Nuclear Legislation in OECD and NEA Countries

Regulatory and Institutional Framework for Nuclear Activities

Greece
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I. General Regulatory Regime

1. Introduction

In Greece, there are no nuclear power plants and nuclear energy is not considered as an option in the foreseeable future.

There is, however, one nuclear research reactor (in extended shutdown since 2014) and one sub-critical assembly. The 5 MW pool-type reactor is operated by the Institute of Nuclear and Radiological Sciences and Technology, Energy and Safety of the National Centre for Scientific Research (NCSR) “Demokritos”. The sub-critical assembly is operated by the Atomic and Nuclear Physics Laboratory of the Aristotle University of Thessalonica.

Radioactive waste originating from medicine, research and industry is classified as low level. Regarding nuclear medicine and research laboratories, since the waste concerned has short half-lives, it is stored in situ until it has decayed and can be released. Intermediate-level waste may eventually exist in the legacy waste connected with the operation and/or decommission of the research reactor. An interim storage facility and a waste treatment facility are operated by NCSR “Demokritos”.

Although there is no framework act dealing comprehensively with the different aspects of nuclear energy, there are various laws, decrees and regulations of a more specific nature governing several aspects of nuclear activities.

Since 2010, three Presidential Decrees have been issued, transposing three Euratom Directives in the national legislation. In particular:


In December 2014, the Law entitled “Research, Technological Development and Innovation and other provisions” was published in the Official Government Gazette.¹ Chapter E’ (articles 39-46, article 90) entitled “Management of Nuclear Energy, Technology and Radiation Protection – Greek Atomic Energy Commission (EEAE)” enlarges the scope of the existing national legal, regulatory and organisational framework for ensuring radiation and nuclear safety and protection of the general public, the environment and the goods of the country against the risks arising from ionising radiation emitted by any kind of devices, nuclear installations and radioactive material (natural and artificial), as well as artificially produced non-ionising radiation.

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The Radiation Protection Regulations of 2001 lay down provisions for radiation protection and deal with the conditions governing the granting of licences for activities involving the use of ionising radiation. These regulations are under revision due to the transposition in the national legislation of Council Directive 2013/59/Euratom laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom, OJ L 13 (17 January 2014). The transposition must be completed by February 2018.

2. Mining regime

Article 90 of Law 4310/2014 provides that the right to study, research and exploit minerals that contain exploitable quantities of radioactive substances, as well as the manner to acquire an attestation for this right, are defined by the provisions of the Mining Code, as applicable; the Regulations for Mining and Quarrying; and the Special Regulations issued in relation to the Mining Code. The Minister of Development and Competitiveness, upon the EEAE consent, approves the special regulations mentioned in the previous paragraph, as well as any amendment to or modification of the provisions of the Regulations for Mining and Quarrying, which refer to the measures for radiation protection.

According to the Greek mining legislation, the exploration and exploitation rights for minerals containing radioactive elements in exploitable quantities belong exclusively to the state. These activities are governed by the 210/73 Mining Code.

3. Radioactive substances, nuclear fuel and equipment

According to Article 41 of Law 4310/2014, the Competent Regulatory Authority for the control, regulation and supervision in the fields of nuclear energy, nuclear technology, radiological and nuclear safety, as well as radiation protection is the competent minister and the Greek Atomic Energy Commission (EEAE).

Presidential Decrees 60 (2012) and 122 (2013) have defined the EEAE as the Regulatory Authority in its respective fields: nuclear safety and radioactive waste management. The EEAE’s responsibilities, as defined in Article 43 of Law 4310, are outlined in Section II. Article 46 of Law 4310 granted the EEAE enforcement power and Article 90 assigned to the EEAE the role of licensing authority. The 2001 Radiation Protection Regulations lay down the licensing procedure for all activities involving radioactive substances and/or radiation producing equipment, and the transport of radioactive materials.

4. Nuclear installations

a) Licensing and inspection, including nuclear safety

Nuclear installations, defined as nuclear power plants, facilities which use or manufacture significant quantities of radioactive products or nuclear fuel and facilities for the processing or storage of radioactive waste, are governed by a licensing regime established by Law 854/1971. Decree 610/1978, adopted pursuant to Law 854, lays down the conditions and procedures for the issuance of site licences for nuclear

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3. Ibid., Article 143(c).
installations. In fact, this decree only applies to the issuance of site licences to the Public Power Corporation (PPC) – the national electricity company that had at that time a monopoly in this field. In early 1980s, a decision was made not to implement a nuclear power programme to generate nuclear electricity. Therefore, these pieces of legislation have never been used and can be considered as archival pieces of legislation.

Presidential Decree No. 60 of May 2012 (transposing Council Directive 2009/71/Euratom) applies to the Greek research reactor (GRR-1).

Ministerial Decision 112/305 was issued following Presidential Decree 60/2012 and addressed the regulatory provisions and requirements for the licensing of the research reactor. As such, this Ministerial Decision detailed the licensing procedure, regulatory control and basic nuclear safety requirements for research reactors. Together, this Ministerial Decision and the Radiation Protection Regulations constitute the main legislative framework for radiation protection and nuclear safety in a research reactor.

At an international level, Greece ratified the 1994 Convention on Nuclear Safety on 20 June 1997 and since then participates in all review meetings and fulfils the relevant obligations. The national reports are made public on the International Atomic Energy Agency (IAEA) and the EEAE websites.

b) Emergency response

Regarding nuclear accidents or radiological emergencies, the 2001 Radiation Protection Regulations provide for emergency plans in all installations using or producing radiation or radioactive material. This piece of legislation is under revision, with the intent to meet the requirements of the Council Directive 2013/59/Euratom.

The responsibility to react to disasters lies within the Secretariat-General for Civil Protection. In 2011, however, the Secretariat-General for Civil Protection issued the “Special Plan for the Management of the CBRN Consequences”, in which the EEAE has the key role for the radiological (“R”) and nuclear (“N”) components. Therefore, in the event of widespread radioactive contamination or increased radiation levels resulting from an accident in a nuclear installation, the EEAE has the key role in implementing the Part of the General National Emergency Plan on radiological emergencies.

As such, the EEAE has an internal emergency management plan that documents the procedures to be followed in case of an emergency. This document contains:

- the responsibilities of the EEAE teams;
- administrative information concerning the premises and vehicles and the supporting or back-up infrastructure used for the purpose;
- step-by-step analytical procedures of the actions to be performed after receiving the first alarm for each team involved;
- technical procedures to be followed, based on two possible scenarios: an event with dispersion of radioactive material and an event with a lost radioactive source.

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4. Part 1.8.3 under the provision entitled “Emergency Intervention Plans”.
5. Annex R-P, in Greek.
These procedures are based on the relevant documents from the IAEA as well as on the national radiation protection legislation.

Ministerial Decision 2739/1994 on Informing the Public About Health Protection Measures to Be Applied and Steps to Be Taken in the Event of a Radiological Emergency was made in accordance with Council Directive 89/618/Euratom. This regulation sets out the responsibilities and procedures for informing the general public prior to or in the event of a radiological emergency and also for informing persons who might be involved in the organisation of emergency assistance in the event of a radiological emergency. Since this directive was repealed by Council Directive 2013/59/Euratom, the Ministerial Decision will be revised and included in the package of the pieces of legislation that will transpose the Council Directive 2013/59/Euratom.

At an international level, Greece is a contracting party to the 1986 Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the 1986 Convention on Early Notification of a Nuclear Accident, both of which were ratified on 6 June 1991, pursuant to Law 1937 and Law 1938 of 13 March 1991 respectively.

5. Trade in nuclear materials and equipment

Trade in radioactive materials, including fissile materials and radiation-emitting equipment is subject to licensing – import and export included.

Applications for import and export permits are submitted to and evaluated by the EEAE. Greece is a party to the Zangger Committee and to the Nuclear Suppliers Group.

6. Radiation protection

The principles of radiation protection are stated in Law 4310/2014 with the provision that:

Joint Ministerial Decisions of the competent ministers, issued with the agreement of the EEAE, shall define: a) the procedures for the implementation of the radiation protection system in general; b) all issues relevant to the protection of the health of workers who are exposed due to their occupation or those undergoing medical exposures, as well as the general public of the country from the dangers arising from ionizing radiation during the activities mentioned (in the text).


Directive 97/43/Euratom. The regulations establish dose limits for workers exposed to radiation and the general public. And they apply to the production; use; import and export; processing; handling; trade; transport; disposal of natural and artificial radioactive substances; ionising radiation-emitting equipment; and to any other activity that involves a hazard from ionising radiation. All of these activities require a licence in accordance with the regulations and other relevant legislation.

The first part of the regulations (Principles of Radiation Protection) contain the basic conditions and requirements for radiological protection from activities involving hazards from ionising radiation. The second part (Licences for Ionising Radiation Laboratories) refers to the conditions governing the licensing procedures for all activities involving ionising radiation. The subsequent parts (Parts 3 to 11) give a detailed description of the special conditions and requirements for radiological protection in connection with the particular activities to which they refer.

The EEAE is the authority responsible for radiation protection matters; it ensures that the provisions of these regulations are complied with and introduces, where necessary, additional measures with a view to limiting individual and collective doses arising from exposure to radiation. The protection of occupationally-exposed workers is based on the classification of workplaces, the classification of workers and on the implementation of control measures and monitoring. The EEAE is responsible for the radiation monitoring of workers and for record keeping. Protection of the population against radiation is based on an assessment of doses received by the population in normal and in accident conditions. This supervision is carried out on the basis of the population as a whole and by reference groups.

As a member of the International Labour Organization (ILO), Greece ratified Convention No. 115 Concerning the Protection of Workers against Ionising Radiation with Law 1181 of 24 July 1981. This convention applies to all activities involving exposure of workers to ionising radiation in the course of their work. By Ministerial Decision 9087 (FOR) 1004 of 13 September 1996, Greece implemented Council Directive 90/641/Euratom.

Law 3850 of 11 June 2010 on Health and Safety of Workers provides a framework for the health and safety of workers in the workplace. The law provides for the establishment of

10. Law 4310/2014, Article 90.
12. Law 4310/2014, Articles 41 & 43, Ministerial Decision 1014 (FOR) 94, Part 1.1.3.
a committee for health and safety in every workplace, identifies the responsibilities of the management, the safety engineers and occupational physicians, as well as the requirements for the safety and health of the workers.

7. Radioactive waste management

Presidential Decree No. 122, August 2013, transposes Council Directive 2011/70/Euratom in the national legislation. The responsibilities of the EEAE regarding the management of spent fuel and radioactive waste are referred to in this presidential decree and concern the introduction, the implementation and supervision of the National Policy and National Framework. In addition, according to Law 4310/2014, the EEAE has responsibility for the regulatory control of closed and open radioactive sources, radioactive waste and orphan sources, while the EEAE’s tasks include the regulatory control of the safe management of spent fuel and radioactive waste.

Additional pieces of legislation have been prepared (but not issued yet) to complete the regulatory requirements for the management of radioactive waste. These include:

- the national policy for radioactive waste management;
- the establishment of the national framework for radioactive waste management;
- the national programme for radioactive waste management;
- procedures and licensing of radioactive waste management facilities.

Additionally, Part 6 of the 2001 Radiation Protection Regulations deal with the management and disposal of radioactive waste. Radioactive waste is considered a radioactive substance for which no further use is envisaged.


8. Nuclear security

Council Directive 2003/122/Euratom has been transposed in the national legislation through Ministerial Decision No. 10828 of 10 July 2006. The provisions of this Decision

16. Article 42.
17. Part 6.1.2.
are under revision since this Directive was repealed by Council Directive 2013/59/Euratom.

Ministerial Decision 1592/1999 makes mandatory the installation and use of equipment for the detection of radioactive materials in scrap metal industries. Portal detectors and portable equipment exist in the country’s main custom offices and are operated by the Greek Customs. The portal detectors are networked and the EEAE operates the central server. The EEAE is connected and makes use of the IAEA Illicit Trafficking Database. Those measures assist in the radiation protection of the public and the control against illicit trafficking of radioactive materials.

At the international level, Greece is a party to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (NPT), which it ratified on 11 March 1970 pursuant to Decree-Law No. 437. It furthermore concluded a safeguards agreement with the IAEA in 1972 and ratified the additional Protocol to the Agreement in 2000 and is subject to Euratom’s safeguards. Greece also ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 21 April 1999.

Greece is also a Party to the 1979 Convention on the Physical Protection of Nuclear Material (CPPNM), which was ratified on 6 September 1991 pursuant to Law No. 1636 of 1986. The Amendment to the CPPNM was ratified by Law 3990/2011.

9. Transport

The government of Greece has promulgated several pieces of legislation related to the transport of radioactive materials through the ratification of international conventions; the transposition of codes, Council Directives and European Agreements for different modes of transport; and the implementation of its Radiation Protection Regulations.

The safe transport of radioactive materials falls within the scope of the Radiation Protection Regulations, which lay down the basic guidelines and requirements for the safe preparation, packaging and transport of radioactive materials to minimise the hazards from ionising radiation due to the transport of radioactive materials. These regulations comply with and supplement (without replacing) the International Regulations on the Transport of Dangerous Goods (ADR, RID, IMDG, ICAO).

The transport of radioactive materials requires a licence. Three types of transport licences exist and are issued by the EEAE: a) general licence: for carriers who transport radioactive materials on a regular basis; b) individual licence: for occasional transport; and c) special licence: for a single shipment of radioactive materials, depending on their level of radioactivity, type, etc.

Applications for transport licences must, in particular, include information on transport frequency, consignees, characteristics of the radioactive materials, packaging, radiation protection programme, staff training and qualifications of persons responsible for the transport and physical protection of radioactive material, observance of legal and regulatory requirements, as well as specific conditions included in the licence.

10. Nuclear third party liability

Greece is a contracting party to the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy which, together with the Additional Protocol of 28 January 1964, were ratified on 12 May 1970 pursuant to Law 336/1969. The Protocol of 1982 was
ratified on 30 May 1988 pursuant to Law 1758 of 8 March 1988. Greece has signed the 2004 Protocol to Amend the Paris Convention and completed the relevant necessary internal procedures by adopting Law 3787/7.8.2009. According to the European Council Decision 2004/294/EC, Greece will proceed with the other European Union member states that are contracting parties to the Paris Convention to simultaneously deposit its instrument of ratification of the 2004 Protocol.
II. Institutional Framework

1. Regulatory and supervisory authorities

   a) Greek Atomic Energy Commission (EEAE)


The Law entitled “Research, Technological Development and Innovation and Other Provisions” was published in the Official Government Gazette on 8 December 2014. Specifically, Chapter E20 entitled “Management of Nuclear Energy, Technology and Radiation Protection – Greek Atomic Energy Commission (EEAE)” enlarges the scope of the existing national legal, regulatory and organisational framework for ensuring radiation and nuclear safety and protection of the general public, the environment and the goods of the country against the dangers arising from ionising radiation emitted by any kind of device, nuclear installation and radioactive material (natural and artificial), as well as artificially-produced non-ionising radiation. This responsibility is assigned to the regulatory authority.

More specifically, within Law 4310/2014:

- Article 41 defines the competent minister and the EEAE as the regulatory authority for the control, regulation and supervision in the fields of nuclear energy, nuclear technology, radiological and nuclear safety, as well as radiation protection.
- Article 42 lists the competencies of the ministries involved.
- Article 43 describes the EEAE legal status and responsibilities.
- Article 44 refers to the EEAE management.
- Article 45 refers to the EEAE revenues and mechanisms of ensuring financial resources.
- Article 46 describes the enforcement power of the EEAE as a regulatory authority; the sanctions that can be imposed are listed in detail.
- Article 90 concerns the licensing of activities and facilities where radiation use is involved (e.g. medicine, industry, research).

   i) Legal status

The EEAE is a technological institution, operating as a legal entity of public law and enjoying full administrative and financial independence in relation to its duties under the provisions of Law 4310/2014. The EEAE has the legal competence and the power to attend trials independently in all cases regarding its actions, omissions or legal relationships. It can be represented in its relationships with other authorities and third parties, as well as in courts, by its chairman, and when he/she is absent or indisposed, by its vice chairman. In case the vice chairman is absent or indisposed, then the EEAE shall appoint a member to act as its representative for a specific action or act, or category of actions or acts. During the execution of its duties, the EEAE shall act as a
regulatory authority independently and withstanding current provisions according to applicable provisions at the time. Each year, the EEAE shall submit its activity report to the President of the Parliament and the Minister of Culture, Education and Religious Affairs, and any other competent Minister, which shall describe the state of affairs in the fields of their competencies upon their request (art. 43, Law 4310/2014).

ii) Responsibilities

According to article 43 of Law 4310/2014, the responsibilities of the EEAE are:

a) The protection of the general public, patients, workers and the environment from ionising radiation and artificially produced non-ionising radiation.

b) The control and supervision of the applications of nuclear technology, nuclear sciences and radiation (ionising and non-ionising) in industry, agriculture, electronic communications, health, biology and other sciences.

c) The safe and peaceful use of the applications of nuclear energy and technology.

d) The safe management of spent fuel and radioactive waste.

e) The organising and operation, under the provisions of Law 4085/2012 (A’ 194), as a Regional European Educational Centre for issues of radioactivity, waste transport and safety, in accordance with the resolutions of the General Conference of the International Atomic Energy Agency and within the framework of projects approved by the Board of Directors of the IAEA for education and training on issues of radioactivity, waste transport and safety.

f) Support towards the competent ministers in their exercising of regulatory competencies in the fields of nuclear energy, nuclear technology, radiological and nuclear safety, as well as radiation protection.

The EEAA is the competent authority for matters relating to nuclear energy, nuclear technology and radiation protection, and it is responsible for introducing the necessary safety measures, for drafting regulations and for inspecting, monitoring and promoting scientific and technological research in the following fields:

- the protection of the public and the environment from ionising radiation;
- the peaceful applications of nuclear technology and nuclear science in industry, agriculture, health, biology and other areas;
- the peaceful uses of nuclear energy.

The EEAE, in carrying out the above tasks, is the competent authority to carry out, inter alia, the following:

- Plan, co-ordinate, perform and evaluate environmental radioactivity measurements.
- Propose to the Minister of Culture, Education and Religious Affairs and to any other minister concerned with the EEAE, emergency plans to cope with situations arising from increased radioactivity levels.
- Issue safety instructions and draft regulations for the safe operation of installations and equipment emitting ionising radiation. These instructions and regulations are approved and implemented by the Minister of Culture, Education and Religious Affairs.
Affairs and, by joint decision, of other ministers concerned. The EEAE monitors the implementation of these regulations and technical instructions. It also drafts radiation protection regulations.

- Perform measurements and issue certificates and licences.
- Provide for further training in the fields of radiation protection, nuclear science and nuclear technology.
- Give opinions on the issuance, modification or repeal of licences for the construction and operation of any nuclear reactor and for any type of nuclear installation.
- Issue licences for the import, possession, production, transport, use and disposal of radioactive and fissile material.
- Represent Greece in international organisations in respect of matters falling within its competence.
- Issue safety instructions for the safe storage, transport and disposal of radioactive substances.

The EEAE also maintains a national radiation protection database that gathers information on facilities using or manufacturing radiation sources (devices used, shielding, inspections results, type of licence), an inventory of radiation sources used in Greece and the national dose registry containing information relating to occupationally exposed workers.

### iii) Structure

The EEAE is managed by a seven-member board of directors. The EEAE’s board shall be appointed by a decision of the competent minister (here, the Minister of Culture, Education and Religious Affairs) for a three-year term and shall consist of seven scientists distinguished for their high level of scientific expertise and experience on nuclear technology, radiation protection, physics and nuclear sciences or the relevant legislation. The same decision shall appoint the chairman and the vice-chairman of the board of directors.21

### iv) Financing

The EEAE’s financial resources come from the public budget as well as licensing fees and radiation protection services. The accounts and fiscal reports of the EEAE are subject to the control of the Audit Council. These data and fiscal reports are published on the EEAE website and submitted to the President of the Parliament alongside the yearly report and the budget for the coming year. The EEAE submits fiscal reports to the minister every six months.22

### v) Co-operation

For the accomplishment of its tasks, the EEAE co-operates with other bodies and institutes, such as ministries, research and technological institutes, universities, hospitals, etc. For example, within the national emergency response plans, the EEAE

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22. Ibid., Article 44, paragraph 12.
co-ordinates the so-called network of collaborating laboratories in the field of the environmental radioactivity monitoring, which belong to universities or research centres around the country.