

Nuclear Energy and Nuclear Law in Macedonia and Neighbor Countries - Bulgaria, Serbia and Albania

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Abstract

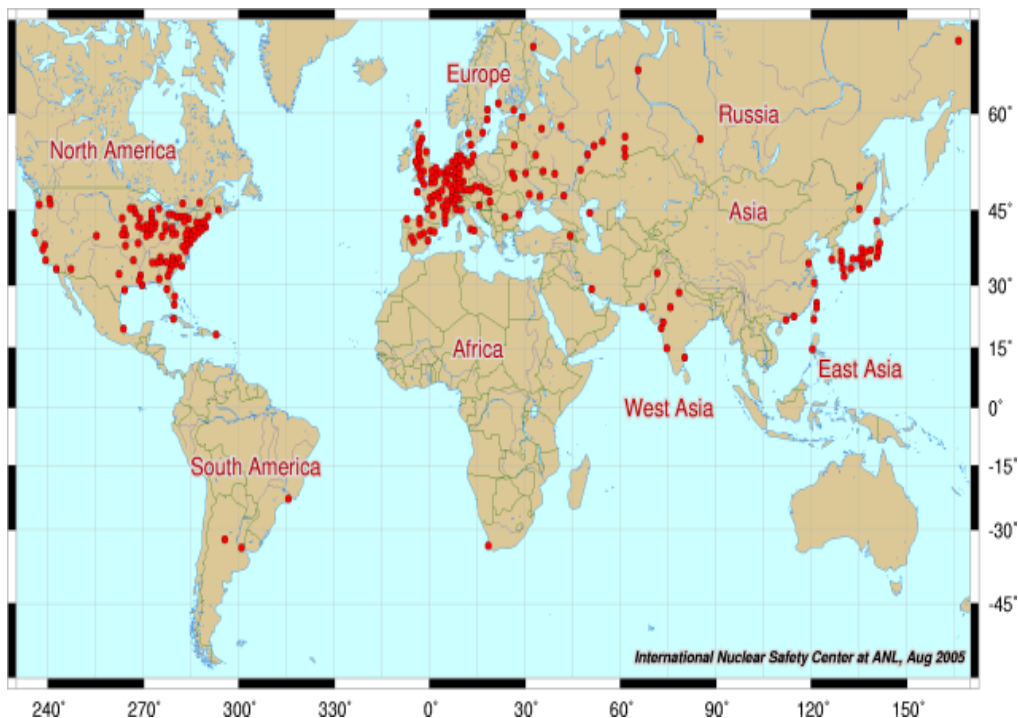
In this paper the emphasis is on nuclear energy and its peaceful use in the world, in accordance with the construction of nuclear law on international level and in the scope of the national regime. The world today is living in a nuclear renaissance where nuclear energy is used in great quantity and the usage is growing. On the other side, the 1986 Chernobyl accident confirmed prior theoretical assessments that a nuclear accident might cause damage of an extreme magnitude. The detrimental effects of such an accident do not stop at state borders; they may extend into regions far beyond the territory of the country in which the accident happened. There may be damage to individuals, to property and to the environment in several countries. For this purpose nuclear law is a significant segment that reflects on human life in the nuclear states and their neighbors and one important element of this law is the civil liability available in both international and certain national laws in case of a nuclear accident. On the other side, there are non-nuclear states, such as our country and some of its neighbors which have no nuclear power plants, and their nuclear law is in nascent form, and we will try to present the institutional and legal frame of the nuclear law in such countries, as well as its neighbors'.

Key words: *nuclear energy, nuclear law, civil liability for nuclear law, nuclear damage, international regime, national regime.*

1. General Remarks on the Nuclear Renaissance in the World

The science of atomic radiation, atomic change and nuclear fusion was developed in the period from 1895 to 1945, and mostly in the last six years of that period. Opportunities arising from the practical application of nuclear energy were first presented at the International Conference on peaceful use of atomic energy held in Geneva August 8-20, 1955, and during the next decade the number of nuclear reactors around the world was an indicator that nuclear energy and its use was no longer experimental and had become reality.

In 2005 the world map of nuclear power plants looked like this:



According to the IAEA in the period from 2015-2030, the following representation of nuclear plants in the world is expected:

1. Latin America - 3 nuclear plants plus 2 new in Chile and Peru;
2. Western Europe -9 existing plus new 3 in Italy, Portugal and Turkey;
3. Eastern Europe – 10 existing and 3 new in Belarus, Kazakhstan and Poland;
4. Africa – 1 existing and 5 new in Algeria, Egypt, Libya, Morocco and Tunisia;
5. Middle East and South Asia– 3 existing and one new in Bangladesh;

6. Southeast Asia and Pacific – 0 existing and 4 planned in Australia, Indonesia, Malaysia and Thailand;

7. Far East - 3 existing and 3 new in North Korea, the Philippines and Vietnam.

The ever-increasing global energy demand accentuated by escalating fuel prices, the pressing need for energy security and most importantly concerns over climate change make the case for a *Nuclear Renaissance*. Despite its bad reputation on the environmental front, nuclear power is an everyday reality for millions of consumers worldwide since it provides almost 15% of the world's electricity. Today, there are more than 400 nuclear power reactors in operation in 31 countries around the globe with an installed capacity of 370GWe. While the issue of new nuclear capacity is still controversial in many European countries, almost 30 new reactors are being built today and another 90 are planned to come online with China, India and Russia spearheading the development.

Many European countries - such as Bulgaria, the Czech Republic, Romania, Slovakia, Slovenia and Turkey - are building or planning to build nuclear power reactors. Furthermore, Sweden has already abandoned plans to decommission its nuclear power reactors; Hungary and Spain are planning for life extensions on their existing plants; and a recent UK government energy paper endorsed the replacement of the country's ageing nuclear reactors with advanced modern designs. Italy, a long time skeptic, is considering a revival of its scrapped nuclear program, and Italian energy companies have already invested in reactors in Slovakia while they plan to build new capacity in neighboring Albania.

Bulgaria and Romania are adamant on backing nuclear power; the two countries are the “nuclear strongholds” in the Balkans and are also planning to expand their nuclear capacities while Turkey and Albania (jointly with Croatia) have intentions to joining the nuclear club in the near future. The energy strategy of many countries lists nuclear power cheap and environmentally friendly. Nuclear energy is the European Union's answer to meeting aggressive targets on carbon dioxide emissions while reducing dependency on fossil fuel and despite the environmental risks, and therefore, will be a major contributor to the European energy mix in 2020. It is difficult to envisage Europe phasing out nuclear power from its energy mix. Nuclear power will play an active role in Europe's energy generation and in meeting the region's environmental goals.

2. Nuclear Law and the Regime of Civil Liability in General

Nuclear law: "... is a body of special legal norms created to regulate the conduct of legal or natural persons engaged in activities related to fissionable materials, ionizing radiation and exposure to natural sources of radiation. This definition comprises four key elements. First, as a body of special legal norms, nuclear law is recognized as a part of general national legislation, while at the same time comprising different rules required by the special nature of the technology. Second, the element of regulation incorporates the risk-benefit approach that is central to managing activities that present both hazards and advantages for social and economic development. Third, as with all legal regimes, the special legal norms relate to the conduct of legal persons, including commercial, academic, scientific and governmental entities, as well as of individuals. The fourth element focuses on radioactivity (produced through the use of fissionable material or ionizing radiation) as the defining feature justifying a special legal regime".¹

Before attempting to identify which special aspects of nuclear law distinguish it from other types of law, it is important to highlight briefly the fundamental reason why a State would decide to make the major effort necessary in order to promulgate such legislation. Simply stated, the primary objective of nuclear law is: To provide a legal framework for conducting activities related to nuclear energy and ionizing radiation in a manner which adequately protects individuals, property and the environment. In light of this objective, it is particularly important that responsible authorities carefully assess their current nuclear energy activities and their plans for future nuclear energy development so that the legislation ultimately adopted is adequate.

There are few characteristics of nuclear law that distinguish it from the other aspects of national law. A number of basic concepts, often expressed as fundamental principles, can be mentioned in this regard²:

- (a) The safety principle;
- (b) The security principle;
- (c) The responsibility principle;
- (d) The permission principle;
- (e) The continuous control principle;
- (f) The compensation principle;
- (g) The sustainable development principle;
- (h) The compliance principle;
- (I) The independence principle;

¹Stoiber C., Baer A., Pelzer N., Tonhauser W.: Handbook on nuclear law, IAEA Austria, July 2003, pp.4

²Ibid, pp. 5.

- (j) The transparency principle;
- (k) The international co-operation principle.

The international community has accepted the principle that the state which initiates activities that harm neighboring countries have the responsibility to provide compensation for the damage, which is also in accordance with internationally accepted no-harm and polluter-pays principle. There are disagreements regarding the definition of the term damage or covering recoverable damages. Historically, the nuclear industry, in regard of compensation of nuclear damage was subsidized by governments and the international community because there was no comprehensive legal regime of liability and compensation in this field.

Regarding the civil liability, in case of nuclear damage, the principle of strict liability has been adopted, and it is not necessary to prove the fault, but the impaired party must prove the existence of a causality between the nuclear accident and the damage. Chernobyl accident has pointed out to the world the great potential for transboundary damage in case of a larger nuclear disaster. Even in remote parts of Western Europe radioactive clouds emerged and disappeared a week after the incident causing significantly elevated levels of radioactivity.

The legislation on nuclear damage compensation and civil liability in case of nuclear damage is presented with an international regime of nuclear law contained of number of conventions among which we would like to put the accent on the following conventions on third party liability for nuclear damage:

- 1960 Paris Convention on third party liability in the Field of Nuclear Energy³;
- 1963 Vienna Convention on Civil Liability for Nuclear Damage⁴;

³The Paris Convention was adopted on 29 July 1960 in Paris, France, under the auspices of the OECD Nuclear Energy Agency (NEA) with the aim of providing adequate protection to the public from possible damage caused by activities in the field of nuclear energy. The drafters of the Convention wanted also to ensure that the burden of liability would not inhibit the growth of the nuclear industry. It entered into force on 1 April 1968 and was revised by an Additional Protocol of 28 January 1964 to bring it closer to the Vienna Convention and by a Protocol of 16 November 1982 to bring the Convention up-to-date, particularly by replacing the unit of account for compensation with the Special Drawing Rights (SDRs) of the International Monetary Fund (approximately USD 1). The following States are party to the Convention: Belgium, Denmark, Finland, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Turkey and the United Kingdom.

⁴The Vienna Convention was negotiated under the auspices of the International Atomic Energy Agency (IAEA) and was concluded on 21 May 1963. It entered into force on 12 November 1977. The Convention also includes an Optional Protocol providing a dispute settlement mechanism, which has not yet entered into force. As of 13 April

- Brussels Supplementary Convention to the Paris Convention on Third Party Liability in the Field of Nuclear Energy of January 31, 1963 ("The Brussels Supplementary Convention")⁵;
- 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention⁶ and
- Convention on Supplementary Compensation for Nuclear Damage (CSC)⁷.

In addition to the international regime of nuclear law, most of the countries that have nuclear programs, also have national nuclear legal regimes. In the national legal regimes the key principles established in these conventions are applicable too, but besides that the emphasis is placed on imposing a mandatory financial security that varies from country to country. In the field of national regimes distinction can be made between three categories of states. The first category includes countries that have signed one or more conventions, but have their own national regime. This includes in the following countries: Germany, France, Spain and the UK who are all signatories to the Paris Convention and the Czech Republic and Hungary are signatories to the Vienna Convention and Romania which is party to the Vienna Convention and the Convention on the amendment regulation of nuclear damage compensation - Convention on Supplementary Compensation for Nuclear Damage (CSC). The second category includes countries that are not signatories to any of the conventions of the international regime on civil legal liability for nuclear damage,

1999, the 32 Contracting Parties to the Vienna Convention are: Argentina, Armenia, Belarus, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Cameroon, Chile, Croatia, Cuba, Czech Republic, Egypt, Estonia, Hungary, Latvia, Lebanon, Lithuania, Mexico, Niger, Peru, Philippines, Poland, Republic of Moldova, Romania, Slovakia, Slovenia, the former Yugoslav Republic of Macedonia, Trinidad and Tobago, Ukraine, Uruguay, Yugoslavia (Serbia and Montenegro).

⁵The Brussels Convention entered into force on 1 February 1973 for the six original Member States of the European Community (Belgium, France, Germany, Italy, Luxembourg and the Netherlands). The new Member States of the Community had the obligation to join the Convention, which was amended in 1978 for the accession of Denmark, Ireland and the United Kingdom, in 1982 for the accession of Greece and finally in 1989 for the accession of Spain and Portugal. The three most recent Member States, Austria, Finland and Sweden will have to accede to the Convention and therefore further negotiations will be needed.

⁶ More information available on http://www.iaea.org/Publications/Documents/Conventions/jointprot_status.pdf. 03.06.2013

⁷ More information available on <http://www.iaea.org/Publications/Documents/Infocircs/1998/infocirc567.pdf>. 03.06.2013

but have their own national legal regimes governing this issue. It works in the following countries: Canada, Japan, South Korea and Taiwan. Although these four countries are signatories to the convention, they have introduced the principle of liability of the operator of a nuclear installation and thus legally channeled responsibility in the event of a nuclear incident. The third category encompasses countries that are not signatories to any of the conventions, and also do not have their own nuclear – legal statutes. The number of countries in this category is relatively small, for example China. In the legal system of China there are directives that express its position regarding the issue of nuclear liability, but there is no developed legal regime.

3. Nuclear Energy and Law in Macedonia

Macedonia is a country that aspires to join the European Union and, accordingly, is in the process of harmonizing and privatizing its energy sector.⁸

In the field of energy in general we can say that our country, Macedonia, is depend on imported energy, is hampered by an inefficiency of energy production and use⁹. Therefore in 2010 Macedonia adopted a Strategy for Energy Development until 2030. The programme goals are to modernize existing infrastructures and build new facilities, using renewable and natural gas and favoring domestic resources for

⁸In October 2005 the Macedonian Parliament signed the Energy Community Treaty in Athens, bringing together 8 South-Eastern European states (Albania, Bosnia Herzegovina, Bulgaria, Croatia, Romania, Serbia Montenegro and the United Nations Mission in Kosovo, UNMIK) and the European Union for the creation of an integrated energy market. This treaty also reinforced the legal bases for the creation of an independent energy market regulator.

⁹Thermal power plants produce more than 75% of the electricity consumed. The country's most important complex is that of Bitola, which has 3 units of 225 MW and annually produces about 4, 6 TWh (3, 7 TWh in 2010), which corresponds to 76% of the thermal electricity. The complex of Oslomej-Kicevo, which has a unit of 125 MW, produces 700 GWh (577 GWh in 2010). The oil power plant of Negotino (210 MW) is used as a backup power production plant. Hydroelectric power plants account for 23% of production (2011), and have an installed capacity of 573 MW. The most important power plants are located in Vrutok (150 MW), Tikves (114 MW), Splije (84 MW) and Kozjak (80 MW); the latter entered into service in 2004. The country's total hydroelectricity production nearly doubled in 2010, to 2,4 TWh; in 2011, it fell by 39% to less than 1,5 TWh. A first solar park was inaugurated in 2009 in Kadino (120 panels with a capacity of 85 Wc). In July 2011 a 1 MW solar PV power plant was commissioned by Mavis in Stip.

electricity production. It also aims to improve energy efficiency, introduce economic energy prices and integrate the energy sector in the regional and European markets. In February 2011, a new Energy Law was adopted to transpose EU legislation into national law. The law includes a new model for electricity and gas markets. It aims to introduce new forms of energy trading, promote real competition in the electricity market, and increase transparency¹⁰.

An Energy Regulatory Commission (ERC) was created in July 2003 to regulate the energy sector. It is made up of 4 departments and is financed by a tax on the total revenue of energy companies. The Energy Agency of the Republic of Macedonia was established in 2005 by the Ministry of Economy to promote and coordinate the energy policies and to develop Macedonia's energy sector. It started operating in September 2007. MACEF (Macedonia Centre for Energy Efficiency) is the agency in charge of promoting energy efficiency.

In regard to nuclear energy there are no nuclear power plants or reactors in Macedonia at present date. There are competent nuclear authorities represented by The Department for Radiation Safety established by the Law on Protection against Ionising Radiation and Radiation Safety on 4 July 2002 which is empowered to carry out activities in the field of radiation protection¹¹. It is responsible for, inter alia:

- "issuing licences for the import, export, distribution, transfer, transport, storage, disposal and maintenance of ionising radiation sources;
- establishing intervention levels and other conditions governing radiation protection;

¹⁰Macedonia is at the center of South Eastern Europe's electricity network. MEPSO, the transmission system operator, operates about 2,100 km of transmission lines. In 2010, imports represent nearly 60% of domestic consumption. Macedonia exports almost exclusively to Greece (about 3,8 TWh in 2009 and 2010 but just 1,5 TWh in 2011). The Ministry of Economy, through its Energy Department, is in charge of the country's energy policy.

¹¹The Department for Radiation Safety shall be managed by a Director who is directly responsible to the Government. The Department shall also establish a Commission for Radiation Safety, which will act as an advisory body for specific issues in the area of ionising radiation protection. The Commission will be composed of representatives of the different ministries as well as representatives of scientific and expert institutions and organisations in the radiation field. The Ministry of Health is also responsible for radiation protection. It proposes amendments to legislative and regulatory instruments in the field of nuclear energy.

- establishing exemption levels for ionising radiation sources with low activity;
- carrying out inspections;
- keeping a National Register of ionising radiation sources and of persons occupationally exposed to ionising radiation;
- organising training of radiation workers and their supervisors;
- carrying out research in the radiation protection field;
- informing the public of radiation protection issues;
- intervening in the event of an emergency;
- putting forward the National Action Plan on protection of the public against ionising radiation."¹²

Another competent nuclear authority is The Institute for Health Protection, under the authority of the Ministry of Health, and it is comprised of three departments responsible respectively for monitoring the levels of radioactive contamination in the environment and in workplaces, assessment of occupational exposure to ionising radiation, medical control of occupationally-exposed workers, participating in the implementation of training on safe operation and management of ionising radiation sources. These three Departments report annually to the Ministry of Health on the situation recorded and formulate recommendations in this respect. Together with the Department for Radiation Safety, the Ministry of the Interior issues licences for transportation of radioactive materials.

The **Law on Protection against ionising radiation and radiation safety** that was published in the Official Gazette on 4 July 2002 and entered into force on 12 July 2002. It repeals the law on protection against ionising radiation of 1991. The main objectives of the law are to create a legal framework to govern state control and regulation of the use of ionising radiation sources and to protect the public and the environment from the harmful effects of ionising radiation. A licence issued by the Department for Radiation Safety is necessary for all activities involving ionising radiation. The Law establishes requirements which must be met by legal entities performing activities involving the use of ionising radiation in

¹²Art. 3 from Law on Protection against ionising radiation and radiation safety, Official gazette No. 48/02 from 27.06.2002

relation to qualifications and training of personnel, equipment used, quality assurance, the security of their installations and emergency planning¹³.

The Law establishes a system of registration, accounting and control of ionizing radiation sources. The licence-holder is responsible for: providing protection and training for workers exposed to ionising radiation, for the population and the persons exposed during a medical examination; registering the ionising radiation sources including technical characteristics and specifications on safety and safe operation; establishing an emergency plan in case of accident, for the protection of the population and exposed workers; and accounting and control of ionising radiation sources.

In the Macedonian legislation there is **Law on Transport of Dangerous Goods**, adopted on 25 May 1990 and amended on 3 March 1993, which regulates the transport of radioactive materials, in particular the conditions governing their packaging, modes of transport, loading, unloading and handling. The Macedonian Constitution also provides for the primacy of international agreements ratified by the Republic of Macedonia over domestic laws. Therefore, the 1963 Vienna Convention, to which Macedonia succeeded on 8 April 1994, is a constituent part of the Macedonian legal system in effect from 8 September 1991. Also, Macedonia is a member of the International Atomic Energy Agency (IAEA)¹⁴.

4. Nuclear Energy and Law in Serbia

¹³The Law is based on the principles of justification, optimisation and dose limitation and sets out the main principles for the protection of workers exposed to radiation (dosimetric control and health control of the personnel). Dose limits for the exposure of workers and the population to ionising radiation will be established by the Department for Radiation Safety. The Law also sets out the conditions governing the application of medical radiological procedures, including justification and optimisation of practices and the duties and training of medical personnel.

¹⁴There are other international conventions to which Macedonia has acceded, but the Vienna Convention is the only one that refers to the civil liability for nuclear damage. Other conventions are:

- 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 30 March 1995, with effect in this country, from 17 November 1991.
- 1979 Convention on the Physical Protection of Nuclear Materials on 20 September 1996, with effect in this country from 17 November 1991.
- 1986 Convention on Early Notification of Nuclear Accident on 20 September 1996, with effect from in this country 17 November 1991.
- 1986 Convention on Assistance in the Case of Nuclear Accident or Radiological Emergency on 20 September 1996, in effect in Macedonia from 17 November 1991.
- Macedonia ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 14 March 2000.

Serbia also is a member of the International Atomic Energy Agency (IAEA) and contracting party of the Vienna Convention. Nuclear safety and radiation protection issues are regulated by the 2009 **Law on ionizing radiation protection and nuclear safety**. The Serbian Agency for Ionizing Radiation Protection and Nuclear Safety (SRPNA) was established as a separate body in 2009 and started functioning in mid-2010. The Agency implements the international conventions which Serbia has signed. The transfer of inspection functions from a variety of ministries to the Agency which would follow the best regulatory practices has not yet been achieved. Effective independence and sufficient levels of staff and funding will be essential to ensure proper functioning of the Agency, particularly for licensing of nuclear facilities. Serbia still needs to accede to the Convention on Nuclear Safety and to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. Serbia also still needs to develop a national strategy for nuclear waste management and decommissioning of its research reactor at Vinca.

5. Nuclear Energy and Law in Bulgaria

Bulgaria is the most advanced country in a regional level concerning the use of nuclear energy. On December 2007 the European Union gave its go ahead for the construction of a new 2,000 MW nuclear site in the town of Belene in the North of the country, equipped with two 1,000 MW generators. The new plant was estimated on 4 billion euros and have a predicted life span of 60 years. The construction was unsuccessfully terminated in March 2012.

Bulgaria was forced due to heavy pressure from Brussels to close down its older factory in the Kozloduy area that had a 1,760 MW capacity. There were four operational units at the Kozloduy nuclear power station with a total capacity of 3 538 MWe. The Kozloduy NPP generated 44.6% of the country's annual electricity production. Units 1 and 2 of the Kozloduy NPP were shut down on 31 December 2002, and for future notice Bulgaria has agreed to shut units 3 and 4 in the process of its accession to the European Union. Today, according to the World Nuclear Association updated data from February 2013 Bulgaria has two nuclear reactors at the Kozloduy nuclear power station generating about 35% of its electricity and two others, shut down under duress as a condition of Bulgaria joining the European Union, could be restarted.¹⁵

¹⁵Data available at <http://www.world-nuclear.org/info/Country-Profiles/Countries-A-F/Bulgaria/>. Date 30.05.2013

Until 2002, the State Committee on the Use of Atomic Energy for Peaceful Purposes (CUAEPP), established by the Atomic Energy Act of 1985, was the nuclear regulatory authority with jurisdiction over nuclear matters, including the implementation of national safety and radiation protection policy. A Decree adopted by the Council of Ministers on 29 August 2002 transformed the CUAEPP into the Nuclear Regulatory Agency (NRA). Pursuant to this Decree, the NRA assumed the rights, obligations, assets and liabilities of the CUAEPP. The NRA is now therefore the national authority responsible for the regulation and control of nuclear energy and sources of ionising radiation as well as the safe management of radioactive waste and spent fuel. The NRA is an independent specialised state authority whose competence is established by the Act on the Safe Use of Nuclear Energy, adopted on 28 June 2002.¹⁶

Other authority in the field of ionization and radiation is the National Centre on Radiobiology and Radiation Protection, established by Regulation of 18 June 1993.¹⁷ On the other hand, the 2002 Law on the Protection of the Environment empowers the Ministry of the Environment and Water to control the state of the environment. Regulation No. 8 of the CUAEPP and the Ministry of Internal Affairs on Nuclear Facilities and Nuclear Material Physical Protection determines the tasks of this Ministry in the field of the safe uses of atomic energy. It is principally responsible for physical protection and fire protection of nuclear power plants.

The State Agency on Civil Protection acts as the operational headquarters of the Permanent Commission on Public Protection in the Event of Calamities and Emergencies. The State Agency on civil protection is responsible for the

¹⁶The NRA Chairperson is designated for a period of five years by a decision of the Council of Ministers and appointed by the Prime Minister. The Chairperson has extensive authority to represent the NRA in relation to the issue, modification, extension, renewal, suspension and revocation of licences and authorizations to perform activities pursuant to the 2002 Act. The Chairperson is assisted by two deputy Chairpersons. The NRA is a financially independent legal entity. On 29 August 2002, a Code of Regulation of the NRA was adopted by the Council of Ministers, providing the Chairperson with wider budgetary powers. The NRA therefore has a greater level of autonomy in financial matters. The Agency's activities are funded by the state budget and by revenue from taxes collected as well as by donations. The Act establishes priorities with regard to expenditure in the Agency's budget – funding of research, analyses and expertise is to take first place.

¹⁷It operates as a specialized body under the Ministry of Health, and has jurisdiction over radiobiological issues, radiation protection and medical emergencies. The Centre supervises the activities of the Health and Epidemiology Centre with regard to regular monitoring of radiation doses and medical controls of exposed workers. The Centre also deals with preventive measures, diagnostics, and scientific and technical activities in these fields.

development of the National Emergency Plan on Radiological Emergencies in Nuclear Power Plants.

In regard of the legislation Bulgaria is part of the international regime of nuclear law¹⁸ and a member of the International Atomic Energy Agency (IAEA), and the Bulgarian National Electric Company is a member of the World Association of Nuclear Operators (WANO). Bulgaria is also a member of the Nuclear Suppliers

¹⁸ Bulgaria is also a party to other international conventions which refer on public aspects of the nuclear energy usage:

- Bulgaria ratified the 1963 Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and under Water on 13 November 1963 and it entered into force in this country on the same date.
- Bulgaria ratified the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 5 September 1969 and it entered into force in this country on 5 March 1970.
- Bulgaria ratified the 1971 Treaty on the Prohibition of the Emplacement of Nuclear Weapons and other Weapons of Mass Destruction on the Sea-Bed and the Ocean Floor and in the Subsoil Thereof on 16 April 1971 and it entered into force in this country on 18 May 1972.
- Bulgaria ratified the 1979 Convention on the Physical Protection of Nuclear Material on 10 April 1984 and it entered into force in this country on 8 February 1987.
- Bulgaria ratified the 1986 Convention on Early Notification of a Nuclear Accident on 24 February 1988 and it entered into force in this country on 26 March 1988.
- Bulgaria ratified the 1986 Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency on 24 February 1988 and it entered into force in this country on 26 March 1988.
- Bulgaria ratified the 1994 Convention on Nuclear Safety on 8 November 1995 and it entered into force in this country on 24 October 1996.
- Bulgaria ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 29 September 1999.
- Bulgaria ratified the 1997 Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management on 21 June 2000 and it entered into force in this country on 18 June 2001.

Group and the Zangger Committee. Bulgaria is Party of the following convention regarding the civil liability for nuclear damage¹⁹:

- Bulgaria acceded to the 1963 Vienna Convention on Civil Liability for Nuclear Damage on 24 August 1994, and it entered into force in this country on 24 November 1994.
- Bulgaria acceded to the 1988 Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention on 24 August 1994, and it entered into force in this country on 24 November 1994.

Bulgaria has also developed national regime of nuclear law presented by the Act on the Safe Use of Nuclear Energy (**Atomic Energy Act**) which was adopted on 28 June 2002 and entered into force on 2 July 2002. This Act establishes the principles governing safety in the use of nuclear energy and ionizing radiation, radioactive waste and spent fuel management and the rights and obligations of persons who perform activities pursuant to this Act.²⁰

The Atomic Energy Act contains eleven chapters. The first addresses the main principles governing the peaceful uses of nuclear energy including the primacy of nuclear safety, radiation protection and the most achievable principles. The second chapter establishes the Nuclear Regulatory Agency (NRA). It defines the functions of the NRA on state control over nuclear safety and radiation protection and establishes the competence of the Chairperson of the NRA. The independence of the NRA is also strengthened with the attribution of budgetary autonomy to its Chairperson (see *supra* under Competent Nuclear Authorities). The licensing regime is set out in Chapter 3 of the Act. It establishes the requirements and procedures for the construction and operation of nuclear power plants and for activities involving other sources of ionizing radiation. The NRA Chairperson is empowered to issue, suspend and revoke licenses for the use of nuclear energy and radiation sources and also to issue permits for the siting, design, construction, modification and commissioning of nuclear facilities. This chapter also lays down criteria and requirements governing the training, qualification and certification of persons involved in the utilization of nuclear energy. This chapter also contains provisions on the accounting and control of nuclear material, radioactive substances and other sources of ionizing radiation. These provisions govern the obligations of the persons who manufacture, process, and store or use such materials, substances and sources. Article 73 states that nuclear material, radioactive substances and other

¹⁹Nuclear Legislation in Central and Eastern Europe and the NIS, 2003 overview, OECD 2003 NEA No. 4268, pp. 49.

²⁰This Act repealed and replaced the 1985 Act on the Use of Atomic Energy for Peaceful Purposes as amended.

sources of ionizing radiation or radioactive waste whose owner is not known shall become the property of the State and the President shall nominate the person to whom they will be consigned. Nuclear material which is acquired in violation of the provisions of the Act shall be confiscated by an order of the President. The management of radioactive waste and spent fuel is regulated in Chapter 4. A Radioactive Waste State-owned Company is to be established by January 2004 and it shall be responsible for managing any radioactive waste imported to the Republic of Bulgaria that cannot be retransferred.

Chapter 10 regulates civil liability for nuclear damage. It shall be determined according to the provisions of the Vienna Convention on Civil Liability for Nuclear Damage, to which the Republic of Bulgaria is a party.²¹ The operator of a nuclear installation shall be solely liable for damage resulting from a nuclear accident: "... and the liability of the operator is limited to 96 million Bulgarian Lev (BGL)"²² and he is required to maintain insurance or financial security to cover his liability. In the event the funds of the operator are not sufficient to cover all damages the payment of the balance shall be guaranteed by the State. The prescription period for a claim for compensation is five years from the date on which the person suffering nuclear damage had knowledge or ought reasonably to have had knowledge of the damage. A priority system exists for the compensation of claims for loss of life or personal injury. Jurisdiction over actions for nuclear damage lies with the Sofia City Court of first instance. According to Article 134 from this act: "*Any nuclear damage caused within the territory of a State which is not a Contracting Party to the Vienna Convention shall be compensated solely pursuant to an international treaty which has been ratified, promulgated and has entered into force and to which the Republic of Bulgaria is a party, or on the principle of reciprocity*".

6. Nuclear Energy and Law in Albania

During a visit to Italy in November 2007 Albanian President Sali Berisha has announced the intention of his country to cooperate with Italy in order to develop a nuclear plant. Albania is a country that is heavily dependent for its rising energy needs of hydropower installations that face issues of overuse and underinvestment. Frequent power cuts indicate a dire need for new electricity sources. But, until present date, Albania still doesn't have nuclear power plant.

²¹See Article 127 from Act on the Safe Use of Nuclear Energy available at <http://www.bnra.bg/en/documents-en/legislation/laws/zbiae2012-en.pdf>

²²Art. 132 (1) from the Bulgarian Act on the Safe Use of Nuclear Energy

Before November 1995, the legal regime applicable to nuclear activities in Albania was set out in a Governmental Decree first approved in 1971. In order to strengthen the legal framework governing radiation protection and to bring it into line with the relevant IAEA Basic Safety Standards, Law No. 8025 on Ionizing Radiation Protection¹ was adopted by the Parliament on 9 November 1995. The Law is comprised of three chapters divided into 12 sections. *"This legislation provides for protection against ionizing radiation in respect of all activities involving radioactive materials and devices, thus providing for the protection of workers, the general public and the environment against the harmful effects of ionizing radiation. It applies to any physical person or legal entity which (a) possesses, transfers, receives, uses, manufactures or installs a radiation source, (b) performs geological research, mining, milling, extraction, enrichment, sale, transfer, import-export, lending or storage of radioactive materials, (c) manages radioactive waste, foodstuffs or other products which are contaminated with radioactive materials."*²³ All persons performing activities involving radiation sources or radioactive materials must obtain a license from the Radiation Protection Commission. All license-holders must comply with the provisions of this Law and with its implementing decrees. Breach of the licensing requirements, or any other breach by the licensee of the Law or its implementing decrees is not subject by criminal prosecution, but is subject to administrative fines from 10 000 to 100 000 Albanian leks (ALL)²⁴.

²³ Nuclear Legislation in Central and Eastern Europe and the NIS, 2003 overview, OECD 2003 NEA No. 4268, str.8.

²⁴ Pursuant to the Law on Ionizing Radiation Protection several regulations implementing this Law have been adopted:

- Decision of the Council of Ministers, adopted in 2002, on Import and Export of Radioactive Materials;
- Regulation on Safe Handling of Radioactive Materials, adopted in 1998, as modified in 2000. It sets out the duties of entities carrying out radiation activities vis-à-vis their professionally-exposed employees, in particular in relation to dose limitation, medical supervision, provision of protective devices and instruments, and specialized training;
- Regulation adopted in 1998, on Licensing and Inspection of Activities involving Ionizing Radiation Sources, as modified in 2000. It provides detailed requirements pertaining to the issue of licenses for activities involving radiation. The RPC is authorized to assess all license applications for activities involving radiation and to issue such licenses for a fixed time period. The RPC also nominates inspectors who are responsible for the control and enforcement of all license provisions related to radiation protection;

In regard of the international nuclear regime Albania is a member of the International Atomic Energy Agency (IAEA), but Albania is not a party to any of the international conventions on third party liability for nuclear damage, but there are other international conventions regarding other aspects of nuclear law such as²⁵:

- Albania acceded to the 1968 Treaty on the Non-Proliferation of Nuclear Weapons on 12 September 1990, and it entered into force in this country on the same day.
- Albania acceded to the 1979 Convention on the Physical Protection of Nuclear Material on 5 March 2002 and it entered into force in this country on 4 April 2002.
- Albania acceded to the 1986 Convention on Assistance in the case of Nuclear Accident or Radiological Emergency on 30 April 2003 and it entered into force in this country on 31 May 2003.
- Albania ratified the 1996 Comprehensive Nuclear Test Ban Treaty on 23 April 2003.

7. Concluding Remarks

Today, there are more than 400 nuclear power reactors in operation in 31 countries around the globe. While the issue of new nuclear capacity is still controversial in many European countries, almost 30 new reactors are being built today and another 90 are planned in the future in China, India and Russia spearheading the development of nuclear power. Bulgaria and Romania are adamant about backing nuclear possibility for energy production; the two countries are the “nuclear strongholds” in the Balkans and are also planning to expand their nuclear capacities while Turkey and Albania (jointly with Croatia) have intentions to

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- Regulation on Application for Licensing, adopted in 1998, as modified in 2000;
 - Regulation on National Radiological Emergency Response Plan, adopted in 2000;
 - Regulation on the Construction and Protection of Radiological Area, adopted in 2001; and
 - Code of practice in radiology (2001).

²⁵ Nuclear Legislation in Central and Eastern Europe and the NIS, 2003 overview, OECD 2003 NEA No. 4268, pp. 10.

joining the nuclear club in the near future. The rising energy needs of the Southeastern European states and the rising oil price index have brought to the surface several ambitious plans that should they proceed will transform the regional markets and attract much international attention and investment capital. For the moment the only project to go ahead is the Belene one with the rest being discussed and projected. There are no nuclear power plants or reactors in Macedonia, Albania or in Serbia at present date. It seems that these small countries do not have the capability to develop nuclear power plants. They simply do not have the know-how and cannot guarantee adequate safety conditions. Of the neighboring countries only Bulgaria has a nuclear power plant. Bulgaria is the most advanced country in a regional level concerning the use of nuclear energy.

The use of nuclear energy is a complex question especially for small countries like Macedonia and our neighbors. It demands existence of nuclear authority in the field of ionization and radiation, as well as nuclear law. The primary objective of nuclear law is to provide a legal framework for conducting activities related to nuclear energy and ionizing radiation in a manner which adequately protects individuals, property and the environment. In Macedonia there are competent nuclear authorities represented by The Department for Radiation Safety established by the Law on Protection against Ionizing Radiation and Radiation Safety of 4 July 2002. Another act in the domestic nuclear law is Law on Transport of Dangerous Goods, adopted on 25 May 1990 and amended on 3 March 1993. Macedonia is taking part in the international regime by being a member of the International Atomic Energy Agency (IAEA) and the 1963 Vienna Convention, to which Macedonia acceded on 8 April 1994. The ratification of the Vienna Convention has made this international law part of the Macedonian legal system, of the domestic law. Serbia is also a member of the International Atomic Energy Agency (IAEA) and contracting party of the Vienna Convention. Nuclear safety and radiation protection issues are regulated by the 2009 Law on ionizing radiation protection and nuclear safety. On the other hand, Albania, besides the fact that is a member of IAEA, has not agreed to any international convention that regulates the civil liability in case of a nuclear accident. This is an institutional and legal framework that is far from ideal for developing nuclear energy. It does not seem to have the capacity to resolve all the problems that are brought about nuclear energy usage: environmental risk and problems, problems with nuclear reactors, disposal of nuclear waste management, resolving issues on civil liability in case of a nuclear accident and other problems that are related with nuclear energy. So, in case of starting a project which includes construction of a nuclear power plants in these countries much will need to be done. The IAEA advises countries embarking on such a plan, to take a comprehensive approach, integrating all the aspects of their government, industry and educational institutions, the infrastructure to support nuclear power. This ensures that they have a secure, effective, safeguarded

programme by the time they get to actually putting out a bid for a nuclear power plant.

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