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# NUCLEAR LEGISLATION IN OECD COUNTRIES

## Regulatory and Institutional Framework for Nuclear Activities

**Finland**

## ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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The mission of the NEA is:

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

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

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

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# FINLAND

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## I. GENERAL REGULATORY REGIME

### 1. Introduction

Finland's nuclear activities are governed by three main legislative instruments, which are supplemented by various secondary instruments (decrees, ordinances, rules, etc.). The main acts are:

- the Nuclear Energy Act 1987 [No. 990/1987 as last amended by Act No.769/2004];
- the Radiation Protection Act 1991 [No. 592/1991, as last amended by Act No. 1179/2005];
- the Nuclear Liability Act 1972 [No. 484/1972, as last amended by Act No. 493/2005.

In 1987, the nuclear energy act replaced the atomic energy act which dated from the 1950s. The stated purposes of the 1987 Act are to ensure the non-proliferation of nuclear weapons and the safety of both man and the environment [Section 1]. The act establishes general principles governing the regulation of the use of nuclear energy, the establishment of a licensing procedure and nuclear waste management. The act was amended in 1994 to take into account Finland's accession to the European Union and the Euratom Treaty. The amendment entered into force on 1 January 1995, by Decree No. 1589/1994. Changes to the Finnish Nuclear Energy Decree of 1988 [No. 161/1988] were also required as a result of Finland's entry into the European Union.

The radiation act, passed in 1991, replaced radiation protection legislation dating from 1957. It aims to protect human health from the adverse effects of radiation.

The purpose of the nuclear liability act passed by the Finnish Parliament in June 2005 was to amend the 1972 Nuclear Liability Act which implements Finland's obligations as a Party to the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy and the 1963 Brussels Supplementary Convention as amended by the 1982 Protocols.

These acts and related legislation will be discussed in more detail under the various headings which follow.

There are currently four nuclear power reactors in Finland generating approximately 22300 GWh(e). Two of them, situated in Olkiluoto, are operated by Teollisuuden Voima Oy (TVO)<sup>1</sup> and the other two, situated in Loviisa are operated by Fortum Power and Heat Oy.<sup>2</sup> In addition, there is a 250.00 kW Triga Mark II research reactor operated by the Technical Research Centre of Finland (VTT).

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1. TVO is a private company which shares are mainly owned by other private companies.

2. Fortum Power and Heat Oy is wholly owned by Fortum Oyj in which the majority shareholder is the State. Fortum Oyj's activities cover the generation, distribution and sale of electricity and heat, the operation and maintenance of power plants as well as energy-related services.

A fifth power reactor is currently under construction at the Olkiluoto plant and is expected to have a net capacity of 1 600 MWe, making it the most powerful nuclear installation in Finland. The construction of this European Pressurised Water Reactor (EPR) commenced in 2005, after the Council of State (Government) granted the construction licence. The unit is expected to be connected to the grid in 2010.

The NPP utilities, TVO and Fortum Power and Heat Oy, have chosen to store and, later on, dispose of their spent fuel in a deep geological repository in Finland. At the end of 1999, Posiva Oy<sup>3</sup>, which is responsible for the disposal of spent nuclear fuel, filed an application to the Government for a decision-in-principle on the building of a final disposal facility. The decision-in-principle on siting the spent fuel disposal facility to Olkiluoto was approved by the Parliament in May 2001. This decision was expanded to cover also the spent fuel from the fifth reactor unit by another decision-in-principle approved in May 2002.

The excavation work for this deep underground rock characterisation and research facility (ONKALO) started in September 2004. The target repository depth of 420 metres should be reached in 2008 and construction work should be complete in 2010.

## **2. Mining Regime**

All mining activities in Finland are regulated by the Mining Act No. 503/1965.

The nuclear energy act provides that a mining or enrichment operation aimed at producing uranium or thorium is a “use of nuclear energy” for the purposes of the act [Section 3]. Since the use of nuclear energy is prohibited without a licence [Section 8], any person wishing to engage in mining operations of this kind must obtain a licence to do so from the Government [Section 16]. Under the act as amended by the 1994 Act, this kind of licence may be granted to Finnish citizens, corporations or foundations as well as to natural persons, entities or authorities residing within the countries of the European Union.

In recent years, mining conglomerates have become interested in uranium exploration in Finland and filed several applications for uranium exploration licences. The first applications were filed with the Ministry of Trade and Industry in Autumn of 2005. In October 2006 the Ministry granted licences for uranium exploration in the Kontiolahti and Eno areas (Northern Karelia). Several other applications for exploration licence were under review at the Ministry, in Autumn 2006.

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

Both the nuclear energy act and the radiation protection act are relevant to this topic. The radiation protection act regulates all activities which cause or may cause exposure to radiation. Any activity of this kind requires a licence under the act [Section 16] if the activity in question is not exempted from this requirement [Section 17]. Any “use” of nuclear energy, as defined by the nuclear

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3. Posiva Oy is owned by TVO (60%) and by Fortum Power and Heat Oy (40%).

energy act, is regulated and licenced under that act, but the general principles of radiation protection and the specific rules to protect workers apply also in respect of use of nuclear energy [Section 3 of the radiation protection act].

The nuclear energy act prohibits any use of nuclear energy unless it is licensed under the act [Section 8]. Among the activities defined by the act as “uses of nuclear energy” are the possession, manufacture, production, transfer, handling, use and storage of nuclear materials [Section 2]. The nuclear energy act [Section 3] and the Nuclear Energy Decree [No. 161/1988, Section 1] define “nuclear materials” in the same terms as Article XX of the Statute of the International Atomic Energy Agency. Nuclear materials thus include uranium, thorium and plutonium, as well as any substance containing any such materials (including fresh and spent nuclear fuel).

The nuclear energy act also defines as the “use” of nuclear energy and consequently as an activity requiring a licence, any possession or transfer of non-nuclear material, devices or equipment which are relevant to the proliferation of nuclear weapons. The Nuclear Energy Decree [No. 161/88, Chapter 3] defines a list of these materials, devices and equipment. This list is compatible with the Trigger List in the Annex to IAEA INFCIRC/254/Rev.2/Part 1.

Licences for the uses of nuclear energy described above are granted by the Ministry of Trade and Industry (*Kauppa-ja teollisuusministeriö* – KTM) or by the Finnish Radiation and Nuclear Safety Authority (*Säteilyturvakeskus* – STUK) [nuclear energy act, Section 16]. With certain limited exceptions, the licence can be granted only to persons or entities residing within the European Union [Section 17]. The principal criteria for the granting of a licence include: adequate arrangements for the health and safety of the workforce to be involved in the activity and also for the protection of the public and the environment; adequate arrangements for the management of any nuclear waste produced; adequate arrangements to ensure that STUK has the possibility of monitoring the manufacture of fuel elements, including those manufactured abroad; and sufficient expertise and appropriate financial resources on the part of the applicant [Section 21]. The licence, if granted, is for a fixed term and may be made subject to conditions [Sections 24 and 25]. In certain circumstances, the licence may be revoked [Section 26]. The act establishes criminal offences, in particular for the unauthorised use of nuclear energy [Section 72]. The offences are punishable by fines and terms of imprisonment of up to the maximum term provided in the Penal Code, with the exception of a life sentence.

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

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

The nuclear energy act provides that the construction and operation of nuclear facilities is prohibited without a licence. Licences may only be granted to natural persons and entities subject to the jurisdiction of an EU Member State [Section 17]. Permission to construct a nuclear facility having a thermal power capacity of more than 50 megawatts requires the approval in principle from the Government, which must base its decision on the requirement that the construction proposal be consistent with “the overall good of society” [Section 11]. If this approval is obtained, the Government’s decision is then submitted to the Finnish Parliament which may either accept or reject (but may not modify) the Government’s decision [Section 15].

Before the Government makes a decision on the merits, a lengthy and wide-ranging consultation procedure must be followed, which includes an assessment in accordance with the Act on Environmental Impact Assessment [No. 468/1994]. In particular, the Ministry of Trade and Industry (KTM) must obtain a preliminary safety assessment on the proposed decision from Radiation and Nuclear Safety Authority (STUK), a statement from the Ministry of the Environment, and a statement from the municipal council responsible for the area proposed as a site for the facility. Statements must also be obtained from neighbouring municipal councils [Section 12]. In addition, the applicant for the licence must provide information to the public, in the form of a publication approved by KTM, concerning the safety and environmental aspects of the proposed facility. KTM is responsible for organising public hearings to enable residents and local authorities to make their opinions known [Section 13]. The substance of any submissions made by the public or by local authorities during this process, whether orally or in writing, must be transmitted by the Ministry to the Government [Section 13].

The Nuclear Energy Decree [No. 161/1988] adds further requirements for consultation with numerous government agencies. KTM must obtain comments on the proposal from the Ministry of the Interior, the Ministry of Defence, the concerned State Provincial Office, Regional Council and Regional Environment Centre as well as the Advisory Committee on Nuclear Energy [Section 25]. In addition, KTM must submit to the Government a review which specifically addresses questions of nuclear waste management such as methods proposed, safety and environmental aspects, costs and suitability to Finnish conditions [Section 26].

Once all the information and comments required by the nuclear energy act and the above-mentioned decree have been collected and submitted to the Government, it may proceed to make its decision on the application. The act provides that the Government must reject the proposal if the municipal council responsible for the proposed site opposes it. The Government itself can/may reject the application if it deems on the basis of STUK's preliminary safety assessment or otherwise that the installation cannot be established in a safe manner [Section 14, nuclear energy act]. If neither negative opinion is forthcoming, the Government then proceeds to consider the issue from the perspective of the overall good of society, paying particular attention to the country's energy needs, the suitability of the intended site, the environmental impact of the facility and the methods proposed for management of the spent nuclear fuel and other nuclear waste [Section 14].

If the Government's decision is positive, it must then be submitted to the Parliament, which may either confirm or reject the decision [Section 15]. The applicant may not initiate any significant measures relating to the construction of the facility in anticipation of the Parliament's decision [Section 15]. Once Parliamentary approval is given, the grant of the construction licence is still contingent on a number of detailed criteria relating to public safety, workforce protection, environmental protection, town planning and building requirements, nuclear waste management and final decommissioning plans, technical expertise and adequate financial resources [Section 19]. If an applicant satisfies all these requirements, a construction licence for the proposed facility may then be granted by the Government [Section 16].

Once the construction of the facility is satisfactorily completed, a separate licence is needed for its operation. This licence is also granted by the Government [Section 16] after further examination of the criteria mentioned above (such as safety, environmental protection and waste management) [Section 20]. The commencement of operation of the facility depends not only on the granting of this

licence by the Government, but also upon the approval of KTM and STUK. KTM must be satisfied that financial security requirements of the act relating to waste management have been met, and STUK must be satisfied that the facility meets prescribed safety, physical protection, emergency planning and non-proliferation requirements, and that the operator has the prescribed financial guarantees to cover the possibility of nuclear damage caused by the facility [Section 20]. For further information on waste management requirements and financial guarantees for nuclear damage, see *infra* under Section 7 “Radioactive Waste Management” and Section 10 “Nuclear Third Party Liability” respectively.

Operating licences are granted for a fixed term [Section 24]. The licence is subject to conditions to ensure that the general principles on which the nuclear energy act is based (for example safety, management of nuclear waste and implementation of Finland’s international obligations) are reflected in practice [Section 25]. The licence’s conditions may be changed during its period of validity by the Government [Section 25]. A licence may also be revoked altogether if the licensee seriously undermines any of the act’s basic principles by, for example, failing to comply with licence conditions or contravening certain key provisions of the nuclear liability act [Section 26]. The licence may also be revoked if the licensee dies, loses legal capacity, becomes bankrupt or ceases to operate the facility for any other reason [Section 26].

The licence requirements of the nuclear energy act are reinforced by provisions for criminal offences. The basic offence, namely the use of nuclear energy without the appropriate licence issued under the act, is punishable by two years imprisonment or a fine [Section 72]. Other offences refer to the infringement of particular provisions of the act, failure to observe licence conditions, failure to comply with safety, physical protection or emergency planning requirements, or interference with equipment installed by STUK to supervise and monitor nuclear power facilities as specified by the act [Section 72].

The act makes STUK the authority responsible for the supervision of nuclear energy activities and the enforcement of licensees’ obligations [Section 63]. STUK is given powers of search and entry, access to records, power to take samples and install monitoring devices, power to require the operator to submit reports and the ability to give directions about the method of production of fuel or of the manufacture of equipment to be used in the nuclear activity in question. These powers are also extended to any international inspector carrying out functions under Finland’s international agreements if the inspector is approved by the Finnish Government and accompanied by a representative from STUK [Section 63].

STUK can also direct the licensee to make changes to the physical structure of a nuclear facility and to operating practices and procedures [Sections 64 and 65]. Such instructions may be enforced by fines or by suspension or limitation of the operation in question [Sections 66 and 67].

A police authority may provide assistance in supervising compliance with the act if requested to do so by either KTM or STUK [Section 68].

Finland is a Party to the 1994 Convention on Nuclear Safety which it accepted on 22 January 1996.

## **b) *Emergency response***

The nuclear energy act states that a prerequisite for any use of nuclear energy is that there be sufficient emergency planning [Section 7]. “Emergency planning” is defined to mean, in relation to a nuclear facility, the measures needed to reduce nuclear damage at the facility or its precincts [Section 3]. Although emergency planning is an obligation imposed on the licensee by means of the application process and the licence conditions when granted, STUK is responsible for supervising and co-ordinating emergency planning measures [Section 55]. In order to enable it to carry out this and other functions, STUK is empowered to participate in the licensing process, impose and supervise licence conditions, issue and enforce regulations, provide expert advice and carry out research and development work [Section 55]. At the level of secondary legislation, the Government is empowered to issue general regulations about emergency planning. The General Rules for Contingency Plans at Nuclear Power Plants [No. 397/1991] set out in detail the measures to be taken by operators to contain nuclear damage in the event of an incident.

Finland is a Party to both the 1986 Convention on Early Notification of a Nuclear Accident and the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, which were approved on 11 December 1986 and 27 November 1990 respectively.

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

The import and export of nuclear materials and certain non-nuclear materials as well as of certain devices or equipment are regarded as “uses” of nuclear energy and are, therefore, subject to the relevant provisions of the nuclear energy act. Finland’s import and export policies reflect the fact that Finland is a Member State of the European Union, a Party to the Treaty on the Non-Proliferation of Nuclear Weapons and that it has adopted the criteria set out in the Guidelines of the Nuclear Suppliers Group (“London Club”). Finland is a Member of the Zanger Committee.

A list of the non-nuclear materials, devices and equipment covered by the nuclear energy act, has been established by the nuclear energy decree. This list is compatible with the Trigger List in the Annex to IAEA INFCIRC/254/Rev.2/Part 1. The import and export of these items are prohibited without a preliminary licence under the act [Section 8].

Licences may be granted to natural persons, entities and authorities which are subject to jurisdiction of an EU Member State [Section 17(1)]. Entities and authorities subject to jurisdiction of a non EU Member State may be granted a licence for special reasons [Section 17(2)]. In particular, a licence may be granted to a “non EU entity” to import or export nuclear material or waste that will simply be passing through Finland in transit to another destination [Section 17(2)]. A licence may also be granted to an international organisation or foreign authority carrying out supervisory and monitoring functions under an international treaty to which Finland is a Party [Section 17(3)].

The nuclear energy decree sets out the procedure for obtaining an import or export licence. In most cases, licences are granted by STUK [Sections 53(a) and 54(a)]; however, if the licence covers import of sensitive nuclear items or export to a country which is not a member of the Nuclear Supplier Group, it is granted by KTM [Sections 53 and 54].

Following the entry of Finland into the European Union, transfers of nuclear industry goods used for peaceful purposes have been made easier within that area. An operator who has obtained a construction or operating licence for a nuclear facility, or who has some other operating licence mentioned in the nuclear energy decree as amended, will now receive a Community trade licence for the import and export of nuclear goods pertaining to his business to and from other Member States. When such a Community trade licence has been obtained, the operator needs no other import or export licence from the Finnish authorities regarding shipments within the European Union [Section 50]. The Community trade licence does not, however, apply to imports or exports of sensitive nuclear items or nuclear waste.

In cases where KTM is responsible for granting a licence, it must obtain opinions of the Ministry of Foreign Affairs and of STUK before coming to a decision on an application, unless, owing to the nature of the operations, this is obviously unnecessary [nuclear energy act, Section 23; decree, Section 54(c)]. The licence, when granted, must specify precisely what is to be imported or exported and, in the case of export, the country of destination and the recipient. Any conditions considered necessary may be attached to the licence [Sections 53(d) and 54(d)].

## **6. Radiation Protection**

As mentioned earlier, the radiation protection act regulates all activities which cause or may cause exposure to radiation. The purpose of the act is to protect human health from the adverse effects of radiation. The act embodies the following principles as the basis for its regulatory control: justification of practices; the ALARA [as low as reasonably achievable] principle and individual dose limitation [Section 2]. The act has different levels of licensing requirements (administered by STUK) and applies to activities involving exposure to ionising, non-ionising and natural radiation. In order to obtain a licence under the act, the applicant must provide specific information to STUK about activities concerned. STUK must be satisfied that the equipment and protective shields used in the activities are of the required technical standard; that the personnel and work practices are of the correct standard; and that any radioactive waste is appropriately disposed of [Section 16]. The act contains provisions for the monitoring and registration of individual radiation doses received by employees.

Any “use” of nuclear energy, as defined by the nuclear energy act, is exempted from the provisions concerning licensing requirements of the radiation protection act. As mentioned above the general principles of radiation protection and provisions concerning exposed workers [Section 3] are applicable to use of nuclear energy. The nuclear energy act deals with radiation in a general way, stating in the Chapter entitled “General Principles” that the use of nuclear energy must be safe and must not cause injury to people or damage to the environment or property [Section 6]. The ALARA principle is incorporated into every aspect of the act’s licensing process and its regulation of nuclear activities. A later section of the act makes it clear that the holder of a licence under the act is responsible for the occupational health and safety of those employed in the nuclear facility [Section 59]. The section refers to employers’ obligations under the Work Safety Act [No. 738/2002], the radiation protection act, the Mining Act [No. 563/1965] and any subordinate legislation that may be issued under the nuclear energy act.

The Government is empowered to make general regulations dealing with the safety aspects of nuclear energy use [Section 81]. Under this authority, it has issued General Rules for example for the Safety of Nuclear Power Plants [No. 395/1991]. These rules set radiation exposure limits for the general public and for workers in a variety of situations, specify design requirements to ensure safety and require certain monitoring and control equipment to be installed in every nuclear plant.

## **7. Radioactive Waste Management**

Radioactive waste management is regulated by the nuclear energy act. The act allocates responsibility between waste producers and government authorities, incorporates waste management criteria into its licensing procedures and establishes the principles according to which the waste management system is to be financed. The provisions of the act are supplemented by relevant parts of the nuclear energy decree.

The nuclear energy act establishes the principle that all nuclear waste which has been generated in Finland must be handled, stored and finally disposed of in Finland. Exceptions can be made for small amounts to be sent abroad for research purposes and for research reactor fuel [Section 6(a)]. The act also provides that foreign nuclear waste cannot be handled, stored or finally disposed of in Finland [Section 6(b)]. Furthermore, as far as the dumping of radioactive waste at sea is concerned, Finland is a Party to both the 1974 Convention on the Protection of the Marine Environment of the Baltic Sea [the Helsinki Convention implemented in Finland by Act No. 11/1980 and Decree Nos. 12/1980, 68/1980, 31/1981, 17/1984, 39/1984, 65/1958, 17/1987] and the 1972 Convention of the Prevention of Marine Pollution by Dumping of Wastes and Other Matter [the London Convention, ratified on 3 May 1979 and implemented by Act No. 33/1979 and Decrees Nos. 34/1979 and 44/1981].

The nuclear energy act defines any facility which is used for handling or storage of nuclear waste as a nuclear facility. A nuclear waste repository is also a nuclear facility pursuant to the act [Section 11]. The construction and operation of such facilities are subject to the approval and licensing requirements already discussed. In addition, the waste management aspect of any proposed nuclear facility is an issue at every stage of the approval and licensing procedure for that facility. The nuclear energy act divides responsibility for state supervision of waste management planning and activity between KTM and STUK. In the first place however, it is the licensee who is responsible for the management of nuclear waste generated by the licensee's activities [Section 9]. KTM and STUK must ensure that the licensee fulfils this obligation and in order to do so, they may, after consulting the Ministry of the Environment, require the licensee to submit a nuclear waste management plan [Section 28]. KTM may order licensees to engage in joint waste management measures and may make an order as to the distribution of costs of any such joint measures [Section 29]. If KTM considers the licensee's measures to be unsatisfactory (because, for example, of a failure to meet an agreed timetable or to implement directions issued by the authorities), the State may assume ownership and responsibility for the waste [Section 31].

However, assuming that the licensee implements the agreed waste management measures and pays the required lump sum to the State [Section 32] and that STUK certifies that all the licensee's obligations with respect to the waste have been fulfilled [Section 33], ownership and control of the waste and all further responsibility for it is then transferred to the State [Section 34].

The act contains detailed financial provisions for the cost of nuclear waste management. For the purposes of implementing those provisions, the State Nuclear Waste Management Fund (administered by KTM) collects assets from Finnish nuclear companies (licensees under waste management obligations) for future nuclear waste management purposes [Section 38]. Licensees under waste management obligations may borrow from the Fund. The amount borrowed from the Fund cannot exceed 75% of the Fund holding last confirmed for the licensee under waste management obligations in question [Section 52].

Pursuant to the 2004 Amendment to the nuclear energy act, two separate Funds were established to be administered by the Waste Management Fund. The two separate Funds shall collect fees from the two Finnish nuclear companies and VTT (the State research centre which operates a small research reactor). With these assets it shall finance nuclear research, with a view to guaranteeing that certain nuclear expertise is available to the State agencies controlling and supervising nuclear operations in Finland. Previously, such financing was taken care of by the relevant agencies in cooperation with the companies on a voluntary basis.

The nuclear energy decree contains provisions setting out in more detail the waste management obligations of licensees pursuant to the nuclear energy act [Chapters 14-16, nuclear energy decree]. Changes to the decree necessitated by Finland's entry into the European Union are reflected in Decree No. 473/1996 of 26 June 1996, which came into force on 1 July 1996. These changes were primarily required in order to take account of the Euratom Treaty and EU Council Directive 92/3/Euratom on the Supervision and Control of Shipments of Radioactive Waste Between Member States and into and out of the Community.

In addition, the nuclear energy act defines any possession, manufacture, production, transfer, handling, use and storage of nuclear waste as a "use" of nuclear energy [Section 2]. Consequently, these activities when pursued outside nuclear facilities require a licence under the act.

Finland is a Party to the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management which it accepted on 10 February 2000.

## **8. Nuclear Security**

Finland ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 5 February 1969 and the 1979 Convention on the Physical Protection of Nuclear Material on 22 September 1989. It also ratified the 1996 Comprehensive Nuclear-Test-Ban Treaty on 15 January 1999. As mentioned above, Finland also adheres to the NSG Guidelines for Nuclear Transfers.

As far as non-proliferation is concerned, the nuclear energy act prohibits the importation, manufacture and possession of nuclear explosive devices [Section 4]. Finland is also a Party to the Non-proliferation Safeguards Agreement between the IAEA, Euratom and the non-nuclear weapon Member States of Euratom. The Nuclear Energy Decree of 1988 was modified in 1996 Decree No. 473/1996 to take into account Finland's entry into the European Union. As a result, it contains provisions concerning dual-use goods used by the non-military nuclear industry, which are listed in Non-proliferation: Council Regulation (EC) No. 3381/94 of 19 December 1994 [amended by

Council Regulation (EC) No. 837/95 of 10 April 1995] setting up a European Union regime for the control of exports of dual-use goods, and in EU Council Decision 94/942/CFSP [amended by Council Decision 95/127/CFSP of 10 April 1995] concerning the control of exports of dual-use goods.

In relation to physical protection, the nuclear energy act states that “sufficient” physical protection arrangements are a prerequisite for the use of nuclear energy [Section 7]. At every stage of the licensing process, the applicant must be able to satisfy STUK that these arrangements are in place [for example, Section 19(3) which relates to the granting of a licence to build a nuclear facility].

Under its power to make general regulations concerning physical protection [Section 81], the Government has issued the General Regulations for Emergency Response Arrangements at Nuclear Power Plants [No. 397/1991]. These outline the security measures to be taken by operators of nuclear facilities and the action to be taken when a threat to security arises.

STUK is the supervisory authority responsible for non-proliferation safeguards and physical protection [nuclear energy act, Section 55]. STUK maintains the State system of accounting for and control of nuclear materials in Finland and monitors and regulates the non-proliferation and physical protection aspects of international trade in, transport, storage and use of nuclear material.

## **9. Transport**

The Act on Transportation of Dangerous Substances [No. 719/1994] regulates all modes of transportation of radioactive substances. It applies both to international transportation and to domestic transportation. Pursuant to this act, the Ministry of Transport and Communications has issued separate regulations for each mode of transportation of dangerous substances within national boundaries. For international transportation, the regulations issued by the relevant international organisations pursuant to the following international agreements to which Finland is a Party are applied:

- European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR);
- Convention on International Carriage by Railroad (COTIF);
- International Maritime Dangerous Goods Code (IMDG);
- Convention on International Civil Aviation.

The nuclear energy act includes the transport of nuclear materials and nuclear waste as a “use” of nuclear energy [Sections 2 and 3] and it is thus subject to the act’s licensing system. A licence for transport of nuclear material or nuclear waste within Finland or in transit through Finland can also be granted to an entity or authority outside the European Union [Section 17(2)].

According to the nuclear energy decree, the licence is determined by STUK [Section 56]. The application must contain specified information as to the method of transport proposed, the physical protection measures to be taken and the emergency plans that have been made [Sections 57 and 58]. The licence, if granted, must specify the type and quantity of material that is covered by the licence, any limitations to the route to be taken, the period of validity and any other conditions considered necessary [Section 60].

## 10. Nuclear Third Party Liability

Finland is a Party to the following instruments on nuclear third party liability:

- 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy (to which it acceded on 16 June 1972) and the 1963 Brussels Convention Supplementary to the Paris Convention (to which it acceded on 14 January 1977), as amended by the two 1982 Protocols; Finland has also signed the 2004 Protocols to Amend the Paris and Brussels Conventions and has also expressed its intention to ratify these instruments (which have not yet entered into force) in the near future;
- 1971 Convention on Civil Liability in the Field of Maritime Carriage of Nuclear Material (accepted on 6 June 1991);
- 1988 Joint Protocol relating to the Application of the Paris Convention and the Vienna Convention (ratified on 3 October 1994).

The national legislation which implements Finland's obligations under these treaties is the Nuclear Liability Act [No. 484/1972 as amended by Acts Nos. 388/1986, 820/1989, 588/1994, 89/1999, 416/2002 and 493/2005]. Act 493/2005 amending the nuclear liability act was passed by the Parliament in June 2005 and was subsequently enacted by the President. The amending act implements to the nuclear liability act the amendments made to the Paris and Brussels Conventions by the 2004 Protocols and will enter into force at a later date as determined by Government decree. The entering into force of the amending act will take place simultaneously as the 2004 Protocols amending the Paris and Brussels Conventions will enter into force.

The act provides that in the event of nuclear damage, the Finnish operator's liability is strict, *i.e.* compensation is payable whether or not there is any fault on the part of the operator [Section 12].

As a general rule, damage caused by a nuclear incident in Finland but suffered in a State which is not Party to the Paris Convention ("a non-Contracting State") is covered by the act, but damage caused by an incident occurring outside Finland and suffered in a non-Contracting State is not [Section 4]. However, the Government has the power to decide that, on the basis of reciprocity, a non-Contracting State is to be treated as a Contracting State to the Paris Convention for the purposes of the act [Section 5]. The maximum amount of the operator's liability was raised from 150 Special Drawing Rights (SDRs of the International Monetary Fund) to SDRs 175 million of by Decree No. 785 of 30 October 1998, which entered into force on 1 January 1999. The Government may, taking into account the size or character of a particular nuclear installation, fix a lower amount for that installation of not less than SDRs 5 million [Section 17]. The operator of a nuclear facility (other than the State) must take out and maintain liability insurance to the extent necessary to cover his liability. The Government has the power to exempt an operator from this requirement if the operator is able to provide alternative financial securities to cover his potential liability [Section 28].

The principal amendments made to this legislation in 2005 are as follows:

- Finnish nuclear operators will require insurance coverage for a minimum amount of EUR 700 million; the liability of Finnish operators shall be unlimited in instances where nuclear damage has occurred in Finland and the third tier of the Brussels Supplementary

Convention (providing cover up to EUR 1.5 billion) has been exhausted and there remains damage to be compensated;

- the Government may decide on a lower amount of liability with regard to the transport of nuclear substances; however this amount may not be less than EUR 80 million. No other reduced liability amounts shall be applicable;
- The act will also apply to nuclear damage suffered in the territory of a non-Contracting State which does not have any nuclear installation in its territory at the time of the nuclear incident;
- “nuclear damage” shall be defined as per amended Article 1 of the revised Paris Convention; and
- nuclear damage caused by acts of terrorism shall be covered by this legislation.

The required minimum insurance coverage of EUR 700 million must be approved by the Insurance Supervision Authority.

The nuclear liability act contains detailed rules as to liability arising from a nuclear incident that occurs in the course of transport of nuclear substances. The provisions cover numerous situations and specify in each case whether liability rests with the consignor, the consignee or the carrier. In some situations liability may be apportioned [Sections 7 and 11]. The amount of liability for nuclear damage arising in the course of transport of nuclear substances, other than damage to the means of transport, must be at least SDRs 5 million [Section 18]. On 5 May 1994, the Council of State issued a Decision [No. 333/1994] on the maximum amount of liability for nuclear damage caused by a nuclear incident that has occurred during the transport of non-irradiated uranium which has been enriched to at most 20% in the isotope <sup>235</sup>U. This amount is fixed at SDRs 13 million.

The 2005 Amendment to the nuclear liability act makes provision relating to liability arising from a nuclear incident that occurs in the course of transport of nuclear substances [Sections 7 and 11].

A victim of nuclear damage who wishes to claim compensation under the act must do so within ten years of the nuclear incident and within three years from the date on which he or she knew, or ought reasonably to have known, that he or she was entitled to compensation.

A person who is entitled to compensation but is unable to recover it from the operator’s insurer may be compensated instead by the State [Section 29]. Similarly, a person who is no longer entitled to compensation due to the act’s time limits on bringing an action may be compensated by the State under certain circumstances [Section 33].

The act also provides for supplementary payments to be made from public funds if the amount of the operator’s liability proves to be too low to meet the claims of those entitled to compensation. In such a case the total amount of compensation available in respect of any nuclear incident is not to exceed SDRs 300 million [Section 32].

Finnish courts have jurisdiction to hear a compensation claim under the act, if the nuclear incident occurred wholly or partly in Finland; or if the relevant installation is situated in Finland and

either the nuclear incident has occurred wholly outside the territory of any Contracting State to the Paris Convention or the location of the incident cannot be determined [Section 37].

According to Section 37 of the 2005 Amendment to the nuclear liability act, the provisions specifying which State shall exercise jurisdiction over actions brought under this act are laid down in Article 13 of the Paris Convention as amended by the 2004 Protocol.

## II. INSTITUTIONAL FRAMEWORK

### 1. Regulatory and Supervisory Authorities

#### a) *Ministry of Trade and Industry (KTM)*<sup>4</sup>

The Nuclear Energy Act [No. 990/1987] provides that the Ministry of Trade and Industry (*Kauppa-ja teollisuusministeriö* – KTM) has overall responsibility for the use of nuclear energy in Finland [Section 54]. It is also responsible for co-ordinating Finland's participation in the activities of international bodies and represents Finland in the International Atomic Energy Agency (IAEA), the OECD Nuclear Energy Agency (NEA) and the Nordic Nuclear Safety Research Programme (NKS).

The Ministry plays a central role in the licensing system established under the nuclear energy act. Even where it is for the Government to make a decision on the merits on a new power reactor, the Ministry is responsible for co-ordinating and supervising the lengthy and complex application procedure which involves numerous other ministries, national and local government authorities and public hearings.

The Ministry also supervises the operation of Finland's statutory provisions on waste management, and in particular has responsibility for administering the State Nuclear Waste Management Fund and for assessing and receiving the financial securities required from nuclear operators under the nuclear energy act.

The Ministry of Trade and Industry is assisted by the national Advisory Committee on Nuclear Energy in the preparation of the most important matters related to nuclear energy.

In respect of a prosecution for an offence under the nuclear energy act it is provided in the act that the prosecutor must ask for a statement on the matter from the Ministry before initiating prosecution.

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4. Ministry of Trade and Industry: [www.ktm.fi](http://www.ktm.fi).

**b) *Ministry of Social Affairs and Health***<sup>5</sup>

The Ministry of Social Affairs and Health has administrative and financial responsibility for the Radiation and Nuclear Safety Authority.

The Ministry of Social Affairs and Health directs and guides the development of policies relating to social protection, social welfare and health care. It defines the main lines of social and health policy, prepares legislation and key reforms and monitors their implementation. It also handles the necessary links with the political decision-making process. The Ministry is the supreme authority in charge of the supervision and guidance related to the protection of the population against harmful radiation. In practice, the Ministry of Social Affairs and Health drafts the legislation and other regulations on radiation protection, draws up official statements on radiation protection issues and monitors and guides the development and implementation of radiation issues. The actual actor and supervisor in both protection and other radiation legislation issues is the Radiation and Nuclear Safety Authority (STUK). It acts under the direction of the Ministry in respect of issues governed by the health protection act.

**c) *Ministry of the Interior***<sup>6</sup>

The responsibilities of the Ministry of the Interior include that of protection of the general public in the event of an emergency, including a nuclear incident. The nuclear energy act requires that the Ministry be consulted at various stages of the licensing process.

The Ministry comprises the following departments: Department for Development of Regions and Public Administration, Department for Municipal Affairs, Police Department, Department for Rescue Services, Immigration Department and Border Guard Department. The units directly subordinate to the Permanent Secretary are the Administration Unit, Finance Unit, Internal Audit Unit, Press and Communications Services, International Security Affairs Unit and Internal Security Secretariat.

The Department for Rescue Services of the Ministry of the Interior is responsible for the prevention of fires and other accidents, operative rescue activities and civil defence. The rescue services aim to ensure the safety of people in every possible situation, from day-to-day incidents to major disasters and the threat of war. The Department for Rescue Services organises and coordinates national rescue services, and monitors the availability and standard of rescue services.

**d) *Ministry of the Environment***<sup>7</sup>

The nuclear energy act provides that the Ministry of the Environment must be consulted on various aspects of the regulation of activities involving nuclear energy and radiation hazards.

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5. Ministry of Social Affairs and Health: [www.stm.fi](http://www.stm.fi).

6. Ministry of the Interior: [www.intermin.fi](http://www.intermin.fi).

7. Ministry of the Environment: [www.environment.fi](http://www.environment.fi).

Prominent amongst these aspects are issues relating to emergency planning and nuclear waste management.

*e) Ministry of Foreign Affairs*<sup>8</sup>

Licensing authorities must seek comments from the Ministry of Foreign Affairs in relation to certain applications to export nuclear material.

The Political Department deal with issues such as arms control, defence materiel export issues, defence materiel operation and international export control cooperation.

## **2. Advisory Bodies**

*a) Advisory Committee on Nuclear Energy*

The Nuclear Energy Act [No. 990/1987] provides for the establishment of a permanent consultative Committee on Nuclear Energy Issues. The Committee is appointed by the Government and works in conjunction with the Ministry of Trade and Industry.

*b) Advisory Committee on Nuclear Safety*

The Nuclear Energy Act [No. 990/1987] also provides for the establishment of a permanent consultative Committee on Nuclear Safety Issues. The Committee is appointed by the Government and works in conjunction with the Radiation and Nuclear Safety Authority.

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

*a) Finnish Radiation and Nuclear Safety Authority (STUK)*<sup>9</sup>

*i) Legal status*

The Finnish Radiation and Nuclear Safety Authority (*Säteilyturvakeskus* – STUK) was established by Act No. 1069/1983. The act sets out the general functions of the Authority, while more detailed provisions as to its structure and operations are contained in the Ordinance on the Finnish Radiation and Nuclear Safety Authority [No. 618/1997].

The Authority is an independent body carrying out statutory functions; however it is linked at an administrative level with the Ministry of Social Affairs and Health.

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8. Ministry of Foreign Affairs: [www.formin.fi](http://www.formin.fi).

9. Finnish Radiation and Nuclear Safety Authority: [www.stuk.fi](http://www.stuk.fi).

ii) *Responsibilities*

The Authority's principal functions are to prevent harmful effects of radiation, to regulate the safe use of nuclear energy and radiation, to carry out research on radiation protection and to provide training and information. The mission of STUK is implemented in the following areas: nuclear safety regulation, radiation practices regulation, research, environmental radiation monitoring, communication, emergency preparedness and contracted services (1983 Act establishing the Authority). Other legislation confers specific powers and duties on the Authority. The nuclear energy act, for example, gives the Authority overall responsibility for the regulation of nuclear safety, physical protection, safeguards and emergency planning in the nuclear context. In order to carry out these functions, the Authority is required by various provisions of the act to participate in the licensing process, impose licence conditions and enforce their compliance, establish and ensure compliance with rules and regulations, provide expert advice to other authorities and carry out research and development work. All other State authorities are obliged to consult the Authority if a nuclear safety issue arises. Similarly, the Authority is the body responsible for administering the licensing system established by the radiation protection act and for monitoring and enforcing the other requirements of that act.

STUK supervises also Posiva's research, development and planning work for the final disposal of spent nuclear fuel and the activities of the nuclear power companies on treatment, storage and final disposal of low-and intermediate reactor waste. STUK also controls the safety of the transportation of nuclear waste and radioactive materials.

iii) *Structure*

The Board of Governors carries out the administrative supervision of the Authority. The Authority reports to the Ministry of Social Affairs and Health and to the Ministry of Trade and Industry.

iv) *Financing*

The Authority is funded from the annual State budget. The nuclear power companies bear the cost of nuclear regulation. The Authority is entitled to set the amount of the fees, based on the principles laid down in Decision 1285/1993 by the Ministry of Trade and Industry.

**b) *State Nuclear Waste Management Fund***

The State Nuclear Waste Management Fund (*Valtion ydinjätetuoltorahasto*) was established under the nuclear energy act in order to guarantee the financing of the future costs of nuclear waste management operations [see *supra* under Section 7 "Radioactive Waste Management"].

The State Nuclear Waste Management Fund is managed by a Board of Directors appointed by the Government for a term of three years. The Fund is linked administratively with the Ministry of Trade and Industry.