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Slovenia's Nuclear Energy Pathway: Strategic Expansion, Regulatory Hurdles, and Future Prospects[4]

Abstract

Slovenia boasts a longstanding tradition in the field of nuclear energy generation, with the Krško Nuclear Power Plant (NEK) traditionally playing an important role in the national energy system. As the country plans its future energy mix, nuclear power continues to figure prominently, not least in light of the proposed JEK2 project. However, the development of new nuclear facilities faces significant challenges, including lengthy regulatory procedures, complex construction processes, financial uncertainties, long-term issues related to nuclear fuel supply and waste management, as well as broader concerns regarding public acceptance. This article focuses on the legal dimensions shaping Slovenia's nuclear energy pathway, with non-legal considerations introduced solely insofar as they serve to elucidate or reinforce the legal analysis. Within this framework, the licensing process in Slovenia is examined in detail, with particular regard to its multi-step structure and the administrative challenges it poses. In addition, issues related to public procurement procedures, transparency, and governance are well discussed, particularly considering past infrastructure project failures. While Small Modular Reactors (SMRs) are being explored as a potential long-term solution, their licensing and deployment remain uncertain due to regulatory and spatial constraints. The paper also emphasises the importance of strategic workforce planning. Ultimately, the attainment of a resilient and secure energy future in Slovenia demands not only continued investment in nuclear infrastructure, but also a broader consideration of energy efficiency, security risks, and long-term sustainability—considerations which are addressed herein.

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A) Overview of National Nuclear Characteristics of Slovenia

Nuclear energy plays a significant role in Slovenia's energy landscape, contributing to the country's energy security and its commitments to reducing greenhouse gas emissions. The Krško Nuclear Power Plant (NEK), operational since 1983, is a pressurised water reactor (PWR) located in the municipality of Krško. It is the only commercial nuclear power plant in Slovenia, being jointly owned by the Republic of Slovenia and the Republic of Croatia, with both countries sharing ownership and the produced electricity equally (50:50),[5] Slovenia receiving approximately 20% of its electricity needs[6] and Croatia 16% of its electricity needs from the plant.[7] This unique ownership structure makes NEK the only nuclear power plant in the region jointly operated by two countries, representing a notable example of international cooperation.[8] In 2023, nuclear energy accounted for approximately 43% of Slovenia's domestic energy production, the total of which slightly exceeded 141,000 terajoules (TJ).[9] This substantial contribution underscores the centrality of nuclear energy within Slovenia's energy mix, ensuring a stable and reliable energy supply.

The operational lifespan of the NEK has been recently extended by 20 years, thereby permitting its continued operation until the year 2043. The decision to prolong its operation was preceded by significant legal and procedural challenges, with particular contention arising in relation to the granting of the environmental consent.[10] However, the consent was successfully issued in January 2023, ensuring the continued operation of the NEK.[11] In addition to the commercial NEK facility, the TRIGA Mark II research reactor is also in operation in Slovenia, located in Brinje near Ljubljana. This reactor is primarily used for research, education, and training purposes, rather than electricity generation. Thus, Slovenia has one commercial nuclear reactor (NEK) and one research reactor (TRIGA Mark II).[12]

5 | BHRNEK 2003, 369.
6 | In the past, the nuclear power plant contributed substantially more electricity to the Slovenia's energy mix.
7 | NEK 2023.
8 | World Nuclear Association 2024.
9 | SURS 2024. Renewable energy sources, including hydropower, contributed nearly 36%, while coal accounted for 21%. Domestic energy sources satisfied more than half (52%) of Slovenia's energy needs, with the remaining energy being imported. Compared to the previous year, Slovenia's energy dependency decreased by 5 percentage points.
10 | See more Ferčič & Samec Berghaus 2021, 25–26.
11 | See the Slovenian Ministry's decision, No. 35428-4/2021-2550-96, 13.1.2023.
12 | SNSA 2023, 51.

Public attitudes towards nuclear energy within Slovenia remain ambivalent. While there is general support for nuclear energy as a dependable and low-emission energy source, apprehensions persist regarding nuclear safety, radioactive waste management, and the potential environmental impact of new projects.[13] These concerns are further compounded by anxieties surrounding financing mechanisms, and long-term dependencies related to fuel supply and maintenance. The recently adopted Resolution on the Long-Term Peaceful Use of Nuclear Energy in Slovenia (ReDMRJE) by the Slovenian Parliament emphasises the importance of transparent and inclusive processes to address public concerns and build trust in nuclear energy.[14] Additionally, organisations such as GEN energija, d.o.o. (GEN energija)[15] and the Slovenian Nuclear Safety Administration have implemented public consultations and educational campaigns to improve understanding and acceptance of nuclear projects, with a particular focus on the proposed JEK2 project.[16]

A referendum concerning the proposed JEK2 project, originally scheduled for 24 November 2024, was cancelled due to concerns about insufficient information available to the public at this stage. This decision reflects the government's commitment to ensuring an informed and inclusive approach to the future of nuclear energy in Slovenia. Notwithstanding the postponement of the referendum, preparatory activities in relation to the JEK2 project continue apace, with the preparation of studies and other documentation to support the finalisation of the National Spatial Plan (NSP) and required changes to local infrastructure.[17]

According to the revised National Energy and Climate Plan (NEPN), Slovenia is considering several scenarios for its energy landscape, namely:

- Continuing the "Current State" Scenario (OU): Under this approach, no additional production capacities would be constructed, and the current energy system continues without significant expansion.[18]
- A "Nuclear Scenario" (DU-JE): This scenario includes the construction of new nuclear capacities (e.g., JEK2 by 2040) alongside renewable energy sources (RES) and a smaller modular nuclear reactor (approximately 250 MW) by 2050.[19] A sub-scenario under this model also explores excluding large new hydropower plants.[20]

13 | Valenčič 2024, 3.
14 | ReDMRJE 2024, 1.
15 | GEN energija, d.o.o., is a state-owned holding company established by the Republic of Slovenia and serves as the project promoter and investor in the JEK-2 nuclear project. See: GEN energija 2024.
16 | Ibid. 4.
17 | SNSA 2024, 3.
18 | NEPN 2024, 222.
19 | Technologies under consideration for JEK2 include pressurised water reactors (PWR) from providers such as US Westinghouse, France's EDF, and Korea Hydro & Nuclear Power. The decision to focus on PWR technology is based on the accumulated knowledge and experience from the existing Krško NPP over the past 40 years. For more details, see GEN energija 2025a.
20 | NEPN 2024, 276.

| A "100% RES Scenario": Under this vision, Slovenia would transition entirely to renewable energy sources by 2050, without building new nuclear energy capacities.[21]

The NEPN further specifies that a definitive decision on the construction of a new nuclear power plant is anticipated by 2028, depending on the outcomes of ongoing studies, consultations, and strategic environmental assessments.[22]

The Republic of Slovenia is actively engaged in the preparatory stages of developing a second nuclear power plant, designated as JEK2. The licensing process for JEK2 is divided into four main stages: siting, building permit, trial operation, and operational licensing.[23] The siting phase involves the formulation of a National Spatial Plan (NSP), which is managed by the Ministry of Natural Resources and Spatial Planning (MNRSP) and includes a Strategic Environmental Assessment (SEA) conducted by the Ministry of the Environment, Climate and Energy (MECE).[24] The Environmental Impact Assessment (EIA), which is more extensive than the SEA, is conducted during the building permit phase.[25]

The Slovenian Nuclear Safety Administration (SNSA) plays a crucial role throughout the licensing process. Its responsibilities include the provision of expert evaluations and the assurance of compliance with international safety standards, such as those established by the International Atomic Energy Agency (IAEA). SNSA also ensures that the JEK2 project aligns with EU legal acts and binding international agreements.[26]

In conclusion, nuclear energy remains one of the central pillars of Slovenia's energy strategy, reflecting the country's broader goals of energy security, sustainability, and climate responsibility. While several critical decisions—most notably, the final authorisation for the construction of JEK2—remain pending, Slovenia's careful planning and scenario analysis demonstrate its commitment to an informed, transparent, and balanced energy future.[27]

B) Nuclear regulatory organs and national nuclear laws

Slovenia's institutional framework for nuclear governance is founded upon three fundamental pillars: energy policy development, independent regulatory

21 | Ibid.
22 | Ibid. 76.
23 | Torkar et al. 2024, 1.
24 | Ibid.
25 | Ibid. 2.
26 | SNSA 2024, 3.
27 | It should be noted that nothing in this contribution is intended as an endorsement or rejection of any specific nuclear energy scenario. In view of the complexity involved, a robust evidentiary basis and objective analyses remain essential before any final decisions are made.

oversight, and radioactive waste management.[28] Administrative and regulatory responsibilities are distributed among several ministries and their internal bodies—most notably the Ministry of Natural Resources and Spatial Planning (MNRSP), the Ministry of the Environment, Climate and Energy (MECE), and the Ministry of Health (MZ)—as well as subordinate agencies and inspectorates such as the Slovenian Nuclear Safety Administration (SNSA), the Radiation Protection Administration (URSVS), and the Directorate for Energy. In parallel, a number of public legal entities bear significant responsibilities. Among these are the Agency for Radioactive Waste Management (ARAO), the public fund for decommissioning NEK, and the nuclear insurance pool. These bodies are further supported by expert commissions and certified technical advisors, who are mandated to issue independent opinions where legally required. Given the complexity of the institutional framework, an exhaustive analysis of all stakeholders exceeds the scope of this article. Therefore, the following section focuses on the Slovenian Nuclear Safety Administration (SNSA), which is considered to be the central state authority in the field of nuclear safety and licensing, particularly in relation to NEK. Although the analysis is focused on domestic institutions, it is important to underscore that Slovenia's EU and Euratom membership gives rise to an operational interplay between national and supranational regulatory systems. The primacy of EU law and the duty of sincere cooperation serve to ensure that internationally established norms and principles are effectively transposed and implemented within the Slovenian legal order.

The Slovenian Nuclear Safety Administration (SNSA) constitutes the principal body of state administration charged with the supervision of nuclear safety within the Republic of Slovenia. Operating under the auspices of the Ministry of Natural Resources and Spatial Planning, it is tasked with performing expert and developmental administrative functions, as well as conducting inspection supervision to ensure compliance with nuclear energy regulations.[29]

The statutory basis for the functions of the SNSA is articulated in Article 14(4) of the Regulation on Bodies within Ministries (*Uredba o organih v sestavi ministrstev*),[30] which delineates the tasks of the SNSA in the field of nuclear and radiation safety. In line with this, the SNSA is responsible for ensuring nuclear safety and radiation protection, including overseeing radiation practices and the use of radiation sources outside the healthcare and veterinary sectors. Its tasks include monitoring environmental radioactivity, protecting the population and environment from ionising radiation, ensuring the cyber security of nuclear facilities, and managing the physical protection of nuclear materials, facilities, and radioactive sources. Additionally, the SNSA plays a pivotal role in

28 | See further: ReJSV24–332023, Chapter 6.
29 | Ferčič & Samec Berghaus 2021, 54.
30 | Official Gazette of the Republic of Slovenia, Nos. 35/15, 62/15, 84/16, 41/17, 53/17, 52/18, 84/18, 10/19, 64/19, 64/21, 90/21, 101/21, 117/21, 78/22, 91/22, 25/23 and 127/23.

the enforcement of legal provisions concerning the non-proliferation of nuclear weapons, oversees the transport of nuclear and radioactive substances, and enforces nuclear liability regulations. The administration is also involved in the management of radioactive waste and spent fuel, as well as emergency preparedness for nuclear and radiological incidents, with a specific focus on the protection of critical infrastructure, such as nuclear power plants. In addition to its domestic regulatory mandate, the SNSA is entrusted with inspectional supervision across all the aforementioned fields and holds a central role in fulfilling international obligations under nuclear and radiation safety treaties, while also facilitating international data exchange.

Organisationally, the SNSA is structured into several specialised internal divisions, including the General Affairs Service, International Cooperation Service, Nuclear Safety Division, Radiation Safety and Materials Division, Emergency Preparedness Division, Radiation and Nuclear Safety Inspection, and Cybersecurity Division. Each of these units plays a vital role in SNSA's mission, ensuring Slovenia's mission to uphold and advance the highest standards of nuclear safety and regulatory integrity, in accordance with both national legislation and international legal obligations.[31]

The General Affairs Service bears responsibility for drafting regulations, providing legal assistance in administrative procedures, and participating in the implementation of international agreements. The International Cooperation Service manages SNSA's participation in international organisations and agreements, ensuring compliance with international nuclear safety standards and fostering global collaboration. The Nuclear Safety Division oversees the safety of nuclear facilities, including the Krško Nuclear Power Plant (NEK). Its remit includes the conduct of regulatory inspections and ensuring compliance with safety regulations. The Radiation Safety and Materials Division focuses on protecting workers and the public from radiation exposure and oversees the safe handling and transport of radioactive materials. The Emergency Preparedness Division is tasked with planning and coordinating responses to nuclear or radiological emergencies, ensuring that Slovenia is prepared to handle potential incidents effectively. The Radiation and Nuclear Safety Inspection conducts inspections to ensure compliance with radiation and nuclear safety regulations, providing oversight of facilities and activities involving ionising radiation. Finally, the Cybersecurity Division addresses cybersecurity risks related to nuclear facilities and ensures the protection of critical infrastructure from cyber threats.[32]

31 | SNSA 2023, 105.
32 | More available at: SNSA 2024.

1. Independence from Industry and Political Influence

Under the binding framework of the Euratom legal framework, Member States are required to establish and maintain a competent regulatory authority responsible for performing specific regulatory tasks and activities related to nuclear energy.[33] This authority must be sufficiently independent. Although the requisite standard of independence is not as stringent as that imposed upon regulators in fully liberalised sectors—such as electricity, telecommunications, postal services, or rail transport—it nonetheless entails a high degree of institutional and operational autonomy.[34] In principle, the regulatory authority must be able to make decisions without undue influence. Therefore, it must be functionally separated from any entity involved in the regulated activities. In addition, it must possess the appropriate legal powers, as well as human and financial resources necessary to discharge its mandate.

The SNSA operates under the Ionising Radiation Protection and Nuclear Safety Act (*Zakon o varstvu pred ionizirajočimi sevanji in jedrski varnosti*, ZVISJV-1).[35] However, ZVISJV-1 does not provide a systematic or coherent legal framework regulating the national regulatory authority in the field of nuclear energy. Its legal powers are stipulated in various provisions of ZVISJV-1. However, there is an even greater problem: ZVISJV-1 does not contain a dedicated chapter—or even a single provision—regarding the legal status of the regulatory authority, which is, in the authors' view, a notable deficiency in the Slovenian regulatory landscape. This structural shortcoming is not mitigated by the Resolution on Nuclear and Radiation Safety in the Republic of Slovenia for the Period 2024–2033 (ReJSV24–33), which—while emphasising in Section 8.5 ("Institutional Framework Objectives," Goal 8) the importance of maintaining regulatory independence to ensure effective oversight and compliance with international standards—does not carry binding legal force. The resolution rightly emphasises that regulatory authorities, including the SNSA, must have adequate technical and managerial competencies, as well as sufficient human and financial resources, to fulfil their responsibilities. It further requires that these authorities remain independent from license holders and other stakeholders, ensuring that their decisions are free from undue influence.[36]

Since ZVISJV-1 does not expressly regulate legal status of the SNSA, this aspect must necessarily be inferred from other legislative instruments or general legal acts. Chief among these is the State Administration Act (*Zakon o državni upravi*,

33 | See, for example, Arts. 5 of the Directive 2009/71/Euratom, 76 of Directive 2013/59/Euratom, and Art. 6 of Directive 2011/70/Euratom.
34 | For a detailed discussion of independence standards and requirements in the energy sector, see, for example, Ferčič 2022.
35 | Official Gazette of the Republic of Slovenia, Nos. 76/17, 26/19, 172/21 and 18/23 – ZDU-1O.
36 | ReJSV24–332023.

ZDU-1).[37] Based on this Act, the Government adopted the Regulation on Bodies within Ministries, defining the SNSA as a body within a ministry. This classification, while not dispositive, permits certain indirect inferences regarding the SNSA's legal status and, more crucially, its degree of institutional independence. In principle, such a body is established to carry out specialised expert tasks, especially when high workload is expected, and efficiency and quality are essential. It is also envisaged in cases where a relatively high degree of autonomy in decision-making is required Although this structure may at first glance seem conducive to regulatory independence, a closer examination of the relevant provisions reveals that a body within a ministry cannot operate independently of its parent institution. For instance, where the body exercises first-instance decision-making authority, the ministry typically acts as the appellate authority.[38] In addition, the head of such a body is appointed in accordance with the general procedure laid down in the legislation governing public servants.[39] It is also worth noting that a body within a ministry performs its tasks in accordance with applicable laws, secondary regulations, the work program adopted by the minister upon the proposal of the head of the body, and the financial plan approved under the legislation governing public finances — all of which allow little room for autonomous decision-making.[40] The minister provides strategic guidelines,[41] issues mandatory instructions, and may require the body to undertake specific actions within its jurisdiction and report accordingly.[42] The minister also represents the body before the National Assembly and the Government[43] and supervises its overall functioning. Moreover, the minister may at any time request performance reports, statistical data, or other relevant documentation.[44] The head of the body must report regularly and, when specially requested, provide detailed updates on all key matters falling within the body's responsibilities.[45] Finally, the internal organisation and systematisation of job positions within a body established within a ministry are determined by the minister, in agreement with the government and upon the proposal of the head of the body.[46] Taken together, these provisions demonstrate a significant degree of ministerial control over the SNSA. However, considering the relatively modest independence standards set by the Euratom legal acts, the Slovenian framework cannot be deemed incompatible *per se* with supranational requirements.

37 | Official Gazette of the Republic of Slovenia, Nos. 113/05, 89/07 – CC Dec. 126/07 – ZUP-E, 48/09, 8/10 – ZUP-G, 8/12 – ZVRS-F, 21/12, 47/13, 12/14, 90/14, 51/16, 36/21, 82/21, 189/21, 153/22 and 18/23.
38 | Art. 25 of the ZDU-1.
39 | Art. 22 of the ZDU-1.
40 | Art. 23(1) of the ZDU-1.
41 | Art. 23(2) of the ZDU-1.
42 | Art. 23(3) of the ZDU-1.
43 | Art. 23(4) of the ZDU-1.
44 | Ibid.
45 | Art. 24(2) of the ZDU-1.
46 | Art. 26(1) of the ZDU-1.

Supranational rules mandate only functional separation from other bodies or organisations, not necessarily legal separation in the strict sense. Therefore, the fact that the SNSA is not constitutes as a distinct legal entity under public law—separate from the ministry, the government, or the state more broadly—does not automatically disqualify it from meeting the Euratom standard. Moreover, the SNSA appears to possess the legal powers by supranational standards. Regarding the additional requirement—namely, the availability of sufficient human and financial resources to fulfil its tasks—it is evident that the SNSA does not enjoy full autonomy in this respect. Nevertheless, this lack of financial and staffing autonomy does not, in and of itself, automatically imply that the SNSA lacks the functional capacity to carry out its responsibilities. A more detailed analysis is required before reaching a definitive conclusion. That said, it is noteworthy that the SNSA has, in successive annual reports, repeatedly drawn attention to the insufficiency of qualified personnel and the need for increased financial allocations.

More precisely, the SNSA regularly publishes reports on its activities and decisions, thereby promoting a high degree of transparency and accountability to the public and international community. These reports provide insight into the agency's regulatory actions and demonstrate its commitment to maintaining high standards of nuclear safety. The institutional framework objectives outlined in the 2023 Annual Report on Radiation and Nuclear Safety in the Republic of Slovenia further emphasise the importance of maintaining the separation and independence of regulatory authorities from entities promoting the use of nuclear energy or ionising radiation sources. The report also underscores the imperative of ensuring that such bodies are equipped with adequate financial resources and qualified personnel, without which effective regulatory oversight cannot be guaranteed.[47] It also notes that administrative adjustments have been made to enhance the efficiency and independence of regulatory bodies, including measures to ensure financial stability, eliminate administrative obstacles, and safeguard decision-making processes from external influence.[48] Nonetheless, the report implicitly recognises that no *pro forma* reform can substitute for the provision of sufficient human and financial resources, which remain essential to both the independence and operational effectiveness of the SNSA. In the authors' view, this matter is of such fundamental importance that it ought to be reconsidered by the legislator.

Furthermore, it is worth noting that the Rules on the Expert Council for Radiation and Nuclear Safety establish stringent procedures to prevent conflicts of interest. Members of the council are appointed based on professional qualifications, and whose service is expressly designated as honorary.[49] Article 3 of the Rules specifies that members cannot hold leadership positions in nuclear or radiation facilities,

47 | SNSA 2023, 84.
48 | Ibid.
49 | Rules on the Expert Council for Radiation and Nuclear Safety, Official Gazette of the Republic of Slovenia, No. 114/24.

and Article 5 outlines the grounds for dismissal, including failure to maintain confidentiality and the existence of any conflicts of interest.[50] These provisions ensure that decisions are made impartially and free from improper influence.

In summary, while supranational rules require the establishment of a national regulatory authority, while the applicable independence standards and requirements appear relatively modest—particularly when compared to those governing regulators in liberalised sectors such as energy. Nevertheless, even these moderate standards are not fully satisfied under the current Slovenian legal framework. This shortfall becomes increasingly salient considering the growing responsibilities entrusted to the regulatory authority, particularly when such expansions are not accompanied by corresponding adjustments in human and financial resources. It must be emphasised that the independence of regulatory authorities is not static but a dynamic concept, requiring continuous effort to safeguard them from undue political or corporate influence.[51] Therefore, the Slovenian legislator should give serious consideration to amending the legal framework to enhance the institutional position of the SNSA. In this regard, it would be prudent to weigh the potential benefits and drawbacks of transforming the SNSA from a body within a ministry into an independent public legal entity.

2. National nuclear legislation

The legal foundation for administrative, professional, and inspection-related tasks in the field of nuclear safety and radiation protection, is primarily laid down in the Ionising Radiation Protection and Nuclear Safety Act (*Zakon o varstvu pred ionizirajočimi sevanji in jedrski varnosti,* ZVISJV-1), together with an array of secondary legislation adopted pursuant to this statute. Complementary legal instruments include the Act on Liability for Nuclear Damage (*Zakon o odgovornosti za jedrsko škodo*, ZOJed-1),[52] the Act on the Transport of Dangerous Goods (*Zakon o prevozu nevarnega blaga*, ZPNB),[53] along with regulations in the broader field of nuclear and radiation safety, as well as ratified and published international treaties in the field of nuclear energy and nuclear and radiation safety, also serve as the legal framework.

Within this legal framework, the licensing procedure for the construction of a new nuclear power plant is governed by a number of interrelated statutory and regulatory instruments, including but not limited to the following:

- The Spatial Management Act (*Zakon o urejanju prostora*, ZUreP-3), which governs the process of spatial planning and, in particular, the preparation and

50 | Ibid.
51 | Ferčič 2022,1183–1218.
52 | Official Gazette of the Republic of Slovenia, No. 77/10.
53 | Official Gazette of the Republic of Slovenia, Nos. 33/06 – Official Consolidated Text, 41/09, 97/10 and 56/15.

adoption of the National Spatial Plan (NSP) an essential prerequisite for siting nuclear facilities;[54]

- The Building Act (*Gradbeni zakon*, GZ-1), which regulates construction permits and technical standards;[55]
- The Environmental Protection Act (*Zakon o varstvu okolja*, ZVO-2), which provides the framework for environmental assessments and protection measures;[56]
- The Ionising Radiation Protection and Nuclear Safety Act (*Zakon o varstvu pred ionizirajočimi sevanji in jedrski varnosti*, ZVISJV-1), which serves as the cornerstone of the nuclear safety regime, laying down safety requirements for nuclear installations, radiation protection measures, and regulatory oversight;
- The Rules on Radiation and Nuclear Safety Factors (*Pravilnik o dejavnikih sevalne in jedrske varnosti*), which detail safety factors for nuclear installations;[57]
- The Rules on ensuring safety after the start of operation of radiation or nuclear facilities (*Pravilnik o zagotavljanju varnosti po začetku obratovanja sevalnih ali jedrskih objektov*), which prescribe the ongoing safety assurance measures;[58]
- The Regulation on the Areas of Limited Use of Space due to a Nuclear Facility and the Conditions of Facility Construction in these Areas (*Uredba o območjih omejene rabe prostora zaradi jedrskega objekta in pogojih gradnje objektov na teh območjih*), which delineates exclusion and buffer zones around nuclear facilities and imposes construction limitations within these zones to safeguard public health and environmental integrity.[59]

In addition to the legislative framework, any construction project, including nuclear facilities, must also consider the Spatial Development Strategy of Slovenia 2050 (*Strategija prostorskega razvoja Slovenije 2050* – ReSPRS2050), a high-level planning document adopted by the National Assembly of the Republic of Slovenia on 28 June 2023 through a resolution.[60]

In support of the legal framework, the Cybersecurity and Management Sector of the SNSA prepares a series of non-binding "*Practical Guidelines*", intended to assist stakeholders in interpreting and applying statutory and regulatory requirements. These guidelines provide suggestions for good practices in meeting legal

54 | Official Gazette of the Republic of Slovenia, Nos. 199/21, 18/23 – ZDU-1O, 78/23 – ZUNPEOVE, 95/23 – ZIUOPZP, 23/24, and 109/24.
55 | Official Gazette of the Republic of Slovenia, Nos. 199/21, 105/22 – ZZNŠPP, 133/23 and 85/24 – ZAID-A.
56 | Official Gazette of the Republic of Slovenia, Nos. 44/22, 18/23 – ZDU-1O, 78/23 – ZUNPEOVE, and 23/24.
57 | Official Gazette of the Republic of Slovenia, No. 56/24.
58 | Official Gazette of the Republic of Slovenia, No. 27/24.
59 | Official Gazette of the Republic of Slovenia, No. 78/19.
60 | Resolution on the Spatial Development Strategy of Slovenia 2050 (ReSPRS2050), Official Gazette of the Republic of Slovenia, No. 72/23.

requirements to assist stakeholders. While stakeholders remain free to adopt alternative ways to fulfil their obligations or exercise their rights, they should be aware that such alternatives may require the SNSA to spend more time assessing their adequacy and may necessitate additional explanations. The guidelines describe what the SNSA recognises as good compliance with legal requirements.[61]

C. Licensing stages of a nuclear power plant

a) Decision-in-Principle

In Slovenia, the initiation of a nuclear project constitutes a sovereign decision taken at the highest level of national governance, following a transparent and inclusive process in which all relevant stakeholders are invited to participate. Such a decision is predicated upon a thorough assessment of the project's justification, based on the country's energy needs, economic factors, environmental impacts, and compliance with international obligations. The process aligns with the requirements of the European Union's Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation.[62] Article 19 of the Directive mandates that Member States shall ensure the justification of any new practice involving exposure to ionising radiation prior to its introduction. This principle of justification requires that the benefits of such a practice demonstrably outweigh the potential radiological risks.

Although Slovenia does not possess a formally codified licensing phase explicitly designated as a "decision-in-principle" stage, such a phase exists in practice and is articulated through national resolutions and long-term energy policy instruments, which are adopted by the National Assembly (*Državni zbor*) and the Government (*Vlada*). These high-level policy determinations are informed and supported by preliminary safety assessments, environmental impact analyses, and extensive stakeholder participation. The ZVISJV-1 provides the principal statutory basis for implementing the justification principle required by Article 19 of the Council Directive 2013/59/Euratom, ensuring that benefits of nuclear projects outweigh associated radiation risks.

Strategic policy orientations confirming Slovenia's long-term commitment to nuclear energy are outlined in the ReDMRJE 2024 and the Resolution on Slovenia's Long-Term Climate Strategy until 2050 (*Resolucija o dolgoročni podnebni*

61 | SNSA 2025.

62 | Council Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionising radiation, and repealing Directives 89/618/Euratom, 90/641/Euratom, 96/29/Euratom, 97/43/Euratom and 2003/122/Euratom, OJ L 13, 17.1.2014, 1–73.

strategiji Slovenije do leta 2050, ReDPS50).[63] The former emphasises the importance of nuclear energy as a strategic energy source for ensuring a reliable, sustainable, and low-carbon energy supply. It also highlights the role of nuclear energy in mitigating climate change and reducing Slovenia's energy import dependency. The latter resolution reaffirms Slovenia's plans to use nuclear energy in the long term and outlines the necessary administrative and preparatory steps for future investments.

b) Environmental license

In the Republic of Slovenia, the nuclear licensing process comprises two distinct yet interrelated environmental assessments:

- First, a Strategic Environmental Assessment (SEA) is undertaken during the first phase of the process, specifically within the context of preparing the National Spatial Plan (NSP). Regulated under the Spatial Management Act (*Zakon o urejanju prostora*, ZUreP-3), the SEA evaluates the strategic environmental impacts of potential locations and spatial planning decisions. It focuses on regional and national-level environmental considerations (including transboundary context) and ensures public participation through public disclosure and consultations.[64]
- Secondly, during the subsequent phase, a project-specific Environmental Impact Assessment (EIA) is carried out as part of the integrated construction permitting process, which falls under the remit of the Environmental Protection Act (*Zakon o varstvu okolja*, ZVO-2). This assessment is more detailed than the SEA and involves a comprehensive evaluation of the specific environmental impacts of the chosen nuclear project, including emissions, water use, radiological safety, and local ecosystem effects.[65]

While the SEA primarily addresses strategic planning and spatial considerations, the EIA includes a more comprehensive analysis of project-specific environmental impacts. The EIA incorporates transboundary environmental impact assessments, as required by Article 98 of the ZVO-2, thereby ensuring that potential environmental repercussions on neighbouring countries are properly accounted for.[66] This process involves notifying the relevant authorities in affected countries, providing translated documentation, and conducting consultations to mitigate or eliminate potential cross-border environmental risks.[67]

63 | Official Gazette of the Republic of Slovenia, Nos. 119/21 and 44/22 – ZVO-2.
64 | Arts. 69 and 105 of the ZUreP-3.
65 | Arts. 94–97, 101, and 104 of the ZVO-2.
66 | Art. 98 of the ZVO-2.
67 | Art. 98(1)– (6) of the ZVO-2.

The SEA is administered during the siting stage, managed by the MNRSP, with the MECE responsible for its execution. The SNSA participates in this process as an expert body, providing authoritative opinions on matters of nuclear and radiation safety.[68] The EIA, on the other hand, is integrated into the construction permitting process (*integralno gradbeno dovoljenje*), where the Environmental Consent (*okoljevarstveno soglasje*) is formally issued before construction begins.[69]

To ensure the future adequacy of the Environmental Consent (EC), Slovenian legislation includes mechanisms to adapt to changes in environmental conditions or project parameters. Article 101 of the ZVO-2 governs modifications to the EC if significant changes occur in the project or its environmental context post-consent but pre-construction. Furthermore, the MECE can order a new EIA if significant technological changes or environmental risks arise, ensuring that safety and environmental standards remain robust and effective.

Additional oversight is afforded by Periodic Safety Reviews (PSR), as outlined in Article 112 of the ZVISJV-1. These reviews require the licensee to systematically evaluate and verify nuclear and radiation safety, including assessments of environmental impacts. PSR findings must be submitted at least 40 months before the expiration of the operating licence.

These mechanisms ensure that environmental concerns are addressed comprehensively and remain relevant throughout the lifecycle of the nuclear project, which can span several decades.

c) Nuclear-Specific Licensing Framework

Slovenia operates under a hybrid nuclear licensing regime that combines both prescriptive (standards-based) and goal-setting regulatory approaches.

At its core, the Slovenian legal framework is grounded in the ZVISJV-1 and its associated secondary regulations define strict prescriptive requirements based on international standards such as the IAEA Safety Standards and WENRA reference levels. The SNSA enforces these regulations, ensuring that nuclear facilities comply with clearly defined technical and operational safety requirements. This includes regular oversight, as well as the issuance of licenses, inspections, and compliance monitoring.[70]

In parallel with these prescriptive norms, the Slovenian regime incorporates goal-setting regulatory elements, particularly in domains where risk-informed decision-making and performance-based safety assessments are deemed appropriate. Licensees are thereby required to undertake both probabilistic and deterministic safety analyses, justify their safety cases, and demonstrate how they

68 | Torkar et al. 2024, 1.
69 | Art. 63 of GZ-1.
70 | SNSA (2023).

meet overarching safety objectives rather than just following prescriptive rules.[71] This balance encourages operators to adopt innovative safety technologies while maintaining compliance with regulatory expectations.

The salient features of Slovenia's hybrid regulatory approach may be summarised as follows:

- Prescriptive elements: Mandatory compliance with domestic and international safety codes and standards, including those established by the IAEA, WENRA, ASME, and EUR.
- Goal-setting elements: An obligation on the part of licensees to demonstrate safety performance and justify compliance with regulatory expectations laid down by the SNSA.
- Regulatory oversight: Licenses for nuclear facilities are issued for a maximum period of 10 years, as mandated under Article 138 of the ZVISJV-1. During this time, the SNSA conducts regular inspections and Periodic Safety Reviews (PSR) to verify continuous compliance with safety standards.

Although the Slovenian model retains a primarily prescriptive character, its integration of risk-informed safety principles and regulatory flexibility places it in alignment with modern European nuclear regulatory practices, ensuring both strict compliance and adaptability to technological advancements.

d) Installation level licenses

1. Siting Process for a NPP in Slovenia

The siting of a nuclear power plant (NPP) in Slovenia is governed by the ZUreP-3, the ZVISJV-1, The Rules on Radiation and Nuclear Safety Factors, and the ZVO-2. In view of the national significance of such an infrastructure project, the siting process is undertaken through the preparation of an NSP, which must align with the ReSPRS2050. The MNRSP manages the NSP process, while the MECE is responsible for conducting the SEA, as required for large-scale infrastructure projects.[72]

The procedure is initiated by the MECE, which submits a formal initiative to the MNRSP, which verifies whether the initiative is complete and properly substantiated.[73] This initiative must contain all relevant information necessary to launch the NSP process, including a draft plan for public participation and a preliminary timetable for NSP preparation. Upon verifying its completeness, the MNRSP publishes the initiative in the Spatial Information System, ensuring transparency and accessibility for stakeholders.[74] Given the potential environmental impact of an

71 | See for example Arts. 112, 116, 119, 137, and 138(1) of the ZVISJV-1.
72 | See Arts. 69 and 84 of the ZUreP-3.
73 | Torkar et al. 2024, 2.
74 | Art. 91(3) of the ZUreP-3.

NPP, the NSP must undergo an SEA, which assesses the project's strategic environmental implications and ensures public involvement.[75]

Following publication, the MNRSP circulates the initiative to the competent spatial planning authorities, including the SNSA, requesting their input for the NSP. The SNSA provides specific nuclear and radiation safety requirements that must be incorporated into the NSP. Additionally, it outlines the scope, content, and level of detail required for the environmental report related to nuclear and radiological safety considerations. A further integral element of the NSP is the inclusion of a variant study, which evaluates various technical and locational alternatives, considering environmental and safety aspects.[76]

Pursuant to Article 4 of the Rules on Radiation and Nuclear Safety Factors, the siting process also requires the implementation of pre-operational environmental monitoring, including the measurement of baseline environmental conditions.

Public participation constitutes a cornerstone of the NSP procedure. A public hearing is convened, affording local communities to articulate their views and concerns regarding the variant study, environmental report, and the NSP proposal as a whole. Simultaneously, and in light of the inherently transboundary environmental implications of a nuclear installation such as an NPP in Slovenia, neighbouring EU Member States are notified and invited to provide comments. This cross-border consultation ensures that potential adverse effects on the environment beyond Slovenia's borders are properly addressed.[77]

Upon the conclusion of the public consultation and transboundary environmental assessment, the competent spatial planning authorities, including the SNSA, issue their final opinions. The SNSA evaluates the site based on a second expert review conducted by an authorised radiation and nuclear safety specialist, assessing the feasibility of constructing the nuclear facility at the designated location.[78] The SNSA issues an official decision on the status of the site as a nuclear facility, defining the limited-use area surrounding the site (Article 95 of the ZVISJV-1). This decision establishes legal and safety constraints for future developments within the designated perimeter, ensuring compliance with nuclear and radiation safety regulations. The decision by the SNSA outlines site-specific conditions, such as permissible environmental radiation burdens and design parameters necessitated by nuclear and radiation safety considerations. This decision forms an integral part of the NSP documentation.

Following the issuance of the SNSA's decision and the approval of all relevant authorities, the Government formally adopts the NSP and issues a decree

75 | Art. 19 of the ZUreP-3 and Art. 98 of the ZVO-2.
76 | See Arts. 94 in connection with Art. 100 of the ZUreP-3, and Art. 86(1) of the ZVISJV-1, which governs the status decision for a nuclear facility.
77 | See Art. 98 of the ZVO-2.
78 | Torkar et al. 2024, 2.

under Article 97 of the ZUreP-3, which finalises the zoning restrictions for the nuclear site.

It is manifest that Slovenian legislation integrates the preliminary design review of the reactor into the overall licensing process rather than treating it as a standalone pre-licensing stage. The process begins already during the strategic spatial planning phase, where the investor submits the conceptual design and initial safety analysis. The SNSA, in conjunction with independent expert reviewers, then assesses whether the reactor design meets national and international safety standards. This approach ensures that nuclear facilities are planned and sited with full consideration of all safety and radiation protection aspects. Accordingly, well before the issuance of a construction permit, the regulatory framework already provides for a thorough review confirming the technical and safety adequacy of the proposed design.

Whilst Slovenia has established a legally robust and scientifically supported framework for the siting of a nuclear power plant, certain procedural challenges remain—particularly in relation to transparency and legal clarity. Despite the detailed requirements set forth in the ZVISJV-1, ZUreP-3, and ZVO-2, the lack of clear procedural guidance and cross-referencing between these regulations can make the process difficult to navigate in practice, particularly for investors and regulatory bodies responsible for implementation. In the context of an infrastructure project of such profound national and cross-border significance, there exists a pressing need to enhance procedural clarity, harmonise the relevant legal provisions, and foster greater openness in public consultations. Such reforms would not only bolster public trust and institutional confidence. Aligning these efforts with IAEA recommendations and EU legal requirements further underscores the importance of transparent governance in such critical infrastructure projects.

2. Construction – the building permit procedure

The construction of a NPP in Slovenia follows a highly regulated licensing framework that integrates nuclear safety, environmental protection, and spatial planning requirements. The process is governed by the GZ-1, the ZVO-2, the ZVISJV-1, and the Rules on Radiation and Nuclear Safety Factors. In recognition of the profound environmental implications inherent in such an undertaking, the construction permitting process is conducted as an integral procedure, which combines the EIA and the building permit approval process, ensuring that both environmental and safety concerns are thoroughly assessed before construction begins.[79] This is achieved through an integral procedure that combines the Environmental Impact Assessment (EIA) and the building permit approval process. Under Article 88(2) of the ZVO-2, any project with a potentially significant

79 | Art. 63 of the GZ-1.

environmental impact must undergo an EIA and obtain an Environmental Consent (*okoljevarstveno soglasje*) before proceeding. For NPPs, this requirement is further reinforced by Article 63 of the GZ-1, which mandates the issuance of an integral building permit (*integralno gradbeno dovoljenje*).

The MNRSP is responsible for issuing the building permit, while the MECE oversees the environmental assessment process. In parallel, the SNSA plays a key role in evaluating nuclear and radiation safety aspects of the project.

The process is initiated by the investor, who submits a formal application to commence the integral permitting procedure.[80] This request must include the necessary project documentation, proof of ownership or other property rights, an Environmental Impact Report (EIR), and a Preliminary Safety Analysis Report (SAR), as required under Article 86(1) of the ZVISJV-1. Prior to the formal initiation of the EIA, the investor may solicit guidance from the MECE regarding the required scope and content of the EIR.[81] At this stage, the SNSA provides input on nuclear and radiation safety, ensuring that the EIR includes all relevant safety aspects and complies with national and international safety standards.[82]

Upon receipt of a complete application, the MNRSP disseminates the relevant documentation, including the EIR, to the competent regulatory bodies for review and comment. The SNSA, in discharging its statutory functions, must procure an expert opinion from an authorised radiation and nuclear safety specialist, who evaluates the acceptability of the proposed construction.[83] In this evaluation, the SNSA also considers the adequacy of the EIR's findings on environmental and societal impacts during the operational lifetime of the NPP.[84] In addition, the SNSA reviews the Preliminary Safety Analysis Report (SAR), the Preliminary Decommissioning Plan, and the Cyber Security Programme to determine whether the proposed design meets nuclear safety requirements.[85] Where warranted, and pursuant to Article 95(5) of the ZVISJV-1, the SNSA may also propose modifications to the designated area of limited use of space around the NPP site.

Public participation constitutes an essential pillar of the licensing process, ensuring both transparency and democratic engagement in the decision-making process. As required under ZVO-2, the MNRSP facilitates public hearings and provides an opportunity for stakeholders to submit comments on the project documentation. Given the inherently transboundary environmental impacts of a nuclear power plant, neighbouring EU Member States are also consulted under Article 98 of the ZVO-2, ensuring that Slovenia fulfils its international obligations to assess and mitigate cross-border environmental risks.

80 | See Art. 46 in connection with Art. 64 of the GZ-1.
81 | See Arts. 94 and 95 of the ZVO-2.
82 | See Art. 97 and 98 of the ZVISJV-1.
83 | Arts. 94(3) and 101 of the ZVISJV-1.
84 | Art. 101(2) of the ZVISJV-1.
85 | Torkar et al. 2024, 4.

Following a comprehensive review of all submitted documentation, expert evaluations, and public feedback, the SNSA issues its final opinion on the project's acceptability. This opinion includes an assessment of nuclear and radiation safety, the final approval of the EIR, and specific conditions for the construction and operation of the facility. Simultaneously, the SNSA issues an official decision on the status of the nuclear facility, as required by Article 86(1) of the ZVISJV-1. Once all regulatory conditions have been met, the MNRSP grants the final building permit, allowing construction to commence.

During the construction stage, all critical systems, structures, and components must undergo pre-operational testing to verify their structural integrity, operational functionality, and compliance with nuclear safety regulations. The scope of these tests is determined by the *Rules on Radiation and Nuclear Safety Factors*, which also require the investor to submit a Pre-operational Testing Programme to the SNSA for approval, as specified in Article 26 of the Rules. In circumstances where fresh nuclear fuel is to be delivered or stored on site during construction, a special permit must be obtained from the SNSA. This measure ensures the enforcement of stringent radiation protection safeguards even prior to operational commissioning.

Whilst the construction stage of a nuclear power plant is highly regulated, integrating safety, environmental, and planning requirements, certain systemic challenges persist. As in the siting stage, these challenges arise from the complexity and fragmentation of legal provisions. The interplay between ZVISJV-1, GZ-1, and ZVO-2 lacks clear procedural cross-referencing, making navigation through the licensing process difficult. To this end, the adoption of a more streamlined approach, with explicit procedural linkages and clearer institutional responsibilities, could enhance regulatory efficiency and transparency. These challenges are particularly relevant for large-scale infrastructure projects like NPP, where legal certainty and predictability are crucial for both investors and the public.

3. Commissioning Process

The commissioning of a nuclear power plant in Slovenia follows an interwoven two-step licensing process: first, the issuance of a permit for trial operation, and subsequently, the permit of use for the facility. Both permits are regulated under the GZ-1, ZVISJV-1, and the Rules on Radiation and Nuclear Safety Factors.[86] These procedures ensure that the plant meets all technical, nuclear safety, and environmental protection standards before entering full operation.

Once the construction of the NPP is completed, the investor must obtain a permit for trial operation before moving on to the final operational phase. The application for trial operation is submitted to the SNSA in accordance with Article

86 | See Arts. 80, 84 of the GZ-1; Arts. 108, 109 of the ZVISJV-1; and Arts. 26, 27 of the Rules on Radiation and Nuclear Safety Factors.

108(2, 3) of the ZVISJV-1 and must include the final Safety Analysis Report (SAR), results of pre-operational testing, and an expert opinion from an authorised nuclear and radiation safety expert.

The specific content and scope of the application are exhaustively set forth under Article 26(1) of the Rules on Radiation and Nuclear Safety Factors, which prescribes the suite of documentation and substantive conditions to be satisfied prior to the commencement of trial operation. Among the key requirements are the final Safety Analysis Report (SAR), a trial operation programme, a radioactive waste and spent fuel management plan, Cyber Security Programme, a fire hazard analysis, and documentation verifying the quality of installed equipment and materials.[87] Upon reviewing the documentation, the SNSA evaluates whether the facility meets all nuclear safety and radiation protection standards and issues a consent for trial operation.[88] Based on this consent, the MNRSP grants the permit for trial operation for a limited period, not exceeding two years, with a possibility of a six-month extension if necessary.[89]

Upon the successful completion of the trial operation phase, the investor must seek the issuance of the permit of use. The permit of use is issued after a technical inspection, which is conducted by a designated technical inspection committee under Article 82 of the GZ-1, which includes representatives of the SNSA.[90] During this inspection, the committee verifies that all design and safety requirements outlined in the approved SAR and project documentation have been met.[91] A critical precondition for obtaining the permit of use is the completion of trial operation and a positive assessment of its results.[92] The SNSA must confirm that all nonconformities identified during technical inspection have been addressed before the MNRSP formally issues the permit of use.[93]

4. Operating licence

The operation of a nuclear power plant in Slovenia requires a license issued by the SNSA, in accordance with Article 109 of the ZVISJV-1 and Article 27 of the Rules on Radiation and Nuclear Safety Factors. The operating licence is valid for a maximum of 10 years and can be extended following a successful Periodic Safety Review (PSR).[94]

87 | However, in accordance with Article 26(2) of the Rules, the applicant is not required to resubmit any documents or data that have already been provided in previous procedures, if they remain unchanged.
88 | Art. 108(4) of the ZVISJV-1.
89 | Art. 108(6,7) of the ZVISJV-.
90 | See Art. 82(2), 83(7) of the GZ-1 and Torkar et al. 2024, 7.
91 | Torkar et al. 2024, 7.
92 | Ibid.
93 | Art. 85(1) of the GZ-1.
94 | See Arts. 138(1), 138(4) of the ZVISJV-1.

In order to obtain an operating licence, the applicant must submit a formal application to the SNSA, which must include the following key documents[95]:

- a valid permit of use, certifying that the installation has satisfactorily passed all requisite technical inspections and is fit for operational service;[96]
- the updated SAR, reflecting the most current safety evaluations, design changes, and procedural refinements;[97]
- an expert opinion from an authorised nuclear and radiation safety specialist, evaluating the plant's compliance with nuclear safety standards;[98]
- the final report on trial operation, providing a comprehensive account of the plant's performance during the limited operational phase.[99]

The SNSA reviews the application within 90 days, assessing whether the facility meets all operational safety requirements. This includes evaluating the updated SAR, trial operation report, and cyber security measures. If all conditions are satisfied, the SNSA issues the operating licence.[100] In accordance with Article 138(1) of the ZVISJV-1, the operating licence is issued for a period of up to 10 years. Before the expiration of the license, the operator must conduct a Periodic Safety Review (PSR), which involves a comprehensive reassessment of nuclear and radiation safety. The findings of this review form the basis upon which a determination is made as to whether the licence may be renewed for an additional term.[101]

Through the imposition of strict licensing conditions and the institutionalisation of regular safety reviews, Slovenia's regulatory architecture ensures that nuclear power plants operate in alignment with contemporary safety standards, reflecting both technological advancements and evolving best practices in the field of nuclear regulation.

e) Energy Permit for Electricity Generation in Slovenia

In addition to securing an Integral Building Permit, an Operational License, and an Environmental Consent, the construction and operation of an electricity generation facility, including a nuclear power plant, also require an Energy Permit and grid connection approvals under the Electricity Supply Act (*Zakon o oskrbi z*

95 | See Arts. 109, 110 of the ZVISJV-1. The exact documentation required for the application is detailed in Article 27(1) of the Rules on Radiation and Nuclear Safety Factors. However, Article 27(2) specifies that documents already submitted with the application for trial operation consent do not need to be resubmitted if they remain unchanged.
96 | Art. 109(2) of the ZVISJV-1.
97 | Art. 110(1) of the ZVISJV-1.
98 | Ibid.
99 | Art. 110(4) of the ZVISJV-1.
100 | Art. 110(4) of the ZVISJV-1.
101 | See Arts. 112(5), 138(4) of the ZVISJV-1.

električno energijo, ZOEE).[102] While this section focuses on the energy permit, other approvals related to grid connection and system integration are also necessary but will not be addressed in detail here.

Under the ZOEE, an energy permit is mandatory for the construction of electricity generation facilities with a rated power above 10 MW that are connected to the public grid. The permit is issued by the Ministry responsible for energy and must be obtained after the adoption of the National Spatial Plan or the regulation on the most suitable variant.[103] The energy permit specifies the location, type of facility, fuel source, conditions for grid connection, and environmental and safety obligations.[104] The permit is valid for five years and may be extended if the investor can demonstrate justified reasons for the delay.[105] Nevertheless, where the investor fails to submit a complete application for a building permit or other necessary approvals within said timeframe, the permit lapses by operation of law.[106] Before the adoption of ZOEE, the Energy Act (*Energetski zakon*, EZ-1)[107] required an energy permit to be obtained before initiating the spatial planning procedure for projects of national importance, including nuclear power plants.[108] For the JEK2 project, an energy permit was issued in 2021 under the EZ-1, when obtaining this permit before the completion of the NSP was legally permissible. Nevertheless, the issuance of this permit has since been the subject of legal contestation, with questions raised as to its conformity with the procedural stipulations applicable at the time.[109]

f) Procedural Aspects of Nuclear Licensing in Slovenia

The procedural architecture governing nuclear licensing in Slovenia is generally founded upon the General Administrative Procedure Act (*Zakon o splošnem upravnem postopku*, ZUP).[110] Nonetheless, a number of notable exceptions and sector-specific rules are established under the ZVISJV-1, particularly in respect of nuclear safety oversight. One of the key procedural distinctions is the lack of an appeal process for certain critical decisions, such as the refusal or approval

102 | Official Gazette of the Republic of Slovenia, No. 172/21.
103 | Art. 35(2) of the ZOEE.
104 | Art. 35(3) of the ZOEE.
105 | Art. 35(8) of the ZOEE.
106 | Art. 35(9) of the ZOEE.
107 | Official Gazette of the Republic of Slovenia, Nos. 60/19 – official consolidated text, 65/20, 158/20 – ZURE, 121/21 – ZSROVE, 172/21 – ZOEE, 204/21 – ZOP, 44/22 – ZOTDS and 38/24 – EZ-2.
108 | Art. 52 of the EZ-1.
109 | Claim against the decision on planning the long-term use of nuclear energy in the Resolution on the Long-term Climate Strategy of Slovenia until 2050 (ReDPS50 2021).
110 | Official Gazette of the Republic of Slovenia, nos. 24/06 – UPB2, 126/07, 65/08, 8/10, 82/13, 175/20 – ZIUOPDVE, 3/22 – ZDeb, 28/23 – ZSDH-1D.

of trial operation,[111] emergency safety inspections,[112] and modifications affecting nuclear safety.[113] That said, the right of access to judicial review remains intact, as judicial review of administrative acts must, in principle, be effectively guaranteed in Slovenia. The Administrative Court and the Supreme Court are competent to decide on administrative disputes. In cases where human rights and fundamental freedoms are affected, the administrative decision may even be subject to review by the Constitutional Court.

While legislative initiatives such as the introduction of the integral building permit under Article 63 of the GZ-1 were conceived as measures to streamline and rationalise nuclear licensing, systemic inefficiencies persist. These streamlined procedures were introduced to enhance regulatory efficiency but, in practice, impose additional administrative burdens on a small country like Slovenia.

The question of whether these procedural reforms will accelerate nuclear projects remains open, especially given Slovenia's broader administrative challenges. Data from inspection reports in 2023 indicate that general construction procedures have not significantly improved, with regulatory delays persisting.[114]

1. Case Studies of Procedural Weaknesses: TEŠ 6 and HE Mokrice

The Šoštanj Thermal Power Plant Unit 6 (TEŠ 6) serves as a prime example of administrative inefficiency and regulatory failure. The project, initially estimated at €655 million, ultimately ballooned to €1.4 billion, rendering it one of Slovenia's largest corruption scandals. According to *Petrovčič*, the delays were largely due to inadequate coordination between regulatory bodies and insufficient oversight, exacerbating the financial and legal complexities.[115]

A similarly instructive case is presented by the Mokrice Hydropower Plant (HE Mokrice) highlights the prolonged nature of Slovenia's licensing processes. Although the siting process began in 2007, the licensing procedure remains incomplete after more than 13 years. The key procedural bottleneck arose during the EIA phase. In 2019, the Administrative Court annulled the environmental consent issued by ARSO, citing procedural deficiencies such as restricted access to crucial studies and inadequate impact assessments for Natura 2000 areas. In response, the Government sought to assert the primacy of energy-related public interest over biodiversity conservation, a move that triggered further litigation in 2021.[116]

111 | Art. 108(8) of the ZVISJV-1.
112 | Art. 113(3) of the ZVISJV-1.
113 | Art. 117(5) of the ZVISJV-1.
114 | Ministry of the Environment, Climate and Energy 2023. Inspection report on administrative procedures in construction licensing. https://tinyurl.com/66kw3hsx [24.02.2025].
115 | Petrovčič 2024.
116 | See more Drnovšek & Samec Berghaus 2021, 491–502.

2. Consequences of Authorities Failing to Meet Deadlines

Although Slovenian law prescribes statutory deadlines for decision-making, the consequences of non-compliance vary. Under ZUP, if an authority fails to issue a decision within the prescribed timeframe, the applicant may file an appeal due to administrative silence (*molk organa*).[117] In circumstances where such an appeal is unavailable, the aggrieved party may initiate judicial proceedings before the Administrative Court. However, nuclear projects often involve extensive safety reviews, making strict enforcement of deadlines difficult. Importantly, Slovenian law does not provide for automatic approval in instances of undue delay. Instead, applicants must seek redress through litigation in administrative courts. The deterrent effect of such deadlines is therefore limited, as nuclear safety considerations generally take precedence over procedural timeliness.

Appeals in nuclear licensing matters generally adhere to the rules set out in the ZUP, but additional scrutiny applies to nuclear-related cases. Depending on the nature of the decision, appeals can be lodged before the MECE or the MNRSP. Judicial review is available before the Administrative Court of the Republic of Slovenia, in accordance with Article 157 of the Slovenian Constitution. Public participation in nuclear licensing is safeguarded by the Aarhus Convention and ZVO-2, which allow affected individuals and NGOs to challenge environmental permits. While no appeal (*pritožba*) is permitted against the decision to issue an environmental permit, judicial review through an administrative dispute (*upravni spor*) remains available.[118] Moreover, such disputes must be treated as priority matters, thereby ensuring expedited judicial oversight in environmental proceedings. It must be noted, however, that although IAEA standards stipulate that persons substantially affected by nuclear activities ought to be granted participatory rights, Slovenian law does not provide automatic legal standing to all interested parties. This omission imposes procedural barriers on the ability of NGOs and civil society actors to partake fully in the licensing process.

3. Efficiency of the Licensing Procedure and Planned Reforms

Nuclear licensing in Slovenia continues to be characterised by its procedural intricacy and protracted timelines, necessitating the navigation of numerous regulatory checkpoints and expert evaluations. According to *Torkar et al.*, the licensing procedure for JEK2 is expected to span several decades, with the siting phase alone projected to take 4–5 years, followed by a 4-year building permit process, a 7-year construction period, and an additional year for trial operation and final licensing.[119]

117 | Art. 222(4) of the ZUP.
118 | Art. 134(10) of the ZVO-2.
119 | Torkar et al. 2024, 8.

The SNSA has been actively working on regulatory improvements, with recent updates to the Rules on Radiation and Nuclear Safety Factors and the Decree on Areas of Limited Use of Space expected to provide clearer regulatory guidance.

Notwithstanding these efforts, broader reform discussions remain ongoing. Two principal avenues for procedural streamlining are currently under consideration:

1. Further integration of licensing steps, inspired by the integral building permit model, aimed at reducing procedural fragmentation; and
2. The digitalisation of administrative procedures, with a view to enhancing document management and inter-institutional coordination.[120]

Yet, due to the fundamental nature of nuclear safety regulation, significant reductions in licensing time are unlikely. The complexity of nuclear governance necessitates rigorous oversight, ensuring that regulatory frameworks prioritize safety, environmental protection, and public transparency over administrative efficiency. Moreover, a persistent shortage of qualified personnel within regulatory authorities further exacerbates delays, as the workload for overseeing such large-scale projects often outstrips available human resources. Frequent legislative changes and low incentives for professionals to pursue careers in nuclear regulatory bodies further contribute to systemic inefficiencies, making long-term strategic workforce planning essential for improving regulatory capacity.[121]

D) Nuclear project characteristics

The existing Krško Nuclear Power Plant (NEK), jointly owned by Slovenia and Croatia, was developed under a turnkey contract—a procurement model prevalent in major infrastructure projects of the late twentieth century. This contract type placed full responsibility for design, procurement, and construction on the contractor, ensuring that the facility was delivered as a fully operational unit. The turnkey approach minimised investor risk and was particularly suited for complex nuclear projects where cost predictability and technical integration were critical.[122]

In contrast, the contractual structure for the second unit, JEK2, has not yet been determined. Preliminary cost estimates from three nuclear technology vendors (EDF, KHNP, and Westinghouse) have been presented as "an initial estimate of the total cost of an Engineering, Procurement, and Construction (EPC) contract."[123] While this suggests that Slovenia may opt for an EPC contract, which would

120 | European Commission 2025.
121 | Government of the Republic of Slovenia (2023); Government of the Republic of Slovenia (2024).
122 | Nuklearna elektrarna Krško 2024.
123 | Ernst & Young 2024, 16.

consolidate project responsibility under a single contractor, alternative approaches should also be considered. Alternative models such as multi-package contracting, where different aspects (e.g., reactor, turbine island, civil works) are awarded separately, are common alternatives to the EPC model that allow more flexibility and cost control.[124] The implementation models used for nuclear power plant projects include turnkey, split package and multiple package contracts, with each offering different balances of risk allocation and project governance.[125]

In considering its options, Slovenia would do well to heed the cautionary tales offered by other European nuclear projects, particularly the challenges that EPC projects in Europe have faced (for instance at Olkiluoto 3 in Finland and Flamanville 3 in France), where significant cost overruns and delays occurred due to supply chain and regulatory obstacles.[126] Consequently, the government ought to carefully assess whether a split-package model—providing more direct oversight of subcontractors—would be more appropriate for JEK2, thus avoiding highly detrimental contractual arrangements similar to those entered into with Alstom for the TEŠ-6 project.[127]

1. Procurement Procedure for Nuclear Power Plants in Slovenia

The procurement procedure for nuclear power plants in Slovenia is primarily governed by the Public Procurement Act (*Zakon o javnem naročanju*, ZJN-3).[128] This law establishes the general framework for competitive tendering in large infrastructure projects, including energy facilities.

For nuclear power plants, the technology selection process typically involves strategic national planning, technical and economic feasibility studies, and environmental impact assessments. In theory, the procurement should follow a competitive tender process to ensure transparency and cost-effectiveness. However, experts and industry representatives have raised concerns about whether standard procurement procedures are suitable for such complex, long-term projects. In particular, it has been suggested that direct negotiations with selected vendors or sector-specific procurement models may be more appropriate, as seen in other countries. Additionally, some highlight that the procurement process for JEK2 could justify special treatment, as the project could be classified as a "particularly sensitive non-military security-related acquisition," which might allow for a more flexible approach.[129]

124 | IAEA 2024, 16–23.
125 | World Nuclear Association 2015, 19.
126 | OECD-NEA 2020, 59–60.
127 | National Assembly of the Republic of Slovenia 2015.
128 | Official Gazette of the Republic of Slovenia, Nos. 91/15, 14/18, 121/21, 10/22, 74/22 – odl. US, 100/22 – ZNUZSZS, 28/23 in 88/23 – ZOPNN-F.
129 | Leskovec & Škof 2024.

While Slovenia has not yet confirmed the procurement model for JEK2, discussions are ongoing about the most suitable approach. The government must balance transparency and competition with the need for an efficient selection process that ensures the long-term safety, security, and reliability of the project.

2. Nuclear Fuel Supply

The Krško NPP (NEK) utilizes uranium dioxide (UO_2) as its reactor fuel. The uranium, once enriched, is procured from URENCO, while the fuel assemblies are manufactured by Westinghouse. During each 18-month fuel cycle, NEK consumes approximately 20 tons of nuclear fuel.[130]

Throughout its operational life in the reactor, ownership of the nuclear fuel remains with NEK. Upon depletion, the spent fuel is initially transferred to a spent fuel pool located within the reactor building, where it undergoes a mandatory cooling period of at least five years. Following this phase, the fuel is moved to a dry storage facility, designed to safely house spent nuclear fuel for at least 100 years.[131]

Even after removal from the spent fuel pool, title to the spent fuel does not transfer during storage or disposal; it remains the property of NEK, which is responsible for its safe storage and potential final disposal. The dry storage facility has a capacity for 70 containers, sufficient to accommodate all spent fuel generated during the plant's planned 60-year operational lifespan.[132]

Additionally, while Slovenia does not have a domestic nuclear fuel reprocessing facility, the energy permit for the new nuclear reactor (JEK2) includes a requirement that the plant must be compatible with reprocessed fuel. This means that Slovenia could send its spent fuel abroad for reprocessing, where it would be purified and transformed into fresh nuclear fuel. Such an approach would enable the reuse of fuel from the first nuclear power plant, reducing long-term storage needs and enhancing sustainability.[133]

E) Small Modular Reactors (SMRs)

As previously noted, Slovenia's updated National Energy and Climate Plan (NEPN) from December 2024 delineates a nuclear development scenario (DU-JE), which includes the construction of a new nuclear power plant by 2040 and a smaller modular nuclear reactor (approximately 250 MW) by the year 2050.[134] While the JEK2 project remains the central pillar of Slovenia's near-term nuclear strategy,

130 | Alternator 2022; NEK 2025.
131 | N12023; NEK 2025.
132 | JEK22025.
133 | Alternator 2022.
134 | NEPN 2024, 222.

interest in SMRs is gathering momentum due to their scalability, advanced safety features, and feasibility for deployment in areas with limited grid infrastructure. On the other hand, at this early stage of development, they also present certain real risks which warrant careful and measured scrutiny.

While JEK2 is a key priority in Slovenia's nuclear strategy, GEN energija is also exploring the development of SMRs. In 2025, key activities for the JEK2 project include spatial planning procedures and ongoing technical feasibility studies, with participation from providers such as EDF and Westinghouse. Additionally, GEN energija plans to conduct a pre-feasibility study within a year to assess the potential for deploying SMR plants in Slovenia. These developments underscore Slovenia's commitment to integrating SMRs into its future energy mix, reflecting a proactive approach to adopting advanced nuclear technologies.[135]

The primary challenges for SMR deployment in Slovenia relate to licensing, regulatory adaptation, and supply chain development. The existing legal framework, primarily governed by the ZVISJV-1, was designed for traditional large-scale nuclear facilities and does not include specific provisions for SMRs. Regulatory adjustments would be needed to reflect their modular construction, passive safety features, and factory-based manufacturing approaches.

Slovenia follows a multi-step licensing approach, requiring separate approvals for siting, construction, trial operation, and full operation. While this structure ensures rigorous safety oversight, applying it to SMRs without modification may lead to unnecessary delays.[136]

International cooperation offers opportunities for knowledge-sharing, regulatory harmonisation, and joint licensing efforts, potentially reducing duplication in regulatory reviews. The European SMR Partnership and IAEA's SMR Regulatory Forum facilitate cross-border dialogue on SMR deployment. However, the SNSA maintains that final licensing decisions must remain under national jurisdiction to ensure compliance with site-specific safety requirements.[137]

While Slovenia is not prioritizing SMRs over large-scale nuclear projects, nevertheless their potential role in future energy diversification is gaining attention. The government's strategy acknowledges the long-term benefits of SMRs but underscores the need for regulatory adaptation and international alignment. Addressing licensing barriers and ensuring efficient oversight will be critical in determining whether SMRs become a viable part of Slovenia's nuclear energy mix. However, Slovenia's modest territorial size and limited availability of suitable sites pose additional constraints, potentially limiting the geographical spread of SMR deployment. In addition, other reals risks of the SMR technology must be carefully

135 | GEN energija 2025b.
136 | IAEA 2023.
137 | Ibid.

evaluated. In this regard, experts should conduct an objective and credible analysis, after which a final decision can be made.

Conclusion: Slovenia's Energy Future – Between Expansion and Systemic Challenges

For several decades, Slovenia maintained a relatively balanced energy mix in terms of risk diversification, relying on hydropower (renewable energy), thermal energy, and nuclear energy. However, as thermal power generation is now poised for progressive phase-out, and the continued operation of the nuclear plant beyond its original design life, the Slovenian energy system now faces significant challenges.

In essence, Slovenia faces complex and interconnected challenges in securing its long-term energy future. The country's energy mix has become increasingly dependent on external resources, while domestic production capacities—most notably the existing nuclear power plant (NEK)—already operate under an extended license. Although the life extension granted to NEK provides temporary relief, it cannot substitute for the formulation of a comprehensive and sustainable energy strategy.[138] Beyond the immediate costs and benefits of generating nuclear power domestically, one must also consider the geopolitical context, as the relationship between the client (Slovenia) and the vendor is inherently long-term. In fact, the two parties must frequently cooperate well beyond the operational phase of the plant.

The JEK2 project was initially positioned as a crucial step in ensuring energy security, yet negative experiences from past infrastructure projects, particularly TEŠ-6, have led to public and political hesitation. The postponement of the JEK2 referendum highlights the lack of consensus on Slovenia's nuclear future. In this context, it is worth mentioning that many people believe energy can be generated in a way that is entirely harmless to nature and the environment. Such an ideal, regrettably, does not exist. In selecting energy production capacities, one does not choose between beneficial and harmful, but rather between degrees of harm, weighing lesser evils in the pursuit of national interest. Consequently, it is essential to consider measures that reduce energy demand. All this means that, focusing solely on boosting energy production without addressing consumption trends is not a sustainable approach. Slovenia must also look to reduce overall energy demand, improving energy efficiency, and promote sustainable transport solutions. Without simultaneous efforts to curb excessive consumption, the benefits

138 | On the similar Hungarian problem of extending the operating time, see: Flekácsné Kocsis 2020, 202–229.

of new energy projects—including JEK2 and potential SMRs—will be undermined by rising demand.

In addition to fiscal and governance considerations, Slovenia's regulatory framework presents a formidable array of institutional impediments. Slovenia's lengthy and fragmented licensing procedures, combined with the limited capacity of regulatory bodies, contribute to prolonged decision-making processes. The country's small size further constrains possible expansion scenarios—large-scale nuclear projects require extensive safety and environmental assessments, while SMRs – even if we overlook the real risks associated with new technology – cannot simply be placed anywhere due to spatial and infrastructural limitations.

Simultaneously, the geopolitical and security landscape has shifted dramatically. The war in Ukraine has highlighted the vulnerability of energy infrastructure, with nuclear facilities increasingly targeted in modern conflicts. The risk of drone strikes, cyberattacks, and sabotage is no longer theoretical, raising urgent questions about how Slovenia would ensure the resilience of its nuclear assets in an evolving security landscape.[139] While proponents argue that nuclear power remains among the safest and most stable energy sources, the reality is that absolute safety is an unattainable ideal—risk mitigation must be balanced with pragmatic decision-making.

Finally, the country must confront its own systemic weaknesses—corruption risks, lack of financial discipline in major infrastructure projects, and the long shadow of TEŠ-6. Without a renewed commitment to transparency, strategic foresight, and political resolve, the nation risks repeating past errors, culminating in cost overruns, delays, and a further erosion of public trust. While nuclear energy could play a critical role in Slovenia's future, its success depends not only on technical feasibility but on the presence of sound governance, responsible stewardship, and a well-informed public discourse.

139 | For more on operational safety issues, see the International Atomic Energy Agency's job descriptions; Kocsis 2016, 41–62.

Bibliography

1. Alternator (2022) *Jedrsko gorivo iz druge roke*, Alternator, 12 May, https://tinyurl.com/zzsraz59 [2.3.2025]
2. Drnovšek K & Samec Berghaus N. (2021) Energetska infrastruktura v Sloveniji: Quo vadis?, *Podjetje in delo*, pp. 491–502.
3. Ernst & Young (2024) *Independent Review of Economic Analysis Input Data of the JEK2 project*, https://tinyurl.com/jkhsrfx8 [31.03.2025]
4. European Commission (2025) *Slovenia's Recovery and Resilience Supported Projects & Reforms*, https://tinyurl.com/2j8xjdew [2.3.2025].
5. Ferčič A (2022) Evaluating the Formal Independence of National Regulatory Authorities in the European Union's Energy Sector and Beyond, *Zbornik Pravnog fakulteta u Zagrebu*, 72(5), pp. 1183–1218, https://doi.org/10.3935/zpfz.72.5.02.
6. Ferčič A & Samec Berghaus N (2021) *Energy Law in Slovenia*, Kluwer Law International BV, The Netherlands.
7. Flekácsné Kocsis B. (2020) International, EU law and National Legal Frameworks on the use of atomic energy, *Journal of Agricultural and Environmental Law*, 28, pp. 202–229.
8. GEN energija (2024) *Povzetek predloga pobude za DPN za JEK2*, https://tinyurl.com/5d36bnr5 [10.01.2025].
9. GEN energija (2025a) *Frequently Asked Questions*, https://jek2.si/pogostavprasanja/ [19.01.2025].
10. GEN energija (2025b) *GEN energija nadaljuje projekt JEK2 in proučuje področje malih modularnih reaktorjev*, https://tinyurl.com/3fjar74j [2.3.2025]
11. Government of the Republic of Slovenia (2023) *Slovenian Nuclear Safety Administration visits the National Computer Security Incident Response Team*, https://tinyurl.com/4vp7fxmp [2.3.2025].
12. Government of the Republic of Slovenia (2024) *Chairing the Seventh European Conference on Nuclear Safety*, https://tinyurl.com/4j853dev [2.3.2025].
13. IAEA (2023) *Small Modular Reactors: Regulatory Approaches and Challenges. International Atomic Energy Agency*, https://tinyurl.com/bddxdxkn [2.3.2025]
14. IAEA (2024) *Contracting and Ownership Approaches for New Nuclear Power Plants. IAEA TECDOC Series No. 1750/Rev.1.* International Atomic Energy Agency, Vienna.

15. JEK2 (2025) *Suho skladiščenje izrabljenega goriva iz jedrskih elektrarn*, https://tinyurl.com/yc7kwwtx [2.3.2025]

16. Kocsis E. B. (2016) The International Atomic Energy Agency and problems of nuclear security, *Journal of Agricultural and Environmental Law*, 21, pp. 41–62.

17. Leskovec B & Škof R (2024) *Ali se za JEK2 lahko uporabi varnostna izjema?* https://tinyurl.com/mt8etffa [2.3.2025].

18. N1 (2023) *Krška nuklearka bo premestila izrabljeno jedrsko gorivo*, N1 Slovenia, 15 August, https://tinyurl.com/3zd22v2m [2.3.2025]

19. National Assembly of the Republic of Slovenia (2015) Act on Ordering a Parliamentary Investigation to Determine the Political Responsibility of Public Officials due to Suspicion of Their Involvement in the Preparation and Implementation of Procedures for the Joint Construction of the Sixth Block of the Šoštanj Thermal Power Plant, Official Gazette of the Republic of Slovenia, No. 30/14, https://tinyurl.com/5f42sz9v [15.02.2025]

20. NEK (2023) *About NEK*, https://www.nek.si/o-nas/o-nek [10.01.2025].

21. NEK (2025) *Od urana do jedrskega goriva*, https://tinyurl.com/3yskevzb [2.3.2025]

22. NEPN (2024) *Posodobljeni celoviti nacionalni energetski in podnebni načrt Republike Slovenije*, Vlada Republike Slovenije, Ljubljana, https://tinyurl.com/29yww5hw [20.12. 2024].

23. Nuklearna elektrarna Krško (2024) *Public Information Brochure*, https://tinyurl.com/4djbtn65 [2.3.2025].

24. OECD-NEA (2020) *Unlocking Reductions in the Construction Costs of Nuclear: A Practical Guide for Stakeholders*, OECD Publishing, Paris.

25. Petrovčič P (2024) Novi največji korupcijski škandal? *Mladina*, No. 15, https://tinyurl.com/4zpa5xzp [28.12.2024].

26. ReDMRJE (2024) Resolution on the Long-Term Peaceful Use of Nuclear Energy in Slovenia (Resolucija o dolgoročni miroljubni rabi jedrske energije v Sloveniji), https://tinyurl.com/542rta3x [10.01.2025].

27. ReDPS50 (2021) Resolution on Slovenia's Long-Term Climate Strategy until 2050 (Resolucija o dolgoročni podnebni strategiji Slovenije do leta 2050, ReDPS50), Official Gazette of the Republic of Slovenia, Nos. 119/21 and 44/22 – ZVO-2.

28. ReJSV24–33 (2023) Resolution on Nuclear and Radiation Safety in the Republic of Slovenia for the Period 2024–2033, Official Gazette of the Republic of Slovenia, No. 122/23.

29. Republic of Slovenia (2003) Act on the Ratification of the Agreement on the Krško Nuclear Power Plant (BHRNEK), Official Gazette of the Republic of Slovenia – International Treaties, No. 20/03, 369, https://tinyurl.com/5xh8p9h2 [19.01.2025].

30. Republic of Slovenia (2024) Rules on the Expert Council for Radiation and Nuclear Safety, Official Gazette of the Republic of Slovenia, No. 114/24.

31. ReSPRS2050 (2023) Resolution on the Spatial Development Strategy of Slovenia 2050 (Resolucija o Strategiji prostorskega razvoja Slovenije 2050), Official Gazette of the Republic of Slovenia, No. 72/23.

32. SNSA (2023) *Annual Report on Radiation and Nuclear Safety in the Republic of Slovenia*, https://tinyurl.com/mr5wjau2 [19.01.2025].

33. SNSA (2024) *News from Nuclear Slovenia*, https://tinyurl.com/5n8skcx7 [10.01.2025].

34. SNSA (2025) *Practical guidelines*, https://tinyurl.com/54bea2uf [19.01.2025].

35. Spatial Development Strategy of Slovenia 2050 (Strategija prostorskega razvoja Slovenije 2050 – ReSPRS2050), Official Gazette of the Republic of Slovenia, No. 72/23.

36. SURS (2024) *Energy production and dependency in Slove*nia, Statistical Office of the Republic of Slovenia, https://www.stat.si/StatWeb/News/Index/13209 [10.01.2025].

37. Torkar S, Vokal Nemec B, Nemec T, Krajnc Š, Režonja Gumpot B & Živko T (2024) Licensing Procedure for the New Nuclear Power Plant JEK2, *Proceedings of the International Conference Nuclear Energy for New Europe (NENE 2024)*, Slovenian Nuclear Society, Portorož, 9–12 September 2024, https://tinyurl.com/vevhwcrf [19.01.2025].

38. Valenčič M (2024) Slovenija, jedrska ali trajnostna? *Nuclear Monitor* 918, ZEG, https://zeg.si/uploads/zeg1/public/document/241-slovenija-jedrska_ali_trajnostna_1_sl.pdf [10.01.2025].

39. World Nuclear Association (2015) *Licensing and Project Development of New Nuclear Plants*. World Nuclear Association, London, https://tinyurl.com/m4wca8ay [10.01.2025].

40. World Nuclear Association (2024) *Nuclear Power in Slovenia*, https://tinyurl.com/4ycekm57 [10.01.2025].