transparency and safety in the nuclear domain, the CSSIN has not met further.

**d) Higher Committee for the Transparency of Information on Nuclear Safety**

Article 23 of Law No. 2006-686 of 13 June 2006 on transparency and safety in the nuclear domain set up a Higher Committee for the Transparency of Information on Nuclear Safety (Haut Comité pour la Transparence et l'Information sur la Sécurité nucléaire, or HCTISN). This is a body for information, consultation and discussion on the risks linked to nuclear activities and the impact of such activities on people's health, the environment and nuclear safety.

The HCTISN may issue opinions on any matter in these areas, as well as on the monitoring and information associated with them. It may also take up any matter regarding the accessibility of information in the field of nuclear safety and propose any measure designed to uphold or improve transparency in the nuclear domain. The HCTISN may be called upon to examine any matter relating to information concerned with nuclear safety and its control, by the ministers responsible for nuclear safety, the chairpersons of the appropriate commissions of the National Assembly and the Senate, the president of the Parliamentary Office for the Evaluation of Scientific and Technological Policies, the chairpersons of local information committees or the operators of major nuclear installations.

The HCTISN may commission surveys needed for it to perform its tasks and organise discussions to air conflicting views. Persons responsible for nuclear activities, the Nuclear Safety Authority and other state departments have to provide it with all documents and information required for it to discharge its responsibilities.

The opinions and annual report of the HCTISN are made public.

The Higher Committee for the Transparency of Information on Nuclear Safety consists of 40 members appointed by decree for six years. They comprise four members of parliament and six persons designated from each of six categories of representatives.

### 3. Public and semi-public agencies

#### a) *The Atomic Energy and Alternative Energies Commission*

In 1945, the provisional government of the Republic presided by General de Gaulle, which foresaw the potential applications of nuclear energy and their impact in economic, financial, political and military areas, became aware of the need to allow the state to take the initiative in the nuclear domain. Ordinance No. 45-2563 of 18 October 1945 thus established the Atomic Energy Commission (Commissariat à l'énergie atomique, or CEA).

After undergoing several amendments, the legislative provisions of the 1945 Ordinance were rescinded and codified in the Research Code under Articles L. 332-1 to L. 332-7 in section 1 of Chapter II (research establishments in the field of energy) in Title III (public establishments of an industrial and commercial nature) of Book III on research bodies and establishments.

Besides these provisions, the legislation establishing the CEA comprises above all Decree No. 70-878 of 29 September 1970 on the Atomic Energy Commission and Decree No. 72-1158 of 14 December 1972 required to enforce it.

In March 2010, the CEA became the Atomic Energy and Alternative Energies Commission (Commissariat à l'Énergie atomique et aux Énergies alternatives).

##### i) *Legal status*

The CEA is a public research establishment of a scientific, technical and industrial nature. It takes the form of an industrial and commercial public establishment (as opposed to administrative public establishments), yet constitutes a distinct category of public establishment in its own right.

Originally answerable to the President of the provisional government, and then to the President of the Council and afterwards to the Prime Minister and the minister for industry, the CEA has since July 2008 been placed under the supervision of the Minister of State, the Minister for Ecology, Energy, Sustainable Development and Marine Affairs (MEEDDM), who is in charge of green technologies and negotiations on climate.

The CEA is an administratively and financially independent legal entity. Its staff are subject to private law.

As the CEA is authorised to conduct its own financial management and submit its accounting in accordance with commercial regulations and practice (Article L. 332-6 of the Research Code), it operates largely as a private enterprise. In addition, it is exempt from the financial auditing normally applicable to state-owned independent public establishments. Checking of its financial and accounting management is carried out by the "atomic energy" mission within the general economic and financial auditing department under the authority of the minister for economic and financial affairs and industry.

From the start of the 1970s, the CEA created subsidiaries for those of its production activities that had reached an industrial stage. This applied in particular to TECHNICATOME in 1972, COGEMA in 1976 and Cis bio international in 1985. In 1983, the CEA was authorised to establish a holding company (CEA-Industrie) to administer its entire investment portfolio. In 2001, CEA-Industrie became AREVA, a world leader in the fuel cycle, including AREVA NC (formerly COGEMA), AREVA NP (formerly FRAMATOME) and AREVA TA (formerly TECHNICATOME). The CEA holds almost 80% of AREVA SA capital.

##### ii) *Responsibilities*

Article L. 332-1 of the Research Code states that "with a view to the use of nuclear energy in the fields of science, industry and defence, the Atomic Energy Commission has the task of pursuing the

necessary scientific and technical research, contributing to the protection of people and property against the effects of atomic energy, and carrying out activities associated with research into nuclear raw materials and with the production, disposal, transport, processing and trading of such materials. Under terms established by regulation, the CEA may also extend some of these research and development activities to non-nuclear fields”.

CEA duties as specified in Decree No. 70-878 of 29 September 1970 on the Atomic Energy Commission and subsequently confirmed, can be classified under the following main headings:

With a view to the use of nuclear energy in the fields of science, industry and defence, the CEA has above all the task of:

- pursuing the necessary scientific and technical research;
- contributing to the protection of people and property against the effects of atomic energy;
- carrying out activities associated with research into nuclear raw materials and with the production, disposal, transport, processing and trading of such materials.

The CEA may carry out research activities and produce, store and transport nuclear raw materials either directly, or through enterprises in which it is a shareholder.

When processing and trading in nuclear raw materials, it ensures that users are supplied as appropriate and proposes the measures required for this purpose.

As regards energy applications, the CEA coordinates public-sector involvement in the research and development of new or emerging technologies. In the event of public involvement or at the request of manufacturers and users, it takes part in industrial technology improvement programmes.

In all its sectors of activity, the CEA may engage in or contribute to the manufacture and production of physical devices or components.

It adopts or proposes all appropriate standards for France to be able to benefit from progress in nuclear fields of study.

It monitors foreign scientific, technological and economic developments relevant to its activities, in order to advise the government particularly when negotiating international agreements.

Under terms established by regulation, the CEA may also extend some of these research and development activities to non-nuclear fields either for economic purposes, or with a view to taking part in programmes in the public interest.

In addition and in cooperation with the regional authorities, the CEA is responsible for:

- contributing to regional technological development;
- conducting a promotional policy that helps industry to benefit from its work;
- developing the spread of scientific and technological information;
- contributing to the policy of training for and through research.

In this context, the main areas of CEA action, as fixed in the contract of objectives agreed with the government for 2006-09 have been: defence and global security; forms of energy free from greenhouse gas emissions; and technologies for information and health.

iii) *Structure*

**Atomic Energy Committee**

Somewhat similar to an inter-ministerial committee, the Atomic Energy Committee is called upon to examine general problems of nuclear policy in France. It may also examine all matters relating to the CEA at the request of the management board, the Administrator-General or the High Commissioner for Atomic Energy.

Under Decree No. 70-878 of 29 September 1970 relating to the Atomic Energy Commission, this Committee, which is chaired by the Prime Minister or a minister whom the Prime Minister has asked to deputise for him or her or, otherwise, by the Administrator-General, includes:

- the Administrator-General of the CEA;
- the Army Chief of Staff;
- the Secretary General of the Ministry for Foreign Affairs;
- the Delegate-General for Weaponry;
- the Secretary General for Administration of the Ministry for Defence;
- the director general for energy and climate;
- the director general for competitiveness, industry and services;
- the budget director;
- the delegate for the nuclear safety and radiation protection of defence-related activities and installations;
- the director general of research and innovation;
- the chairperson of the management board of the National Scientific Research Centre (CNRS);
- a person of standing selected by the Prime Minister;
- a person of standing selected by the minister for the environment;
- four experts in science and industry, one of whom acts as High Commissioner.

The High Commissioner and members who are not *ex officio* members are appointed for three years by decree of the Council of Ministers.

The Atomic Energy Committee meets when convened by its chairperson as often as its duties require and at least six times a year. It may also meet on an exceptional basis at the request of the Administrator-General. Decisions are taken by majority vote of the members present, with the chairperson holding the casting vote if votes are equally divided (Article 2 of the Decree of 14 December 1972 required to implement Decree No. 70-878 of 29 September 1970 concerning the CEA).

### **Management Board**

Under Decree No. 82-734 of 24 August 1982 amending the Decree of 14 December 1972, the functions of the Atomic Energy Committee relating to management and general organisation, staff employment, adoption of the budget, the acquisition and transfer of shareholdings and the authorisation of loans, were transferred to a tripartite management board.

Chaired by the Administrator-General, the board consists of 18 members including government representatives, representatives of the staff of the CEA and its subsidiaries, and leading experts (Article 4 of Decree No. 70-878 of 29 September 1970 concerning the CEA). Appointments are for a period of five years. The management board meets at least six times a year.

### **Administrator-General**

The Administrator-General acts as head of the CEA. The person concerned is appointed by decree of the Council of Ministers for a period of three years (Article 4 of Decree No. 70-878 of 29 September 1970 concerning the CEA).

The Administrator-General has full powers to act within the terms of reference of the CEA, which (s)he represents, except for powers delegated to the Atomic Energy Committee and the management board. The appointee may delegate all or part of his or her powers to the High Commissioner or to one or more heads of department.

The Administrator-General may appoint a Deputy Administrator-General as a replacement in performing all or some of the tasks entailed by the post.

### **High Commissioner for Atomic Energy**

Appointed by decree of the Council of Ministers for a period of three years, the High Commissioner for Atomic Energy acts as adviser both to the government and the CEA Administrator-General. The appointee may call upon the Atomic Energy Committee and the ministers concerned to examine his or her proposals concerning desirable general priorities for science and technology. The High Commissioner also acts as scientific adviser to the Administrator-General. The post-holder offers opinions from the nuclear standpoint on all issues relevant to the safety of people and property and is also responsible for a variety of assignments, particularly in the field of education (Article 5 of Decree No. 70-878 of 29 September 1970 concerning the CEA).

The High Commissioner chairs a scientific board which assists him or her in carrying out the duties of the office. This scientific board has a maximum of 20 members. Apart from persons appointed on proposals of the Administrator-General and of ministers, it includes staff representatives appointed after consultation with the trade unions (Articles 5 and 6 of Decree No. 70-878 of 29 September 1970 concerning the CEA).

#### *iv) Funding*

The activities carried out by the CEA are mainly funded by civil or defence grants provided for in the government budget. These grants are used to cover expenditure in applied research, nuclear power generation, the reprocessing of spent fuel and weapons manufacture. Furthermore, the industrial and commercial activities of CEA subsidiaries produce their own income. This outside income derives in particular from technical work and services, research contracts, sales of radioelements and energy, as well as fees for industrial property licences.

#### *v) CEA Agencies*

In order to assume responsibility for activities requiring special management methods or procedures, Article L. 332-6 of the Research Code authorises the CEA to establish by decree internal departments with administrative and budgetary independence.

### **Agence ITER-France (AIF)**

This agency was set up within the CEA by Decree No. 2006-752 of 29 June 2006 authorising the creation of Agence ITER-France within the Atomic Energy Commission. The agency is responsible for implementing the commitments made by France with a view to siting the international research project on thermonuclear fusion (the so-called *projet ITER*) on French territory.

### **Agence France Nucléaire International (AFNI)**

This agency was set up within the CEA by Decree No. 2008-441 of 9 May 2008 authorising the creation of Agence France Nucléaire International within the Atomic Energy Commission. The agency possesses administrative and budgetary independence. Its purpose is to convey French expertise to foreign states seeking to prepare their institutional, human and technical environments for the development of a civil nuclear sector, in compliance with the strictest possible standards as regards safety, security, non-proliferation and environmental preservation. In this respect, the agency makes use of the internal resources of the CEA and may also rely on outside resources obtained from administrative authorities and others active in the nuclear sector.

### **b) *Électricité de France (EDF)***

EDF was established under the Law of 8 April 1946 on the nationalisation of gas and electricity, which gave it the monopoly in the production, transport, distribution and marketing of electricity.

A public establishment of an industrial and commercial nature until 19 November 2004, EDF then became a public limited company (Law No. 2004-803 of 9 August 2004 on the public gas and electricity service and on gas and electricity enterprises), following deregulation of the electricity sector in the European Union. The company floated some of its capital on the stock market at the end of 2005; 87.3% of its capital is held by the state, 10.8% by the public (institutional shareholders and private individuals) and 1.9% by wage earners.

EDF produces virtually all – mainly nuclear-generated – electricity distributed on the French national grid. To date, EDF has also operated all French nuclear power stations.

EDF is run by the chairperson of its managing board. The board has 18 members comprising 6 persons of standing appointed by the general assembly of shareholders, 6 government representatives appointed by decree and 6 representatives elected by wage earners.

The high-voltage and extra-high-voltage electricity transmission grid is now run by RTE EDF Transport. A subsidiary of EDF SA, in line with European requirements for the unbundling of transmission grid management, RTE EDF Transport acts as an independent infrastructure manager in its daily administrative activities while remaining within the EDF group. As a shareholder, EDF has a right to economic supervision, which is intended to safeguard its proprietary interests.

### **c) *National Radioactive Waste Management Agency***

Originally, the National Radioactive Waste Management Agency (Agence nationale pour la Gestion des Déchets radioactifs, or ANDRA) was an agency established within the CEA, which had no independent legal identity but did enjoy some degree of budgetary autonomy (Order of 7 November 1979 on creation within the CEA of a National Radioactive Waste Management Agency). In this capacity, it was given responsibility for the long-term management of radioactive waste.

Law No. 91-1381 of 30 December 1991 on research into radioactive waste management established ANDRA as a public establishment whose purpose was reflected in its name and which was distinct from the CEA. Decree No. 92-1391 of 30 December 1992 implementing the foregoing law, specified ANDRA's new status and administrative structure, and spelt out a variety of other provisions relating to its operation.

Law No. 2006-739 of 28 June 2006 on a programme for the management of radioactive waste and materials amended and supplemented the provisions deriving from the Law of 30 December 1991. The provisions relating to ANDRA have been codified in Articles L. 542-12 and R. 542-1 *et seq.* of the Environment Code.

*i) Legal status*

ANDRA is a state-owned public establishment of an industrial and commercial nature which is supervised by the ministries responsible for energy, research and the environment, respectively (Article R. 542-1 of the Environment Code).

*ii) Responsibilities*

The scope of ANDRA's activities is specified in Article L. 542-12 of the Environment Code. The agency is responsible for operations concerning the long-term management of radioactive waste, which include:

- preparing, updating every three years and publishing the inventory of radioactive materials and wastes present in France, as well as their location in French national territory, with wastes referred to in Article L. 542-2-1 listed by country of origin;
- the conduct or implementation – in accordance with the national plan provided for in Article L. 542-1-2 – of coordinated research and studies on storage and disposal in deep geological repositories;
- helping to estimate costs arising from the implementation of approaches involving the long-term management of long-life high- and intermediate-level radioactive wastes, depending on their nature;
- forward planning, in compliance with nuclear safety regulations, of the specifications for the disposal of radioactive wastes, and offering the administrative authorities concerned an opinion on the specifications for the conditioning of wastes;
- devising, establishing and carrying out the management of radioactive waste storage or disposal centres, in accordance with the long-term prospects for waste production and management, and conducting all studies required for this purpose;
- organising the collection, transport and handling of radioactive wastes, as well as the rehabilitation of radioactively polluted sites on request and at the expense of their operators, or by public requisition when those responsible for the waste or sites concerned neglect their obligations;
- providing the public with information about the management of radioactive wastes, and helping to promote scientific and technological literacy in this field;
- transferring its expertise abroad.

*iii) Structure*

ANDRA is administered by a director general and a management board. It has a financial committee, a scientific board, a national committee for support in the radioactive domain and an advisory commission on markets.

Under the terms of Article R. 542-2 of the Environment Code, the management board of ANDRA includes:

- a member of parliament or a senator appointed by the Parliamentary Office for the Evaluation of Scientific and Technological Policies;
- six government representatives appointed on a proposal of the ministers for energy, research, the environment, the budget, defence, and health;
- seven highly qualified persons of standing, including two locally elected representatives, two persons selected for their experience in the field of nuclear activities, two prominent experts proposed by the minister responsible for the environment, and one leading researcher;
- eight representatives of the agency's employees.

The members of the management board are appointed for a term of five years.

Following a management board proposal, the chairperson is selected from among the members of the board referred to in paragraphs 1 and 3 of Article R. 542-2. The appointment is by decree subsequent to a joint report from the ministers supervising the agency.

The management board settles the affairs of the agency (general functioning, programme of work, forecasts of income and expenditure, loans, acquisitions, conclusion of contracts, etc.).

The government commissioner to ANDRA is the director general for energy and climate in the ministry responsible for energy (Article R. 542-11 of the Environment Code).

The director general of ANDRA is appointed on the proposal of the chairperson of the board by decree following a report by the ministers responsible. The appointee manages the services of the agency, prepares the meetings of the management board and implements its decisions (Article R. 542-12 of the Environment Code).

The financial committee is consulted on the annual statement of accounts, multi-annual programmes and their related forecasts of income and expenditure and, more broadly speaking, on any matter with financial implications (Article R. 542-13 of the Environment Code). Its make-up and operational procedures are regulated by the management board. The committee is chaired by a member of the board.

Under Article R. 542-14 of the Environment Code, the scientific board, for its part, delivers opinions and recommendations on the agency's research and development programmes.

An unusual feature is that ANDRA also has a national committee for support in the radioactive domain (CNAR), whose task is to issue an opinion on the use made of the public grant awarded to the agency (Article R. 542-16 of the Environment Code) in performing duties in the public interest (collection, transport and handling of radioactive waste and rehabilitation of radioactively polluted sites).

#### *iv) Funding*

Under Article R. 542-17 of the Environment Code, ANDRA derives most of its resources from:

- remuneration for its services;
- subsidies from central and local government authorities, public establishments and all national, Community (EU) or international public or private bodies;
- income from taxes paid to it in accordance with terms specified in the laws on financing.

The agency is subject to financial inspection by two auditors designated by the president of the court of appeal with jurisdiction in the location of the establishment's headquarters, as well as to economic and financial auditing by the state.

**d) *Institute for Radiation Protection and Nuclear Safety***

The Institute for Radiation Protection and Nuclear Safety (Institut de Radioprotection et de Sûreté nucléaire, or IRSN) was established under Law No. 2001-398 of 9 May 2001, the purpose of which was to strengthen existing institutional arrangements with regard to health and environmental safety, monitoring and warnings. Decree No. 2002-254 of 22 February 2002 on the Institute for Radiation Protection and Nuclear Safety lays down its structure and basic aims.

*i) Legal status*

The IRSN is a state-owned industrial and commercial public establishment. It is placed under the joint authority of the ministers for defence, the environment, industry, research, and health. The institute was formed from two pre-existing entities, namely the Institute for Protection and Nuclear Safety (IPSN) set up in 1976 within the Atomic Energy Commission and the Office for Protection against Ionising Radiation (OPRI).

*ii) Responsibilities*

The IRSN performs tasks involving appraisal and research in the fields of nuclear safety, the safety of transported radioactive and fissile materials, the protection of people and the environment against ionising radiation, the protection and control of nuclear materials, and the protection of nuclear installations and the transport of radioactive and fissile materials against acts of malicious intent.

In order to carry out its tasks, the IRSN:

- carries out surveys, research and other activities, particularly in relation to analyses and measurements or quantification for public or private bodies, whether French or foreign;
- draws up research programmes which it carries out itself or contracts out to other French or foreign research agencies with a view to maintaining and developing the expertise required in its fields of activity;
- contributes to training in radiation protection for health workers and persons exposed at work;
- provides technical support for the Nuclear Safety Authority (ASN), and to the delegate for nuclear safety and radiation protection of defence-related nuclear activities and installations (DSND), as well as to public authorities and services which so request;
- proposes to the ASN or the DSND – in the event of an accident or incident involving ionising radiation sources – technical, health-related and medical measures to ensure the protection of the population, workers and the environment, and to re-establish the security of installations;
- contributes to the permanent monitoring of radiation protection, in particular by taking part in the radiological monitoring of the environment, as well as by managing and using dosimetric data concerning workers exposed to ionising radiation and by administering the inventory of ionising radiation sources.

*iii) Structure*

The IRSN is administered by a director general, a management board, a directorate for nuclear defence expertise, a scientific board and an advisory commission on markets.

The management board consists of 24 members as follows:

- 10 state representatives appointed by decree;
- six experts in the fields of activity of the institute, including a member of parliament or a senator who is a member of the Parliamentary Office for the Evaluation of Scientific and Technological Policies and proposed by that Office;
- eight representatives of the staff of the institute.

The members of the management board are appointed for a period of five years. Decisions are taken by a majority of votes of the members present or represented.

The director general of the IRSN is appointed on the proposal of the chairperson of the management board, by decree adopted following a report by the ministers responsible. The appointee is assisted by a deputy director general.

Consisting of ten members, the steering committee of the directorate for nuclear defence expertise examines the directorate's programme of activities before it is submitted to the management board. The committee is consulted about any draft item for discussion in the board which is concerned specifically with the organisation or functioning of the directorate. It may make any recommendation to the board regarding the directorate's activities. Finally, the steering committee examines the section of the draft annual report dealing with the directorate.

The scientific board consists of 12 scientific or technical experts appointed for five years by joint order of the ministers responsible. The board gives its opinion on the IRSN work programme and monitors the research programmes adopted by the institute after checking their relevance. It assesses the results obtained and may make recommendations about the general direction of the institute's work.

#### *iv) Funding*

The financial resources of the IRSN consist mainly of the following:

- subsidies from the state, and from public or private, national or international bodies;
- proceeds from sales of publications;
- income from patents and inventions;
- income from the institute's property and real estate, and the proceeds from disposing of them.

#### **e) National Institute for Nuclear and Particle Physics (IN2P3)**

Established in 1971, the IN2P3 is an institute for pure research at the National Scientific Research Centre (CNRS), which focuses on the fields of nuclear and particle physics. It is now governed by the provisions of Decree No. 84-667 of 17 July 1984, under which it ceased to have its own legal status. Its purpose is to prepare and coordinate research in the fields of nuclear and particle physics.

IN2P3 carries out its duties within bodies placed under the supervision of the minister of education and the minister responsible for research, with the exception of the CEA.

The institute is headed by a director appointed by joint order of the minister responsible for research and the minister of education, following an opinion from the director general of the CNRS and the director general of higher education and research at the ministry of education. The person appointed is assisted by an administrative deputy director and by one or more scientific deputy directors appointed by the director general of the CNRS on a proposal by the director of the institute, after obtaining the opinion of the director general for higher education and research in the ministry of education.

The director of IN2P3 is further assisted by a management board and a scientific board.

The management board consists of 15 members, including the director general of the CNRS who chairs it, the ex officio members, members appointed from among ministerial representatives and leading scientists. It holds meetings at least twice a year, and on one such occasion it examines the budget. The institute's budget is separate from that of the CNRS but is approved and amended in the same way as the CNRS budget. In general, the board fulfils the usual functions of management boards in public establishments.

The scientific board is consulted on the drawing up of research programmes, and preparation of the plan and equipment programmes. It meets at least twice a year, and comprises representatives from different scientific bodies together with scientists.

## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where the governments of 31 democracies work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The Commission of the European Communities takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

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## NUCLEAR ENERGY AGENCY

The OECD Nuclear Energy Agency (NEA) was established on 1st 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 30 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, Poland, Portugal, Republic of Korea, Slovenia, 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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