IMPLEMENTATION OF THE CPPNM AND ITS AMENDMENT INTO THE CZECH LEGISLATION

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Abstract

The paper aims to describe new legislation in the area of security of nuclear material and nuclear facilities in the Czech national law which is an integral part of the recodification of nuclear law in the Czech Republic. New Act No. 263/2016 Coll., Atomic Act, entered into force on 1 January 2017. This act became a comprehensive codex of public nuclear law that encompasses nuclear safety, radiation protection, radioactive waste management, shipments of nuclear materials and other radioactive sources, security of nuclear materials and nuclear facilities, radiation emergency management, radiation monitoring and non-proliferation of nuclear weapons. New Atomic Act implements all international treaties and soft-law. Main purpose of this paper is to analyze implementation (process and also the outcome of this process) of the Convention on Physical Protection of Nuclear Materials and its Amendment, which internationally came into force in 2016. Respective implementing legislation in the Czech Republic is the Atomic Act, its implementing Decree no. 361/2016 Coll., on Security of Nuclear Material and Nuclear Facility and also other legal instruments that are described in the paper.

1. INTRODUCTION

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[1] Jáchymov is a small town in the Czech Republic, right next to the northwest boarder with Germany.
[2] In April 1955, a Czechoslovakian government signed agreement with USSR on Soviet assistance in the construction of a nuclear research centre in Czechoslovakia and on the training of Czechoslovakian nuclear specialists.
[3] ČEZ Group (Czech: 'Skupina ČEZ' České Energetické Závody) is a conglomerate of 96 companies (including the parent company ČEZ, a. s.). Its core business is the generation, distribution, trade in and sales of electricity and heat, trade in and sales of natural gas, and coal extraction. ČEZ Group operates also in Bulgaria, Germany, Hungary, Poland, Romania, Slovakia and Turkey. 70 % of shares of the ČEZ, a. s. are owned by the Czech state.

o.,[4] and educational reactor VR-1 in Nuclear Faculty of the Czech Technical University. Two radioactive waste disposal facilities are operated by the state established organization Radioactive Waste Repository Authority (SÚRAO), one in Dukovany site and one nearby the city of Litoměřice.

All of these facilities and also other activities including nuclear material mean a possibility of threat to society and nuclear security. National physical protection system aims to prevent, detect and respond to, intentional malicious acts involving radioactive substances or directed against facilities or activities where such substances are used.[1] Like other respective countries, also the Czech Republic is recently facing new modern ways of threat, especially due to the significant increase of international terrorism, cyber threats, or newly developed affordable technologies that can be misused to steal nuclear material or to sabotage nuclear facilities. Especially insiders pose a significant threat to nuclear security and become an important topic and issue within both national and international community. The Czech Republic is aware of the necessity of international cooperation in this area and as a proof of that ratified the Convention on Physical Protection of Nuclear Materials (CPPNM) and its 2005 Amendment (CPPNM/A). The Czech Republic, as a successor state after the dissolution of Czechoslovakia, succeeded to the CPPNM in 1993 and accepted the CPPNM/A in 2010.[5]

Subsequently, the Czech Republic significantly strengthened its legal framework in the field of nuclear security and also nuclear safety and adopted completely new comprehensive nuclear legislation. Czech legal system is based on monism,[6] which means, that all international treaties are judicially enforceable upon ratification.[7] The CPPNM and also the CPPNM/A contain mostly provisions that oblige state parties.[8] This leads to the conclusion that the CPPNM and the CPPNM/A can be considered within the Czech legal system as non-self-executing treaties [2] and they become judicially enforceable through the implementation of national legislation. As it was already abovementioned the Czech Republic recently developed completely new legislation which deals (among other things) with physical protection of nuclear materials and nuclear facilities. One of the reasons for a new legislation was also a broader scope of application and more detailed wording of the CPPNM/A.

2. CZECH LEGISLATIVE FRAMEWORK FOR NUCLEAR SECURITY

2.1 Evolution

The Czech Republic has a well-established legislative and regulatory framework for nuclear security. In the past, physical protection was regulated by the Act no. 18/1997 Coll., on Peaceful Utilisation of Nuclear Energy and Ionizing Radiation (the Atomic Act) and the Decree no. 144/1997 Coll., on Physical Protection of Nuclear Materials and Nuclear Facilities and their Classification. This state of affairs has recently changed with the Czech national nuclear law complex recodification. This former legislation was dealing only with physical protection and there was no reference to the broader concept of nuclear security. Former legislation was also outdated concerning the implementation of the latest international treaties, international soft-law (namely recommendations of the International Atomic Energy Agency) and European legislation. [3]

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[4] The research organisation Centrum výzkumu Řež (CVŘ) was founded on 9th October 2002 as 100 % subsidiary company of ÚJV Řež, a. s. (NRI – Nuclear Research Institute). The main aim of the research organisation is research, development and innovations in the field of power generation (especially nuclear).

[5] The Czechoslovak Socialist Republic signed the convention in 1981 "subject to ratification and subject to Article 17 (2), under Article 17 (3), of the Convention" and in 1982 deposited an instrument of ratification and confirmed the above-mentioned reservation as follows: "the Czechoslovak Socialist Republic, in accordance with (3), Article 17 of the Convention, does not consider itself bound with (2) of its Article 17." In 1991, the Czech and Slovak Federal Republic deposited an instrument of withdrawal of the above-mentioned reservation.

[6] Monists accept that the internal and international legal systems form a unity. Both national legal rules and international rules that a state has accepted, for example by way of a treaty, determine whether actions are legal or illegal.

[7] Article 10 of the Constitution of the Czech Republic: „*Promulgated treaties, to the ratification of which Parliament has given its consent and by which the Czech Republic is bound, form a part of the legal order; if a treaty provides something other than that which a statute provides, the treaty shall apply*“

[8] E. g. Article 2A of CPPNM/A: „*Each State Party shall establish, implement and maintain an appropriate physical protection regime applicable to nuclear material and nuclear facilities under its jurisdiction*.“

Acceptance of the new legislation was neither unexpected nor hasty change. On the contrary, the new Atomic Act has been under preparation for a long time and the intention to adopt a new comprehensive nuclear regulation has already appeared in 2010. The Synopsis of a new act was drafted by the State Office for Nuclear Safety and sent to the interdepartmental comment procedure in 2011. The final draft has undergone through plenty of changes compared to the ideas expressed in the initial Synopsis, either due to the transposition of European Community regulations,[9] implementation of recent international documents (including also the CPPNM/A and the Nuclear security recommendations on physical protection of nuclear material and nuclear facilities - INFCIRC/225/revision 5) [4] and also as a result of comments from other governmental and non-governmental external entities.[10] Final draft was also based on ideas and discussions with numerous stakeholders (naturally including ČEZ, a. s. company). Final draft has been sent to the Czech Parliament in 2016 and came into effect after its approval and signature of the president on 1st January 2017.

2.2 Act No. 263/2016 Coll., Atomic Act.

The new Atomic Act was published in the official Collection of Laws as the Act No. 263/2016 Coll. It represents a new, comprehensive legal framework in the field of nuclear law and regulates almost all the activities connected to the peaceful utilization of nuclear energy and ionizing radiation.[11] The new Atomic Act enhances both the form and the content of the old legislation and brings a number of new features aiming to increase the level of protection against harmful effects of nuclear activities. The Atomic Act is also accompanied by a set of implementing regulations – mostly by the decrees of the State Office for Nuclear Safety, but there are also two governmental orders and two decrees of Ministry of Industry and Trade.[12] [5]

The Atomic Act governs the conditions for security of nuclear facilities, nuclear materials and newly also security of sources of ionizing radiation. The Atomic Act newly operates with the broader concept of *nuclear security*. The responsibility for the regulatory control of nuclear safety, radiation protection and nuclear security, as well as the national nuclear safeguards and NMAC system, has been vested in the State Office for Nuclear Safety. If we look at the wording of the Atomic Act, nuclear security is incorporated into numerous provisions; however the core of the matter is included in the Title IX, Articles 159 – 164.

2.3 Decree No. 361/2016 Coll., on Security of a Nuclear Facility and Nuclear Material.

This Decree was developed and issued by the State Office for Nuclear Safety and implements focal rules and obligations that are laid down in the Atomic Act.[13] Specifically, the decree defines the method of categorisation of nuclear material for the purposes of its security, the requirements for delineation, physical delimitation and detection of any violation of the guarded area, protected area, inner area or vital area,[14] and the scope of restrictions on access and entry into such areas, the organisational and technical measures to assure security of a nuclear facility and nuclear material, the requirements for the range and method of physical security of a nuclear facility and nuclear material, the range and method of physical protection of a nuclear facility and nuclear material classified as category I to III during its shipment, with regard to design basis threat,

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[9] In particular the Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom came into force in the middle of legislative works on the new atomic act.

[10] Draft of the New Atomic Act was sent to comments to the ministries, other state authorities, courts, industrial and commercial chambers, universities and NGOs…

[11] Only the part dealing with civil liability for nuclear damage remained in the former Act no. 18/1997 Coll. which is in this part still valid and into effect.

[12] Most of them can be found translated into English here https://www.sujb.cz/en/legal-framework/new-nuclear-law/

[13] In Czech legal system, all the obligations have to be explicitly enumerated in the law. Implementing legislation may contain only more detailed provisions based on these legal obligations. Article 4 of the Constitutional Act No. 1/1993 Coll., Constitution of the Czech Republic:
(4) All citizens may do that which is not prohibited by law; and nobody may be compelled to do that which is not imposed upon them by law.

[14] Vital area was newly introduced into the Czech legal system by the new Atomic Act.

and requirements for the content of documentation for the practice to be licensed in the field of the security of a nuclear facility and nuclear material.

2.4 Other legal instruments

Even though the new Atomic Act is quite complex and comprehensive nuclear legislation, nuclear security in the Czech Republic is furthermore covered by other various legislative documents. Highly important is also the Act No. 40/2009 Coll., Criminal Code which comprehensively regulates substantive criminal law, including the exclusive list of crimes and criminal liability.

Fundamental principle of confidentiality is embodied into the Act No. 412/2005 Coll., On the Protection of Classified Information and Security Eligibility. This act regulates the principles for determination of information as classified information, conditions for access to it and further requirements for its protection, principles for determination of sensitive activities[15] and conditions for their performance and related performance of the state administration.

Nuclear security in the Czech Republic is also closely connected with other areas of nuclear law that are more deeply regulated by other implementing decrees of the State Office for Nuclear Safety, for instance with the Decree No. 374/2016 Coll., On the Accountancy and Control of Nuclear Materials and Reporting of Information on Them, Decree No. 408/2016 Coll., On Management System Requirements or Decree No. 422/2016 Coll., on Radiation Protection and Security of a Radioactive Source.

3. IMPLEMENTATION OF THE CPPNM/A RULES INTO THE CZECH NATIONAL LAW

As it was aforementioned, CPPNM/A provisions are incorporated mainly into the Atomic Act and the implementing Decree No. 361/2016 Coll. The Atomic Act lays down rules for the establishment, implementation and maintenance of a physical protection regime. The State Office for Nuclear Safety, according to the Atomic Act, conducts inspections with aim to examine compliance with this act, issues decrees to implement it, fulfils commitments arising from international treaties binding on the Czech Republic and applicable to the peaceful use of nuclear energy and ionizing radiation, and issues decisions on the basis of this act (approval of documentation, issuing licences and other authorizations, imposing penalties…). The State Office for Nuclear Safety inspects licence holders and other persons where there are reasonable grounds for believing that they are breaching obligations laid down in the Atomic Act and other binding documents. If the State Office for Nuclear Safety finds a deficiency in the activities of persons performing activities related to the use of nuclear energy, it may impose, by decision, depending on the nature of the deficiency found, corrective measures or impose a fine (in the field of nuclear security up to 10 mil. CZK). This system aims to implement provisions in Article 2 and 2a of the CPPNM/A.

If we look at the definitions incorporated into the Atomic Act, they contain definitions of nuclear material and also nuclear facility. Nuclear facility is defined as a facility or plant comprising a nuclear reactor using fission chain reaction or other nuclear chain reaction, a storage facility for spent fuel, a storage facility for fresh nuclear fuel, unless part of another nuclear facility, an enrichment plant, nuclear fuel fabrication plant or spent fuel reprocessing plant, a storage facility for radioactive waste, except facilities for the storage of radioactive waste, which is part of another nuclear facility or workplace where activity involving radiation is performed and a radioactive waste disposal facility, except repositories containing exclusively natural radionuclides.[16]

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[15] List of the sensitive activities in the field of nuclear security are enumerated in the Atomic Act, article no. 162.
[16] Act no. 263/2016 Coll., Atomic Act, Article 3 (2) (e).

Nuclear material is also defined by the Atomic Act but this definition[17] is for purposes of the safeguard system (non-proliferation of nuclear weapons) and the Decree no. 361/2016 Coll. contains table of categorization of nuclear material for the physical protection purposes, which is identical to the table in Annex II of the CPPNM/A and anyone who ensures security in the Czech Republic shall classify selected nuclear materials in categories I, II or III according to this table.

New Atomic Act and its implementing legislation moreover present new features into the Czech regulatory system and institute which helps to improve physical protection regime in the country. For example, there is a completely new system for performing sensitive activities which may be performed only by a natural person holding a valid certificate of security eligibility, issued by the National Security Office. In contrary to the previous legislation, sensitive activities are connected to unaccompanied entry into a vital area, unaccompanied entry into an area where nuclear material of category I or II is located and management of this material.[18] New Atomic Act also newly regulates the security of nuclear material not classified in the categories.[19] The Decree No. 361/2016 Coll. introduces so called "two person rule", which requires the simultaneous presence of at least two physical persons authorised to access unaccompanied and with comparable knowledge of the technology in the vital or inner area. Completely new are also provisions concerning cyber-security or obligation to protect nuclear facilities against new aerial technologies (e.g. drones…).[20]

4. FUNDAMENTAL PRINCIPLES OF PHYSICAL PROTECTION OF NUCLEAR MATERIAL AND NUCLEAR FACILITIES

The CPPNM/A incorporates into the original convention list of fundamental principles of physical protection of nuclear material and nuclear facilities. These fundamental principles should be applied during implementation of the obligations in the CPPNM/A. Following list describes how these fundamental principles are implemented into the Czech national law. List is due to the extent of this article quite brief and shortened but it still gives basic outlook how these CPPNM/A fundamental principles are implemented.

The Czech Republic fulfils the principle of **Responsibility of the state** and **Legislative and regulatory framework** by establishing physical protection regime, as described in the Atomic Act, Decree No. 361/2016 Coll. and other legislation and in this case namely the Act No. 255/2012 Coll., on Inspections and the Act No. 250/2016 Coll., on the Responsibility for the Administrative Offences and the Procedure on it and also as it was described in the previous chapter. **Responsibilities during international transport** are contained in the article 160 of the Atomic Act and detailed provision dealing with domestic and also international transport of nuclear material are incorporated into the articles 24 to 27 of the Decree No. 361/2016 Coll. **Competent authority** is according to the Atomic Act the State Office for Nuclear Safety.[21]

The article 5 (6) of the Atomic Act requires, that anyone who uses nuclear energy or performs activities with nuclear material or performs activities in exposure situations shall ensure security. For activities listed in the article 9 is necessary to obtain license from the State Office for Nuclear Safety. This license cannot be

[17] Nuclear material is defined as any source material, special fissile material and other fissile material significant from a perspective of assurance of non-proliferation of nuclear weapons. Act no. 263/2016 Coll., Atomic Act, Article 2 (1) (c).
[18] Former legislation contained list of sensitive activities and this list comprised enumeration of professions which required valid certificate of security eligibility.
[19] Article 162 of the Atomic Act:
The security of nuclear material not classified in the categories referred to in § 159 shall be ensured by placing it in a locked, enclosed area and by keeping a record of any authorised access to it to ensure that it is protected against unauthorised access.
[20] Article 13 of the Decree No. 361/2016 Coll.:
The roof of the building, where the inner or vital areas are located, shall be secured with the intrusion detection system, CCTV system with recording and mechanical barriers devices to prevent landing of any means for air transport of physical persons, objects and material according to the parameters, which are included in the design basis threat.
[21] Article 199, 200, 207, 208 of the Atomic Act – State Office for Nuclear Safety shall issue licences for the performance of activities and register and receive notifications of activities, approve documentation for licensed activities, establish the design basis threat, conduct controls of compliance with the Atomic Act, dealt with offences according to the Atomic Act…

transferred to another person and all the obligations regarding the physical protection are stipulated to the license holder. Licence holders shall also act in accordance with the documentation for the licensed activity while one of the required documents to obtain licence is also the Plan of physical protection assurance. Physical protection of nuclear facilities shall be ensured during the whole life cycle of nuclear facility and at least three months prior to the commencement of loading of nuclear fuel into the nuclear reactor, in the case of nuclear facilities with a nuclear reactor, or at least two months prior to delivery of nuclear material or radioactive waste to the nuclear facility, in the case of other nuclear facilities. This is (in brief) the way, how the principle of the **Responsibility of the license holders** is implemented into the Czech national law.

Security culture is also regulated by the Atomic Act, when the persons referred to in Article 29 (1)[22] of the Atomic Act shall introduce the management system in a manner ensuring that through this system are permanently developed and regularly evaluated characteristics and attitudes of persons performing activities related to the use of nuclear energy and activities in exposure situations and of their personnel, which ensure that nuclear security are approached with a seriousness corresponding to their importance.

Nuclear facilities and nuclear materials of categories I to III shall be secured by physical protection and the method of ensuring physical protection of nuclear facilities and nuclear material shall correspond to the hazards arising from the design basis threat. It means that the **Threat** is periodically evaluated and elaborated into the Design Basis Threat, which is a legally binding document to the license holder and is established and issued (after consultation with other authorities[23]) by the State Office for Nuclear Safety. This fact entails that Czech regulatory system is based on combination of prescriptive and performance-based approach.

Graded approach stands amongst the fundamental principles in the article 5 of the Atomic Act. This article stipulates that anyone who uses nuclear energy or performs activities in exposure situations when ensuring nuclear security shall utilize a graded approach, depending on the magnitude of potential exposure and its possible consequences. The graded approach shall be commensurate to the type of the nuclear facility, the type of nuclear material and radioactive waste present in the nuclear facility and the activities carried out.

Defence in depth is defined in the Atomic Act as a method of protection based on multiple independent levels providing a graded protection against the possibility of exposure of workers and the general public, spread of ionizing radiation and release of radioactive substances into the environment. Defence in depth is explicitly mentioned in connection with the physical protection in the article 4 of the Decree No. 361/2016 Coll.

Quality assurance plans which deals also with nuclear security are according to the Atomic Act part of the management system programmes and therefore those plans are mandatory document for obtaining license. Moreover, the whole management system explicitly described in the article 29 of the Atomic Act aims to ensure and increase the level of nuclear security.

Contingency plans are vested into the Plan for dealing with the situations associated with any violation of physical protection, the Plan for dealing with the situations associated with any intentional use of transport aircraft against the delineated areas in a nuclear facility and the Plan for technical and organisation measures to deal with the situations associated with the threat of illegal action from any place outside the guarded area for nuclear facility that are compulsory parts of the Plan of physical protection assurance.

Comprehensive system for protecting **confidentiality** has been established by the Act no. 412/2005 Coll., On the Protection of Classified Information and Security Eligibility. This act is also implemented by the

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[22] Listed licence holders, persons designing nuclear installations, persons who design or manufacture selected equipment or modify such equipment, persons who prepare, manage and carry out the construction of structures and technological systems, which are part of a nuclear installation, person conducting safety assessments and person conducting site evaluation for a nuclear installation.

[23] The Ministry of the Interior, the Ministry of Defence and the Ministry of Industry and Trade.

governmental order no. 522/2005 Coll. which catalogues documents that are obligatorily confidential and that catalogue contains also documents dealing with physical protection of nuclear material and nuclear facilities.[24]

5. PUNISHABLE OFFENCES

Offences described in paragraphs (a) to (k) of Article 7 of the CPPNM/A are recognised in the Act No. 40/2009 Coll., Criminal Code which comprehensively regulates substantive criminal law e.g. jurisdiction (including principles of territoriality, personality, universality), criminal liability (including culpability, preparation and attempts), circumstances excluding criminal liability and punishments or list of crimes with appropriate punishments. Respective crimes are implemented in the following articles and embodied in the undermentioned offences of the Criminal Code.

TABLE I. IMPLEMENTATION OF OFFENCES IN CRIMINAL CODE

CPPNM/A	**Act No. 40/2009 Coll., Criminal Code**
Article 7 (1) (a)	§ 282 – Unauthorised Production and Possession of Nuclear Material § 140 – Murder § 145 – Grievous Bodily Harm § 293 - Environmental Damage and Environmental Hazard
Article 7 (1) (b)	§ 205 – Theft, § 173 – Robbery
Article 7 (1) (c)	§ 206 – Embezzlement, § 209 - Fraud
Article 7 (1) (d)	§ 282 - Unauthorised Production and Possession of Nuclear Material
Article 7 (1) (e)	§ 276 - Damage and Compromise of Operation of Publicly Beneficial Facility
Article 7 (1) (f)	§ 175 - Extortion
Article 7 (1) (g)	§ 175 - Extortion
Article 7 (1) (h)	§ 21 - Attempt
Article 7 (1) (i)	§ 20 – Preparation, § 24 - Participant
Article 7 (1) (j)	§ 20 - Preparation
Article 7 (1) (k)	§ 20 - Preparation

6. CONCLUSIONS

New legislation in the Czech Republic represented by the Atomic Act and other acts and it implementing decrees and governmental orders reacts on the recent development of the international nuclear law. The CPPNM/A was no exception and its provisions were implemented into the Czech national law within the recodification of nuclear law in 2016. New Atomic Act and its implementing legislation have moreover introduced new enhanced features and institutes into the Czech regulatory system. This fact helps to improve physical protection regime in the country and to protect nuclear material and nuclear facilities from theft or other unauthorized diversion and of sabotage. There are also other legislative documents that are important in the area of nuclear security, e. g. criminal code, act dealing with protection of classified information and security

[24] E. g. Design Basis Threat, Plan of Physical Protection Assurance, Plan of Physical Protection Assurance for Transport of Nuclear Material…

eligibility etc. By the end of the year 2019, all the interim provisions of the new Atomic Act will terminate, so all license holders and other entities should be in full compliance with the new nuclear legislation.

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