Olga BORISLAVOVA BORISOVA[1]

The Nuclear Future of the Republic of Bulgaria – Trends in the Development of the Regulatory Framework for the Construction and Operation of Nuclear Power Plants, Problems and Recommendations for Improvement[2]

Abstract

In the article, the author conducts an analysis of the national nuclear characteristics of the Republic of Bulgaria, addressing the prospects of nuclear energy in the country, its strategic position in the national energy policy and the envisioned development for the construction of new nuclear power plants. It further considers public opinion on nuclear energy. The composition and institutional positioning of the national regulatory body are delineated, with particular attention paid to the safeguards ensuring its independence within the administrative framework of the state. The legislation in the Republic of Bulgaria that regulates the use of nuclear energy is notably extensive. In addition to the main nuclear law, public relations are also regulated by other laws, further elaborated through an array of subordinate normative acts. The article proceeds to outline, albeit briefly, the principal constitutional provisions, statutory laws, and regulatory by-laws pertinent to the licensing stages of nuclear power plants. Moreover, the analysis extends to the salient characteristics of the nuclear projects planned for implementation, issues arising in the context of contractual arrangements related to construction, as well as the national public procurement procedure for the construction of nuclear power plants. The discourse also encompasses the increasingly salient issue of small modular reactors

1 | Professor of Administrative Law and Procedure, PhD. Academic institution: Varna Free University "Chernorizets Hrabar". ORCID: 0009-0002-5894-3549. e-mail: olga.borisova@vfu.bg
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with the author present the extent to which the country is interested in their implementation and the challenges facing their licensing and implementation.
Keywords: nuclear legislation, energy legislation, nuclear regulatory authorities, nuclear power plant, licensing, nuclear project, small modular reactors.

1. Introduction

bulgarian nuclear energy possesses a long history. In the 1950s, amid intense debates about the pollution of nature when working with radioactive substances and the attendant risks to human health, the International Atomic Energy Agency (IAEA) was established[3].The Republic of Bulgaria was among its founding members and has remained a full member since the Agency's inception.

By the mid-1960s, following rigorous examinations of the nation's capacity and trends in the development of nuclear technologies in the world, the Republic of Bulgaria decided to embark on the path of nuclear energy development[4]. In pursuance of this policy, the country gradually built the requisite infrastructure—material, technical, regulatory and personnel resources alike—for the construction of six power units at the Kozloduy NPP site – four nuclear reactors of the VVER-440/B-230[5] type and two nuclear reactors of the VVER-1000/B-320 [6]type. Concurrently, preparations for construction and the initial phases of construction were initiated for a second nuclear facility, situated at the "Belene site".

However, the catastrophic incident at the Chernobyl nuclear power station in Ukraine in 1986 marked a shift in public perception. Where once there had been widespread endorsement of the benefits of nuclear energy, public sentiment turned increasingly towards scepticism and apprehension in the wake of this tragedy to establish an international legal regime for protection against potential nuclear risks, and to mitigate damage, four international conventions were adopted after international negotiations – the Convention on Early Notification of a Nuclear

3 | The IAEA is an organisation within the United Nations, without being a specialised agency within the meaning of Article 57 of the UN Charter. Its Statute was approved on 26 October 1956 in the form of a treaty that entered into force on 29 June 1957. It is a classic intergovernmental organisation with a global focus on scientific and technical cooperation in the field of peaceful uses of nuclear technology.
4 | Ayllon Diaz-Gonzalez,1999, 253–350.
5 | The VVER-440/B230 reactors were designed in the late 1960s and their design was found to be inconsistent with modern safety requirements. Therefore, a number of improvements were implemented in the 1980s and 1990s to implement an acceptable level of safety.
6 | The design of the VVER-1000/B-320 reactors (units 5 and 6 of the Kozloduy NPP) generally complies with internationally accepted safety requirements. They have a hermetic containment, triple redundancy of safety systems. They were put into operation in 1987 and 1991, respectively. The basic principle of nuclear power plant safety has been applied to them – defense in depth, using several physical barriers. Based on the analysis of operating experience, comparison with similar PWR reactors and increased international safety requirements, a modernisation program has been developed and implemented to improve the safety of the units.

Accident in 1986, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency in 1986, the Convention on Nuclear Safety in 1994, and the Unified Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management in 1997.

In connection with the commitments undertaken by the Republic of Bulgaria in the course of its accession to the EU, the operation of the four nuclear reactors of the VVER-440/B-230 type was terminated before the expiration of their designed operational lifespan on account of safety concerns. Units 1 and 2 were irrevocably shut down and entered into decommissioning at the end of 2002, followed by Units 3 and 4 at the close of 2006.

2. National nuclear characteristics of the Republic of Bulgaria

the Republic of Bulgaria, as well as other Member States, incorporates nuclear energy into its national energy mix. Nuclear energy is a proven emission-free resource and as such it is a key element in the structure of the country's energy balance to ensure secure and reliable energy supplies, as well as to effectively combat climate change.

Nonetheless, the prerogative to determine whether or not to include nuclear energy in the national energy strategy remains within its exclusive competence. In this context, Article 194(2) subparagraph (2) TFEU emphasises a Member State's right to determine the conditions for exploiting its energy resources including the selection of energy sources such as nuclear energy and the general structure of its energy supply. This principle of national discretion is reaffirmed by the Court of Justice of the European Union (CJEU), in its Judgment of 22 September 2020, Case-C-594/18 P – Hinkley Point C, at paragraph 32.

2.1. Prospects of the national nuclear energy sector in the context of membership in the European Union and implementation of the European regulatory framework for the use of atomic energy

Following its full accession to the European Union on 1 January 2007, Bulgaria has had to re-evaluate the legal responsibility for maintaining a national legislative, regulatory and organisational framework for nuclear safety of nuclear installations. The Treaty establishing the European Atomic Energy Community (Euratom Treaty) also imposes a number of specific obligations foremost among which is the obligation to transpose into its domestic legislation the basic standards for the protection of health from the dangerous effects of ionising radiation issued on the basis of the EURATOM Treaty, as well as to notify the European Commission.

The existing national legislation is periodically reviewed and synchronised with the European achievements, as well as with the new or amended documents of the IAEA.

Over the past two decades, "nuclear energy" has re-emerged as a subject of considerable attention, both domestically and internationally, attracting the attention of scientists and politicians regarding the benefits of nuclear energy, particularly in its role in the fight against climate change and carbon dioxide pollution.

Yet, notwithstanding the manifest advantages and benefits of using nuclear energy, the events of 11 March 2011 at the Fukushima Daiichi Nuclear Power Plant in Japan prompted renewed scrutiny of the appropriateness and promotion of the use of nuclear energy to meet the growing energy demand. After the accident in Japan, the future of nuclear energy has once again been subject to debate and reassessment by critics and supporters of nuclear energy, due to the danger of its use causing negative impacts on the environment and radiation damaging the health of the population. Germany, Switzerland and the Netherlands adopted resolutely anti-nuclear stances, citing the risks of accidents and radiation pollution as their principal objection. In the immediate aftermath of the Fukushima disaster, the German government announced the closure of seven nuclear power plants, and a few months later the German parliament decided to permanently dismantle the remaining ten German nuclear power plants by 2022. Similarly, in 2011 Italy suspended its plans to construct new nuclear power plants following a referendum, and Belgium decided to phase out seven nuclear power plants, producing more than 50% of its domestic electricity, between 2015 and 2025. Other countries, such as the USA, France, Japan, China, Great Britain, Venezuela, Argentina, are in favour of using this energy source, based on the low price and security of supply of the necessary natural resources over time compared to other energy sources. Global uranium reserves, it should be noted, are estimated to support continued nuclear generation for an operational life of over 200 years and these deposits provide opportunities for security of supply, selection of nuclear fuel sources in terms of price and location.

Subsequent developments, particularly the sharp increase in energy prices, have prompted some countries—even those previously committed to phasing out nuclear power, such as Germany—to reconsider the retention of nuclear capacity. There is talk of a "nuclear renaissance", and the possibilities for electricity from nuclear power plants to be an effective and economical alternative to electricity produced from fossil fuels. In this climate, ten Member States, led by France and Poland (including Bulgaria, Croatia, the Czech Republic, Finland, Hungary, Romania, Slovakia and Slovenia) formed what is known as a "Nuclear Alliance." This coalition has advocated for the recognition of nuclear energy as both a response to the enduring energy crisis and an instrument for achieving a low-carbon future. They expect the EU Commission to propose that nuclear energy be included as

a "green" or "transitional" technology within the EU taxonomy for sustainable finance.

In response to such developments, on 2 February 2022, the European Commission gave its approval in principle to a Supplementary Climate Delegated Act to the Taxonomy Regulation on climate change mitigation and adaptation[7], covering certain activities related to natural gas and nuclear energy.

In order to realise the European Union's ambition of attaining climate neutrality by the year 2050, a substantial influx of private capital is indispensable. To this end, the EU taxonomy has been devised to guide private investment towards activities deemed essential for the achievement of climate neutrality. The taxonomy classification is not prescriptive as to the inclusion or exclusion of specific technologies within the energy mix of Member States. The aim is to strengthen the transition by finding all viable pathways by which the Union's climate goals may be fulfilled. Based on scientific advice and technical progress, the Commission considers that private investment should play its role in gas and nuclear activities during the transition. The selected activities in this area are consistent with the EU's climate and environmental objectives and, as delineated in the relevant documentation, will make it possible to accelerate the transition from more polluting activities, such as coal-fired power generation, to a more climate-neutral future based mainly on renewable energy sources.

In particular, the Supplementary Delegated Act on Climate accomplishes the following:

- It introduces additional energy – related economic activities into the EU taxonomy. The text sets out clear and strict conditions under Article 10(2) of the Taxonomy Regulation under which certain nuclear and gas activities may be added as transitional activities to those already covered by the first Delegated Act on climate change mitigation and adaptation, applicable as of 1 January 2022. As a result, rigorous are now established for nuclear activities to contribute to the transition to climate neutrality, to meet nuclear and environmental safety requirements. Further particularised conditions are foreseen, which are contained in the Supplementary Delegated Act.
- The Act further institutes specific disclosure requirements upon companies engaged in nuclear energy operations . In order to ensure transparency for investors, the Commission has amended the Delegated Act on the disclosure of the taxonomy, thereby enabling investors to clearly identify which investment

7 | COMMISSION DELEGATED REGULATION (EU) 2022/1214 of 9 March 2022 amending Delegated Regulation (EU) 2021/2139 as regards economic activities in certain energy sectors and Delegated Regulation (EU) 2021/2178 as regards specific public disclosure of information on those economic activities.
The draft was formally adopted on 9 March 2022, when the language versions in all official EU languages were made available. It was then transmitted to the co-legislators for the scrutiny period, which ended on 11 July 2022, without objections. Published in the Official Journal on 15 July 2022 and applicable from 1 January 2023.

opportunities include nuclear energy activities and to make investment decisions with full knowledge of the relevant facts.

The text of the Supplementary Delegated Act has been drawn up following consultations with the Member States Expert Group on Sustainable Finance and the Platform on Sustainable Finance. In addition, the Commission has duly taken into account the feedback received from the European Parliament during the course of its deliberations.

On 6 February 2024, the European Parliament and the Council reached a political agreement on the proposal for the Net Zero Emissions Industrial Act[8]. The EU finally adopted the Net Zero Emissions Industry Act on 28 May 2024.

This Act, which stem from the Green Deal Industrial Plan constitutes a cornerstone of the Union's strategy to increase the production of clean technologies in the EU. This means scaling up the EU's production capacity for technologies that support the clean energy transition and emit negligible, zero or even negative greenhouse gases when in operation. The legislation is expected to act as a catalyst for investment and create better conditions and market access for clean technologies in the EU.

The Union has set an ambitious objective: to ensure that, by the year 2030, its overall strategic capacity to produce net-zero emission technologies reaches at least 40% of annual deployment needs. This will accelerate progress towards the EU's 2030 climate and energy targets and the transition to climate neutrality by 2050. In so doing, it is expected to bolster the competitiveness of European industry generate high-quality employment, and support the EU's efforts to become energy independent. Proponents of nuclear energy regard this moment as the right step at the right time. Projections suggest that by 2050, half of the vehicles on the EU's roads will be electrically powered. The idea of „strategic autonomy" is gaining ground in the EU. In practice, this means producing more of the energy we consume and relying as much as possible on technologies we have developed ourselves. The current geopolitical climate, together with persistent challenges of ensuring security of supply have underscored the critical importance of maintaining a dependable source of base load nuclear energy. In this context, nuclear energy presents itself as a viable medium-term solution—capable of ensuring sustainable supplies and balance the energy system.

This legislative act also simplifies the regulatory framework for the production of clean technologies. This reform is anticipated to enhance the competitiveness of the net-zero emission technology industry in Europe, as well as to improve the capacity for carbon dioxide capture and storage. The legislation identifies technologies that will make a significant contribution to decarbonisation. It supports in particular strategic net-zero emission technologies that are available on the

8 | European Commission 2024.

market and have a good potential for rapid deployment. These technologies are viewed not only as tools for clean energy transition, but as pillars of the Union's industrial competitiveness and energy resilience. The Net-Zero Emissions Industry Act identifies sectors for future economic growth that will receive strategic support. It allows the production of nuclear reactors and components for the operation of nuclear power plants to be given priority support, including through faster permitting procedures. Nonetheless, a principal obstacle remains: the insufficient availability of financial resources to underwrite such capital-intensive investments. Several sources of financing are envisaged, including state aid; the allocation of up to 25% of national revenues from the Emissions Trading System and unutilised national allocations under the Recovery and Resilience Plans. While these sources are significant, they will certainly not be enough and the implementation of the Taxonomy could attract private funds from the capital markets.

The foregoing developments are emblematic of a broader shift in attitude towards nuclear energy and investment interest in the construction of new nuclear power plants. In the context of a global energy crisis, nuclear technologies are emerging as one of the best ways to produce clean energy and ensure sufficient power for base load. Nuclear power plants are emerging as a key resource that can guarantee national energy security, independence and affordable electricity. Currently, EU member states are engaged in preparatory work for building about 21 new nuclear reactors – both conventional and innovative small modular reactors.

2.2. National Energy Policy and Strategy for Sustainable Energy Development of the Republic of Bulgaria

In the Republic of Bulgaria, the formulation and execution of state energy policy are vested in the National Assembly and the Council of Ministers.

The principal legislative body—the National Assembly adopts the Strategy for Sustainable Energy Development of the Republic of Bulgaria, acting upon a proposal from the Council of Ministers. This Strategy delineates the main objectives, stages, means and methods for the development of energy.

The implementation of energy policy falls under the remit of the Minister of Energy. The Council of Ministers, upon a proposal from the Minister of Energy and the Minister of Environment and Water, approves an Integrated Energy and Climate Plan of the Republic of Bulgaria and updates to the plan in accordance with Regulation (EU) 2018/1999. The Council of Ministers governs the country's energy sector in accordance with the strategy adopted by the National

Assembly and the current Integrated Energy and Climate Plan of the Republic of Bulgaria[9].

The Strategy for Sustainable Energy Development of the Republic of Bulgaria serves as the foundational national document for the country's long-term energy trajectory. The Strategy and the Integrated Plan in the Field of Energy and Climate of the Republic of Bulgaria outline the documentary framework for the country's energy development, including the prospects of nuclear energy in the national energy policy.

According to the Energy Strategy of the Republic of Bulgaria until 2020,[10]government's vision for energy development comprised-the maintenance of a secure, stable and reliable energy system; the preservation of energy as a leading sector of the Bulgarian economy, with a clearly expressed foreign trade focus; prioritisation of clean and low-emission energy from nuclear and renewable sources; a balanced approach to the quantity, quality and price of electricity produced from renewable sources, nuclear energy, coal and natural gas; and transparent, effective and highly professional management of energy companies.

It is particular relevance that the changes in the geostrategic and political plan, as well as the escalation of the conflict in Ukraine, coincided with the expiration of the Energy Strategy – until 2020. This necessitated the postponement of the public discussion of the Draft Energy Strategy until 2030, originally scheduled for September 2020, and envisaging a planning horizon extending to 2050.

Thus, as of 2020, the Republic of Bulgaria has not had an approved energy development strategy in force that has been adopted by the National Assembly.

In February 2021, the Ministry of Energy published for public consultation a Draft Strategy for Sustainable Energy Development, but the draft was not adopted by the Legislature.

Two years later, on 23 January 2023, the Ministry of Energy published a new draft energy strategy entitled: "Strategic vision for sustainable development of the electricity sector of the Republic of Bulgaria with a horizon until 2053[11]."

The vision was elaborated on the basis of Article 4, paragraph 2, item 1 of the Energy Act and reflects the state's vision for the development of the electricity sector until 2053, consistent with the current European framework of climate and energy policy and global trends in the development of new technologies. It sets out the general European policies and goals for the development of energy and for limiting climate change, reflecting national specificities of the Republic of Bulgaria with regard to its energy resources, production, transmission, and distribution systems.

9 | Act on Energy, promulgated in the State Gazette, issue 107 of 9.12.2003, last amended and supplemented, issue 39 of 1.05.2024, in force from 1.05.2024, art. 3
10 | Council of Ministers 2011, 4.
11 | Council of Ministers 2023

By Decision No. 49 of 20 January 2023, the Council of Ministers formally adopted a Strategic Vision for the Development of the Electricity Sector of the Republic of Bulgaria 2023 – 2053. According to item 2 of this decision, the Minister of Energy should present the adopted strategic vision before the National Assembly[12].

Based on the provision of Article 3, paragraph 2 of the Energy Act, which states that the Strategy for Sustainable Energy Development of the Republic of Bulgaria is adopted by the National Assembly upon a proposal from the Council of Ministers, it follows that the act adopted by Decision No. 49 of 20 January 2023 is not, in itself, a final or binding act. Its legal effect is contingent upon its formal adoption by the National Assembly.

Although adopted by a collegiate body of the executive power within the ambit of its competences, the strategic vision does not have the characteristics of an individual administrative act, nor can it be characterised as a general or normative administrative instrument. Rather, it represents a political and programmatic framework—a declaration of intent outlining government policy, priorities,

12 | Proceedings under Art. 145 et seq. of the Administrative procedure code (APC) were initiated against Decision No. 49/20.01.2023 of the Council of Ministers on a complaint by the Association "For the Earth – Access to Justice". The defendant – the Council of Ministers of the Republic of Bulgaria, presents reasons for the inadmissibility of the complaint, since the decision did not contain the features of a normative act within the meaning of Art. 75 et seq. of the APC, a general one under Art. 65 et seq. of the APC, nor an individual administrative act under Art. 21 of the APC. By Resolution No. 2714/15.03.2023 of the Supreme Administrative Court under adm. d. No. 1894/2023, the three-member panel of the Supreme Administrative Court left the filed complaint without consideration, as procedurally inadmissible and terminated the proceedings in the case on the grounds of Art. 159, item 1, item 4 of the APC. In order to reach this result, the court accepted that the contested decision does not have the character of a normative act within the meaning of Art. 75 et seq. of the APC, it cannot be qualified as a general act within the meaning of Art. 65 et seq. of the APC, since it does not create rights and obligations and does not directly affect the rights, freedoms or legitimate interests of an indefinite number of persons. It also accepted that since the contested act does not create rights and obligations and does not directly affect the rights, freedoms or legitimate interests of certain addressees, it does not have the characteristics of an individual administrative act within the meaning of Art. 21 of the APC. As an additional argument, he stated that the appellant does not have a legal interest in challenging the decision of the Council of Ministers, since this document does not create rules of conduct or regulation, and therefore does not directly affect the rights and legitimate interests of citizens or organisations, including such as the Association "For the Earth – Access to Justice", which aim to protect in court the rights of the affected public and to protect the right to a healthy and clean environment for citizens. Based on the above, and on the basis of Art. 159, items 1 and 4 of the Code of Civil Procedure, the three-member panel of the Supreme Administrative Court left the appeal without consideration, and terminated the proceedings in the case.
On a private appeal filed by the Association "For the Earth – Access to Justice", proceedings were initiated pursuant to Art. 229 et seq. of the Code of Civil Procedure against Resolution No. 2714/15.03.2023 of a three-member panel of the Supreme Administrative Court, issued under adm. case No. 1894/2023 which confirms decision No.2714/15.03.2023 of a three-member panel of the Supreme Administrative Court. The decision is final. (See. Decision No. 7528 of 10.07.2023 of the Supreme Administrative Court in adm. case No. 3483/2023, 5-member panel, rapporteur judge Maria Radeva).

strategies, goals, tasks and measures that the government undertakes in the field of the electricity sector[13]over the defined period.

For the purposes of this study, particular attention is devoted to the vision for the development of nuclear energy in the Republic of Bulgaria during the period 20232053, as outlined in the Strategic Vision.

In Part II, entitled "Current Status of the Bulgarian Electricity Sector", data from the year 2022 indicates that the structure of electricity production is dominated by thermal power plants – TPPs (45%), followed by the nuclear power plant "Kozloduy NPP" (33%). Both NPPs and TPPs constitute the backbone of the electricity system securing its operational stability, governance, and overall balance, while guaranteeing security of supply . In practice, these plants are the leading component for the reliability of the system, respectively, for the vitality of the electricity market.

Unlike the power plants participating in frequency regulation and exchange capacities, Kozloduy NPP is technologically constrained from providing certain ancillary services. This limitation poses challenges in balancing the electricity system—specifically in relation to periods of minimum load and in the presence of forced production from hydroelectric and wind power plants.

With the rapid expansion of renewable energy sources and the lack of significant industrial electricity demand in the country, there is a growing requirement to curtail the operating capacity of nuclear power plants during certain periods of the year. The loss of manoeuvrability and opportunities for balancing the power system should be compensated by creating and introducing innovations in storage, including the development of technologies and processes for converting energy into hydrogen and other alternative gases, which would allow for the storage of energy in times of surplus. According to the Plan for the Development of the Electricity Transmission Network of the Republic of Bulgaria for the period 2022-2030, if by 2031 the newly planned wind and thermal power plants—projected to possess a combined installed capacity exceeding 6,500 MW remain unregulated, the overall balancing capacity of the power system will be reduced. Energy balance assessments show a drastic disproportion in the possibilities for covering domestic consumption and possible export of electricity. The latter is not only impossible in winter conditions, but in some years even implies the use of all available sources of additional services and/or the import of electricity.

In Part III, titled "Electricity Market in the Region and Europe", forecasts predict a doubling of final electricity consumption in Europe over the next three decades from around 3 billion MWh in 2020 to around 6 billion MWh in 2050. Bulgaria is traditionally among the major net exporters of electricity in Europe. According

13 | Decision No. 2714 of 15.03.2023 of the Supreme Administrative Court under adm. case No. 1894/2023, III district, rapporteur Chairman Mario Dimitrov.

to the annual Bulletin on the Status and Development of the Energy Sector of the Republic of Bulgaria for 2023, the gross electricity production in 2023 stood at 40 terawatt-hours (TWh) marking a decline of 21% compared to 2022. The structure of electricity production is dominated by the nuclear power plant Kozloduy and thermal power plants using coal.

The 2024 sectoral bulletin anticipates a further 5% decrease in electricity generation compared to the preceding year. The balance between exports and imports is expected to be positive at around 1.03 TWh, which means that Bulgaria retains its position as a net exporter of electricity. However, compared to 2023, there is a decline of almost 70%, which is likely due to the stabilisation of the energy market in the region and the decrease in prices, which have rendered the operation of coal-fired power plants inefficient. The cessation of electricity exports would lead to financial losses for the state and the wider society. In addition, in times of higher consumption, emergency imports from neighbouring countries will be necessary, which leads to uncertainty in the electricity system and an increase in electricity prices in the country. An example of this is the drop in December 2022. per 1000 MW of production (6th power unit of the Kozloduy NPP), which caused an additional shortage of electricity in the already deficient region of Southeastern Europe and led to imports of about 1500 MW per day from neighbouring countries, as well as higher prices on the market.

In Part VIII of the document, the Ministry of Energy has presented scenarios for electricity development spanning the thirty-year period. These are designed to preserve the energy independence of the Republic of Bulgaria, maintain its status as a net exporter of electricity, while at the same time complying with the European "Fit for 55" [14]package in 2030.

The reform of the EU emissions trading system, as part of the "Fit for 55" energy package, is projected to lead to higher prices for carbon emissions. This in turn will lead to a 58% reduction in coal-fired electricity generation by 2030. In the model, most of the emissions reduction occurs by 2035, when lignite production declines significantly and is replaced by new nuclear generation.

In financial terms, the Strategic Vision for the Development of the Electricity Sector of the Republic of Bulgaria 2023–2053[15], the necessary investments for the sub-sectors Nuclear Energy, Renewable Energy Sources (RES) and Hydropower Plants for the period amount to €46.35 billion. It is planned that 1 billion euros or

14 | The 'Fit for 55' package is the EU's target to reduce net greenhouse gas emissions by at least 55% by 2030 and to align EU legislation with this target. It contains a set of proposals to review and update EU legislation and to introduce new initiatives to ensure that EU policies are in line with the climate objectives agreed by the Council and the European Parliament. The proposals in the package are first presented and discussed at technical level in Council working groups. They are then discussed by EU Member States' ambassadors to prepare agreements between the 27 Member States. EU ministers in different Council formations have exchanged views on the proposals with a view to agreeing on a common position on each of the proposed legislative acts.

15 | Council of Ministers 2023, 18–24.

23% of the total amount will be state participation. Investments in nuclear energy for 2023–2053 are planned for two projects with an estimated value of €22 billion, and are presented in the Table below. International financial institutions and strategic investors are indicated as sources of financing[16]:

Sub-sector	Project	Estimated investment value (million euros)	Source of funding
Nuclear energy	New 2,000 MW capacities at Belene site	10,000	International financial sources and strategic investors
	2,000 MW of replacement capacity by 2045 at the Kozloduy site	12,000	International financial sources and strategic investors
TOTAL:		**22,000**	

2.3. Integrated Energy and Climate Plan of the Republic of Bulgaria

The National Integrated Energy and Climate Plan of the Republic of Bulgaria 2021–2030 has been prepared in implementation of Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action and sets long-term goals for the development of the sectors: "Energy", "Household and Public Sector", "Industry", "Transport", "Waste", "Agriculture", etc. The five dimensions of the Energy Union are covered – decarbonisation, energy efficiency, energy security, internal energy market and scientific research, innovation and competitiveness. The initial version of the Plan was submitted to the European Commission in March 2020, and subsequently received formal approval on 14 October 2020.

An updated iteration of this plan was submitted by Bulgaria and made publicly available on 15 January 2025. [17]

This updated version is in the process of conducting an environmental assessment and, after its successful completion, will be submitted for approval by the Council of Ministers. Given the current state and trends in the development of electricity price levels in the energy markets, it seems that the envisaged reform aimed at the comprehensive decarbonisation of the Bulgarian energy sector by 2026 in the Recovery and Resilience Plan appears increasingly unrealistic and difficult to implement.

It must be emphasised that the proposed timetable is a commitment only under the Recovery and Resilience Plan. The updated National Integrated Energy and Climate Plan, by contrast, is the appropriate strategic framework intended to elaborate the detailed pathways and measures by which decarbonisation and energy transition goals are to be realised. In addition to the Recovery and Resilience Plan, the updated National Integrated Energy and Climate Plan is in line with

16 | According to information from the Ministry of Energy.
17 | European Commission 2025

the climate objectives of the European Green Deal and the European Climate Law, the Fit for 55 package, the REPowerEU plan, etc. One of the main assumptions in its development is the inclusion of energy production from new nuclear capacity in the national energy mix after 2030.

Regarding the domestic energy sector, the updated Integrated Energy and Climate Plan envisages maximum use of the existing potential of domestic coal in the country while complying with environmental requirements.

3. Nuclear regulatory authorities and national nuclear legal framework

3.1. Structure of the national regulatory authority

In the Republic of Bulgaria, state regulation of the safe use of nuclear energy and ionising radiation and of the safe management of radioactive waste and spent fuel is carried out by the Chairman of the Nuclear Regulatory Agency (NRA), which is an independent specialised body of the executive branch and has competence defined by the Act on the Safe Use of Nuclear Energy (SUNEA).[18]

Pursuant to Articles 12 and 13 of the SUNEA, state bodies which finance or otherwise contribute to the implementation and use of nuclear energy or sources of ionising radiation, are expressly prohibited from exercising state regulatory functions with regard to nuclear safety and radiation protection in the implementation of these activities. The Ministers of Health, Environment and Water, Interior, Defence, Agriculture and Food, Transport, Information Technologies and Communications, Education and Science and the Chairman of the State Agency "National Security", all exercise specialised supervisory functions as defined by sectoral legislation.

The powers of the Chairman of the NRA and the regulatory activities are defined in Chapters Two and Three of SUNEA and the Rules of Procedure of the Nuclear Regulatory Agency.

To safeguard institutional independence from the industry and the changing political climate, the Chairman of the Agency is determined by a decision of the Council of Ministers and is appointed by the Prime Minister for a term of 5 years, and may be appointed for another term.

In exercising his powers, the Chairman is assisted by two Deputy Chairmen, who are determined by a decision of the Council of Ministers upon the proposal of the Chairman of the Agency and are appointed by the Prime Minister.

The Chairman of the Agency is assisted in the discharge of his duties by an administration organised within the Agency. The Agency is a legal entity supported

18 | Acton the Safe Use of Nuclear Energy, promulgated, State Gazette, No. 63 of 28.06.2002, last amendments, No. 70 of 20.08.2024, Art. 4

by the budget with its headquarters in Sofia. The Chairman of the Agency is a primary budget spending authority.

The structure, activities and organisation of the work of the agency and its staff are determined in the organisational regulations adopted by the Council of Ministers upon the proposal of the Chairman of the agency. The total number of staff of the agency is 114, including the Chairman and the two Deputy Chairmen.

The administration of the agency assists the chairman of the agency in the exercise of his powers, ensures his technical activities and carries out activities on the administrative service of legal entities and citizens. It is organised into one main directorate and four directorates, divided into general and specialised administration and an internal audit unit.

The "General Administration" Directorate coordinates and participates in the preparation or independently prepares opinions on draft regulatory acts sent for coordination, including draft international treaties and positions on draft acts of the institutions of the European Union. It also coordinates and participates in the development of a plan for the development of the regulatory framework on nuclear safety, radiation protection, physical protection, emergency planning and preparedness, etc. In addition, it prepares and conducts procedures under the Public Procurement Act, gives opinions on the legality of contracts, draft individual administrative acts and makes proposals for resolving issues of a legal nature. Furthermore, it carries out the procedural representation of the agency before the courts and proposes the assignment of procedural representation to the agency. Furthermore, it organises and carries out the clerical and archival activities, financial and accounting services, draws up the draft budget of the agency and reports on its implementation. The functions of the directorate are detailed in Article 16 of the Agency's organisational regulations.

The specialised administration of the NRA is structured into four directorates, each responsible for distinct aspects of regulatory oversight and international engagement: Directorate General "Nuclear Safety", Directorate "Safety Analysis and Assessment", Directorate "Radiation Protection" and Directorate "International Cooperation".

Collectively, these directorates support and ensure the implementation of the statutory powers vested in the Chairman of the agency under the SUNEA. Integral to the structure of the Directorate General "Nuclear Safety" is the territorial unit situated in Kozloduy, which enjoys the status of a departmental body and exercises oversight of nuclear safety and radiation protection of the facilities at the Kozloduy NPP site within the competence granted to it by the Chairman of the agency in accordance with the regulations.

The General Directorate for Nuclear Safety assists the Chairman of the Agency in carrying out his regulatory and control functions with regard to activities with nuclear power plants, research reactors and facilities for managing spent fuel and nuclear material, emergency preparedness activities in the event of a nuclear or

radiation accident, activities with regard to the qualification and legal capacity of personnel in nuclear facilities and sites with sources of ionising radiation, as well as other activities specified in Article 18, paragraph 2 of the Organisational Regulations.

The Directorate "Safety Analysis and Assessment" assists the Chairman of the Agency in carrying out his regulatory and control functions with regard to the review and assessment of the documentation submitted by the applicant, respectively by the holder of a licence or permit, for issuing permits and licences for carrying out activities with nuclear facilities, with the exception of facilities for radioactive waste management. The functions performed by the Directorate are prescribed in Article 19, paragraph 2 of the Organisational Regulations.

The "Radiation Protection" Directorate assumes responsibility for the preparatory and decision-making processes concerning the issuance, grounds for refusal, termination, renewal or revocation of licenses and permits for activities with sources of ionising radiation, as well as licences or permits for the safe management of radioactive waste and the decommissioning of nuclear facilities and sites with radioactive substances; plans and conducts inspections, assesses and takes measures to optimise radiation protection in nuclear facilities, sites with sources of ionising radiation, sites with an increased content of natural radionuclides and in the management of radioactive waste and the decommissioning of nuclear facilities and sites with radioactive substances, as well as other activities pursuant to Article 20, paragraph 2 of the Organisational Regulations.

The "International Cooperation" Directorate renders assistance to the Chairman of the Agency on issues related to international relations. It is charged with the organisation and conduct of negotiations on the signing of international cooperation agreements with other countries or regulatory bodies, organises and coordinates the cooperation, preparation and participation of the Bulgarian delegation in the sessions and meetings of the governing bodies of international organisations. Its mandate is further delineated in Article 21, paragraph 2 of the Organisational Regulations.

A nuclear safety and radiation protection control inspector is an official employed within the administration of the NRA, appointed pursuant to an employment contract and duly authorised by an order issued by the Chairman of the Agency. This authorisation empowers the inspector to perform regulatory oversight in accordance with the provisions of the SUNEA, and in accordance with the functions of the unit to which he is assigned, as defined by the regulations. The control inspector shall identify himself with an official card or present an act on the basis of which he is authorized to carry out the inspection. The criteria and qualifications required for appointment to this position are set forth in Article 22, paragraph 2 and paragraph 3 of the Organisational regulations.[19]

19 | On the authorisation of extensions to the operating life of nuclear power plants, see the practice in the US and Hungary: Paulovics 2020, 344–359.

3.2. Nuclear legislation

The significant socio-economic transformations experienced by the Republic of Bulgaria, particularly in view of its aspiration to attain a full membership of the EU, together with the need to bring the use of nuclear energy in line with good European practices necessitated a comprehensive review and modernisation of the domestic legal framework, including the national nuclear legislation. This culminated in the adoption, in June 2002, of the SUNEA, which now stands as the principal and most important source of nuclear legislation in the country.

SUNEA, a lex specialis in the sphere of nuclear regulation, superseded the previous Act on the Use of Atomic Energy for Peaceful Purposes[20]and undoubtedly introduces a new quality into the legal framework.

With its promulgation, the statutory obligations arising under the Constitution of the Republic of Bulgaria[21] have been duly fulfilled, notably the constitutional requirement that nuclear energy fall under a state monopoly, and that the conditions and procedure under which the state grants permits for activities be regulated by law. Thus, the state, through its regulatory framework, regulates the basic legal institutions that guarantee the performance of the activity in a safe and secure manner.

Central to this framework is the creation of an autonomous regulatory body-the Nuclear Regulatory Agency (NRA) – whose supervisory functions have been regulated in detail under the Act. SUNEA provides for a mandatory licensing regime covering the construction and operation of nuclear power plants, management of radioactive waste and activities with sources of ionising radiation. Administrative and criminal liability has been established for violations of the law and by-laws, the regime of ownership of nuclear material and nuclear facilities has been eased, with an emphasis on safety, protection of health, life and safety of people and the environment. Restrictions have been provided for monitoring the radiation characteristics of the environment. In addition to the mandatory nature of these activities for licensees/permit holders, the law provides for the withdrawal of the issued licence or permit for failure to comply with the requirements. Furthermore, the Act addresses civil liability for nuclear damage in a manner consistent with international legal practice, specifically with reference to the Vienna Convention on Civil Liability for Nuclear Damage.

The regulatory framework for the safe use of nuclear energy is characterised by dynamism and continuous updating of the main nuclear regulatory act, in accordance with the development of international standards, European and

20 | Acton the Use of Atomic Energy for Peaceful Purposes, promulgated in the State Gazette, No. 79 of 11.10.1985, amended in No. 80 of 15.10.1985, amended and supplemented in No. 69 of 4.08.1995, amended in No. 71 of 23.06.1998, repealed in No. 63 of 28.06.2002, repealed by the SUNEA (2002)
21 | CONSTITUTION of the Republic of Bulgaria, promulgated, SG, No. 56 of 13.07.1991, in force from 13.07.1991, last amended and supplemented, No. 66 of 6.08.2024, Art. 18, para. 4 and para. 5

national legislation[22]. Since the adoption of the SUNEA in 2002, the statute has undergone more than thirty amendments and supplements. Due to the fact that public relations in the use of nuclear energy such as design, construction, commissioning of nuclear facilities, licensing, radiation protection, preventive protective measures, etc. are regulated both in the SUNEA and in other acts (Environmental Protection Act, Energy Act, Spatial Planning Act, Health Act, etc.), and the details are further developed in a large number of subordinate regulatory acts, nuclear legislation is extremely voluminous, and the legal norms are technically detailed.

The act defines the areas that must be regulated by ordinances—more than twenty in number—as well as by organisational regulations, such as the organisational regulations of the Nuclear Regulatory Agency and regulations on the organisation and activities of the State Enterprise Radioactive Waste. In addition, a tariff framework is established for the fees levied by the Nuclear Regulatory Agency.

Notably, the Chairman of the Nuclear Regulatory Agency does not possess the authority to issue subordinate regulations in the field of nuclear safety. Pursuant to Article 5, paragraph 17 of the SUNEA, the Chairman of the Nuclear Regulatory Agency develops and proposes for adoption by the Council of Ministers regulations on the implementation of the law and proposes amendments and supplements to them, when necessary to improve the regulatory requirements, taking into account operational experience, conclusions drawn from safety analyses and the development of science and technology.

Following the enactment of the SUNEA in 2002, a number of European and international acts came into force, requiring legislative measures to be taken at the national level for the implementation and enforcement of these acts. In practice, in the period between 2002 and 2005, in the process of developing and adopting the regulations to the basic act, the implementation of the European standards for nuclear safety, radiation protection and safety in the transport of radioactive waste was carried out. At the same time, amendments were adopted in order to implement the requirements of ratified international treaties that were not taken into account when the act was adopted in 2002.

With the Republic of Bulgaria's accession to full membership of the European Union on 1 January 2007, the legal responsibility for maintaining a national legislative, regulatory and organisational framework for nuclear safety of nuclear installations has acquired renewed significance. From the Treaty establishing the European Atomic Energy Community (Euratom Treaty) for our country, a certain number of specific obligations arise, among which, with direct relevance to the subject of the study, is the obligation to incorporate into its domestic legislation the basic standards for the protection of health from the dangerous effects of

22 | Lamoureux 2022, 328–459.

ionising radiation issued on the basis of the EURATOM Treaty, as well as to notify the European Commission thereof. In the conditions of our full membership in the European Union, the existing national legislation is periodically reviewed and synchronised with the European achievements, as well as with the new or amended documents of the International Atomic Energy Agency.

3.3. Licensing rules for activities related to the use of nuclear energy

A substantial portion of the nuclear legislation—most notably within the framework of the Safe Use of Nuclear Energy Act (SUNEA)—is devoted to the regulation of activities, respectively, obtaining a permit or licence to carry them out[23]. In Chapter Three of the Act entitled "Regulation of Activities", the legislator has provided for three sections, which set out the general conditions, fees and nuclear facilities for which the Chairman of the Nuclear Regulatory Agency issues permits or licences, and in general terms present the requirements and the procedure for their issuance. Licences and permits under the law are individual administrative acts.

Pursuant to the provisions of SUNEA, a licence shall be required for the following activities:

1. The operation of a nuclear facility;
2. The utilisation of sources of ionising radiation for economic, medical, veterinary, scientific purposes or for the performance of control functions, except for cases where registration or notification is required;
3. The manufacture of sources of ionising radiation;
4. The production of consumer products, including medical devices within the meaning of the Medical Devices Act, by adding radioactive substances;
5. The transportation of radioactive substances;
6. The provision of specialised training;
7. The decommissioning of a nuclear facility;
8. The operation and technical liquidation of sites for mining and processing of ore containing natural uranium or thorium.

A permit, as defined by the Act, shall be issued in respect of:

1. The determining the location of a nuclear facility (site selection);
2. The designing a nuclear facility;
3. The construction of a nuclear facility;
4. The commissioning of a nuclear facility;
5. Modifications giving rise to alterations in: a) structures, systems and components important for the safety of the nuclear facility; b) limits and conditions for the operation of a nuclear facility, on the basis of which the licence

23 | Beatrix & Coin 2023, 7–145.

for operation or decommissioning was issued; c) internal rules for carrying out the activity, including instructions, programs, technological regulations and other documents attached to the licence for the operation of a nuclear facility or to the licence for decommissioning;
6. The transport of nuclear material;
7. The construction, installation and preliminary testing of a facility with a source of ionising radiation, except for cases subject to notification;
8. Alterations to the structures, systems and components provided for in the design, related to radiation protection at sites with sources of ionising radiation;
9. The decommissioning of a site with radioactive substances;
10. The temporary storage of radioactive substances obtained during the performance of activities with sources of ionising radiation or related to such activities;
11. One-time transport of radioactive substances;
12. The import and export of sources of ionising radiation;
13. Transactions with nuclear facilities and nuclear materials;
14. The import and export of nuclear material;
15. The transit transport of nuclear material, radioactive waste, spent fuel or other radioactive substances;
16. The remediation of sites contaminated with radioactive substances.

Licences are, as a rule, granted for a term not exceeding ten years, except for licenses for the operation of nuclear facilities in which nuclear material is used, handled or stored. Such licences are not subject to any time limitation.

The extension of a licence is contingent upon an assessment of nuclear safety and radiation protection, as well as an appraisal of the actual condition of the nuclear facility and the site with a source of ionising radiation. An extension may be granted for a period not longer than the term for which it was issued, if the licensee fulfils all obligations and requirements under it and has made a written request for extension before the expiration of the term of the initial licence or the relevant extension.

The procedural requirements governing the issuance, amendment, renewal, suspension, withdrawal, and supervision of licences and permits are regulated in detail in the Regulation on the Procedure for Issuing Licenses and Permits for the Safe Use of Nuclear Energy[24].

24 | REGULATION on the procedure for issuing licenses and permits for the safe use of nuclear energy, adopted by Council of Ministers No. 93 of 4.05.2004, promulgated in the State Gazette, issue 41 of 18.05.2004, last amended and supplemented by issue 53 of 5.07.2019.

4. Stages of licensing of nuclear power plants in the Republic of Bulgaria

4.1. Decisions for the implementation of nuclear projects in the Republic of Bulgaria and procedure for justifying the proposal

The specific rules governing the construction and operation of nuclear power plants are regulated in Section IV, Article 45-47 of the SUNEA.

Pursuant to Article 45 of the Act, the construction of a nuclear power plant may only proceed upon the adoption of a decision to that effect by decision of the Council of Ministers. The proposal for the construction of a nuclear power plant is submitted by the Minister of Energy with an assessment of:

1. Nuclear safety and radiation protection, environmental impact and physical protection;
2. The socio-economic significance of the construction of a nuclear power plant for the country or for certain regions;
3. The radioactive waste [25]and spent nuclear fuel resulting from the operation of a nuclear power plant, and their management[26].

The Minister of Energy is required to organise a public discussion of the proposal for the construction of a nuclear power plant, in which state bodies and local self-government bodies, representatives of public organisations and interested individuals and legal entities participate. Notification shall be made through the mass media or in another appropriate manner at least one month before the discussion. The assessment of the results of the discussion shall be attached to the Minister's proposal.

In accordance with Article 46 of the SUNEA, the use of a power unit of a nuclear power plant for its primary purpose may commence only after the entry into force of an operating licence issued in accordance with the Act and in the presence of an effective licence for the production of electricity and/or heat, issued in accordance with the Energy Act.

The experience of the Republic of Bulgaria with the development of new nuclear projects and licensing the construction of new nuclear power plants has been marked by inconsistency and contradiction. Over the past twenty years, the projects for "Belene NPP" and new nuclear builds at the "Kozloduy NPP" site are an indicative example of this.

25 | Montjoie, 2011, 20–152.
26 | Amiard 2022, 45–80

As previous stated, the principle decision to proceed with the construction of a nuclear power plant is made by the Council of Ministers upon a proposal from the Minister of Energy.

By Decision No. 259 dated 8 April 2005, the Council of Ministers, on the basis of §5, item 62 of the Additional Provisions of the Spatial Planning Act, designated the energy facility "Nuclear Power Plant at the Belene Site" as a facility of national importance. By Decision No. 260 of the same date and year, the Council of Ministers, on the basis of Article 45, paragraph 1 of the SUNEA, approved the proposal of the Minister of Energy and Energy Resources for the construction of a nuclear power plant at the Belene Site with a maximum installed electrical capacity of 2000 megawatts electric (MWe), based on an evolutionary project using approved technical solutions with a pressurised water reactor and gave its consent in principle to the construction of the nuclear power plant at the same site after obtaining licenses and permits. The Minister of Energy and Energy Resources should prepare and submit for approval by the Council of Ministers a report on the legal and organisational form for the establishment of a company for the development of the Belene NPP project.

Seven years later, with Decision No. 250 of 29 March 2012, the Council of Ministers repealed its above-cited Decisions No. 259 and No. 260. In turn, on the same day, the National Assembly adopted a decision supporting the actions of the Council of Ministers to terminate the construction of a nuclear power plant at the Belene site.

By virtue of that decision, the National Assembly mandated the then Minister of Economy, Energy and Tourism to carry out the necessary work to build a new nuclear power plant at the Kozloduy NPP site, making use ofthe nuclear equipment previously acquired and paid for by the Republic of Bulgaria.

Separately, on 11 April 2012, the Council of Ministers adopted a decision pursuant to Article 45, paragraph 1 of the SUNEA, granting consent in principle for the construction of a new nuclear capacity at the Kozloduy NPP. In item 2 of the same decision of the Council of Ministers, the Minister of Economy, Energy and Tourism is assigned to submit to the Council of Ministers a report under Article 45, paragraph 2 of the Act, with a view to making a decision on the merits and a report on the legal and organisational form for the implementation of the project.

Subsequently, on 12 January 2023,the National Assembly, acting pursuant to Article 86 of the Constitution of the Republic of Bulgaria and Article 85, paragraph 1 of the Rules of Procedure for the Organisation and Activities of the National Assembly, resolved[27] to mandate the Council of Ministers to conduct negotiations with the Government of the United States of America regarding the conclusion of

27 | DECISION of the National Assembly of 12.01.2023 on assigning the Council of Ministers to conduct negotiations with the US government regarding the conclusion of an Intergovernmental Agreement for the construction of a new nuclear capacity at the Kozloduy NPP with AP1000 technology, Promulgated, State Gazette, issue 6 of 20.01.2023.

an intergovernmental agreement for the construction of a new nuclear capacity at the Kozloduy NPP with AP1000 reactor technology.

The decision takes into account the existing bilateral framework, notably the Interstate Agreement between the Republic of Bulgaria and the United States of America on the Peaceful Uses of Nuclear Energy, concluded on 21 June 1994, and the Agreement between the Nuclear Regulatory Agency and the US Nuclear Regulatory Commission from 2018, as well as the Memorandum of Understanding between the two countries on strategic cooperation in the field of the use of nuclear energy for peaceful purposes from 2020.

It was also taken into account that the country's energy security is an element of national security. The Kozloduy NPP is acknowledged as a proven guarantor of ensuring energy security and nuclear energy as a clean low-carbon energy source is an opportunity and a tool for achieving the goals of the energy and climate policy of the European Union. In addition, the extension of the operating life of the existing units of the Kozloduy NPP together with the construction of a new nuclear capacity at the site is part of the economic life of the nuclear power plant and contributes to increasing the country's energy security. It is noted that there is a Decision of the Ministry of Environment and Water (Decision No. 1-1/2015 dated 27 January 2015) to approve the investment proposal for the construction of a new nuclear capacity at the Kozloduy NPP on site No. 2 and the same site has an Order for an approved site for the deployment of a nuclear facility – a nuclear power plant, from the Nuclear Regulatory Agency.

On 18 December 2023, the National Assembly, acting in accordance with Article 86, paragraph 1 of the Constitution of the Republic of Bulgaria, adopted a decision whereby it[28]:

1. Instructed the Minister of Energy, in his capacity as the sole owner of the capital of the "Bulgarian Energy Holding", to take action to increase the capital of "Kozloduy NPP" with a cash contribution in the amount of BGN 1,500,000 thousand in order to increase the capital of "Kozloduy NPP – New Builds" PLC by an equivalent amount;
2. Mandated the Minister of Energy to allocate all future revenues from the sale of long-life equipment owned by the National Electricity Company, intended for the Belene NPP Project, solely for the construction of Units 7 and 8 on Site No. 2 of the Kozloduy NPP;
3. Obliged the Council of Ministers, acting through the Minister of Energy, to undertake all requisite measures by 31 March 2024 for the adoption of a decision under Article 45 of the SUNEA for the construction of Unit 7 on Site

28 | DECISION of the National Assembly of 18.12.2023 to take action on the construction of units 7 and 8 on site No. 2 of the Kozloduy NPP with AP1000 technology, published in the State Gazette, issue 105 of 19.12.2023.

No. 2 of the Kozloduy NPP with AP1000 reactor technology in accordance with an indicative implementation schedule;

4. Instructed the Council of Ministers, acting through the Minister of Energy, to take action by 2 February 2024to implement item 4 of the Decision of the 48th National Assembly of 12 January 2023(State Gazette, issue No. 6 of 2023) to launch the necessary procedures for the construction of a second unit with identical technology to the Site No. 2 (8th unit) approved by the Nuclear Regulatory Agency.

On 25 October 2023, the Council of Ministers of the Republic of Bulgaria granted its consent in principle, pursuant to Article 45, paragraph 1 of the SUNEA for the construction of Unit 8 of the Kozloduy NPP.

In furtherance of the Decision of the National Assembly of 18 December 2023, actions have been taken to launch the licensing procedure under the Act and the procedure for the assessment of the environmental impact of the implementation of the investment proposal under the Environmental Protection Act. The investment proposal is for the design, construction and commissioning of a new nuclear facility – Unit 8 on the Kozloduy NPP site.

On 8 March 2024, acting on the basis of Article 15, paragraph 1 and Article 25, paragraph 1 of the Act on International Treaties of the Republic of Bulgaria, the Council of Ministers, by its decision, approved the Agreement, signed in Sofia on 12 February 2024, and proposed to the National Assembly to ratify it by law.

According to the explanatory memorandum to the draft Act on Ratification of the Agreement, as submitted by the Minister of Energy, the principal aim of the Agreement is to establish a framework for enhanced cooperation in the execution of the Project for the design, construction and commissioning of a new reactor with an installed capacity of at least 1,000 megawatts at the Kozloduy NPP (unit 7 of the Kozloduy NPP). The Agreement further supports the broader development of Bulgaria's civil nuclear programme, guided by the principle of mutual benefit and taking into account the common interests and goals of both parties.

Under the terms of the Agreement, the two parties affirm their intention to cooperate in a wide range of activities, including: consultations and exchange of expert and technical contributions to achieve progress in the overall development of our country's nuclear program, participation of entities from third countries (subject to the applicable national laws of the respective states) in the design, construction and commissioning of a new nuclear capacity at the Kozloduy NPP; the identification of potential financing and economic structures that will support the financing of the implementation of the nuclear project; the promotion of nuclear energy for civilian purposes within the European Union; and the exploration of the development and implementation of innovative nuclear technologies, including advanced reactors and technologies for radioactive waste management.

On 22 March 2024, the National Assembly ratified the Agreement[29].

4.2. Environmental licence

In compliance with the provisions of the Environmental Protection Act, the project company "Kozloduy NPP – New Builds" PLC, immediately after its establishment in May 2012, promptly initiated the procedure for conducting an environmental impact assessment (EIA) in respect of an investment proposal for the construction of a state-of-the-art nuclear power facility at the Kozloduy NPP site.

As recorded in the company's annual report[30] for 2013,on 19 June 2012—at the earliest practicable juncture in the formulation of the investment proposal—"Kozloduy NPP", in its capacity as the sole owner of the capital of the project company, notified the Ministry of Environment and Water of the investment intention in accordance with the Environmental Protection Act and Article 4, paragraph 1 of the Regulation on the conditions and procedure for conducting an environmental impact assessment[31].

In this regard, in accordance with Article 4, paragraph 2 of the Regulation, steps were taken to inform the local population via appropriate mass media channels. In response to the instructions received from the Ministry of Environment and Water, on the basis of Article 10, paragraph 1 of the Regulation, the company commissioned the preparation of a report delineating the scope and content of the environmental and water impact assessment of the investment proposal. To this end, consultations were held with the Ministry of Environment and Water, Regional Inspectorate for Environment and Water – Vratsa, Basin Directorate for Water Management, Danube Region (with its administrative centre in Pleven), as well as with other specialised departments and the affected public.

The implementation of the impact assessment, which includes the preparation of a report on the scope and content of the assessment, has been assigned to the international consortium Deacon – Axion Engineering, selected among seven candidates as a result of a competitive procedure. The deadline for implementation is 25 November 2013, which has been extended by the time needed for a decision by the Supreme Expert Ecological Council until 31 March 2014.

The EIA report is mandated to provide a comprehensive evaluation of the environmental impact of the construction of a nuclear power plant at the

29 | Acton Ratification of the Agreement between the Government of the Republic of Bulgaria and the Government of the United States of America for Cooperation on the Project for Construction of Nuclear Power at the Kozloduy NPP Site and the Nuclear Program for Civil Purposes of the Republic of Bulgaria, signed in Sofia on February 12, 2024, Promulgated, State Gazette, No. 29 of 2 April 2024.
30 | NPP Kozloduy New Builds PLC 2013, 9–10. Prepared on 27.03.2014, certified according to the audit report of "Grant Thornton" dated 22.04.2014.
31 | REGULATION on the conditions and procedure for conducting an environmental impact assessment (Title amended – SG, issue 3 of 2006), adopted by Council of Ministers Decree No. 59 of 7.03.2003, promulgated, SG, issue 25 of 18.03.2003, last amended, issue 9 of 30.01.2024, in force from 1.02.2024.

Kozloduy NPP site, by studying and analysing the possible causes, sources and degrees of impact during the implementation of the project on the environmental components[32]. The report must also ascertain any foreseeable risks to the environment and human health during construction, normal operation and possible design basis and potential incidents falling within or beyond the design basis of the installation. Moreover,it is required to put forward recommendations and specify remedial measures aimed atmitigating adverse impacts and addressing environmental concerns during the construction and operation of the new nuclear unit.

In general, the results of the independent analyses and the assessment carried out for all stages of the development of the investment project—namely, the construction, operation and decommissioning of the nuclear power plant—are encapsulated in the following findings of the Environmental Impact Assessment (EIA) report:

- No non-radiation impact on the components and factors of the environment is anticipated;
- No radiological effects are foreseen upon water bodies, land and soil, geological formations, subsoil structures, land use, mineral diversity, biological diversity, ecological systems or cultural assets; nor upon areas inhabited by protected, important and sensitive species of flora and fauna; landscapes of natural beauty; areas and sites of historical and cultural significance, sites protected by international or national law, as well as on human health;
- No adverse impact is expected from radioactive waste, provided that the plans for decommissioning of the nuclear facility and all applicable Bulgarian and international legal requirements and practices are observed;
- The contribution of the new facility to the ambient radiation levels in the vicinity of the town of Kozloduy—arising from external radiation exposure—is assessed as negligible, even in cumulation with the existing nuclear facilities at the Kozloduy NPP site. The cumulative radiological impact on the environment is assessed as insignificant and no cumulative impact in terms of non-radiation is expected;
- No transboundary impact is expected in the territories of neighbouring countries.

The EIA procedure concluded on 27 January 2015with the issuance of Decision No. 1-1/2015 bythe Minister of Environment and Water, by which the competent authority approved the implementation of the investment proposal for the construction of a new nuclear power plant of the latest generation on Site No. 2 of the Kozloduy NPP.

32 | Russo 2024, 50–82.

The administrative act was subsequently subject to judicial review before the Supreme Administrative Court. The annual report[33] on the activities of "Kozloduy NPP – New Builds" PLC for 2019 contains information on the progress of administrative case No. 3947/2015 during the period 2016–2019.The Supreme Administrative Court, serving as a first instance on the case, annulled No. 1-1/2015 by Judgement No. 6524 of 17 May 2018of the Supreme Administrative Court, issued in administrative case No. 3947/2015.

By Judgement No. 4904 of 2 April 2019, renderedin administrative case No. 12369/2018, a five-member panel (Second Panel) of the Supreme Administrative Court overturned the earlier ruling Judgement No. 6524 of 17 May 2018of the Supreme Administrative Court. Along with annulling the decision of the lower instance, the cassation instance also ruled to reject all appeals against the Decision on the assessment.

From the chronology and procedures presented so far in obtaining an environmental licence for the construction of a new nuclear power plant at the Kozloduy NPP site, it is clear that the appeal of the Environmental Impact Assessment Decision by representatives of non-governmental environmental organisations on the grounds of "incorrectly conducted procedure" and the initiation of administrative cases before the Supreme Administrative Court has delayed the licensing process and the implementation of the project by more than five years.

As previously noted, on 25 October 2023, the Council of Ministers of the Republic of Bulgaria gave its consent in principle under Article 45, paragraph 1 of the SUNEA for the construction of Unit 8 of the Kozloduy NPP. Subsequently, by Decision adopted on 18 December 2023, the National Assembly resolved that actions must be taken to launch the licensing procedure for the environmental impact assessment of the implementation of the investment proposal under the Act, namely – "The Investment Proposal for the Design, Construction and Commissioning of a New Nuclear Facility – Unit 8 at the Kozloduy NPP Site".

According to the Bulgarian legislation, the decision on environmental impact assessment is an individual administrative act of the competent environmental authority, which at the earliest stage approves the admissibility for the implementation of the investment proposal. In this regard and in view of the abovementioned decision of the Council of Ministers, activities have been undertaken by the project company "Kozloduy NPP – New Builds" PLC to notify the existence of a new investment proposal, followed by activities to carry out an environmental impact assessment of the implementation of the investment proposal, including taking into account the cumulative effect of the joint operation of all existing and upcoming facilities on the Kozloduy NPP site.

33 | NPP Kozloduy New Builds PLC 2015, 4–5. Prepared on 18.03.2020, certified according to the audit report of "HLB Bulgaria" dated 26.03.2020.

On 19 February 2024, pursuant to Article 95, paragraph 1 of the Act and Article 4, paragraph 1 of the Regulation, "Kozloduy NPP – New Builds" PLC announces an investment proposal for "Construction of Unit 8 of Kozloduy NPP".

A notification of the investment proposal for the construction of Unit 8 of Kozloduy NPP was sent to the Minister of Environment and Water.

Subsequently, on 12 March 2024, the Ministry of Environment and Water sent instructions[34] for the preparation of activities related to the environmental and water assessment procedure[35].

4.3. Installation level licence under the Safe Use of Nuclear Energy Act and issuance of a construction permit under the Spatial Planning Act

In accordance with Section III of the SUNEA, the procedure for licensing a new nuclear capacity includes the issuance by the Chairman of the Nuclear Regulatory Agency of individual administrative acts, through which compliance with the safety requirements of the nuclear facility is controlled.These acts include:

- the granting of asite selection permit;
- the issuance of an order approving the selected site;
- the granting of adesign permit;
- the issuance of an order approving thetechnical design;
- the granting of a construction permit;
- the issuance of a commissioning permit; and
- the granting of anoperating licence.

It is to be observed that, pursuant to Article 44 of the SUNEA, the issuance of permits by the Chairman of the Nuclear Regulatory Agency in connection with the construction of a nuclear facility does not obviate the requirement to obtain the necessary permits under the Act on Spatial Planning. In addition, Article 33, paragraph 6 and paragraph 7 of the SUNEA provide that the permit for site selection and the order for approval of the selected site serve as a legal basis forthe issuance of permits for the development of a detailed development plan, respectively, grounds for approval of the plan, under the Spatial Planning Act. In light of these statutory requirements and in parallel with the activities conducted under the licensing procedure, "Kozloduy NPP – New Builds" PLC has taken actions to develop the plan and a procedure for regulating the territory of Site No. 2.

An important stage of the permitting regime concerns the stagecommonly referred to as *Engineering*, which is presently underway. For the new nuclear capacity at the Kozloduy NPP site, design is pending and, accordingly, preparation

34 | Ministry of Environment and Water 2024b.
35 | Penchev 2023, 380–405.

and submission to the Nuclear Regulatory Agency of the necessary documents for issuing a design permit, within the meaning of Article 15, paragraph 4, item 2 of the SUNEA. This will be followed by a procedure for selecting a designer, preparation of a technical design and issuance of an order for approval of the technical design by the Chairman of the Nuclear Regulatory Agency.

The third stage of the permitting regime under the SUNEA – concerns Construction and commissioning. This encompassestheissuance of (i) a Permit for the construction of a nuclear facility, within the meaning of Article 15, paragraph 4, item 3 of the Act; and (ii) a Permit for the commissioning of a nuclear facility, within the meaning of Article 15, paragraph 4, item 4 of the Act. The same are issued before the licence for the operation of the nuclear facility. For the issuance of both permits, the applicant must be a legal entity registered in the Republic of Bulgaria, in accordance with Article 33, paragraph 2 of the Act. Furthermore, the applicant must possesssufficient financial, technical, material, human resources and an organisational structure to fulfil its obligations to ensure the requirements, norms and rules for nuclear safety, radiation protection and physical protection.

Recent amendments toArticle 33, paragraph 9, paragraph 10 and paragraph 11 of the SUNEA (SG, issue 27 of 2024)provide that, save for the cases under Article 33, paragraph 8, following the issuance of a site selection permit by the Chairman of the Nuclear Regulatory Agency to determine the location of a nuclear facility (site selection), a construction permit may be issued after approval of a preliminary investment project pursuant to Article 142, paragraph 2 of the Spatial Planning Act. In such instances, the applicant is obliged tonotify the Chairman of the Agency of the submitted application requesting approval of a preliminary investment project pursuant to Article 142, paragraph 2 of the Spatial Planning Act. These legislative amendments serve to streamline the licensing procedure and are anticipated to expedite the overall implementation of the project by about four to five years.

Following the issuance of a Nuclear Facility Construction Permit, as defined in Article 15, Paragraph 4, Item 3 of the SUNEA—thus prior to the physical realisation of the energy installation—a procedure for issuing a licence for the production of electricity and thermal energy may be initiated, in accordance with the Energy Act[36]. For the implementation of the project for new capacity at the Kozloduy NPP site, this licence is expected to be issued on 30.11.2034, after the end of the functional tests at the site.

The various stages for the commissioning of a nuclear power unit of a nuclear power plant are presented in the table[37] below:

36 | Acton Energy, promulgated in the State Gazette, issue 107 of 9.12.2003, last amended and supplemented, issue 39 of 1.05.2024, in force from 1.05.2024, art. 39, para. 1 and para. 3

37 | According to Art. 44, para. 3 of the Regulation on the procedure for issuing licenses and permits for the safe use of nuclear energy

Stages	Stage description
Stage №1	Initial storage of nuclear fuel at the nuclear power plant site.
Stage №2	Initial loading of the nuclear reactor core with nuclear fuel and subcritical tests
Stage №3	Initially introduced into criticality of nuclear reactor and low power tests
Stage №4	Energy start-up and phased absorption of the power of the power unit
Stage №5	Trial operation – for a new type of nuclear reactor

Pursuant to Article 10, paragraph 1 of the Regulation governing the procedure for issuing licences and permits for the safe use of nuclear energy, licences are issued for a term of up to 10 years. With the amendments in 2024 to Article 20 of the Act (State Gazette, issue 27 of 2024), a licence is issued for a term of up to 10 years, except in the cases under Article 20, paragraph 4, which refer to licenses for the operation of nuclear facilities in which nuclear material is used, manipulated or stored, which are not limited by term. The term of the licence may be extended based on an assessment of nuclear safety and radiation protection and an assessment of the actual condition of the nuclear facility and the site with a source of ionising radiation. The term of the licence may be extended for a term not exceeding 10 years.

4.4. The preparation and submission of information to the European Commission, in accordance with the obligations under the Euratom Treaty

Pursuant to Decision No. 847 of the Council of Ministers of the Republic of Bulgaria,dated 29 December 2008, the Minister of Economy and Energy or an official authorised by him is designated as the competent authority to manage, coordinate and control the preparation and submission of information in the required form to the competent authorities and institutions of the European Communities for the fulfilment of the obligations under Chapter IV "Investments" – Articles 41 and 42 of the EURATOM Treaty;

In accordance with the provisions of the EURATOM Treaty and applicable European and national legislation[38], the formal notification of the project should contain, in particular, a detailed description of the activities, information regarding the operator and designer of the future nuclear facility, the envisaged financing methods, the precise geographical location, a succinct summary of the overall development plans, the proposed construction schedule, a description of the decommissioning plans, the type of reactor, the principal characteristics of the facility, including details concerning the fuel, moderator, and the coolant systems within both the primary and secondary circuits.

38 | Commission Regulation No 1209/2000 of 8 June 2000 laying down the procedures for carrying out the communications provided for in Article 41 of the Treaty establishing the European Atomic Energy Community

The earliest stage at which the Kozloduy NPP – New Builds PLC can officially notify the project under Article 41 of the Euratom Treaty is after a substantive decision by the Council of Ministers concerning the construction of the new capacity, the determination of the technology to be deployed, and the final selection of the site.

4.5. Administrative procedural rules in nuclear law

Administrative acts issued under the SUNEA, including the tacit refusal to issue the relevant act, are subject to appeal before the relevant administrative court under the procedure of the Administrative Procedure Code, except where otherwise expressly provided bythe SUNEA. Appealing the acts does not have a suspensive effect and does not stop their implementation, according to Article 24 of the Act.

In matters involving the limitation of access to judicial protection in relation to certain administrative acts, legislative expediency is limited in the sense that the necessity cannot affect the realization of the fundamental rights and freedoms of the citizen, unless it is necessary for the protection of higher constitutional values, related to particularly important interests of society (Decision of the Constitutional Court No. 1 of 2012 in constitutional case No. 10 of 2011; Decision of the Constitutional Court No. 5 of 1007 in constitutional case No. 25 of 1996).

In contrast to civil litigation, where appellate recourse is limited or conditional, the principle of two-instance judicial review is a cornerstone of administrative justice, as enshrined in Article 131 of the Code of Administrative Procedure. Regular judicial proceedings are conducted before the relevant first-instance administrative court in accordance with the rules of generic (functional) jurisdiction, and the second, final instance for challenging the decisions of the first-instance court is the Supreme Administrative Court.

Exceptions to the rule of two-instance of judicial proceedings, namely the consideration of cases by one court, are established in a special law for a specific category of administrative cases that are issued under it.

A prominent example in the domain of nuclear law is found in the Environmental Protection Act. As amended in 2017, Article 93, paragraph 10 there of stipulates the finality of the court decisions of the court of first instance on appeals against decisions of the Minister of Environment and Water on investment proposals, their extensions or amendments, which are designated as sites of national importance by law or by an act of the Council of Ministers and are sites of strategic importance, such as projects for nuclear power plants, radioactive waste storage facilities, power lines, etc.

This restriction on appellate review has provoked opposition from environmental non-governmental organisations, who contend that such limitations under minetheequilibrium between investment interests and environmental protection. The protection of a right – both the possibilities of access to justice and the intensity of judicial control according to the principle of proportionality – should

grow in accordance with its importance, not decrease. According to environmental advocates, when a project is considered so important that it is declared a national priority, the legislator should even expand the circle of persons with the right to appeal, and the number of instances that can establish possible defects.

Simultaneously, Article 3(3) of the Treaty on European Union does not impose an explicit requirement for a two-instance procedure in appeals against decisions concerning the protection and improvement of the quality of the environment. The national legislator retains operational autonomy to assess what measures to take in this regard.

The generic jurisdiction determines the allocation of cases between the administrative courts as first instance. The legislator has provided that administrative courts possess jurisdiction over all administrative cases, with the exception of those subject to the jurisdiction of the Supreme Administrative Court as first instance. The generic jurisdiction is an absolute procedural prerequisite for the admissibility of the judicial proceedings.

In this regard, Decision No. 5948 of 9 May 2018of the Supreme Administrative Court rendered in administrative case No. 5123/2018is of particular interest. The decisionaddresses a jurisdictional dispute between the Sofia City Administrative Court and a three-member panel of the Supreme Administrative Court regarding the competent forum to hear an appeal against an Order issued by the Chairman of the Nuclear Regulatory Agency, which denied the renewal of a licence for work with sources of ionising radiation.

The dispute arose because the provision of Article 132, paragraph 2, of the Administrative Procedure Code enumeratesthe categories of cases subject to thefirst-instance jurisdiction of the Supreme Administrative Court. Challenges to orders issued by agency heads are not explicitly included in the list, leading to the initial conclusion that the appeal should be heardby the Administrative Court Sofia – City.

However, the competent adjudicatory authority, which was referred to resolve the issue of jurisdiction, determined that this initial assumption was erroneous in that the order of the Chairman of the Nuclear Regulatory Agency does not fall within the hypothesis of Article 132, paragraph 2 of the Administrative Procedure Code. In accordance with Article 132, paragraph 2, item 8 of the Administrative Procedure Code, the Supreme Administrative Court is empowered to adjudicate appealsagainst other acts specified in bylaw. The court held thatthe Safe Use of Nuclear Energy Act (SUNEA) constitutes such a law, thereby establishingthe Supreme Administrative Court, sitting as a three-member panel, as the competent first-instance court to hear the appeal.

The issue of *locus standi* in challenging administrative acts within the nuclear regulatory sphere also merits careful examination. Articles 147 and184 of the Administrative Procedure Codejointly provide that the right to challenge individual and general administrative acts is conferred upon citizens and organisations

whose rights, freedoms, or legitimate interests are infringed or threatened by the act, or upon whom the act imposes obligations. Article 186 further extends the possibility of challenging normative administrative acts again to citizens, organisations and public bodies whose rights, freedoms or legitimate interests are affected or may be affected by them, or who incur obligations as a result. The public prosecutor also holds the capacity to challenge some of the three types of administrative acts.

The existence of a legal interest—conditioned upon a direct effect on the rights or legitimate interests of citizens or legal entities—is a necessary basis for the state's obligation to provide the relevant judicial protection. However, when the individual legal sphere of a specific person is not affected, there is no legal interest in challenging the act.

In connection with the aforementioned issue of legal interest, the final decision No. 15645 of 26 November 2013 of the Supreme Administrative Court in administrative case No. 12075/2013, concerning a dispute related to an issued decision on environmental impact assessment of the Minister of Environment and Water, which approved the implementation of an investment proposal for the construction of a National repository for the disposal of short-lived low- and intermediate-level radioactive waste with the contracting authority State Enterprise "Radioactive Waste".

The court is categorical that the applicant—a natural person residing outside the municipality in which the construction of the disputed repository was planned—possessed the requisite legal interest to lodge a challenge against the environmental impact assessment (EIA) decision. The court's reasoningrested on the statutory recognition of the public's right to participate in matters involving the approval of investment proposals with significant environmental implications.

Pursuant to Article 3, item 11 of the Environmental Protection Act, environmental protection is founded upon the principle of access to justice in matters relating to the environment. Article 97 of the Environmental Protection Act provides for the organisation and conduct of a public discussion of the environmental impact assessment report, and all interested individuals and legal entities, including public organisations and citizens whose interests are affected or are likely to be affected by the implementation of the investment project, may participate in the discussion. In this case, individuals fall within the scope of the concept of "public" within the meaning of § 1, item 24 of the Supplementary Provisions of the Environmental Protection Act. To ensure public awareness, the decisions on EIA reportsare required underArticle 99, paragraph 4, item 2 of the Environmental Protection Act to be disseminated via national media, the relevant authority's website, or other appropriate means. The right to appeal against the EIA decision belongs, according to Article 99, paragraph 6 of the Environmental Protection Act of the interested parties, including individuals whose rights and legitimate interests in maintaining a healthy environment are directly affected or are likely

to be affected by the implementation of the investment proposal. In the case at hand, the specific investment proposal may have a significant and lasting adverse impact on the environment not only on the territory of the Kozloduy municipality, where the construction of the repository is planned, but potentially across the broader national territory, including the locality in which the complainant resides. As a representative of the "affected public" within the meaning of § 1, item 25 of the Supplementary Provisions of the Environmental Protection Act, the complainant was considered to have standing to challenge the decision under Article 99, paragraph 2 of the Environmental Protection Act without the need to provide specificevidence of his subjective rights and interests related to the investment proposal for the construction of a National repository for the disposal of short-lived low- and intermediate-level radioactive waste.

Nuclear projects are inherently protracted and complex in terms of licensing[39]. The legal issues related to ensuring the safety of nuclear power plants are determined by the need for the radiation impact of the nuclear facility in all operational states to be lower than the regulatory limit for internal and external exposure and at the same time to be at a reasonably achievable low level. In this sense, activities for the implementation of nuclear projects are associated with radiation and environmental risk and it is necessary to obtain public approval at the earliest possible stage of the investment proposal, and to demonstrate openness and transparency when making decisions about the activity[40].

Regarding the applicable national public procurement framework governing nuclear power plant projects, it should be clarified that the Kozloduy NPP, currently operating in the Republic of Bulgaria, conducts the procedures for selecting a public procurement contractor, in accordance with the provisions of the Public Procurement Act and its Implementing Regulations. The plant's operating company qualifies as a sector contracting entity under the Public Procurement Act with its main activity being electricity generation.

Conversely, the project company "Kozloduy NPP – New Builds" PLC, which is engaged in the construction of a new nuclear capacity—specifically Units 7 and 8 on the site of the existing Kozloduy NPP—is not a sector contracting authority within the meaning of the Public Procurement Act. Accordingly, the company conducts the procedures for selecting a contractor in accordance with the Procurement Rules (an internal company document adopted and registered in accordance with the established procedure in the company). Invitations to prospective participants in procurement proceduresare announced on the company's website, where all documentation necessary for applying for the procedure are attached there as a link.[41]

39 | Lujan Iacomini 1988, 12–100.
40 | Jaeger, Pontier & Roux 2018, 20–250.
41 | For the international, EU and Hungarian systems of administrative licensing, see: Flekácsné Kocsis 2020, 202–229.

4.6. Latest developments with the new build projects in Bulgaria

The study found that the public procedure with preliminary selection of candidates has been mainly used over the pastyear by "Kozloduy NPP – New Builds" PLC for the selection of a contractor for public procurement. In June 2024, the company issued an open invitation to all interested parties to apply for their participation in a preliminary selection, part of a public procedure for the selection of a contractor to be awarded a contract with the subject: "Provision of a service for the implementation of complex activities when conducting an environmental impact assessment procedure for an investment proposal for the construction of a second identical unit on Site No. 2 (Unit 8 of "Kozloduy NPP") approved by the Nuclear Regulatory Agency."

Subsequently, on 4 November 2024, the Ministry of Energy formally announced that "Kozloduy NPP – New Builds" PLC and the company under the Obligations and Contracts Act "Westinghouse HD&C" have signed an engineering contract for Units 7 and 8 of "Kozloduy NPP".

The contract signing ceremony was attended by several high-ranking dignitaries, includingthe acting Prime Minister of the Republic of Bulgaria, the US Ambassador to Bulgaria, the Head of Mission of the Embassy of the Republic of Korea in Bulgaria and other distinguished officials.

As a consequence of the execution of the contract, within the next 12 months the Ministry will have a clear commitment to the schedule and financing of the new capacity. According to the official announcement, the signing of this contract constitutes a pivotal milestone in the advancement on the implementation of the project for the construction of a new nuclear capacity in the Republic of Bulgaria. The collaborative effortsof the two global companies – "Westinghouse" and "Hyundai" – to provide an integrated service in Bulgaria will guarantee the implementation of the project within the previously set deadlines and budget.

4.7. Small modular reactors in the Republic of Bulgaria

Small modular reactors (SMRs) represent an emergent class of advanced nuclear technology, each with an output capacity of up to 300 megawatts—approximately one third of that generated by conventional large-scale nuclear reactors. In recent years, SMR shave become established as a promising and widely applicable nuclear technology. According to the International Atomic Energy Agency, more than 70 commercial SMR projects are currently being developed around the world. Compared to conventional reactors, small modular reactors have a number of advantages: they are factory-assembled, easily transportable, they are designed universally, not for a specific site, their safety concept is "passive" (i.e. they rely more on systems that do not even require human intervention or external force

in emergency situations), and they have reduced fuel requirements[42].Plants built using this technology may require less frequent refuelling, every 3-7 years, compared to 1-2 years for traditional nuclear power plants. Some small modular reactors are designed to operate continuously for up to 30 years without refuelling.

The Bulgarian Nuclear Regulatory Agency takes a proactive position regarding the implementation of small modular reactors in the country. In 2019, the agency's management held a meeting with representatives of the US Department of Energy and the US Department of State, and one of the topics was the future development of small modular reactors, as well as cooperation between the regulatory authorities of the two countries. Immediately afterwards, a meeting was held at the Nuclear Regulatory Agency with American specialists in the field of security and physical protection in nuclear energy, which was attended by representatives of the agency and Kozloduy NPP from the Bulgarian side. The Bulgarian regulatory framework and practice in the field of physical protection of sources of ionising radiation, during their transportation and the physical protection of nuclear facilities were discussed.

As is known, at its meeting on 14 October 2020, the Council of Ministers resolved to initiate preparatory measures and to examine the feasibility of constructinga new nuclear power plant at the Kozloduy NPP site. This resolution was adopted within the broader context of the European Union's objective of achieving climate neutrality by the year 2050, and in pursuit of the diversification of energy sources. The competent Minister was duly mandated to undertake the necessary actions and authorise the Bulgarian Energy Holding to enter into negotiations with companies from the United States of America developing new nuclear technologies for peaceful purposes, including small modular reactors, in order to study the possibilities for building a new nuclear power plant at Site No. 2 at the Kozloduy NPP.

In implementation of the decision of the Council of Ministers, Kozloduy NPP – New Builds PLC and NuScale Power LLC concluded a Memorandum of Understanding at the end of 2020, the purpose of which was to explore the feasibility of deploying nuclear technology based on small modular reactors in the Republic of Bulgaria[43]. The signed document seeks to facilitate the exchange of requisite information to substantiate the possibility of building a new nuclear power plant at the Kozloduy NPP site, in the context of achieving the European Union's goals for climate neutrality by 2050 and diversification of energy resources. NuScale Power is an Oregon-based developer of small modular reactors – NuScale SMR. With the memorandum, NuScale Power and Kozloduy NPP – New Builds PLC agree to work together to evaluate NuScale's innovative technology as a long-term clean energy solution in Bulgaria and the potential for implementing NuScale's small modular reactor project in Bulgaria.

42 | AtomInfo.Bg 2023
43 | Independent Nuclear News 2021

Subsequently, on 5 and 6 April 2023, a working meeting of the Western European Nuclear Regulators Association (WENRA) was held in Helsinki, Finland, with the Chairman of the Bulgarian Nuclear Regulatory Agency in attendance as the national representative.

During this meeting, WENRA issued a formal statement[44]concerning the development of small modular and other innovative reactors, according to which more and more countries support their development to meet their decarbonized energy needs in the context of climate change, with a strong expectation from stakeholders that national licensing processes will be completed quickly.

The commercial viability of small modularreactors is predicated on standardised mass production, with the intention that uniform designs may be licensed in several countries without significant changes. As a result, regulators are being encouraged by suppliers, licensees and some governments to increase the harmonisation of their regulatory requirements, streamline their licensing processes and promote mutual recognition of safety reviews carried out by their partners to facilitate the national licensing process for these designs.

In recognising the expectations of stakeholders, WENRA highlights the key role of industry in ensuring that these are met, while preserving the principle of national responsibility for safety.

5. Conclusion

The analysis of Bulgaria's national nuclear policy demonstrates that nuclear energy is a cornerstone of the country's energy mix. Notwithstanding the persistentchallenges related to international regulations, public opinion, and financial investments, nuclear energy continues to be regarded as a strategic asset for ensuring the nation's energy security. This study has highlightedthe significance of the current regulatory framework and the need for its alignment with European standards. Moreover, the analysis of planned investments in new nuclear capacities and the development of small modular reactors highlights Bulgaria's ambitious goals to strengthen its position as a regional energy producer of note. However, the realisation of these ambitions hinges on various factors, including the financial sustainability of projects, public support, and the geopolitical landscape. A successful transition to a cleaner and more sustainable energy system will require continued collaboration between governmental bodies, energy sector stakeholders, and civil society.

44 | WENRA 2023

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