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Hungarian Atomic Energy Authority



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HUNGARY'S
SECOND NATIONAL REPORT
on the Implementation of Council Directive 2014/87/Euratom
amending Directive 2009/71/Euratom
establishing a Community framework for the nuclear safety of
nuclear installations
July 2020

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List of abbreviations

Act CL of 2016	Act CL of 2016 laying down general rules for administrative procedure
Atomic Energy Act	Act CXVI of 1996 on nuclear energy
ARO	Accident Response Organisation
ENSREG	European Nuclear Safety Regulators Group
Phys. Prot. Gov. Decree	Government Decree No 190/2011 of 19 September 2011 on physical protection in the use of nuclear energy and the relating system of licensing, reporting and control
PSR	Periodic Safety Review
PSUR	Periodic Safety Update Report
Info Act	Act CXII of 2011 on the right to informational self-determination and the freedom of information
IRRS	Integrated Regulatory Review Service
CER	Centre for Energy Research
ISFS	Interim Spent Fuel Storage Facility
IAEA	International Atomic Energy Agency
NSC	Nuclear Safety Code, as set out in the Annexes to Gov. Decree No 118/2011 of 11 July 2011 on the nuclear safety requirements for nuclear installations and related regulatory activities
PURAM	Public Limited Company for Radioactive Waste Management
Statute Decree	Gov. Decree No 94/2018 of 22 May 2018 on the functions and competences of members of the Government
HAEA	Hungarian Atomic Energy Authority
NAPNAR	National Action Plan for Nuclear Accident Response
OECD NEA	OECD Nuclear Energy Agency Thematic Peer Review
TPR	Design Basis Extension
DBE	Technical Support Organisation
TSO	HAEA's Conflict of Interest Rules
Rules	Final Safety Report
FSR	Western European Nuclear Regulators' Association
WENRA	

A. INTRODUCTION

1. Preparation of the Report

This Report has been drawn up on the basis of Council Directive 2014/87/Euratom amending Directive 2009/71/Euratom establishing a Community framework for the nuclear safety of nuclear installations ('Directive'), which requires Member States to submit a report to the European Commission on the implementation of the Directive by 22 July 2020.

The report was drawn up by the Hungarian Atomic Energy Authority (HAEA) in accordance with the guidance prepared by the European Nuclear Safety Regulators' Group (ENSREG).

2. Nuclear installations

In Hungary, there are four nuclear installations in operation: the Paks Nuclear Power Plant, the Interim Spent Fuel Storage Facility, the Budapest Research Reactor and the training reactor of the Budapest University of Technology and Economics.

a. The Paks Nuclear Power Plant

The Paks Nuclear Power Plant has four VVER-440/V-213 pressurised-water units; the moderator of the reactors and the heat carrier are light water. (In terms of its safety philosophy, the nuclear power plant falls into the group of second-generation VVER-440 nuclear power plants.) The reactor has six cooling circuits, each connected to a steam generator. Each unit is attached to a localisation tower, functioning on the bubbler condenser principle, connected to hermetic compartments for handling any breakdowns caused by pipe ruptures. In these towers, trays filled with water containing boric acid are layered one above the other, completed with air traps. This system of hermetic compartments and localising towers makes up the containment for the reactors.

Each unit is installed with three active safety systems operated by diesel generators in the event of breakdown situations. These systems are supplemented by passive systems. Two wet steam turbines operate in each unit. According to the original plans, the rated thermal capacity was 1 375 MW/unit, whereas the rated electric capacity was 440 MW/unit. As a result of the capacity upgrading programme carried out between 2006 and 2009, the thermal capacity increased to 1 485 MW, while electric capacity increased to 500 MW in each unit. The high-pressure turbine housings in units 1 and 2 have been modernised, resulting in an additional increase in the electric capacity of these units.

The designers of the Paks Nuclear Power Plant opted for a twin-unit design. The four units share a single turbine hall, while there are two reactor halls shared by two units each, which enables high-value maintenance equipment to be used jointly by all units. At the same time, as far as their main equipment and safety systems are concerned, the units are essentially independent of each other. An exception is the safety cooling water system, where the pressure line from the pumps to the expansion tank is shared between the two units. Taking advantage of benefits of a single site and the juxtaposition of units, the supply systems were designed to be shared by the whole power plant.

According to Hungarian legislation, nuclear installations, including the Paks Nuclear Power Plant, must undergo a periodic safety review (PSR) every 10 years; the report on the results of

the PSR (Periodic Safety Update Report, PSUR) was submitted by the licence holder of the nuclear power plant to the HAEA at the end of 2017. According to the HAEA's assessment, the PSR was carried out in compliance with the legal requirements, and due care was exercised on specifying the relevant tasks and time-limits. While the HAEA found no significant disparity potentially affecting nuclear safety during the review of the PSUR, it did identify corrective actions of an administrative and technical nature in order to improve safety in forthcoming years. (The PSR carried out at the Paks Nuclear Power Plant is accounted for in detail in chapters 3.3 and 14.1.2 of the Eighth National Report submitted by Hungary under the Convention on Nuclear Safety.)

The operating licences of units 1, 2, 3 and 4 of the nuclear power plant are valid respectively until 31 December 2032, 31 December 2034, 31 December 2036 and 31 December 2037.

The main technical parameters of the Paks Nuclear Power Plant are summed up in the table below.

Reactor type	Pressurised-water, water-cooled, water-moderated power reactor, type No: VVER-440/V-213
Thermal capacity of the reactor	1 485 MW
Electrical capacity of units	508.6 MW; 504.2 MW; 500 MW; 500 MW
Number of primary circuits in each reactor	6
Total volume of primary circuit	237 m ³
Pressure in primary circuit	123 bar
Average temperature of heat carrier	284 ± 2 °C
Height and diameter of reactor vessel	11.8 m and 4.27 m
Average enrichment of fuel	3.82-4.7%
Fuel quantity per reactor	44 tonnes of uranium in 349 fuel cartridges
Number of turbo-machine groups per reactor	2
Rated pressure of secondary circuit main steam	43.15 bar

b. Interim Spent Fuel Storage Facility

In order to store spent fuel cartridges of units 1 to 4 of the Paks Nuclear Power Plant for an interim period of 50 years, there is a modular dry storage facility next to the site of the nuclear power plant.

The licence holder of the Interim Spent Fuel Storage Facility (ISFS) is the Public Limited Company for Radioactive Waste Management (PURAM).

At the facility, the number of cartridge storage chambers can be increased in a modular system; the serial position of the modules enables the use of a common reception building and transferring machine. Spent fuel cartridges are stored individually, in vertically positioned tubes. The storage tubes are filled with nitrogen gas in order to prevent corrosion processes during the long-term storage. The tubes are stored in modules surrounded by concrete walls.

The cooling required due to residual heat generation in the cartridges is provided by the natural air flow in the modules and the connected duct system. The cooling process is self-regulating. The cooling air does not come into contact with the cartridges, which are stored in a hermetically sealed environment.

In 2017, the PURAM carried out the coming PSR of the ISFS, essentially in order to certify that, taking into account the ageing processes, the environmental conditions and operational experience, the technical condition of the installation and its nuclear safety parameters conform to the basis of licensing, the applicable legal requirements and international best practices. The licence holder submitted to the HAEA the PSUR, including the results of the review, discrepancies affecting the safety of the installation and a programme of safety-enhancing measures. Based on the report, the review was concluded by a decision of the authority in 2018; the measures (to be implemented by the March 2022 deadline) focus primarily on drawing up or reviewing underlying analyses and adopting various administrative measures. One such task is the review of the design basis of the ISFS on the basis of an assessment of the effects of climate change on meteorological conditions and extremities.

The latest expansion of the facility through the addition of chambers 21 to 24 has been completed. On the basis of the commissioning of these chambers in 2018, which was authorised by the HAEA, and the authorisation of the expanded 1 to 24-chamber design of the ISFS, all 24 chambers of the ISFS have been licensed for operation. In accordance with future storage requirements, the construction of an additional four-chamber module is currently under preparation. As at 13 May 2020, a total of 9,757 spent cartridges were stored in the storage facility.

c. Budapest Research Reactor

Built in 1959, the Budapest Research Reactor operated by the Centre for Energy Research (CER) underwent complete refurbishment between 1986 and 1993. Following the reconstruction, PSRs were carried out on the Budapest Research Reactor in 2003 and in 2013. On the basis of the outcome of the nuclear safety reviews, the authority authorised the installation for continued operation. The operational licence remains valid until 15 December 2023.

The technical parameters of the reactor are listed in the table below.

Type	Thermal tank-type reactor, the tank is made of aluminium alloy
Coolant and moderator	light water
Rated thermal capacity:	10 MW
Fuel	VVR-M2 LEU
Enrichment	19.75%

The Budapest Research Reactor was converted from the use of high enriched cartridges to low enriched cartridges between 2009 and 2013. Spent and unused cartridges and other high enriched nuclear substances were reshipped to Russia in several phases between 2008 and 2013 under the Global Threat Reduction Initiative financed by the United States of America.

d. Training reactor of the Budapest University of Technology and Economics

The training reactor operated by the Nuclear Technology Institute of the Budapest University of Technology and Economics has been used for educational and research purposes since 1971. The current operational licence of the Training Reactor, issued by the HAEA based on the result of the PSR carried out in 2017, will expire on 30 June 2027.

The technical parameters of the reactor are summed up in the table below.

Type	pool-type reactor
Coolant and moderator	light water
Rated thermal capacity	100 kW
Fuel	EK-10, enrichment 10%.

B. REPORTING BY ARTICLES

ARTICLE 4 LEGISLATIVE, REGULATORY AND ORGANISATIONAL FRAMEWORK

Article 4

(1) Member States shall establish and maintain a national legislative, regulatory and organisational framework ('national framework') for the nuclear safety of nuclear installations. The national framework shall provide in particular for:

The national system for the nuclear safety of nuclear installations is based on Act CXVI of 1996 on nuclear energy ('Atomic Energy Act'), which provides for the basic principles of the use of nuclear energy: In Hungary, nuclear energy must be used in a manner established by the law and subject to regulatory control.

Nuclear energy must be used only in a way that poses no risk to human life, the health of present or future generations, living conditions, the environment or material goods above a level acceptable to society and regarded as necessary for other types of economic activity. Any person or organisation authorised to use an installation or engage in an activity involving an increased risk due to radiation must bear primary responsibility for safety.

According to the Atomic Energy Act, safety must override all other considerations during the use of nuclear energy. Protecting humans and the environment against the harmful effects of ionising radiation is a *fundamental safety objective*. In order to achieve such fundamental safety objective, the Atomic Energy Act provides for the following main requirements:

1. The Government must develop effective legislation and establish and maintain independent bodies or organisations to supervise the safe use of nuclear energy. *(For the list of major legislation and the international conventions concerning the use of nuclear energy and nuclear safety, see Annex 1.)*
2. The bodies responsible for supervising safety and organisations engaged in risk activities must establish and maintain an effective management system committed to the fundamental safety objective.
3. The user of nuclear energy must ensure that people and the environment are reasonably protected from radiation.
4. By complying with all safety requirements, the user of nuclear energy must optimise the highest level of safety that can be reasonably attained.
5. The user of nuclear energy must make every effort in order to ensure that no one is exposed to an unacceptable risk of injury.
6. The user of nuclear energy must make every effort to prevent a nuclear or radiological accident and to mitigate the consequences of accidents.
7. The competent authorities and the user of nuclear energy must prepare to take the necessary actions to respond to an event significant in terms of safety or protection or compromising nuclear or radiation safety.
8. Protective measures to mitigate the risk of radiation left behind from the past or outside the scope of administrative provisions must be justified and proportionate to the level of risk.

The bodies responsible for the implementation of government duties under the Atomic Energy Act are listed under Article 4(1)(a) (Responsibilities and coordination).

Article 4

(1)(a) the allocation of responsibilities and coordination between the competent government bodies;

In the field of the use of nuclear energy, the responsibilities of individual bodies are provided for by the Atomic Energy Act, under which the Government must arrange for the implementation of government duties related to the use of nuclear energy through the HAEA and specific ministers.

The basic responsibilities of the HAEA must include performing and coordinating regulatory tasks involving the peaceful, safe and secure use of atomic energy, especially the nuclear safety and security of nuclear installations and radioactive waste repositories, the safety and security of equipment emitting ionising radiation, the non-proliferation of nuclear weapons, nuclear emergency management and relevant public information activity.

Tasks involving law enforcement and physical protection for domestic safety and order relating to the use of nuclear energy must be carried out by the *Minister responsible for law enforcement*, whereas tasks involving fire protection, civil protection and nuclear emergency preparedness and response relating to the use of nuclear energy must be carried out by the *Minister responsible for disaster management*.

The *Minister responsible for land affairs* must be responsible for the supervision of radioactivity in the soil, whereas the Minister responsible for the supervision of the food chain must be responsible for the supervision of radioactivity and the vegetation, animals and food products of plant and animal origin.

The *Minister responsible for construction legislation and construction authority affairs* must be responsible for the supervision of radioactivity in raw materials used to produce construction materials, imported raw materials and construction materials and other products placed on the market.

The *Minister responsible for environmental protection* must be responsible for the supervision of radioactive contamination in the air and land and aquatic environments.

Through the body appointed by law, the *Minister responsible for health* must be responsible, among others, for the supervision of radiation health, work and occupational fitness rules applicable to workers in the context of the use of nuclear energy and for cooperation on making decisions in nuclear emergencies by raising radiation health considerations.

Draft legislation related to nuclear safety are adopted through administrative coordination under *Gov. Decision No 1144/2010 of 7 July 2010 on the Government's rules of procedure*. In that context, the draft legislation must be sent to the bodies concerned (e.g. ministries, government offices), which may put forward comments concerning the draft. The purpose of the coordination is to ensure that the government bodies concerned should be able to resolve all technical, legal and administrative issues and to reach an agreement before the draft legislation is submitted to the Government. Such mechanism enables that the points of view of each special area are taken into consideration and that overlaps between competencies and legislative gaps are eliminated.

In the Hungarian legal system, administrative cooperation takes place through 'competent authority resolutions' provided for in *Act CL of 2016 laying down general rules for administrative procedure*. In the nuclear safety-related licensing procedures of the HAEA,

other administrative bodies are involved as competent authorities as listed in Annex 2 to the Atomic Energy Act.

During the licensing procedures the competent authorities issue resolutions, expressing the points of view relevant to their special area. (For example, the Baranya County Government Office is the competent authority on environmental issues related to nuclear energy.) The authority is obliged to take such resolutions into consideration. In order to ensure stable administrative supervision, the HAEA sends copies of the licences issued to the government offices responsible for radiation safety in the counties and in Budapest.

Cooperation with the competent authorities is facilitated by cooperation agreements, joint reviews and competent authority fora. For example, in 2017, the HAEA hosted an administrative forum on administrative duties related to the new units of the nuclear power plant.

Since 1 January 2016, radiation protection duties have been under the HAEA's responsibility and competence.

For details on the coordination and cooperation between various bodies, see Chapter 1.5 of the Report¹ issued by the Integrated Regulatory Review Service (IRRS) of the International Atomic Energy Agency (IAEA), which states that progress has been made since 2015 with regard to efficient coordination and cooperation between the regulatory authorities.

Article 4

(1) (b) national nuclear safety requirements covering all stages of the lifecycle of nuclear installations;

The safety requirements governing the use of nuclear energy in nuclear installations are provided for in *Gov. Decree No 118/2011 of 11 July 2011 on the nuclear safety requirements of nuclear installations and related administrative activities* and its Annexes, i.e. the volumes of the Nuclear Safety Code (NSC).

Volume 1 (*Nuclear safety authority procedures of nuclear installations*) sets out the requirements concerning nuclear safety administrative procedures related to nuclear installations and the activities affected by such procedures (e.g. the requirements provided for in the various types of licences).

Volume 2 (*Management systems of nuclear installations*) sets out the requirements governing the operation, assessment and continuous improvement of the management system of nuclear installations, integrating safety, health, environmental, physical protection, quality assurance, social and economic elements in order to ensure that safety is appropriately taken into consideration across all activities of the licence holder.

Volume 3 (*Design requirements for operating nuclear power plants*) sets out the basic design principles and design requirements concerning the nuclear power plant as a nuclear installation and the nuclear power plant's systems and system constituents relevant to nuclear safety.

¹ [http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/\\$FILE/IRRS%20követő%20misszió%20jelentése magyar lektorált.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/$FILE/IRRS%20követő%20misszió%20jelentése%20magyar%20lektorált.pdf)

Volume 3.a (*Design requirements for new nuclear power plant units*) sets out basic design principles and design requirements concerning the nuclear power plant as a nuclear installation and the nuclear power plant's systems and system constituents relevant to nuclear safety, which are applicable on determining design requirements for water-cooled nuclear power plant units fitted with thermal reactors, to be built after 1 April 2012.

Volume 4 (*Operation of nuclear power plants*) sets out nuclear safety requirements for the commissioning, operation, maintenance, conversion and review of nuclear power plants and their systems and system constituents relevant for nuclear safety, nuclear accident response activities and the persons carrying out such activities.

The rules in volume 5 (*Design and operation of research reactors*) set out nuclear safety requirements in connection with the design, commissioning and operation of research reactors and activities related to their operation.

Volume 6 (*Interim storage of spent nuclear fuel*) sets out nuclear safety requirements concerning the design and operation of nuclear installations for the dry interim storage of spent fuel.

Volume 7 (*Site survey and assessment of nuclear installations*) sets out nuclear safety requirements for the sites of nuclear installations and determining site parameters with regard to the lifecycle phases of analysis, construction, commissioning and operation.

Volume 8 (*Decommissioning of nuclear installations*) sets out nuclear safety requirements to be fulfilled during the design and implementation of the decommissioning of the nuclear installation and, in that context, the dismantling of nuclear installation systems and system constituents relevant to nuclear safety and the demolition of buildings of the nuclear installation with a view to discontinuing the operational activity and the termination of the administrative supervision of the nuclear installation.

Volume 9 (*Requirements for the design and construction period of a new nuclear installation*) sets out supplementary requirements for the design and construction of new nuclear installations.

Volume 10 (*Nuclear Safety Code definitions*) defines the terms used in the volumes listed above.

Gov. Decree No 118/2011 and its Annexes must be reviewed and updated as appropriate at least once every five years in the light of the latest scientific achievements and Hungarian and international experience. The recommendations for the method of complying with the requirements set out in the NSC are specified in the guidelines published by the HAEA on the authority's website. The guidelines are reviewed at intervals specified by the nuclear safety authority or with urgency, at the licence holders' suggestion.

Article 4

(1) (c) a system of licensing and prohibition of operation of nuclear installations without a licence

The basic principles of the licensing procedure of nuclear installations and the authorities involved in the licensing procedure are provided for by the Atomic Energy Act (Chapter III, Administrative supervision). Under the Atomic Energy Act, prior consent in principle by Parliament must be required for initial preparatory action for the construction of a new nuclear installation or radioactive waste repository or the expansion of an existing nuclear

power plant to include an additional unit with nuclear reactors. The Atomic Energy Act also provides that the establishment and legal operation of a nuclear power plant must be authorised by the Hungarian Energy and Public Utility Regulation Authority on the basis of the Act on electric energy.

On the basis of the Atomic Energy Act, Gov. Decree No 118/2011 provides for additional legislative requirements for authorisation and approval (Chapter III, Administrative supervision), also identifying the types of safety authorisations for nuclear installations (NSC, Volume 1). Each phase of the lifecycle of the installation (site selection, establishment, commissioning, operation, decommissioning) requires administrative authorisation; moreover, any installation-level conversion or equipment-level conversion with safety implications must also be authorised. The physical protection authorisation of nuclear power plants is provided for Government Decree No 190/2011 of 19 September 2011 on physical protection in the use of nuclear energy and the relating system of licensing, reporting and control ('Phys. Prot. Gov. Decree'), which also falls under the competence of the HAEA according to the Atomic Energy Act.

Under Gov. Decree No 314/2005 of 25 December 2005 on the environmental impact assessment and the uniform environment use authorisation procedure, establishing a new nuclear installation is subject to environmental impact assessment, i.e. it may only commence once the environmental protection authorisation has been obtained.

The authorisations issued by the HAEA are valid for a specific period and may be extended at request provided that the relevant requirements are met. The decision on whether the operational licence should remain valid and the related conditions is adopted by the HAEA on the basis of the PSR, to be implemented every ten years. On the basis of Act CL of 2016 and the Atomic Energy Act, the HAEA's decisions and orders may only be contested through a court.

Act C of 2012 on the Criminal Code ('Criminal Code') bans operation without a licence. Under the Criminal Code, operating a nuclear installation without a licence or beyond the scope of the licence, misleading the competent body or person with a view to obtaining the licence required for the use of nuclear energy and/or failing to report the use of nuclear energy constitute a crime in which case the punishment to be imposed must be more severe than two years of imprisonment.

Article 4

(1) (d) a system of regulatory control of nuclear safety performed by the competent regulatory authority;

Chapter III of the Atomic Energy Act lays down rules putting administrative supervision into practice, providing for general rules governing administrative licensing and control and specifying the competence of the HAEA and other bodies affected by the use of nuclear energy and the requirements concerning technical experts acting in the context of the use of nuclear energy.

The nuclear installation, the radioactive waste repository and the interim radioactive waste storage facility are under continuous administrative supervision. As part of its continuous administrative supervision, the body responsible for the supervision of nuclear energy must:

- a) adopt authorisation and approval decisions under individual administrative action,
- b) analyse and assess the licence holder's activity and the safety situation of the nuclear installation, the radioactive waste repository and the interim radioactive waste storage facility on a regular basis,
- c) carry out the verification programme,
- d) conduct the enforcement procedure in order to ensure the enforcement of legislative requirements and the administrative requirements based on the former (Section 9(2) of the Atomic Energy Act).

The verification competence of the HAEA is provided for by the Atomic Energy Act (Section 17(2) of the Atomic Energy Act). Similarly, the Atomic Energy Act provides that the HAEA has the right to conduct audits at any user of nuclear energy within its scope of competence, with or without prior notification and that such audit has no specific time-limit (Section 17(4) of the Atomic Energy Act). The HAEA must ensure the continuity of its verification activity through on-site supervision at the site of the nuclear installation and by operating a duty schedule (Section 12(3) of the Atomic Energy Act).

The detailed rules governing the HAEA's assessment and verification duties are set out in Gov. Decree No 118/2011, whose Section 22(1) provides that, with a view to maintaining safety, the HAEA must, as set out in Volume 1 of the NSC, regularly and systematically verify, during each phase of the lifecycle of nuclear installations, at least whether:

- a) the nuclear installations and their systems, system constituents and buildings comply with the requirements laid down in the licences and the law;
- b) the design of the nuclear installation and the analysis, assessment, establishment, commissioning, conversion and decommissioning of its site comply with nuclear safety requirements, the underlying conditions and circumstances of administrative licences and the requirements set out in the licences; and
- c) the management system of the licence holder complies with the requirements set out in this Decree.

This Government Decree also provides that control by the HAEA does not exempt the licence holder from the obligation to carry out its own control activity.

In the HAEA's practice, the control system consists of specific reviews carried out in order to continuously assess the safety of nuclear installations, comprehensive reviews, reviews carried out as part of a pre-determined programme or ad hoc reviews in connection with a specific event or activity. Scheduled reviews are carried out by the authority under an annual control schedule, of which the authority must notify the parties concerned. The administrative reviews consist of the observation of on-site activities and their comparison with the relevant documentation. For each review, the authority draws up a control plan and, following the on-site performance of the comprehensive and specific reviews, it assesses the experiences of the review, forming the basis for future administrative action. The review and the assessment of its experiences may, on the basis of a written mandate by the authority, be carried out by an external expert or expert organisation.

In addition to the control activity of the authority, the competent authorities involved in the licensing procedure also carry out independent control activities. Through cooperation agreements, the authorities may conduct a joint review in cases that affect several competences.

The HAEA must assess the circumstances revealed and the data obtained during the review. The authorities operate a reporting system in order to ensure the controlled use of nuclear energy and to assess the licence holder's activity. The reports must be sufficiently detailed to enable the independent review and assessment of activities and incidents (Section 32 of Gov. Decree No 118/2011).

The licence holder is primarily responsible for investigating any safety-related incidents during operation, identifying the causes of such incidents and carrying out the measures required in order to prevent their repeated occurrence. Any incident affecting nuclear safety must be reported by the licence holder to the authority in accordance with the applicable requirements. On the basis of the notification and the report drawn up by the licence holder on the relevant investigation (or, depending on the severity of the incident, independently from the licence holder), the authority must analyse and assess the incident, initiating additional action where appropriate.

The HAEA must draw up a review and assessment programme for the nuclear installation and activity subject to review. The administrative review and assessment must cover all phases of the lifecycle of the nuclear installation. The review and assessment of nuclear installations must include in particular:

- a) changes in the operational characteristics related to the safety of operation;
- b) the effects of management, organisational and administrative factors on safety;
- c) the effects of changes and modifications;
- d) the utilisation of experience obtained during incidents and their investigation;
- e) issues affecting operation;
- f) describing the activity in order to increase the level of nuclear safety.

The HAEA must review and assess the analyses and other technical documents submitted by the licence holders and take into consideration all relevant information available to it in order to ascertain that

- a) the safety implications of the activities carried out in the nuclear installation are well-defined and the fulfilment of safety requirements is demonstrated;
- b) the documentation submitted by the licence holder is accurate and sufficient in order to ascertain that legal and administrative requirements have been fulfilled;
- c) the proposed technical solutions are proven to be satisfactory or rated on the basis of already completed experiments, tests and practical experience gained during trial runs, thus they are suitable for attaining the required safety level (Section 25 of Gov. Decree No 118/2011).

During the evaluation, the HAEA carries out a comparison of the restrictions to be observed, the goals set and the actually achieved results on the basis of a predefined system of indicators comprising measurable targets and criteria, which enables the display of trends in order to reduce the subjectivity of evaluation.

The authority uses the evaluation results obtained from various sources in order to continuously evaluate the safety performance of licence holders. In order to widen the possibilities of assessment, the authority has devised and applied a system of safety indicators relating to the Paks Nuclear Power Plant, the ISFS, the Training Reactor of the Budapest University of Technology and Economics and the Budapest Research Reactor. The safety indicators represent the totality of measurable parameters, which measure, among

other things, the performance of the organisation and the human factor.

The safety indicators are specified essentially on the basis of the recommendations of the IAEA. They can thus be divided into three main groups:

- indicators relating to the parameters of uniform operation,
- indicators relating to the safety parameters of operation, and
- indicators relating to parameters of commitment to safety.

The collected statistical set of indicators enables comprehensive evaluation as well as the raising of issues. At present, the authority prepares an evaluation annually of the safety performance of licence holders. It utilises the experience from the evaluation during the organisation of regulatory proceedings, e.g. during the preparation of annual inspection plans.

During its annual evaluation, the HAEA assesses the operational safety performance of the licence holders of nuclear installations on the basis of the results of the system of safety indicators. The purpose of the evaluation is to evaluate the activities and safety performance of the licence holders by the authority and, on that basis, to monitor and analyse the safety parameters of operation and to reveal possible safety problems in an early stage (Section 33 of Gov. Decree No 118/2011).

In addition to the annual evaluation, the periodic re-evaluation of the nuclear safety of nuclear installations is performed at ten-year intervals according to a predefined comprehensive programme (taking into consideration the current international practice). This is the PSR, which is prescribed as obligatory by law. Under this programme, the HAEA decides on whether the operating licence may remain in force and, as required, prescribes safety-enhancing measures as a condition of continued operation (Section 34 of Gov. Decree No 118/2011).

If, during the HAEA's supervisory activity, the possibility occurs that the safety risk caused by the nuclear installation or activity considerably exceeds the extent previously taken into account, the HAEA must initiate proceedings *ex officio* and, depending on the results of the regulatory proceedings, impose requirements ensuring the practical enforcement of the statutory and administrative requirements.

Article 4

(1) (e) effective and proportionate enforcement actions, including, where appropriate, corrective action or suspension of operation, and modification or revocation of the licence

The general legal basis of enforcement procedures relating to the use of nuclear energy is laid down in Act CL of 2016 and the Criminal Code.

Pursuant to the Atomic Energy Act, one of the forms of implementation of the regulatory supervision activities of the HAEA as the nuclear energy supervisory body is conducting enforcement procedures ensuring the practical enforcement of the statutory requirements and the orders of the authorities based on them.

Similarly, the Atomic Energy Act sets out the means and instruments applicable in the

enforcement procedures, including:

- a) warnings (specific oral or written),
- b) the imposing of additional conditions,
- c) the imposing of administrative fines,
- d) restricting the licensed activity,
- e) suspending the licensed activity,
- f) restricting the duration of the licence,
- g) withdrawing the licence.

In addition, it also includes the possibility of withdrawing the licences of persons employed within the application of nuclear energy, which is enforceable by the police.

For nuclear installations, further detailed rules have been added to the Atomic Energy Act. Gov. Decree No 118/2011 sets out the details of the enforcement procedures of the HAEA in terms of the safety implications of the infringed regulations, describing, in accordance with the principle of graded approach, the means and instruments of enforcement: the Government Decree requires the licence holder to investigate any identified deviation, to adopt the necessary measures and to prevent their repeated occurrence (Section 24).

Gov. Decree No 112/2011 of 4 July 2011 sets out the minimum and maximum amounts of fines, specifying in detail the considerations the HAEA is to take into account when imposing a fine. The principle of graded approach is applied on all levels of legislation.

On establishing the amount of the fine, attention has to be paid to all circumstances of the case, in particular, to ascertain

- a) whether an exceptional incident, nuclear emergency or nuclear damage occurred,
- b) the infringement of the requirements was serious,
- c) whether the infringement was repeated,
- d) whether the infringement or negligence was attributable to the authorised operator's behaviour,
- e) whether the infringing or negligent party adopted a constructive attitude towards the measures taken to remedy the situation brought about by it.

The fine as an instrument of sanctioning may be imposed independently and repeatedly, but may also be accompanied by other sanctions. Where a criminal offence defined in the Criminal Code is carried out, the HAEA has no discretionary powers and is bound by the obligation to file a criminal report. After that, the investigating authority decides on indictment and, in the case of indictment, the court decides, if necessary, on the measure to be taken.

Article 4

(2) Member States shall ensure that the national framework is maintained and improved when appropriate, taking into account operating experience, insights gained from safety analyses for operating nuclear installations, development of technology and results of safety research, when available and relevant;

The Atomic Energy Act provides that nuclear safety requirements for the use of nuclear energy must be regularly revised and updated, in the light of scientific findings and international experience. The HAEA is responsible for following with attention the general

trends of international development, including in particular the international development of the applicable legislation, the achievements of technological development and international experiences and expectations and putting forth proposals for the required action and legislation in Hungary.

Financing for the HAEA is provided from the central budget in order to continuously monitor the development of science and technology and to finance the required research.

In the meaning of Gov. Decree No 118/2011, the NSC must be reviewed and updated as appropriate at least once every five years in the light of the latest scientific achievements and Hungarian and international experience. The guidelines are reviewed at intervals specified by the nuclear safety authority or with urgency, at the licence holders' suggestion.

During the updating procedure conducted every five years, in addition to the Hungarian operating experience and research findings, the latest recommendations of the IAEA, the Western European Nuclear Regulators' Association (WENRA), the Nuclear Energy Agency (NEA) of the OECD, available experiences of the VVER Regulators' Forum and other countries, and the conclusions of the European Stress Test and the Thematic Peer Review (TPR) are also taken into consideration.

The licence holders of nuclear installations are obliged to submit regular (quarterly, annual etc.) reports to the authority on the major events and operating experience of the reporting period (the annual report of the nuclear power plant must include an operational campaign report, an ageing management report, a maintenance efficiency monitoring report, a radiation protection report etc., separately). In addition, the licence holder of every installation prepares a safety evaluation report at regular intervals. Breakdowns and other unplanned incidents occurring during operation may also result in an obligation to make the regulatory requirements more stringent. On the basis of the foregoing, the authority may impose special regulations, which may be integrated into the legislative requirements during the updating of Gov. Decree No 118/2011.

The PSR to be carried out every ten years is another possibility for taking into account Hungarian and international operating experience and monitoring the development level of science and technology; its results are reported to the authority by the licence holders. In its decision, the authority approves the development (modification) needs found by the licence holder and, if necessary, imposes additional orders itself.

ARTICLE 5 COMPETENT REGULATORY AUTHORITY

Article 5

(1) Member States shall establish and maintain a competent regulatory authority in the field of nuclear safety of nuclear installations;

In Hungary, the HAEA is the competent regulatory authority with regard to the nuclear safety of nuclear installations.

In recent years, two major areas, i.e. the administrative supervision of radiation protection and the general supervision of buildings designed for the use of nuclear energy have been added to the administrative duties of the HAEA. In the field of the radiation protection of radioactive substances and devices capable of generating ionising radiation, all responsibility other than health and the protection of persons treated with ionising radiation (such as, for example, the supervision of medical irradiation) lies with the HAEA. Accordingly, the responsibility of the HAEA currently includes the authorisation and supervision of any application subject to hazardous radiation (in industry, health and research) and the authorisation and supervision of the transportation of radioactive substances.

The competence of the HAEA is defined in Section 17(2) of the Atomic Energy Act.

Article 5

(2) Member States shall ensure the effective independence from undue influence of the competent regulatory authority in its regulatory decision-making. For this purpose, Member States shall ensure that the national framework requires that the competent regulatory authority:

a) is functionally separate from any other body or organisation concerned with the promotion or utilisation of nuclear energy, and does not seek or take instructions from any such body or organisation when carrying out its regulatory tasks;

In terms of its legal status, the HAEA is a main government bureau and a central government administrative body with special competence under the direction of the Government. The HAEA is supervised by the minister appointed by the Government (currently the Minister for innovation and technology) who may, on the powers conferred by the law, draft (ministerial) decrees on issues falling into the competence of the HAEA, put forth proposals for the drafting of laws or government decrees and represents the HAEA before the Government and Parliament.

An important rule in order to ensure the independence of the authority, the HAEA, as a government office, may not be instructed in its responsibilities defined by law. The decisions of the HAEA may not be altered or annulled in any supervisory powers.

The Atomic Energy Act provides that the competent authorities must be independent of any other body or organisation with an interest in the promotion or development of nuclear energy, including electricity generation, the use of radioactive isotopes and spent fuel or radioactive waste management.

The IRRS follow-up report² describes in detail the changes to nuclear energy-related responsibilities and competences in recent years, which are relevant in terms of this Section. Gov. Decree No 94/2018 of 22 May 2018 on the functions and competences of members of the Government ('Statute Decree') provides that the Minister responsible for innovation and technology must be responsible for energy and climate policy duties, including the field of application of nuclear energy; acting in this role, the Minister must oversee legal compliance by the HAEA. A new minister without portfolio (separate and independent in his/her functions from other ministries) is responsible for the management of national assets, thus exercising the owner's rights over MVM Paks Atomerőmű Zrt. In addition to the above, another minister without portfolio was appointed in 2017, responsible for the design, construction and commissioning of the two new units to be installed at the site of the Paks Nuclear Power Plant. Such separation of responsibilities and competences ensures the independence of the HAEA from the nuclear installations it supervises.

Article 5

(2) (b) takes regulatory decisions founded on robust and transparent nuclear safety-related requirements;

On establishing the Hungarian administrative system, it was an important consideration that it should not be possible to influence the decisions by the organisation responsible for nuclear safety or to exert political or economic pressure on such decisions and that it can be prevented that nuclear safety may be overridden by other considerations (e.g. the security of supply).

The decisions of the Authority may not be altered or annulled in any supervisory powers (Section 8(1) of the Atomic Energy Act). The safety requirements underlying the decisions are set out in Gov. Decree No 118/2011 and its Annexes; see the Summary under Section 4(1)(b) of this Report.

The head of the HAEA is appointed and relieved by the Prime Minister on the recommendation of the Minister supervising it. The supervisory Minister submits his or her proposal to the Prime Minister via the Minister responsible for administrative quality policy and personnel policy. The deputy head is appointed and relieved by the Minister responsible for supervision on the recommendation of the head of the HAEA.

It is a further guarantee of institutional freedom that the Director-General of the HAEA exercises the employer's rights over the staff of the HAEA. The quality system of the HAEA, accredited by an independent organisation, supports the decision-making process, which declares that the purpose of the HAEA is to exercise, at high quality, the administrative and competent authority powers delegated by applicable legislation through a committed staff and that the management of the HAEA is committed to ensure that nuclear energy should be used in Hungary in accordance with international law and the expectations of the society, under transparent and reasonable conditions.

The HAEA puts forth recommendations for compliance with nuclear safety requirements and

² [http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/\\$FILE/IRRS%20k%C3%B6vet%C5%91%20misszi%C3%B3%20jelent%C3%A9se%20magyar%20lektor%C3%A1lt.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/$FILE/IRRS%20k%C3%B6vet%C5%91%20misszi%C3%B3%20jelent%C3%A9se%20magyar%20lektor%C3%A1lt.pdf)

instructions, publishing such recommendations in the form of guidelines. The drafts of the new or revised guidelines are published by the HAEA on its website for comments, enabling the parties concerned and the people to send observations, to be taken into account by the authority when the document is finalised. Apart from that, the applicable legislative requirements, the annual review schedule and the list of administrative decisions are available on the HAEA's website.

Article 5

(2) (c) is given dedicated and appropriate budget allocations to allow for the delivery of its regulatory tasks as defined in the national framework and is responsible for the implementation of the allocated budget;

In the meaning of Act CXCIV of 2011 on public finances, a general government unit may be established where it ensures the performance of a public-service mission as a basic activity, the conditions required for its operation exist, the function to be carried out can be efficiently fulfilled and the financial budget required for the operation of the general government unit is available.

While preparing the central budget, the Minister responsible for public finances must draw up a detailed schedule for planning and its substantive requirements, the documents used for planning, the method of reporting the required data and the proposed amounts for the aggregate expenses under the headings of the Act on the central budget. Planning is carried out according to the applicable provisions of Gov. Decree No 368/2011 of 31 December 2011 implementing Act CXCIV of 2011 on public finances and Gov. Decree No 4/2013 of 11 January 2013 on the accounting of public finances and the planning guide issued each year by the Ministry responsible for public finances.

During the drawing up of the HAEA's budgetary proposal, the HAEA's financial manager plans, in consultation with the organisational units, the expenses required in order to perform the tasks set out in the Deed of Foundation and the expected revenues. That enables the budget to keep up with any changes in the basic functions, ensuring the availability of the required funds.

Among planned revenues and expenses, all revenues and expenses that are related to the public responsibilities performed; are regularly incurred on the basis of experience or are expected to occur on an ad hoc basis; are based on legislation or a private law obligation; or are related to the utilisation of equipment have to be planned (Section 16(2) of Decree No 368/2011).

The financial manager must forward the proposal drawn up as described above to the Director General and, following its approval, send by the relevant time-limit it to the heading the Office belongs to within the order of headings.

On the basis of the annual budgetary act adopted by Parliament, an elemental budget must be drawn up on the revenue and expense appropriations of the institution, broken down by the standard order of columns, as provided for in Decree No 368/2011. and Decree

No 4/2013, to be approved by the Director–General.

The functioning of the HAEA is ensured by budgetary financing as defined in the current Act on the budget and its revenue from supervisory charges as specified in the Atomic Energy Act.

- Each year, specific amounts must be provided from the central budget for the following:
 - the costs of technical support activities furthering administrative efforts;
 - the development costs of nuclear accident response activities;
 - and ◦ costs arising from international commitments.
- The holders of licences of nuclear installations and radioactive waste repositories must pay supervisory fees to the authority in the manner and amount as specified in the Atomic Energy Act.

In financial respects, the HAEA is independent from the nuclear installations and has sufficient financing for operation. Its revenues from the supervisory fee are used to cover operating costs and may not be withheld for other purposes. It has to use its financial resources subject to the applicable legislation.

Article 5

(2) (d) employs an appropriate number of staff with qualifications, experience and expertise necessary to fulfil its obligations. It may use external scientific and technical resources and expertise in support of its regulatory functions;

The Atomic Energy Act provides that the safe use of nuclear energy, including nuclear emergency preparedness, and related research and development tasks must be promoted through scientific and technological development, the coordination of research, the practical application of domestic and international research findings, and initial and continuing professional training. The HAEA operates a comprehensive training system in order to maintain a high-level administrative safety culture; for its details, see the summary to Article 7.

Under the Atomic Energy Act, a scientific consulting body assists the work of the HAEA in order to ensure the provision of scientific grounds for Government, regulatory and nuclear accident response measures relating to the safe application of nuclear energy (Section 8(7) of the Atomic Energy Act).

The Scientific Council has up to twelve members who are nationally recognised authorities in the field of the use of nuclear energy. Taking into account advanced scientific results, the Scientific Council takes a position on the most important theoretical and research and development issues related to the prevention of the proliferation of nuclear weapons and the safety and protection of nuclear installations, nuclear and other radioactive substances and radioactive wastes.

The solution of research and development tasks related to the safe use of nuclear energy

must be encouraged through scientific and technological development, the coordination of research, the practical application of domestic and international research findings, and the training and upskilling of professionals. The assessment and coordination of research and development activities related to the safety and protection of the peaceful uses of nuclear energy have been relegated by the Atomic Energy Act into the HAEA's competence.

It is an international expectation that Technical Support Organisations (TSOs) should be involved in the support of the technical efforts of the authority. To that end, the HAEA launched a programme entitled 'technical support activity aiding the administrative supervision of the safe use of nuclear energy' in 1996. Under the programme, background analyses and assessments are drawn up, among other things, in specific administrative issues, relying on external academic and technical resources.

On the basis of Section 17(3) of the Atomic Energy Act, the HAEA may use expert organisations or experts to assess the proposed activity subject to an administrative permit and the soundness of the relevant application and to assess compliance with technical, nuclear safety, radiation safety, protection and safeguard requirements and the conditions of issuing an administrative permit. The HAEA enters into a cooperation agreement with the relevant expert organisations.

In 2014, the HAEA drew up and submitted to the supervising ministry a survey on the expertise and staffing requirements of the administrative licensing and establishment supervision activities required for the planned new units. As a result, the Government raised the HAEA's permitted headcount³ and allowed the continued employment of retiring HAEA staff members⁴.

On 1 January 2016, administrative functions related to radiation protection were added as new responsibilities; since that date, the HAEA has also been the general construction authority and general construction supervision authority. Further new responsibilities as the construction authority since 1 August 2016 have included the assessment of fitness for pursuing a trade and the registration of persons pursuing a trade.

The current requisite headcount of the HAEA in order to carry out its functions is 206. Figure 1 shows the actual and proposed headcount of the HAEA.

³ Gov. Decision No 1850/2014 of 30 December 2014 on measures required to ensure the availability of financial and human resources enabling the performance of activities of the Hungarian Atomic Energy Authority and, in the context of such performance of activities, the assessment of introducing a higher-education grant and introducing dual training in the nuclear industry

⁴ Gov. Decision No 1835/2014 of 29 December 2014 on arrangements staffing issues related to the maintenance of the capacity of the Paks Nuclear Power Plant

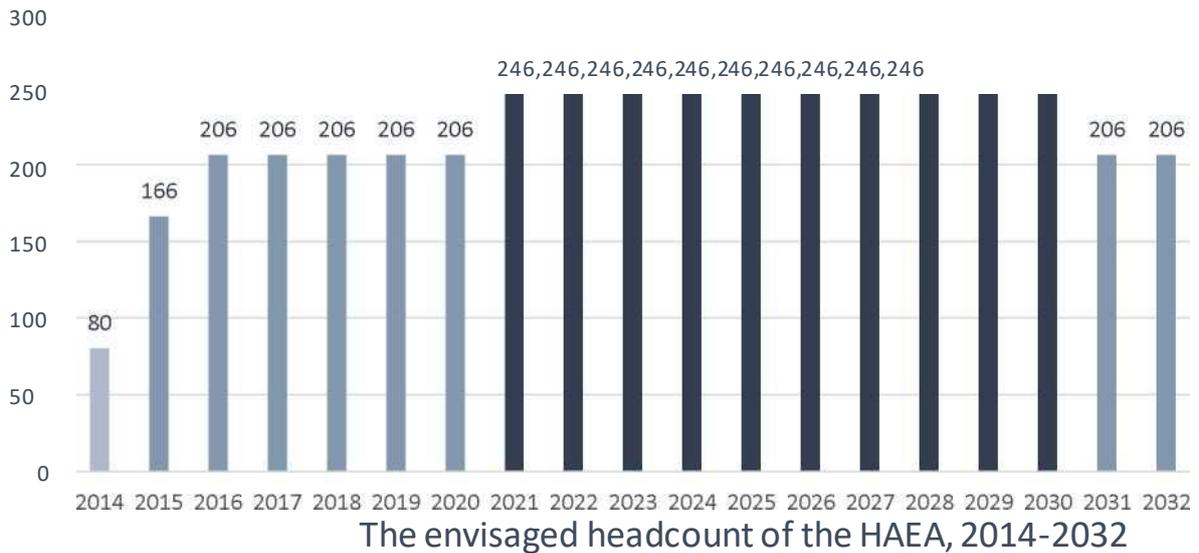


Figure 1 - The envisaged headcount of the HAEA, 2014-2032

Article 5

(2) establishes procedures for the prevention and resolution of any conflicts of interest;

Several provisions of the law provide for the prevention of conflicts of interest. The *Atomic Energy Act* provides that the competent authorities must be independent of any other body or organisation with an interest in the promotion or development of nuclear energy—including electricity generation, the use of radioactive isotopes and spent fuel or radioactive waste management. Act CL of 2016 provides that any person who cannot be expected to objectively assess any issue of the administrative authority must not be involved in settling such issue. Similarly, any person or authority whose right or legitimate interest is directly affected by the issue must be excluded from settling the issue concerned. In addition to the above, the staff members of the HAEA, as government officials, are subject to the conflict of interest provisions of Act CXXV of 2018 on government administration.

Under the Atomic Energy Act, the HAEA’s Director General must, subject also to the specific characteristics of the nuclear energy industry, draw up further detailed rules of procedure in order to enforce conflict of interest and co-employment bans and exclusion rules. On that basis, the HAEA has adopted *Conflict of Interest Rules* (‘Rules’) in order to ensure, with regard to the HAEA’s government officials, the prevention of conflicts of interest and the resolution of any existing conflicts of interest, the possibility of excluding persons from the administration of affairs and the prevention of actions and conduct that are unworthy of one’s office or would threaten unbiased and objective activities.

Under the Rules, for example, government officials of the HAEA must not enter into or maintain a partnership, an employment relationship or other work-related legal relationship with, or hold the position of managing director or supervisory board member at, an organisation operating within the scope of the supervisory activities that form part of the HAEA’s remit. When the Director General or the Assistant Director General is appointed, the condition that, in the two years prior to his/her appointment, the person proposed for the

office has not been in a senior position in an organisation (nuclear installation) supervised by the HAEA must be taken into consideration.

Similarly, the Rules and Section 95 of Act CXXV of 2018 provide that, on their appointment, the HAEA's government officials must make a statement on the facts related to conflict of interest and their compliance with the relevant requirements. In the meaning of Section 95 of Act CXXV of 2018, the HAEA's government officials must provide immediate written notification if they become subject to a conflict of interest defined by law or if they are brought into a conflict of interest situation while in government employment. If the government official fails to terminate the conflict of interest despite being called upon by the HAEA, his/her employment by the government must be terminated.

In the case of TSOs, their agreements include provisions for the prevention of conflicts of interest.

Article 5

(2)(f) provides nuclear safety-related information without clearance from any other body or organisation, provided that this does not jeopardise other overriding interests, such as security, recognised in relevant legislation or international instruments.

Under the Atomic Energy Act, the HAEA is responsible for informing the public of the safety of the use of nuclear energy, of nuclear protection, its activities, major decisions and their reasons and the safety, protection and safeguard requirements applied. The HAEA must publish such information on its website.

Every year, the HAEA publishes nearly 200 pieces of news on its activity, the most important Hungarian and international events, its major administrative decisions and operational information related to the Nuclear Power Plant (e.g. loads, including those that do not affect nuclear safety). In addition to the above, it makes available nuclear legislation and the guidelines drawn up by the HAEA in order to assist users of nuclear energy in fulfilling the legislative requirements. The HAEA submits an annual report to Parliament on the use of nuclear energy in Hungary, publishing the report on its website once it has been approved.

In addition to the above, in accordance with the provisions of Act CXII of 2011 on the right of individuals to control their personal information and the freedom of information ('Info Act'), the HAEA as a body carrying out a public function must make it possible that data of public interest⁵ and data that are public out of public interest⁶ in its custody should be available to any person at request.

Data of public interest and data that are public out of public interest must not be made available if the data concerned are classified data according to Act CLV of 2009 on the

⁵ Any information or knowledge that is in the custody of a body or person carrying out a central or local government function and other public service mission specified by the law and related to its activity or is created in connection with the performance of its public service mission, other than personal data, recorded by whatever means and in whatever format, regardless of the manner in which it is managed, whether stand-alone or part of a collection, including in particular data regarding powers, competence, organisational structure, professional activity, its assessment, including the success of such activity, the types of data in possession, legislation applicable to operation, financial management and existing contracts.

⁶ Any data other than data of public interest, whose publication, availability or accessibility is ordered by the law out of public interest.

protection of classified data. On the basis of Section 6(5) of the Phys. Prot. Gov. Decree, information whose availability may enable potential perpetrators to weaken the efficiency of the physical protection system must be classified and managed by the HAEA in the manner specified in the legislation on the protection of classified data.

The HAEA may refuse to publish any data related to the nuclear installation and its structures, encountered during the licensing procedure, where such publication would violate or threaten a national security or defence interest, public safety, Hungary's foreign affairs activities, foreign relations or relations with international organisations, where the data breaches intellectual property rights or their publication would reduce the level of environmental protection in the area concerned. Publication may also be refused if it would compromise the conduct of court or other official proceedings, unless the competent court or authority permits publication of the data.

Article 5

(3) Member States shall ensure that the competent regulatory authority is given the legal powers necessary to fulfil its obligations in connection with the national framework described in Article 4(1). For this purpose, Member States shall ensure that the national framework entrusts the competent regulatory authorities with the following main regulatory tasks, to:

a) propose, define or participate in the definition of national nuclear safety requirements;

The HAEA is responsible for following with attention the general trends of international development, including in particular the international development of the applicable legislation, the achievements of technological development and international experiences and expectations and putting forth proposals for the required action and legislation in Hungary. If the HAEA is of the opinion that it is necessary, for example, to amend the Nuclear Safety Requirements or to draft a new requirement, it will submit a proposal to the Minister overseeing the HAEA for the amendment of the legislation setting out the requirement or for drafting a new legislation where appropriate.

The Minister must submit the draft legislation to the Government in the form of a proposal for a decision (proposal); prior to the decision by the Government, such proposal may be commented on government institutions and bodies under the *administrative consultation* described under Section 4(1)(a) and by the civil society actors concerned under the *social consultation* provided for in Act CXXXI of 2010 on social participation in the preparation of legislation. Any amendment of the law (e.g. the Atomic Energy Act) requires a decision by Parliament, which must be adopted in accordance with Parliamentary Decision No 10/2014 of 24 February 2014 laying down certain house rule provisions.

Based on Article 33 of the Treaty establishing the European Atomic Energy Community (prior notification), the draft legislation concerning basic safety requirements must be sent to the Commission. In addition to the above, the Commission must be sent supplementary notification of the legislation adopted in order to ensure compliance with the Directive.

Article 5

(3) (b) require that the licence holder complies and demonstrates compliance with national nuclear safety requirements and the terms of the relevant licence;

The obligations of the licence holder are set out in Gov. Decree No 118/2011 (see the Summary under Section 4(1)(b) of this Report. Section 10 of the Atomic Energy Act provides that the user of nuclear energy must be responsible for the safe use of nuclear energy and for compliance with the safety requirements. Gov. Decree No 118/2011 provides that the responsibility for the safe operation of nuclear installations, compliance with and the enforcement of nuclear safety requirements must lie with the licence holder throughout the lifecycle of the nuclear installation (Sections 4/A(c) and 5 of the Atomic Energy Act), and that the acts or omissions of the HAEA must not, in any form and to any extent, exempt the licence holder from its liability for nuclear safety (Section 27 of Gov. Decree No 118/2011).

The Atomic Energy Act further provides that, within their remit, authorised users must ensure the technical, technological, material and human conditions necessary for the safe use of nuclear energy and the maintenance and improvement of safety, and must continuously monitor radiation conditions in line with the latest confirmed scientific findings and international expectations and experience. Authorised users must continuously strive to improve safety, taking into account operating experience and new safety findings (Section 10 of the Atomic Energy Act). The licence holder is required to demonstrate that it meets all of its obligations arising from its liability and that it is in possession of the resources and conditions required for maintaining nuclear safety in the long term (Section 27 of Gov. Decree No 118/2011).

The licence holder is required to comprehensively analyse and evaluate the nuclear safety of nuclear installations, the fulfilment of the nuclear safety requirements and the extent of risks prior to establishment and commissioning and, taking into consideration operating experience and new knowledge about safety, at regular intervals throughout the service life (as part of the PSR and the PSUR), and has to publish their results on its website (Section 10(3) of the Atomic Energy Act).

The obligations of the licence holder are confirmed by Section 5 of Gov. Decree No 118/2011, with the proviso that it has to certify to the HAEA that the requirements set in the decree are fully met. Compliance with the safety requirements is demonstrated through Safety Reports. The requirements concerning the Safety Reports are set out in Section 31 of Gov. Decree No 118/2011.

The HAEA conducts a PSR every ten years at the nuclear installation to examine whether the nuclear installation operates in accordance with the basis of licensing; the PSR is closed with a decision. The first PSR must be closed 10 years after the date on which the operating licence became final and non-appealable. The licence holder is obliged to conduct its own audit at least one year prior to the deadline set for carrying out the audit of the HAEA, and taking its results as a basis, if necessary, to compile and implement a programme to take the safety-enhancing measures to eliminate or mitigate the risk factors found. The licence holder

submits a PSR setting forth the results of its own audit, the factors affecting the safety of the nuclear installation and its programme of safety-enhancing measures to the nuclear safety authority not later than by the closing of the audit. The factors that determine the operating risks of the nuclear installation have to be shown in comparison with the updated Final Safety Report ('FSR') as well as the Hungarian requirements in force and international good practice. (Section 34 of Government Decree No 118/2011)

Moreover, the licence holder must draw up and send to the HAEA regular and incident reports and condition-related reports under the provisions of Section 32 of Gov. Decree No 118/2011.

Article 5

(3) (c) verify such compliance through regulatory assessments and inspections;

Supervision by the HAEA is essentially carried out on the basis of the analysis and evaluation of documents submitted by the licence holders, in particular, submissions, regular and incident reports and information collected during inspections by the authorities. If, during such activities, the possibility occurs that the safety risk caused by the nuclear installation or activity considerably exceeds the extent previously taken into account, the nuclear safety authority must initiate proceedings ex officio and, depending on the results of the regulatory proceedings, impose requirements ensuring the practical enforcement of the statutory and administrative requirements. The HAEA makes its decision by comprehensively evaluating the facts available to it in detail, on the basis of the examination of compliance with the statutory requirements. During this, it examines the documents and data on the safety principles providing grounds for design, the quality of implementation, the actual principles of operation and practical operation of the completed nuclear installation, system and system component subject to the proceedings and on the operating activity, which are provided by the licence holder. In making its decisions, it enforces the considerations of the nuclear safety of the whole nuclear installation.

The Atomic Energy Act guarantees that the HAEA may conduct inspections at any user of nuclear energy, either with or without a prior notice.

The HAEA must assess the circumstances revealed and data obtained during the review. The authorities operate a reporting system in order to ensure the controlled use of nuclear energy and to assess the licence holder's activity.

For the administrative control system, see the summary under Section 4(1)(d) of this Report.

Article 5

(3) (d) propose or carry out effective and proportionate enforcement actions.

The general legal basis of enforcement procedures relating to the use of nuclear energy is laid down in Act CL of 2016 and the Criminal Code. Pursuant to the Atomic Energy Act, one of the forms of implementation of the regulatory supervision activities of the HAEA is conducting enforcement procedures ensuring the practical enforcement of the statutory requirements

and the orders of the authorities based on them. For details of the enforcement procedures, see the summary under Section 4(1)(e) of this Report.

ARTICLE 6 LICENCE HOLDERS

Article 6 Member States shall ensure that the national framework requires that:

a) the prime responsibility for the nuclear safety of a nuclear installation rests with the licence holder.

That responsibility cannot be delegated and includes responsibility for the activities of contractors and sub-contractors whose activities might affect the nuclear safety of a nuclear installation;

According to the Atomic Energy Act, the user of nuclear energy must be responsible for the safe use of nuclear energy and for compliance with the safety requirements. Any person or organisation authorised to use an installation or engage in an activity involving an increased risk due to radiation must bear primary responsibility for safety. Within their remit, the licence holders must ensure the technical, technological, material and human conditions necessary for the safe use of nuclear energy and the maintenance and improvement of safety, and must continuously monitor radiation conditions in line with the latest confirmed scientific findings and international expectations and experience. The licence holder must continuously strive to improve safety, taking into account operating experience and new findings regarding safety.

The responsibility of the licence holder is also provided for by Gov. Decree No 118/2011, which declares that responsibility for the safety of nuclear installations, compliance with and the enforcement of nuclear safety requirements and activities in connection with the nuclear installation must lie with the licence holder throughout the life cycle of the nuclear installation.

The requirements set out in the Directive for contractors and subcontractors are also provided for in the NSC, which provides that while the licence holder may engage suppliers with activities affecting nuclear safety, in such cases the responsibility for maintaining nuclear safety must remain with the licence holder. The licence holder must develop and operate a rating system in order to certify the capacity of suppliers. The licence holder must, both prior to and during the supplier's activity, make sure that the supplier is capable of ensuring the required working conditions.

In order to oversee the individual processes, the licence holder has to operate a comprehensive monitoring system differentiated from the point of view of nuclear safety, which covers all processes characteristic to the given life cycle phase and participating organisations. (For the requirements concerning the engagement and supervision of suppliers, see Volume 9 of the NSC.)

Article 6

b) when applying for a licence, the applicant is required to submit a demonstration of nuclear safety.

Its scope and level of detail shall be commensurate with the potential magnitude and nature of the hazard relevant for the nuclear installation and its site;

The requirements concerning the submission of the application for a licence are set out in Gov. Decree No 118/2011, under which the supporting documentation must be drawn up in accordance with the level and nature of the nuclear safety risk of the activity concerned, at a level of detail and at a depth to enable the nuclear safety authority to carry out the independent review and assessment of the fulfilment of requirements and regulations and the suitability of technical and administrative activities required for fulfilment.

The licensing system is summed up under Section 4(1)(c) of this Report.

Article 6

c) licence holders are to regularly assess, verify, and continuously improve, as far as reasonably practicable, the nuclear safety of their nuclear installations in a systematic and verifiable manner. That shall include verification that measures are in place for the prevention of accidents and mitigation of the consequences of accidents, including the verification of the application of defence-in-depth provisions;

Section 10(3) of the Atomic Energy Act provides that the licence holder must continuously strive to improve safety, taking into account its operating experience and new safety findings. See the summaries under Sections 4 and 5 for further details. In addition to the above, taking into consideration the operating experience and new safety-related information, the licence holder must, as part of the PSR, carry out a comprehensive analysis and assessment of the nuclear safety of nuclear installations and compliance with the nuclear safety requirements. For further information on the PSR, see the summary sections under Sections 8a and 8c. For further information on measures adopted with a view to preventing accidents and alleviating their consequences, see the summary section under Section 6. For details concerning defence in depth, see the summary under Section 8b(1) of this Report.

Article 6

d) licence holders establish and implement management systems which give due priority to nuclear safety;

The Atomic Energy Act provides that only institutions, organisations and business organisations that have an appropriate management system may operate as part of activities relating to nuclear installations, systems and equipment. The conformity of the management system needs to be examined and certified. On the basis of Section 7(5) of Gov. Decree No 118/2011, in order to maintain defence in depth, the licence holder must operate an efficient management system whereas its management must be firmly committed to nuclear safety and to maintaining a strong safety culture.

The management requirements for the operation of nuclear installations are set forth in Volume 2 of the NSC; in accordance with Principle 3 of the Vienna Declaration on Nuclear Safety, the requirements were set on the basis of the IAEA's Safety Standards Series No GSR Part 2 and the WENRA reference levels, taking into consideration the specifications of standard ISO 9001:2015. That volume sets forth the requirements concerning the management system for both the operator and its suppliers. The recommendations for the method of fulfilling such requirements are set out in the guidelines published by the HAEA. The principal goal of setting requirements for the management system is to take into consideration the impacts of the activities of the licence holder not in separate management systems, but by treating safety as an integral whole, thereby ensuring that nuclear safety is not damaged. Within the management system, safety has to prevail over all other requirements.

The fundamental objective of the management system is to achieve and enhance safety by means of the following:

- a) consistent collection of all requirements for the operation of the licence holder,
- b) identification of the planned and systematic measures required for the fulfilment of these requirements with absolute certainty; and
- c) ensuring that the health, environmental protection, physical protection, quality and economic requirements are taken into consideration in accordance with the safety requirements by avoiding potential adverse impacts on safety.

Within the management system, the following requirements must be identified and integrated

- a) statutory and regulatory requirements in force;
- b) all requirements declared by the parties concerned in connection with nuclear safety and approved by the licence holder; and
- c) international rules and standards adopted for application by the licence holder.

The licence holder must demonstrate the efficient fulfilment of the requirements of its own management system, which is assessed by HAEA each year as part of the FSR.

The authority performs comprehensive audits either as a system audit or a process audit. The audits are carried out in previously designated areas by internal auditors; the elimination of remarks recorded in the audit minutes is subject to reporting.

Scheduled inspections are performed on the basis of the annual inspection schedule of the authority and according to the general overhaul decision on units under refuelling. Non-scheduled ad hoc inspections are performed in connection with incidents adversely affecting quality or upon individual designation by the authority.

The areas of the quality management system of the operator inspected by the authority are as follows:

- structure of the organisation;
- training and qualification of staff;
- internal regulatory documents of the licence holder;
- management of non-conformities;
- normal operation;
- maintenance and repairs;
- nuclear fuel management;
- selection of suppliers;
- design;
- acceptance at the manufacturers' premises;
- conversions.

The review of audits includes both management and independent audits. Inspections are carried out by the authority on the basis of written sets of procedures approved by the head of the authority and known to the licence holder.

The authority expects the licence holder to decide on corrective measures relating to the findings identified during the inspection of the authority. If no measures are taken or they are inadequate, the authority orders the corrective measures in a specific decision.

Article 6

e) licence holders provide for appropriate on-site emergency procedures and arrangements, including severe accident management guidelines or equivalent arrangements, for responding effectively to accidents in order to prevent or mitigate their consequences. Those shall in particular:

- i. be consistent with other operational procedures and periodically exercised to verify their practicability;*
- ii. address accidents and severe accidents that could occur in all operational modes and those that simultaneously involve or affect several units;*
- iii. provide arrangements to receive external assistance;*
- iv. be periodically reviewed and regularly updated, taking account of experience from*

exercises and lessons learned from accidents;

Section 4/A(h) of the Atomic Energy Act provides that the user of nuclear energy must make every effort to prevent a nuclear or radiological accident and to mitigate the consequences of accidents. Under Section 43(1), the user of nuclear energy is primarily responsible for terminating incidents, investigating their causes and taking action in order to prevent accidents from recurring. In the meaning of Section 43(2), in order to prevent a nuclear emergency, respond to or mitigate the consequences of an actual event or restore proper conditions, a user of nuclear energy must:

- a) develop a nuclear emergency preparedness and response plan and have it approved by the competent authorities;
- b) create the personal, material and organisational conditions for effective nuclear emergency response and regularly verify compliance with those conditions; and
- c) ensure the conditions for (the nature, extent and method of) external assistance necessary for nuclear emergency response, in conjunction with the competent authorities and bodies.

Under Section 14(1) of Gov. Decree No 118/2011, the licence holder must devise guidelines and instructions for measures required for handling expected operational incidents, design breakdowns, beyond design basis breakdowns and accidents.

Prior to the start of the commissioning of the nuclear installation, a Nuclear Accident Response Action Plan has to be devised for the site and the installation, which has to be continuously updated. Section 36 of Gov. Decree No 118/2011 provides that the accident response measures must be carried out in such a way that their benefits should exceed their damage. The form, extent and duration of the measure to be introduced have to be optimised; when it is selected, efforts must be made to maximise the protection attainable by the measure.

Chapter VII of Gov. Decree No A 118/2011 sets out in detail the consequences of preparing for the occurrence of breakdowns, nuclear emergencies and accidents and their prevention. In order to prepare for the prevention and response to incidents and nuclear emergencies, the licence holder of the nuclear installation must take technical and organisational measures, draw up an Accident Response Action Plan, establish and train an accident response organisation, keeping it in a condition where it is able and ready to be deployed, including by carrying out drills, in accordance with the provisions of the applicable legislation.

Emergency activities have to be planned at the site of the nuclear installation, during which preparations have to be made for all activities identified in the safety analyses and falling within the responsibility of the licence holder, which serve to respond to emergencies resulting in the release of radioactive materials and radiation exposure and to mitigate their consequences.

Volume 3, Section 3.2.2.4610 of the NSC provides that The required means of accident management must be designed and accident management guidelines must be devised for the efficient mitigation of the consequences of beyond design basis events analysed in detail, including severe accident processes resulting in a complete fuel meltdown, in such a way that any hazard posed to the environment and the population remains below a predefined, manageable level if the procedures and means of accident management work successfully.

On the basis of Volume 4, Section 4.5.3.0100 of the NSC, the emergency operating instructions and accident management guidelines must be available. All possible initial operating conditions

must be covered in the guidelines. On the basis of Section 4.5.30110, in the case of a nuclear power plant comprising multiple blocks, the service interruption response instructions, the accident management guidelines and the accident response action plan must be devised with due consideration for the simultaneous service interruption or severe accident condition of multiple reactors and spent fuel pools, and the resources required for their execution must be prescribed with due consideration thereof, including any external assistance to be used. Particular attention must be paid to potential interactions between the reactor and the spent fuel pool during such accident situations. On the basis of Section 4.5.3.0700, the approach used for the nuclear power plant specific validation and verification must be documented. During the validation of procedures and guidelines it must be examined how effectively were the technical aspects of human factors taken into consideration. The validation of emergency operating procedures must be based on representative simulation, with the use of a simulator where possible.

On the basis of Volume 4, Section 4.16.0.0200 of the NSC, if the operational documentation is developed, used and archived by several different organisations, the consistency of the documentation of each organisation must be ensured, and the handover of documentation to another organisation must be regulated. The requirements governing the regular review appear in general among the requirements for the management system.

Volume 4, Section 4.12.1.1100 of the NSC provides that periodic or at least annual exercises must be organised to verify that the accident management organisation is able to fulfil its emergency response tasks. During the exercises the participation of organisations responsible for the off-site elimination of nuclear emergency situations must be made possible. Long-term and annual plans must be prepared for emergency response trainings and drills. Emergency response exercises must be systematically evaluated and the results of the evaluation must be fed back to the planning process. The feedback of the lessons learned from any accidents in Hungary is provided for by the event investigation requirements (Chapter VI of Gov. Decree No 118/2011).

As part of its supervisory activity, the authority verifies compliance with the requirements; for details, see the report under Sections 4 and 5.

Article 6

f) licence holders provide for and maintain financial and human resources with appropriate qualifications and competences, necessary to fulfil their obligations with respect to the nuclear safety of a nuclear installation. Licence holders shall also ensure that contractors and subcontractors under their responsibility and whose activities might affect the nuclear safety of a nuclear installation have the necessary human resources with appropriate qualifications and competences to fulfil their obligations.

The licence holder's responsibilities are set out in detail under Section 10 of the Atomic Energy Act, which provides, inter alia, for the obligation to provide human resources necessary for the safe use and maintenance of nuclear energy.

The capacity and limits of human action must be taken into account to ensure safety throughout the lifetime of a nuclear installation (Section 4(5) of the Atomic Energy Act).

Only persons with the necessary statutory qualifications and fulfilling the statutory employment and health requirements may be employed in the use of nuclear energy (Section 11(1) of the Atomic Energy Act). Under Section 11(5) of the Atomic Energy Act, a

public security authorisation issued by the police is required for employment in the positions specified.

The licence holder must determine the required number and the duties of the staff on duty under different operating conditions, bearing in mind that they should be able to carry out the measures required in the case of any breakdown. The responsibilities concerning the provision and management of resources, including human resources, are set out in the NSC as follows:

- Senior management must determine, for all levels of the organisation, the technical requirements pertaining to workers and, through training or other actions, ensure that the necessary level of knowledge is acquired and maintained. Senior management must also evaluate the effectiveness of the actions taken. The expertise and knowledge acquired must be continuously maintained.

Volume 4 of the NSC sets out further requirements for the licence holder's staff:

- Responsibilities, authorisations, hierarchy and communication paths must be clearly defined and documented for the workers.
- The organisational and operational rules of the licence holder must include provisions on job descriptions. The rights, obligations, responsibilities, required competences and dependencies must be specified accurately within the organisation of the licence holder, from the individual to organisations of various sizes. The knowledge, skills and conditions required for filling the particular position must be defined in the job description. The number and expertise of the operating personnel required for safe operation must be analysed systematically and in the manner documented.
- The sufficient number and expertise of the operating personnel required for safe operation and their ability to work safely must be certified in a regulated manner and must be presented in the FSR.
- The licence holder ensures the availability of the sufficient number of operating personnel required for safe operation.

The licence holder must have a long-term workforce management plan for activities that are important to nuclear safety. Human relations, primarily dependencies, and the effect of cooperation and communication, must be taken into consideration when the composition of the operating personnel is determined. The operating personnel must meet the requirements for staffing levels, educational level, qualifications, skills, commitment to nuclear safety, health condition, and physical and psychological aptitude, laid down in writing for each task.

These provisions must ensure that the operating personnel are able to perform their tasks even in the event of design breakdowns, beyond design basis breakdowns, and accidents. The fulfilment of the requirements must be documented.

Positions that are critical for nuclear safety can only be filled by workers who have passed an administrative licence exam. Its purpose is to evaluate the theoretical and practical knowledge and level of preparation of workers in positions that are critical for the operation of the installation and to verify the conditions required for the position. Positions subject to the administrative licence exam are specified in Decree No 55/2012 of 17 September 2012 of the Minister for National Development on persons authorised to engage in activities related to the use of nuclear energy. The members of the examination board include a representative of the authority, whose position is binding for the board in the event of a disagreement.

Volume 2 of the NSC requires the licence holder to ensure that suppliers and subcontractors

also fulfil the requirements. It provides that the requirements governing work and workers must be identical, regardless of whether the work is performed by an employee of the licence holder or of the supplier.

The HAEA's supervisory activities include oversight of the selection, evaluation and supervision of suppliers by the licence holder. As part of its supervisory activities, the HAEA verifies compliance with the above requirements.

ARTICLE 7 EXPERTISE AND SKILLS IN NUCLEAR SAFETY

Member States shall ensure that the national framework requires all parties to make arrangements for the education and training for their staff having responsibilities related to the nuclear safety of nuclear installations so as to obtain, maintain and to further develop expertise and skills in nuclear safety and on-site emergency preparedness.

The legislative background of the training requirements of nuclear installations is provided for by the Atomic Energy Act, Gov. Decree No 118/2011 and Decree No 55/2012 of the Minister for National Development.

The safe use of nuclear energy, including nuclear emergency preparedness, and related research and development tasks must be promoted through scientific and technological development, the coordination of research, the practical application of domestic and international research findings, and initial and continuing professional training of professionals (Section 4(8) of the Atomic Energy Act).

Only persons with the necessary statutory qualifications and fulfilling the statutory employment and health requirements may be employed in the use of nuclear energy (Section 11(1) of the Atomic Energy Act).

In the meaning of Section 8 of Gov. Decree No 118/2011, the licensee must develop such a written safety policy which guarantees that safety is paramount during all activities related to the nuclear installation. The safety policy must specify easily observable and unambiguously worded safety objectives and tasks for their implementation, which must be appropriate for the fulfilment of the safety policy and for the continuous monitoring of the safety performance. All employees and suppliers working in positions important to safety must be familiarised with the policy in such a manner that ensures its appropriate implementation during their activities. The licence holder is responsible for the availability of operating personnel with appropriate qualifications and the required licences and for maintaining the level of qualification of the operating personnel (Sections 12(3), 13 and 29 of Gov. Decree No 118/2011).

The licence holder of the nuclear installation is recommended to provide appropriately selected, qualified working staff who have the skills and experience specified in the job requirements for the safe, economical and reliable operation of the nuclear installation. To that end, it has to specify the jobs that are crucial and important for safety as well as the qualification and aptitude requirements for those filling such jobs. Decree No 55/2012 of the Minister for National Development sets out detailed rules governing the training and qualification requirements for workers of all nuclear installations as well as specific rules for the nuclear safety examination of workers by the nuclear safety authority.

It also provides for specific requirements for workers of specific types of nuclear installations

and the training of such workers and the reporting obligations of the licence holder on the capacity and qualification of its personnel.

For nuclear power plants, the content requirements of the PSR and the FSR, while in the case of research and training reactors and the ISFS, those of the FSR include the qualification requirements set for the operating personnel as well as the requirement of describing the procedures for trainings ensuring their fulfilment, the rules for their training programmes and experience feedback procedures. In that context, the licence holder describes the training requirements for the operating personnel, compliance with the provisions of legislation, the training programmes ensuring the fulfilment of the training requirements, training procedures and experience feedback procedures in detail.

In the meaning of Section 4(8) of the Atomic Energy Act, the HAEA operates a comprehensive training system for the training and upskilling of workers. Section 6/A(4) of Atomic Energy Act provides that a tertiary-educated government official employed by the atomic energy supervisory body in a supervisory role may be entrusted with the independent performance of supervision only following successful completion of the atomic energy supervisory body's training and successfully passing an exam before an examination committee appointed by the director-general of the atomic energy supervisory body.

The HAEA's training system is based on three pillars, including:

- professional trainings;
- the training of the personnel of the HAEA's Accident Response Organisation (ARO);
- public-service trainings, the rules of which are laid down in Gov. Decree No 338/2019 of 23 December 2019 on the mandatory training, upskilling and re-skilling of government officials of government administration bodies and the training of public administration managers.

In order to ensure the competencies required in order to carry out the activities, the HAEA draws up annual and medium-term (i.e. 4-year) training plans that set out the knowledge areas where training is required for each member of the HAEA's staff, the accident response drills proposed for the year and the ARO's personnel development plan.

The ARO's training plan is based on individual training profiles and includes three types of basic training: introductory training, recurrent training and in-service training.

The training programme of workers employed as supervisors constitutes a complex training system spanning several years, consisting of consecutive layers of technical modules; the programme ends with a supervisor exam. The HAEA's training system has adapted and is based on the Systematic Approach to Training (SAT) proposed by the IAEA. Its rules of procedure set forth the responsibility of all participants involved in the training (managers, training officer, human policy officer, financial officer, in-house trainers and training participants).

The SAT is applied as follows:

- a) analysis of the development of the knowledge profile of the institution and of training needs,
- b) planning of training goals and programmes for the long and short run,
- c) development of a training system,
- d) implementation of the training programmes adopted,
- e) evaluation of the completed training programmes.

Moreover, the HAEA has introduced a mentor programme in order to facilitate the training and integration into the organisation of established staff members having passed the exam following the introductory trainings. On the basis of the level of education and professional experience of new entrants, their level of knowledge, as specified in the knowledge profile, and their workplace duties, the responsible manager of the mentees identifies the professional areas where a mentor's involvement is required. Mentors may include government officials with extensive professional expertise at the relevant field, who are familiar with the relevant international and Hungarian technical literature and the supervisory system of the HAEA and are capable of passing on the supervisory competencies and experience efficiently.

ARTICLE 8 TRANSPARENCY

Article 8

(1) Member States shall ensure that necessary information in relation to the nuclear safety of nuclear installations and its regulation is made available to workers and the general public, with specific consideration to local authorities, population and stakeholders in the vicinity of a nuclear installation. That obligation includes ensuring that the competent regulatory authority and the licence holders, within their fields of responsibility, provide in the framework of their communication policy:

a) information on normal operating conditions of nuclear installations to workers and the general public; and

In accordance with Section 8(4)(d) of the Atomic Energy Act, the HAEA is responsible for informing the public of the safety of the use of nuclear energy, of nuclear protection, its activities, major decisions and their reasons and the safety, protection and safeguard requirements applied by publishing the relevant information on its website. The HAEA's information policy and strategy are updated every four years.⁷

Publishing nearly 200 articles on its website each year, the HAEA makes the documents associated with the performance of its tasks widely available (parliamentary report, the annual assessment by the authority of Hungarian nuclear installations and radioactive waste repositories, quarterly newsletter, annual inspection schedule). Most international news and the overwhelming majority of legislation governing the HAEA's operation are also available in English. In accordance with the statutory requirement, the information available include the descriptions of the HAEA's duties, financial data, employee data, the Internal Rules of Operation, the organisational chart, managers' contact details and nuclear legislation. The authority's guidelines, the operational data of the four Paks Nuclear Power Plant units and the data of radiation monitoring stations are also published on the HAEA website (online data updated on a continuous basis).

The Atomic Energy Act provides that, within their remit, authorised users must ensure the technical, technological, material and human conditions necessary for the safe use of nuclear energy and the maintenance and improvement of safety, and must continuously monitor radiation conditions in line with the latest confirmed scientific findings and international expectations and experience. The public must be informed of the results of environmental radiation monitoring at least every month. In addition, Section 30/B of Gov. Decree

⁷ [http://www.oah.hu/web/v3/OAHPortal.nsf/554722F81FE0C77CC1257F3F004E7F72/\\$File/T%C3%A1j%C3%A9koztat%C3%A1si%20pol%20%C3%A9s%20strat%202017al%C3%A1%3ADrt.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/554722F81FE0C77CC1257F3F004E7F72/$File/T%C3%A1j%C3%A9koztat%C3%A1si%20pol%20%C3%A9s%20strat%202017al%C3%A1%3ADrt.pdf)

No 118/2011 provides that the licence holder must have a communication policy, based on which it regularly informs the employees and the population living in the vicinity of the installation on normal operation.

Article 8

1(b) prompt information in case of incidents and accidents to workers and the general public and to the competent regulatory authorities of other Member States in the vicinity of a nuclear installation.

Section 8(4)(e) of the Atomic Energy Act requires the HAEA to carry out statutory nuclear emergency preparedness tasks by creating, preparing and operating an Emergency Response Agency, as well as early warning, contact and regulatory tasks for nuclear emergencies arising from membership of the European Union or established through legally promulgated international conventions on early warning and assistance in nuclear accidents within the IAEA or under bilateral international agreements.

The user of atomic energy must report any incident without delay to the mayor with jurisdiction over the area, the competent health state administration office, the police and the atomic energy oversight organisation, among others (Section 45 of the Atomic Energy Act).

In the meaning of the above provisions, the licence holder must report any incident to the HAEA; under the applicable law, the latter must carry out the information duties provided for in various international documents (e.g. Decree No 28/1987 of 9 August 1987 of the Council of Ministers on proclaiming the Convention on Early Notification of a Nuclear Accident, signed in Vienna on 26 September 1986, Council Decision 87/600/Euratom on Community arrangements for the early exchange of information in the event of a radiological emergency) and in bilateral agreements.

Such bilateral agreements include inter-governmental agreements, where the HAEA is involved in their implementation as the designated authority, and cooperation agreements, entered into between the HAEA and partner authorities. The agreements governing emergency management are available on the HAEA's website⁸. The HAEA has valid cooperation agreements with the nuclear energy supervisory bodies of the neighbouring countries, Germany and the Czech Republic.

Gov. Decree No 165/2003 of 18 October 2003 laying down rules for the information to the public in the event of nuclear and radiological emergencies provides for the rules governing the provision of trustworthy and timely information to the public. Under that Decree, Public Information Plans must be drawn up on national, industry and county levels, at nuclear installations and installations producing, using and storing radioactive substances. The Decree sets out the bodies authorised to provide information to the public, their responsibilities, the requirements for public information plans in the various phases (prevention, early and late phases) and the means of providing information.

Article 8

(2) Information shall be made available to the public in accordance with relevant legislation and international instruments, provided that this does not jeopardise other overriding

⁸ <http://www.oah.hu/web/v3/OAHPortal.nsf/web?openagent&menu=04&submenu=46>

interests, such as security, which are recognised in relevant legislation or international instruments.

In addition to the information obligations laid down in the Hungarian law, the HAEA's information policy and strategy takes into account international documents such as the IAEA's GSG-6 Safety Standards (Communication and Consultation with Interested Parties by the Regulatory Body) and the Guidance for NRO, Principles for Openness and Transparency of the European Nuclear Safety Regulators Group (ENSREG). Since the HAEA is involved in the activities of various communication working groups (OECD NEA Working Group on Public Communication of Nuclear Regulatory Organisations, ENSREG Working Group 3 - Improvements in Transparency Arrangements), it is able to follow the international trends and best practices adopted in other countries closely and continuously.

For the national requirements governing the making available of information to the public, see the legislation listed in Section 5(2)(f). As far as the public disclosure of data of public interest and data that are public out of public interest is concerned, licence holders of nuclear installations are governed by the applicable provisions of the Info Act.

Article 8

(3) Member States shall, without prejudice to Article 5(2), ensure that the competent regulatory authority engages, as appropriate, in cooperation activities on the nuclear safety of nuclear installations with competent regulatory authorities of other Member States in the vicinity of a nuclear installation, inter alia, via the exchange and/or sharing of information.

On the basis of Section 8(4)(f) of the Atomic Energy Act, the HAEA must cooperate with similar organisations of other countries, must conclude bilateral professional agreements with them and must establish and maintain bi- and multilateral international relations. Moreover, the HAEA must collate international cooperation in the field of safety and security of the use of atomic energy and, in this respect, it must give opinion about the draft international agreements to be concluded in these fields, and must follow within its scope of competence their implementation.

The HAEA's bilateral international relations are partly based on certain bilateral international agreements with other countries, which have been entered into in the following areas:

- the peaceful uses of nuclear energy,
- regulation of issues of mutual interest, related to nuclear safety and radiation protection,
- instant notification in the case of nuclear accidents,
- training, research, administrative and technical cooperation in the field of the peaceful uses of nuclear energy.

Based on bilateral international agreements, the HAEA cooperates with the following countries: United States of America, Australia, Austria, Czech Republic, Croatia, Canada, Republic of Korea, Germany, Russian Federation, Romania, Kingdom of Saudi Arabia, Republic of Serbia, Slovakia, Slovenia, Ukraine, Vietnam.

The HAEA currently has valid 12 professional agreements with the nuclear authorities of other countries (United States of America, Republic of Belarus, Czech Republic, Finland, Poland, Morocco, Russian Federation, Romania, Slovakia, Republic of Turkey, Ukraine, Bulgaria).

The HAEA maintains close professional relations with the partner authorities of countries

operating (or intending to operate in the near future) VVER reactors. Under agreements on mutual information exchange, the HAEA has been cooperating with the authorities of the Czech Republic, Slovakia, the US, the Russian Federation, Romania and Serbia. As part of scientific and technical cooperation, direct contacts have been established with the German Federal Ministry of Environmental Protection.

In order to increase the efficiency of bilateral meetings and as part of a regular cooperation for several years, the nuclear authorities of the Czech Republic, Hungary, Slovenia and Slovakia have discussed the latest issues of mutual interest under a rotation system, taking turns hosting their quadrilateral discussions. Similarly, an Austro-Hungarian meeting is held each year with Austria. The 25th such bilateral meeting was held in October 2019 in Budapest.

The agendas of discussions include major technological improvements, changes in legislation, installation-level events and reports concerning physical protection, emergency management, radioactive waste management and the latest issues of interest.

In connection with the new nuclear power plant project, the HAEA has been in close cooperation with the Finnish authority in the form of biannual discussions.

Article 8

(3) Member States shall ensure that the general public is given the appropriate opportunities to participate effectively in the decision-making process relating to the licensing of nuclear installations, in accordance with relevant legislation and international instruments.

The Atomic Energy Act provides that, on each installation-level licensing procedure, a public hearing be held with a view to getting to know the opinion of the public, prior to adopting a decision, also setting out the obligations concerning the preparation of public hearings (Section 11/A(5) to (8) of the Atomic Energy Act).

Beyond the legislative requirements, the HAEA publishes the notice on public hearings on the municipal notice board and posts it on its own Facebook page in order to reach as many interested parties as possible. In each case, the notice is accompanied by the summaries drawn up by the licence holder and the HAEA for the public (i.e. a description drafted in plain language on the technical details and the administrative procedure). All HAEA public hearings are held near the installation; the public hearings begin at 4 p.m. in order that as many people can attend as possible.

Public hearings have recently been held in the following main procedures:

- the service life extension of the Paks Nuclear Power Plant (a public hearing for each unit);
- introduction of the 15-month operational cycle at the Paks Nuclear Power Plant;
- in the case of new nuclear power plant units, prior to issuing the site assessment and evaluation licence and in connection with the site licensing procedure;
- amendment of the operational licence of the ISFS;
- framework research programme of the final repository of highly active radioactive wastes.

As the questions raised and the responses to such questions are discussed in detail in the resolution issued at the end of the procedures, the observations raised by the public and the

interested parties are integrated into the final decision by the authority.

ARTICLE 8a NUCLEAR SAFETY OBJECTIVE FOR NUCLEAR INSTALLATIONS

8.a Nuclear safety objective for nuclear installations

(1) Member States shall ensure that the national nuclear safety framework requires that nuclear installations are designed, sited, constructed, commissioned, operated and decommissioned with the objective of preventing accidents and, should an accident occur, mitigating its consequences and avoiding:

- a) early radioactive releases that would require off-site emergency measures but with insufficient time to implement them;*
- b) large radioactive releases that would require protective measures that could not be limited in area or time.*

Section 4/A of the Atomic Energy Act provides that the user of nuclear energy must make every effort to prevent a nuclear or radiological accident and to mitigate the consequences of accidents. The radiation protection target under Section 6 of the Atomic Energy Act is to keep the radiation exposure for workers and the public below the statutory threshold limit values, at the lowest level reasonably possible throughout all phases of the lifecycle of the nuclear installation. That must also be guaranteed for radiation exposures occurring due to design basis breakdowns and, as far as reasonably possible, beyond design breakdowns and accidents. It is a technical safety target that the occurrence of breakdown incidents should be prevented with a high degree of safety, the potential consequences in the event of any assumed initial events taken into account on the design of the nuclear installation should be within acceptable tolerances and the likelihood of accidents should be sufficiently low. Such safety targets must be enforced throughout each phase of the lifecycle of the nuclear installation, including design, site selection, manufacturing, construction, commissioning, operation and termination as well as the transportation of radioactive substances in connection with such activities and radioactive waste management.

Section 7 of the Atomic Energy Act provides that the release of radioactive materials into the environment must be prevented by the application of defence in depth in nuclear installations, and it must be ensured that failures or the combination of failures resulting in accidents resulting in significant radioactive material discharges may only occur with adequately low probability. Defence in depth ensures that possible human errors or technical failures are offset; the efficiency of nested barriers is maintained; and that the population and the environment are protected if the efficiency of the barriers decreased. Five levels of defence in depth:

- a) prevention of deviations from normal operating conditions and malfunctions;
- b) detection of abnormal operating conditions and prevention of expected operational incidents from becoming design breakdowns;
- c) handling of design basis breakdowns as planned;
- d) stopping of beyond design basis breakdown and accident processes and mitigation of their consequences;
- e) in the case of a significant release of radioactive materials, mitigation of the radiological consequences.

Most important components of the defence-in-depth protection of nuclear installations:

- a) design solutions applying sufficient safety reserves (including the selection of an appropriate site, diversity and redundancy, as well as the application of time-tested, highly reliable technologies and materials), and establishment and operation to a high standard;
- b) application of regulatory, restrictive and protection systems and assessment and monitoring solutions as well as operation-regulating documents;
- c) safety systems, breakdown recovery instructions and trainings, which ensure the handling of design basis incidents;
- d) application of supplementary measures, means and instruments, and accident management guidelines as well as organisation of drills; and
- e) preparation for carrying out on-site and off-site accident response activities.

Volumes 3 and 3/A of the NSC set out design requirements respectively for nuclear power plant units and new nuclear power plant units. Section 3.4.6.0200 provides that, in the DEC2 to DEC4 plant states, the release of radioactive materials must be limited both in time and quantity in order to ensure that sufficient time is available for introducing population protection measures, if necessary, and the long-term contamination of large areas can be avoided. Section 3a.2.2.7000 provides that, for the extension of the design basis, the accident management functions and the capabilities of the systems performing them must be taken into account in order to ensure that the consequences of a DEC2 can be mitigated according to the criteria set for large or early releases in Section 3a.2.4.0800.

Section 36 of Gov. Decree No 118/2011 provides that, prior to the start of the commissioning of the nuclear installation, a Nuclear Response Action Plan has to be devised for the site and the installation, which has to be continuously updated. In order to prepare for the prevention and response to incidents and nuclear emergencies, the licence holder of the nuclear installation must take technical and organisational measures, draw up an Accident Response Action Plan, establish and train an accident response organisation, keeping it in a condition, where it is able and ready to be deployed, including by carrying out drills, in accordance with the provisions of the applicable legislation.

8.a (2) Member States shall ensure that the national framework requires that the objective set out in paragraph 1:

a) applies to nuclear installations for which a construction licence is granted for the first time after 14 August 2014;

Since 14 August 2014, no licence to establish a new nuclear installation has been issued in Hungary.

8.a (2)

b) is used as a reference for the timely implementation of reasonably practicable safety improvements to existing nuclear installations, including in the framework of the periodic safety reviews as defined in Article 8c(b).

On the basis of the Atomic Energy Act, the licence holder must continuously strive to improve safety, taking into account operating experience and new findings regarding safety. Gov. Decree No 118/2011 sets out the requirements in detail and specifies the methodology, processes and criteria required in order to identify and implement the reasonably attainable

safety developments in good time. Processes in order to enhance safety include:

- a) the investigation of incidents and utilisation of experiences (Chapter VI of Gov. Decree No 118/2011),
- b) review of Government Decree No 118/2011 and its Annexes on a five-year basis,
- c) periodic safety review of the nuclear installation (see the chapter under Section 8.c of this Report),
- d) extraordinary review, when a targeted review is initiated with relative urgency on the basis of a major incident before codifying the requirements in a mandatory legal document (e.g. the results of the stress test following the Fukushima accident).

Volume 3, Section 3.2.3.0700 and Volume 3a, Section 3a.2.3.0700 of the NSC provide that the design basis, the extended design basis and their substantiation must be periodically reviewed at the completion of the design, as well as during the entire lifetime of the nuclear power plant, when significant new safety information is received and based on the results of deterministic and probabilistic calculations or engineering judgement, modifications must be implemented if necessary. The identified defects and possible safety improvements must be evaluated and the necessary actions must be taken in time. According to Section 4.4.0.0700 of Volume 4 of the NSC, in order to maintain nuclear safety and to improve it if necessary, the licence holder must continuously monitor safety performance through an appropriate supervision system.

In order to ensure that safety-enhancing measures are carried out in good time, the licence holder submits a PSR setting forth the results of own audit, the factors affecting the safety of the nuclear installation and its programme of safety-enhancing measures to the nuclear safety authority. In such PSR, the factors that determine the operating risks of the nuclear installation have to be shown in comparison with the updated FSR as well as the Hungarian requirements in force and international good practice; based on its results, where appropriate, a programme must be drawn up and implemented in order to carry out safety-enhancing measures to eliminate or reduce the risk factors identified. The authority, separately evaluates each action plan, reviewing the implementation schedule where appropriate. With regard to the performance of duties, the time requirements of the implementation and the expected efficiency of the improvement are of crucial importance. Conversions subject to an administrative permit (i.e. conversions affecting nuclear safety) are carried out according to the rules provided for in Gov. Decree No 118/2011, i.e. licensing procedure, review related to the conversion, evaluation and, where appropriate, validation. The performance of conversions not subject to an administrative permit are reviewed and assessed by the authority in accordance with the rules provided for in the Decree referred to above. The review may be carried out during an on-site activity (a construction phase) or by the review of documents or by assessing the periodic progress reports submitted by the licence holder.

For specific examples of the implementation of reasonably attainable safety improvements, see Section 8c(b).

SECTION 8b. IMPLEMENTATION OF THE NUCLEAR SAFETY OBJECTIVE FOR NUCLEAR INSTALLATIONS

8b(1) In order to achieve the nuclear safety objective set out in Article 8a, Member States shall ensure that the national framework requires that where defence-in-depth applies, it shall be applied to ensure that:

- a) the impact of extreme external natural and unintended man-made hazards is minimised;*
- b) abnormal operation and failures are prevented;*
- c) abnormal operation is controlled and failures are detected;*
- d) accidents within the design basis are controlled;*
- e) severe conditions are controlled, including prevention of accidents progression and mitigation of the consequences of severe accidents;*
- f) organisational structures according to Article 8d(1) are in place.*

Gov. Decree No 118/2011 provides that the release of radioactive materials into the environment must be prevented by the application of defence in depth in nuclear installations, and it must be ensured that failures or the combination of failures resulting in accidents resulting in significant radioactive material discharges may only occur with adequately low probability.

Under that piece of legislation, defence in depth ensures that possible human errors or technical failures are offset, the efficiency of nested barriers is maintained, and that the population and the environment are protected if the efficiency of the barriers decreased.

Moreover, in order to maintain defence in depth, the licence holder operates an efficient management system in accordance with the rules specified in Volume 2 of the NSC, and its management is firmly committed to nuclear safety and to maintaining a strong safety culture. Such regulation provides that the principle of defence in depth, multilayer protection must be applied to all safety-related activities in order to ensure that any error can be offset or remedied and the development of more severe emergencies can be prevented (Section 7(1) to (5) of Gov. Decree No 118/2011).

In addition to the above, specific supplementary systems and system components must be developed for the public and the operating personnel in order to mitigate the consequences of incidents and accidents beyond the design basis breakdowns.

Sections 3.2.1.1500 and 1600 of Volume 3 of the NSC provide that the release of radioactive materials into the environment must be prevented by the application of defence in depth in nuclear installations, and it must be ensured that failures or the combination of failures resulting in accidents resulting in significant radioactive material discharges may only occur with adequately low probability.

Defence in depth ensures that:

- a) possible human errors or technical failures are offset;
- b) the efficiency of nested barriers is maintained; and
- c) the population and the environment are protected if the efficiency of the barriers decreased.

Five levels of defence in depth:

- a) prevention of deviations from normal operating conditions and malfunctions;
- b) detection of abnormal operating conditions and prevention of expected operational incidents from becoming design breakdowns;
- c) handling of design basis breakdowns as planned;
- d) stopping of beyond basis breakdown and accident processes and mitigation of their consequences;
- e) in the case of a significant release of radioactive materials, mitigation of the radiological consequences.

Most important components of the defence-in-depth protection of nuclear installations:

- a) design solutions applying sufficient safety reserves (including the selection of an appropriate site, diversity and redundancy, as well as the application of time-tested, highly reliable technologies and materials), and establishment and operation to a high standard;
- b) application of regulatory, restrictive and protection systems and assessment and monitoring solutions as well as operation-regulating documents;
- c) safety systems, breakdown recovery instructions and trainings, which ensure the handling of design basis incidents;
- d) application of supplementary measures, means and instruments, and accident management guidelines as well as organisation of drills; and
- e) preparation for carrying out on-site and off-site accident response activities.

During design, multiple physical barriers have to be applied to prevent the uncontrolled release of radioactive materials into the environment. It has to be ensured with independent defence barriers that possible failures and abnormal operation can be detected, offset and managed.

The protection of the barriers has to be ensured. Design solutions have to be provided to ensure the fulfilment of the safety functions and safety criteria even if a level of protection is damaged (Sections 3.2.1.1500 and 1600 of the NSC).

The units of the Paks Nuclear Power Plant were designed according to Soviet standards. The design bases were based on strictly conservative engineering practices.

The essence of the safety requirements taken into consideration in designing the Paks Nuclear Power Plant units is that, during normal operation and the potential operational events, the first three physical barriers (the pressure limit of the fuel tablets, the fuel rods shell and the reactor cooling circuit) cannot get damaged (and thus the fourth barrier, containment, which would prevent the release of radioactive substances is irrelevant in that respect). In the event of potential breakdowns, which were used for the calibration of the power plant yet whose occurrence is largely improbable, the fuel tablets should not get damaged or melt. However, (to a limited extent) the fuel rods shell and the hermetic seal of the primary circuit may be damaged, at which point the containment function may gain importance. The size of the power plant was designed so as to ensure that the quantity of radioactive substances released to the environment as a result of a potential breakdown and the radiation exposure to workers should not exceed the relevant health requirements. The original design principles of the units

did not directly include the management of breakdowns and accidents of a very low probability yet more serious than design breakdowns.

The constituents of the defence in depth principle were implemented at the power plant in accordance with the requirements of Soviet standards.

Such requirements have since been significantly upgraded, while the Hungarian regulations have also been updated by adopting international requirements. In order to achieve conformity with Article 2 of the Vienna Declaration, whenever a new legislation is adopted, the licence holder comprehensively and systematically reviews compliance with the new requirements, initiating safety-enhancing measures where appropriate.

Based on the lessons learned from deterministic breakdown analyses and probability safety analyses conducted and the analyses of (1st and 2nd-level PSA) and major accidents, proposals for safety-enhancing conversions and additional complex analyses have been put forward.

In accordance with Article 2 of the Vienna Declaration, safety analyses are subjected to a comprehensive and systematic review within the framework of the PSR, whose results are also used for safety-enhancing conversions. As a result of the measures completed, the safety of the units has further improved. In accordance with the HAEA's requirements, the extension of the originally scheduled service life of the units may not be authorised unless all planned safety-enhancing measures, including the measures and conversions for the management of potential major accidents are completed. In 2014, the required safety-enhancing measures and measures for the management of major accidents were completed in units 1 to 4 of the Paks Nuclear Power Plant, *as a result of which each of the four units may keep functioning for an additional period of 20 years.*

8b(2) In order to achieve the nuclear safety objective set out in Article 8a, Member States shall ensure that the national framework requires that the competent regulatory authority and the licence holder take measures to promote and enhance an effective nuclear safety culture. Those measures include in particular:

Section 4/A(b) of the Atomic Energy Act provides that both safety supervisory bodies and organisations engaged in activities involving risk must establish and maintain a management committed to the fundamental safety objective and an effective management system.

On the basis of Section 11(2) of the Atomic Energy Act, any activity involving nuclear installations, their nuclear systems and system components, radioactive waste repositories and their systems and system components must only be carried out by institutions, organisations and businesses having implemented appropriate quality management systems subject to nuclear safety regulations.

Chapter 2.2.2 of Volume 2 of the NSC sets out detailed rules for the promotion of safety culture within the licence holders' organisation. Section 2.2.2.0100 provides that the management of the licence-holder organisation and the supplier organisations must consistently and explicitly expect and support the attitude required for a strong safety culture

at all levels, and must ensure that workers recognise and understand all crucial considerations and requirements of safety culture. This must be done, among other things, by not encouraging excessive self-confidence, and by fostering an open culture of reporting and questioning, to prevent activities and situations from arising that are unfavourable in safety terms.

Section 2.2.2.0200 of Volume 2 of the NSC provides that the management system must ensure the means required for the systematic development and support of an attitude resulting in a strong safety culture. The suitability and effectiveness of the instruments used to develop and support the safety culture must be checked at regular intervals in the course of self-assessments and reviews of the management system. Section 2.2.2.0300 ensures that such requirements are also met by the suppliers and subcontractors.

Guideline 2.18 'Assessment of the safety culture and the utilisation of results in nuclear installations'⁹, a document drawn up and made available publicly by the HAEA sets out further details for the activities and requirements for the systematic improvement of safety culture.

Inspections related to safety culture are also included in the annual inspection schedule of the HAEA. Moreover, in the annual reports of the licence holders, a separate chapter is devoted to the safety culture of the installation and the activities carried out in the field during the year concerned; the reports are assessed by the HAEA.

With regard to the authority, in order to put the requirement into practice, in 2002, the HAEA developed and implemented its management system on the basis of Gov. Decision No 1057/2001 of 21 June 2001 on the governmental action plan of the development of public administration for the period 2001/2002. The management system includes the internal rules of procedure for *assessing and evaluating the HAEA's safety culture*, on the basis of which the HAEA has assessed the level of the safety culture. The management system includes the document entitled 'Safety Policy and Code of Conduct of the Hungarian Atomic Energy Authority', which gives sufficient priority to the safety culture. The 2018 IAEA follow-up IRRS mission also established that 'the HAEA has implemented the requirements of relevant IAEA safety standards related to promoting and supporting a strong safety culture, managing organisational changes and application of graded approach in its management system'¹⁰.

8b (2)(a) management systems which give due priority to nuclear safety and promote, at all levels of staff and management, the ability to question the effective delivery of relevant safety principles and practices, and to report in a timely manner on safety issues, in accordance with Article 6(d);

For the licence holder's management system, see Sections 6(d) and 8b(2). For the authority, Section 1(4) of Gov. Decree No 112/2011 of 4 July 2011 provides that, on the basis of its obligations related to the safe uses of nuclear energy, the HAEA must establish and maintain

⁹ [http://www.oah.hu/web/v3/OAHPortal.nsf/ACA1_C323EB58E62DC1257BE9002CD900/\\$File/2.18v1.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/ACA1_C323EB58E62DC1257BE9002CD900/$File/2.18v1.pdf)

¹⁰ [http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/\\$FILE/IRRS%20követő%20misszió%20jelentése magyar lektorált.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/$FILE/IRRS%20követő%20misszió%20jelentése magyar lektorált.pdf)

an efficient management system, under which it must, with a view to attaining the fundamental safety objective set out in the Atomic Energy Act, adopt measures that promote an attitude of asking questions and learning at all levels of the organisation.

Moreover, the Safety Policy of the HAEA provides that *'All HAEA government officials carrying out an administrative function is aware of the important mission fulfilled in order to attain the fundamental objective of ensuring that the installations for the peaceful uses of nuclear energy and, in particular, the ionising radiation generated in such installations should not pose a threat to people, the environment and users of nuclear energy.'* The priority given to safety is present in all processes of the authority's activity and at all levels of the management system.

In the HAEA's Integrated Management Manual, on the basis of the Management Declaration, the Director General supports and requires a process-oriented and risk-based mentality in the establishment, supervision and improvement of processes, supports and requires continuous development and motivates the staff to take an active role in the integrated management system. Moreover, it provides that the HAEA management relies on efficient verbal communication and an efficient horizontal and vertical exchange of information between the management and the staff. The management emphasises the importance of the flow of information in both directions, with particular regard to vertical relations. The activity of the HAEA is based on the autonomous and responsible involvement of staff members in their competence, free of external influence. The HAEA management encourages staff members to form an opinion on the HAEA's activities and to openly express their observations and proposals regarding the quality of work.

8b(2)(b) arrangements by the licence holder to register, evaluate and document internal and external safety significant operating experience;

Section 10(3) of the Atomic Energy Act provides that the licence holder must continuously strive to improve safety, taking into account its operating experience and new safety findings. In addition to the above, taking into consideration the operating experience and new safety-related information, the licence holder must, as part of the PSR, carry out a comprehensive analysis and assessment of the nuclear safety of nuclear installations and compliance with the nuclear safety requirements.

Section 8(4) of Gov. Decree No 118/2011 of 11 July 2011 provides that the licence holder, taking into consideration both internal and external design, construction, commissioning operational experience and any new knowledge of nuclear safety relevance, must continuously improve the level of nuclear safety, and must include the commitment towards that in the safety policy. Section 14(2) provides that the licence holder must ensure regular, continuous collection, analysis and assessment of experience regarding construction, commissioning and operation of the nuclear installation, in order to maintain and improve the safety level of the nuclear installation, and to substantiate the decommissioning plan. Section 14(3) provides that the licence holder must perform regular, repeated inspections of the nuclear installation in accordance with the legal provisions and regulatory requirements throughout the lifetime of the nuclear installation, taking into consideration the operational events which had occurred, experiences and all the most recent, relevant information originating from external sources.

Volume 4, Section 4.14 of the NSC sets out detailed provisions for the arrangements by the licence holder to register, evaluate and document operational experiences relevant to safety, including both own experiences and experiences shared by others.

8b(2)(c) the obligation of the licence holder to report events with a potential impact on nuclear safety to the competent regulatory authority; and,

Section 45(1) of the Atomic Energy Act provides that a user of nuclear energy must report, in accordance with regulatory requirements, all abnormal events without delay to the mayor with jurisdiction over the area, the competent health state administration office, in the case of organisations under Section 26(1), to the military state health administration body, the police and the atomic energy oversight organisation, and furthermore if the environment is contaminated, to the environmental protection authority and the foodstuff chain oversight organisation, in the case of agricultural land becoming contaminated, to the county soil protection authority, in the case of water becoming contaminated to the water affairs regulatory organisation, as well as for information, to the organisations designated on the basis of separate legal regulations for nuclear emergency response.

Under Section 45(3) of the Atomic Energy Act, in the case of a nuclear installation or radioactive waste repository, in addition to the provisions in paragraph (1), the reporting obligations must be determined by the atomic energy oversight organisation considering all the circumstances justifying the necessity of reporting.

Volume 1, Section 1.7 of the NSC sets out detailed rules for compliance with the reporting obligation.

Volume 1, Section 1.7.1.0100 of the NSC provides that in order to provide socially monitored use of atomic energy, the licence holder must prepare regular reports regarding nuclear safety related activities in each lifecycle phase of the nuclear installation, ad hoc reports regarding safety-related events, reports assigned to condition during the construction of the nuclear installation and submit such reports to the nuclear safety authority. On the basis of Section 1.7.1.0500, the licence holder must establish and regulate, in its internal rules of procedure, the process of operating the reporting system. It must organise and, by means of the appropriate method, assess the data and information included in its reports, and where the assessment reveals any deficiency, it must formulate corrective actions.

8b(2)(d) arrangements for education and training, in accordance with Article 7.

For the requirements and the practical implementation of educational and training requirements, see the summary under Section 7.

ARTICLE 8c INITIAL ASSESSMENT AND PERIODIC SAFETY REVIEWS

Article 8c

Member States shall ensure that the national framework requires that:

a) any grant of a licence to construct a nuclear installation or operate a nuclear installation, is based upon an appropriate site and installation-specific assessment, comprising a nuclear safety demonstration with respect to the national nuclear safety requirements based on the

objective set in Article 8a;

The details of the national framework system regarding licensing are set out in Section 1(c). Section 17(2)(a) of the Atomic Energy Act lists the nuclear safety licensing required for the site survey and assessment, site characterisation and evaluation of suitability of nuclear installations as part of the HAEA's competence. According to Section 17(1) of Gov. Decree No 118/2011, a nuclear safety authority licence is required for the survey and assessment of the site of the nuclear installation and the determination of the suitability of the site and its characteristics. Volume 1 of the NSC divides the site licensing process into two separate procedures. Volume 7 of the NSC sets out the requirements concerning site survey and assessment and substantiating the site licence. The regulatory standards concerning the design and construction of new nuclear installations are set out in Volumes 3a and 9. The regulatory standards ensure that the potential consequences of accidents are alleviated and early and high-volume radioactive releases are prevented.

Volume 3a, Section 3a.2.3.2700 of the NSC provides that a Safety Analysis Report must be prepared for the substantiation of the regulatory licensing procedures prior to the construction, commissioning and operation of a nuclear power plant unit, in which the information regarding the demonstration of the fulfilment of the requirements for the construction, commissioning and operation of the nuclear power plant must be included in an integrated system. The Safety Analysis Report must include a safety analysis, in which risks are assessed through methods of deterministic and probability analysis.

Article 8c(b) the licence holder under the regulatory control of the competent regulatory authority, re-assesses systematically and regularly, at least every 10 years, the safety of the nuclear installation as laid down in Article 6(c). That safety reassessment aims at ensuring compliance with the current design basis and identifies further safety improvements by taking into account ageing issues, operational experience, most recent research results and developments in international standards, using as a reference the objective set in Article 8a.

In the case of nuclear installations, the implementation of the PSR is provided for by Section 9(3) of the Atomic Energy Act. The method of its implementation is provided for by Section 34 of Gov. Decree No 118/2011 and Section 1.7.3 of Volume 1 of the NSC. The substantive requirements of carrying out the PSR and the areas and topics to be reviewed as part of the PSR are specified in Sections 1.7.3.0300 to 0900, 1.7.4.0300 and 4.6.2.0700, 4.15.0.0100(b) and 8.2.2.0600 of the NSC and Section 6(3) of Gov. Decree No 246/2011 of 24 November 2011 on the safety zone of nuclear installations and radioactive waste repositories.

The licence holders are obliged to perform their own internal review one year before the deadline set for the performance of the review and to submit a PSR on its results to the HAEA. As part of the review, the HAEA analyses and evaluates the technological and safety level of the operated nuclear installation on the basis of the report of the licence holder, and compares it with the state-of-the-art international technology and safety levels known at the given point of time. It assesses whether the risk resulting from the difference can be tolerated during the next 10-year operating cycle and the way the operation of the installation compares to

established international good practices. The HAEA closes the assessment with a decision, in which, if necessary, it may restrict further operation; alternatively, it may order the implementation of corrective measures to enhance safety in order to reduce the above-mentioned risk. The safety review is conducted under regulated conditions; the HAEA reviews the corrective measures required and authorises the modifications required for the implementation of the measures.

The HAEA issues a guideline for each PSR, in which it lays down the objectives, the principles of implementation, the applicable legislation, the technical background for the review and the governing documents.

In the case of the Paks Nuclear Power Plant, the latest PSR was carried out in 2017 and 2018, for all 4 units at the same time; 73 safety-enhancing measures were ordered in the decision on approval. 70 % of the measures ordered are of an administrative nature, such as the review of safety analyses, the integration of new processes into the management system and the updating of quality documentations. Measures calling for technical modifications and conversions were mostly the result of the lack of conformity of the environmental resistance of electric and control equipment and the management of the ageing of buildings and mechanical installations. Additional tasks included reception renovation works as part of physical protection and reconstruction works resulting from the technical obsolescence of radiation protection monitoring systems.

The third PSR of the Training Reactor was carried out in 2016 and 2017, the second PSR of the ISFS was carried out in 2015 and 2016, whereas the second PSR of the Budapest Research Reactor was carried out in 2012 and 2013.

Article 8d ON-SITE EMERGENCY PREPAREDNESS AND RESPONSE

8d(1) Without prejudice to the provisions of the Directive 2013/59/Euratom, Member States shall ensure that the national framework requires that an organisational structure for on-site emergency preparedness and response is established with a clear allocation of responsibilities and coordination between the licence holder, and competent authorities and organisations, taking into account all phases of an emergency.

Sections 42 to 47 of the Atomic Energy Act provide for the accident response duties of the licence holder and the competent authority and the division of responsibility. Under Section 43(2) of the Atomic Energy Act, in order to prevent the occurrence of a nuclear emergency situation, to respond to or mitigate the consequences of an event that has occurred, as well as to restore the prescribed regular circumstances, the user of atomic energy is obliged to: elaborate a nuclear emergency preparedness and response plan and have it approved by the competent authorities; establish the personal, material and organisational conditions for efficient nuclear emergency response and to regularly verify that such conditions are met; ensure the conditions required for external assistance necessary for nuclear emergency response (nature, extent and method of such assistance) in agreement with the competent authorities and organisations.

Under Section 44 of the Atomic Energy Act, measures that exceed the capabilities of the user of atomic energy must be planned in the National Nuclear Accident Response Plan. Under

Section 3 of Gov. Decree No 167/2010 of 11 May 2010 on the National Nuclear Accident Response System, which was issued as the implementing decree of the Atomic Energy Act, as part of the central emergency response plan, the detailed criteria and conditions and the rules of operation of the National Nuclear Accident Response System are set out in the National Action Plan for Nuclear Accident Response (NAPNAR).

In the meaning of Sections 4.12.1.0200, 5.3.17.0500 and 6.3.20.0500 of the NSC, the licence holder must ensure that the installation's accident response action plan should be in agreement with the relevant national, regional and local accident response plans.

The organisation of the national disaster management system, the duties of the ministers and government bodies involved in disaster management in connection with prevention, preparation and protection and the duties of the disaster management government coordination body are provided for by Act CXXVIII of 2011 on disaster management and amending certain related acts and its implementing decree, Gov. Decree No 234/2011 of 10 November 2011 implementing Act CXXVIII of 2011 on disaster management and amending certain related acts and Gov. Decision No 1150/2012 of 15 May 2012 establishing the Inter-Ministry Committee for Disaster Management Coordination and setting out the rules for its organisation and operation. Such framework system ensures that functions are clearly separated and coordination takes place between the licence holders and the competent authorities and other bodies, taking into consideration each phase of emergencies.

(2) Member States shall ensure that there is consistency and continuity between the on-site emergency preparedness and response arrangements required by the national framework and other emergency preparedness and response arrangements required under Directive 2013/59/Euratom.

The provisions of Council Directive 2013/59/Euratom were transposed into the Hungarian legislative environment through Gov. Decree No 165/2003 of 18 October 2003 laying down rules for the information to the public in the event of nuclear and radiological emergencies and Gov. Decree No 286/2017 of 22 September 2017 amending Gov. Decree No 167/2010 of 11 May 2010 on the national nuclear accident emergency system. The NAPNAR drawn up on the basis of Gov. Decree No 167/2010 specifies radiation protection levels, general criteria and derived action levels and provides a framework for the defence strategy.

ARTICLE 8e PEER REVIEWS

Article 8e

(1) Member States shall, at least once every 10 years, arrange for periodic self-assessments of their national framework and competent regulatory authorities and invite an international peer review of relevant segments of their national framework and competent regulatory authorities with the aim of continuously improving nuclear safety. Outcomes of such peer reviews shall be reported to the Member States and the Commission, when available.

Hungary fulfilled its international peer review obligation through the IAEA's IRRS mission in 2015, whose follow-up mission took place in 2018. A report on the IRRS mission was submitted

by Hungary to the Commission and the Member States at the 12 February 2020 meeting of the Working Party on Atomic Questions of the Council of the European Union. The report on the IRRS mission¹¹ and the follow-up mission¹² is available in Hungarian and English on the website of the Hungarian Atomic Energy Authority and in English on the IAEA website¹³.

Article 8e

(2) Member States shall ensure that, on a coordinated basis:

- a) a national assessment is performed, based on a specific topic related to nuclear safety of the relevant nuclear installations on their territory;*
- b) all other Member States, and the Commission as observer, are invited to peer review the national assessment referred to in point (a);*
- c) appropriate follow-up measures are taken of relevant findings resulting from the peer review process;*
- d) relevant reports are published on the above mentioned process and its main outcome when results are available.*

Hungary is committed to participating in the EU Thematic Peer Review; Section 1(1)(o) of Gov. Decree No 112/2011 of 4 July 2011 ensures that it participates in the peer review process under the HAEA's coordination. Having taken part in the first European Thematic Peer Review, Hungary submitted its reports to the ENSREG by the deadline specified and published them on the HAEA website.

The Hungarian National Report is available on the ENSREG website at: <http://www.ensreg.eu/country-specific-reports/EU-Member-States/Hungary>

The Hungarian National Action Plan is available on the ENSREG website at: <http://www.ensreg.eu/tpr-national-action-plans/EU-Member-States/Hungary>

¹¹ [http://www.haea.gov.hu/web/v3/oahportal.nsf/477910BF43AFCEAFC1257F2000212A5E/\\$File/IRRS_magyar.pdf](http://www.haea.gov.hu/web/v3/oahportal.nsf/477910BF43AFCEAFC1257F2000212A5E/$File/IRRS_magyar.pdf)

¹² [http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/\\$FILE/IRRS%20k%C3%B6vet%C5%91%20misszi%C3%B3%20jelent%C3%A9se%20magyar%20lektor%C3%A1lt.pdf](http://www.oah.hu/web/v3/OAHPortal.nsf/35D3E2962884A1A6C12583CC00313A1B/$FILE/IRRS%20k%C3%B6vet%C5%91%20misszi%C3%B3%20jelent%C3%A9se%20magyar%20lektor%C3%A1lt.pdf)

¹³ https://www.iaea.org/sites/default/files/documents/review-missions/final_irrs_report_hungary.pdf

https://www.iaea.org/sites/default/files/documents/review-missions/irrs_follow-up_report_hungary.pdf

Annex 1: List of major legislation and international agreements

Decree Law No 12 of 1970	Treaty on the Non-Proliferation of Nuclear Weapons adopted on 12 June 1968 at Session XXII of the General Assembly of the United Nations
Decree Law No 9 of 1972	Agreement between the People's Republic of Hungary and the International Atomic Energy Agency for the application of safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons, signed in Vienna, 6 March 1972 ¹⁴
Decree Law No 8 of 1987	Convention on the Physical Protection of Nuclear Material
Act CXVI of 1996	on Atomic Energy
Act I of 1997	on the promulgation of the Convention on Nuclear Safety adopted in Vienna on 20 September 1994 under the auspices of the International Atomic Energy Agency
Act LXXVI of 2001	on the promulgation of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management under the auspices of the International Atomic Energy Agency
Act LXXVI of 2006	Vilnius Protocol of 3 June 1999 amending the Convention concerning International Carriage by Rail (COTIF), adopted in Bern, 9 May 1980
Act LXXXII of 2006	on the promulgation of the safeguards agreement and protocol on the implementation of Article III(1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons, and on the Additional Protocol to the Agreement
Act XX of 2007	on the promulgation of the International Convention for the Suppression of Acts of Nuclear Terrorism
Act LXII of 2008	on the promulgation of the amendment to the Convention on the Physical Protection of Nuclear Materials, adopted by the International Atomic Energy Agency (IAEA) in 1979 and promulgated in Decree Law No 8 of 1987, signed on 8 July 2005 at the diplomatic conference organised by the IAEA

¹⁴ Its application has been suspended since 1 July 2007 on the basis of Section 6(1) of Act LXXXII of 2006

Act CLV of 2009	on the protection of classified data
Act XLIII of 2010	on central administrative bodies and on the legal status of members of Government and secretaries of State
Act LXXX of 2011	Appendix C to the Vilnius Protocol of 3 June 1999 amending the Convention concerning International Carriage by Rail (COTIF), including 2011 amendments and supplements ¹⁵
Act CXXVIII of 2011	on disaster management and amending certain related acts
Act CXCV of 2011	on public finances
Act I of 2012	on the Labour Code
Act C of 2012	on the Criminal Code
Act CCVI of 2012	Agreement between the Government of Hungary, the Ministerial Cabinet of Ukraine and the Government of the Russian Federation on the transport of nuclear material between Hungary and the Russian Federation through the territory of Ukraine
Act VII of 2015	on the project related to maintaining the capacity of the Paks Nuclear Power Plant and amending certain related laws
Act LXXXIX of 2015	proclaiming Annexes A and B to the European Agreement concerning the International Carriage of Dangerous Goods by Road and on certain issues of its application in Hungary
Act LXXXI of 2016	amending certain laws on energy
Act CL of 2016	laying down general rules for administrative
Act I of 2017	on the Code of Administrative Procedure
Act L of 2017	amending certain acts in connection with the entry into force of the Act laying down general rules for administrative procedure and on the Code of Administrative Procedure
Act LXXV of 2017	amending laws on energy
Act CCVIII of 2017	amending the laws on energy and certain related laws
Act CXXV of 2018	on government administration

¹⁵ Annex 1 was repealed by Section 7(a) of Act CIX of 2013.

Decree No 28/1987 of 9 August 1987 of the Council of Ministers	Convention on Early Notification of a Nuclear Accident, signed in Vienna, 26 September 1986
Decree No 29/1987 of 9 August 1987 of the Council of Ministers	Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency, signed in Vienna, 26 September 1986
Decree No 93/1989 of 22 August 1989 of the Council of Ministers	Revised Supplementary Agreement concerning the Provision of Technical Assistance by the IAEA, entered into between the Government of the People's Republic of Hungary and the International Atomic Energy Agency on 12 June 1989
Decree No 24/1990 of 7 February 1990 of the Council of Ministers	proclaiming the Vienna Convention on Civil Liability for Nuclear Damage of 21 May 1963
Gov. Decree No 314/2005 of 25 December 2005	on the environmental impact assessment and the uniform environment use authorisation
Gov. Decree No 148/1999 of 13 October 1999	proclaiming the Convention on Environmental Impact Assessment in a Transboundary Context, signed in Espoo, Finland on 26 February 1991
Gov. Decree No 165/2003 of 18 October 2003	on the rules for information to the public in nuclear and radiological emergencies
Gov. Decree No 179/2008 of 5 July 2008	proclaiming the Agreement between the Government of the Republic of Hungary and the Government of the United States of America on supporting and financing the reshipment of spent research reactor fuel to the Russian Federation
Gov. Decree No 204/2008 of 19 August 2008	proclaiming the Agreement between the Government of the Republic of Hungary and the Government of the Russian Federation on cooperation on the transfer of spent research reactor fuel to the Russian Federation
Gov. Decree No 34/2009 of 20 February 2009	authorising the cross-border transfer of radioactive wastes and spent fuel

Gov. Decree No 167/2010 of 11 May 2010	on the national nuclear accident response system
Gov. Decree No 112/2011 of 4 July 2011	on the nuclear energy tasks of the Hungarian Atomic Energy Authority in connection with European Union and international obligations, on designation of specialised departments cooperating on Hungarian Atomic Energy Authority administrative procedures, on the size of penalties that may be imposed and on the scientific council assisting the work of the Hungarian Atomic Energy Authority
Gov. Decree No 118/2011 of 11 July 2011	on the nuclear safety requirements of nuclear installations and the related administrative activities
Gov. Decree No 190/2011 of 19 September 2011	on physical protection in connection with the use of nuclear energy and the related licensing, reporting and control system
Gov. Decree No 234/2011 of 10 November 2011	implementing Act CXXVIII of 2011 on disaster management and amending certain related acts
Gov. Decree No 246/2011 of 24 November 2011	on the safety zone of nuclear installations and radioactive waste repositories
Gov. Decree No 247/2011 of 25 November 2011	on the independent technical expert in the use of nuclear energy
Gov. Decree No 368/2011 of 31 December	implementing the Act on public finances
Gov. Decree No 4/2013 of 11 January 2013	on the accounting of public finances
Gov. Decree No 213/2013 of 21 June 2013	on the Central Nuclear Fund Expert Committee
Gov. Decree No 214/2013 of 21 June 2013	laying down rules for financing from the Central Nuclear Fund for municipal associations for control and information purposes
Gov. Decree No 215/2013 of 21 June 2013	on the designation and activity of the body carrying out certain duties related to radioactive wastes and spent fuel and the financing of such activity
Gov. Decree No 155/2014 of 30 June 2014	on the safety requirements of installations for the interim storage or final disposal of radioactive wastes and the associated administrative activities
Gov. Decree No 487/2015 of 30 December 2015	on protection against ionising radiation and the related licensing, reporting and inspection system

Gov. Decree No 489/2015 of 30 December 2015	on the rules for monitoring the environmental radiological situation determining people's exposure to radiation of natural and artificial origin and the volumes whose measurement is mandatory
Gov. Decree No 490/2015 of 30 December 2015	on measures following the notification of missing, found and seized nuclear and other radioactive substances
Gov. Decree No 357/2014 of 29 December 2014	amending Gov. Decree No 118/2011 of 11 July 2011 on the nuclear safety requirements of nuclear installations and the related administrative activities and Gov. Decree No 190/2011 of 19 September 2011 on physical protection in the use of nuclear energy and the related licensing, reporting and control system
Gov. Decree No 184/2016 of 13 July 2016	laying down detailed rules for the certification and registration of fitness for working as a technical expert, designer, technical inspector and responsible technical manager in connection with buildings and installations subject to the law on nuclear energy and rules governing the information to be included in the register
Gov. Decree No 385/2016 of 2 December 2016	on the performance of the public health duties of the Budapest and county government offices and district offices and the designation of the health administration body
Gov. Decree No 179/2017 of 5 July 2017	promulgating the Annex to Appendix C of the Convention concerning International Carriage by Rail (COTIF) amended by the Vilnius Protocol of 3 June 1999 and on certain aspects of its application in Hungary
Gov. Decree No 489/2017 of 29 December 2017	laying down general and specific rules for fire safety administrative procedures
Gov. Decree No 532/2017 of 29 December 2017	laying down supplementary procedural rules for the air transport authority
Gov. Decree No 94/2018 of 22 May 2018	on the duties and competencies of members of
Decree No 16/2000 of 8 June 2000 of the Minister for Health	implementing certain provisions of Act CXVI of 1996 on Atomic Energy

Decree No 15/2001 of 6 June 2001 of the Minister of Environmental Protection	on radioactive releases to the air and water during the use of nuclear energy and the monitoring of such releases
Decree No 7/2007 of 6 March 2007 of the Minister for Justice and Law Enforcement	laying down rules for the registration and monitoring of nuclear substances
Decree No 47/2012 of 4 October 2012 of the Minister of the Interior	on police duties related to the use of nuclear energy
Decree No 55/2012 of 17 September 2012 of the Minister of National Development	on the specialised professional training and further training of workers employed in nuclear installations and the persons authorised to pursue activities related to the use of nuclear energy
Decree No 5/2015 of 27 February 2015 of the Minister of the Interior	on specific fire safety requirements related to the use of nuclear energy and the method of enforcing such requirements by the authorities
Decree No 4/2016 of 5 March 2016 of the Minister of National Development	on charges payable for certain public administration procedures and administrative services of the Hungarian Atomic Energy

Bilateral international agreements in the field of the safe uses of nuclear energy

Decree No 70/1987 of 10 December 1987 of the Council of Ministers	Agreement on questions of mutual interest in the field of nuclear installations between the Government of the Hungarian People's Republic and the Government of the Republic of Austria signed at Vienna, 29 April 1987
Decree No 34/1988 of 6 May 1988 of the Council of Ministers	Agreement between the Government of the Hungarian People's Republic and the Government of Canada for cooperation in the peaceful uses of nuclear energy signed on 27 November 1987
Gov. Decree No 73/1991 of 10 June 1991	Agreement on questions of mutual interest in the field of nuclear safety and radiation protection between the Government of the Republic of Hungary and the Government of the Federal Republic of Germany signed at Budapest, 26 September 1990
Gov. Decree No 108/1991 of 28 August 1991	Agreement on mutual notification and cooperation in the field of nuclear safety and radiation protection between the Government of the Republic of Hungary and the Government of the Czech and the Slovak Federative Republic signed at Vienna, 20 September 1990
Gov. Decree No 116/1992 of 23 July 1992	Agreement between the Government of the Republic of Hungary and the Government of the United States of America for cooperation in the peaceful uses of nuclear energy signed at Vienna, 10 June 1991
Gov. Decree No 185/1997	Agreement for early exchange of information in the event of a radiological emergency between the Government of the Republic of Hungary and the Government of the Republic of Slovenia signed at Budapest, 11 July 1995
Gov. Decree No 61/1998 of 31 March 1998	Agreement for early exchange of information in the event of a nuclear accident between the Government of the Republic of Hungary and the Government of Romania, signed at Bucharest, 26 May 1997
Gov. Decree No 108/1999 of 7 July 1999	Agreement for early exchange of information in the event of a nuclear accident and for mutual notification and cooperation in the field of nuclear safety and radiological protection between the Government of the Republic of Hungary and the Government of Ukraine signed at Budapest, 12 November 1997

Gov. Decree No 13/2000 of 11 February 2000	Agreement for early exchange of information in the event of a radiological emergency between the Government of the Republic of Hungary and the Government of the Republic of Croatia signed at Zagreb, 11 June 1999
Gov. Decree No 136/2002 of 24 June 2002	Agreement for cooperation in the peaceful uses of nuclear energy and transfers of nuclear material between the Government of the Republic of Hungary and the Government of Australia, signed at Budapest, 8 August 2001
Gov. Decree No 244/2004 of 25 August 2004	Protocol between the Government of the Republic of Hungary and the Government of the Russian Federation on the conditions of transfer of spent fuel of the Paks Nuclear Power Plant of Russian origin to the Russian Federation
Gov. Decree No 204/2008 of 19 August 2008	Agreement between the Government of the Republic of Hungary and the Government of the Russian Federation on cooperation in the field of transfer of spent fuel of the research reactor to the Russian Federation
Gov. Decree No 338/2013 of 25 September 2013	Agreement between the Government of Hungary and the Government of the Socialist Republic of Vietnam on training, research, regulatory and technical cooperation in the peaceful uses of nuclear energy
Gov. Decree No 384/2013 of 6 November 2013	Agreement between the Government of Hungary and the Government of the Republic of Korea for cooperation in the peaceful uses of nuclear energy
Act II of 2014	Agreement between the Government of Hungary and the Government of the Russian Federation for cooperation in the peaceful uses of nuclear energy
Gov. Decree No 180/2014 of 25 July 2014	Agreement between the Government of the Republic of Serbia and the Government of Hungary for the early exchange of information in the event of radiological emergency
Gov. Decree No 356/2015 of 2 December 2015	Agreement for cooperation on the peaceful uses of atomic energy between the Government of Hungary and the Government of the Kingdom of Saudi Arabia

