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The Euratom nuclear safeguards system and how it works with the IAEA safeguards system

*By Anne-Friederike Mildenstein**

I. Introduction

Nuclear safeguards systems are mechanisms for verifying states' commitments not to use nuclear material or technology for the development of nuclear weapons or other nuclear explosive devices.[1] Such mechanisms are implemented through several international, regional and bilateral instruments.[2]

While, at the international level, the International Atomic Energy Agency (IAEA or Agency) has been the main actor for the implementation of a nuclear safeguards system since the entry into force of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) in 1970,[3] a monitoring supervision system for nuclear materials had already been introduced at the European level by the entry into force of the Euratom Treaty in 1958.[4] The Euratom Treaty establishing the European Atomic Energy Community (the Community), forms a comprehensive framework for the peaceful use of nuclear materials in the European Union (EU). The entry into force of the NPT has created new areas of application for the Euratom safeguards system, which resulted in changing dynamics in the international legal structure.

Against this background, this article describes and assesses the Euratom safeguards system and its interplay with the international IAEA safeguards system, providing the historical and legal background of the Euratom Treaty followed by an analysis of the specific legal bases concerning safeguards. The article then explores the IAEA safeguards system in greater detail, concluding with an assessment of the interaction between the two systems.

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1. Stoiber, C. et al. (2003), *Handbook on Nuclear Law*, IAEA, Vienna, p. 121.
2. *Ibid*.
3. Treaty on the Non-Proliferation of Nuclear Weapons (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 Mar. 1970 (NPT).
4. Treaty Establishing the European Atomic Energy Community (1957), 298 UNTS 167, entered into force 1 Jan. 1958 (Euratom Treaty) (consolidated version available in the *Official Journal of the European Union* (OJ) C 327 (26 Oct. 2012)). For completeness, it should be noted that other non-proliferation treaties exist, including: The Treaty for the Prohibition of Nuclear Weapons in Latin America (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 Mar. 1970 (Tlatelolco Treaty); The South Pacific Nuclear Free Zone Treaty (1985), 1445 UNTS 177, entered into force 11 Dec. 1968 (Rarotonga Treaty); The Southeast Asia Nuclear Weapon-Free Zone Treaty (1995), 1981 UNTS 129, entered into force 27 Mar. 1997 (Bangkok Treaty); The African Nuclear-Weapon-Free Zone Treaty (1996), 35 I.L.M. 698, entered into force 15 July 2009 (Pelindaba Treaty); and The Treaty on a Nuclear-Weapon-Free Zone in Central Asia (2006), No. 51633, entered into force 21 Mar. 2009 (The Semipalatinsk Treaty). While these treaties differ in their specific provisions, they share the common feature that all nuclear activities are subject to the IAEA safeguards regime. However, as these treaties are not directly relevant to the analysis in this paper, they are not discussed in detail.

II. The Euratom safeguards system

A. *History and structure of the Euratom Treaty*

The Euratom safeguards system has its legal basis in the Treaty on the European Atomic Energy Community (Euratom Treaty).[5] The Euratom Treaty serves as a fundamental framework for governing and regulating the civil nuclear sector in the territory of the European Union.

Euratom was established on 25 March 1957 through the Treaty of Rome by Belgium, France, Germany,[6] Italy, Luxembourg, the Netherlands and the European Economic Community (EEC).[7] Together with the European Coal and Steel Community (ECSC) these were referred to as the European Community. While the ECSC dissolved on 23 July 2002, the EEC evolved into the European Union (EU) through the Treaty of Lisbon.[8] The Euratom Treaty, meanwhile, has remained largely unchanged.[9]

The Treaty of Lisbon is built upon two key treaties: the Treaty on European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU) (together "the EU Treaties").[10] The EU Treaties are equally authoritative and equally binding. According to Article 1(3) of the TEU, the European Union functions as the legal successor and replacement to the European Community. The European Union also has legal personality, established by the TEU.[11] The termination of the ECSC left Euratom as the sole independent entity and the only remaining "European Community". Although its structures are fully integrated within the EU, Euratom remains a separate legal body with its own legal personality, as stated in Article 184 of the Euratom Treaty.[12]

One of the key factors in establishing the Community was the general energy shortage in the 1950s and the search for secure sources of supply.[13] Against this background the Community's task is "to contribute to the raising of the standard of living in the member states and to the development of relations with the other countries by creating the conditions necessary for the speedy establishment and growth of nuclear industries".[14]

The Euratom Treaty's six titles encompass community tasks, provisions for the encouragement of progress in the field of nuclear energy, institutional and financial provisions, specific financial provisions, general provisions and provisions relating to the

5. Euratom Treaty, *supra* note 4.
6. The Euratom Treaty was originally signed by the Federal Republic of Germany (West Germany). Once West Germany was reunified with the German Democratic Republic (East Germany) in 1990, the continuing state of Germany was a party to all EU Treaties, including the Euratom Treaty.
7. Euratom Treaty, *supra* note 4.
8. Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (2007), OJ C 306 (17 Dec.2007), entered into force 1 Dec. 2009 (Lisbon Treaty), p. 1.
9. Publications Office of the European Union (2018), "Treaty on the European Atomic Energy Community (Euratom)", https://eur-lex.europa.eu/EN/legal-content/summary/treaty-on-the-european-atomic-energy-community-euratom.html (accessed 14 Nov. 2025).
10. Treaty on European Union (1992), OJ C 191 (29 July 1992), entered into force 1 Nov. 1993, as amended (TEU); Treaty on the Functioning of the European Union (1957), OJ C 326/47 (26 October 2012), entered into force 1 Jan. 1958, as amended (TFEU) (originally signed as the Treaty establishing the European Economic Community).
11. See TEU, *supra* note 10, Article 47.
12. Ungerer, L. (2022), "*Unionsrecht (primäres, sekundäres)*", in Bergmann, J. (ed.), *Handlexikon der Europäischen Union*, Nomos Verlagsgesellschaft, Baden-Baden, chapter "Primäres Unionsrecht"; Euratom Treaty, *supra* note 4, Article 184.
13. See also EU (2007), "Treaty establishing the European Atomic Energy Community (Euratom)", EUR-Lex, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=LEGISSUM%3Axy0024 (accessed 14 Nov. 2025).
14. Euratom Treaty, *supra* note 4, Article 1(2).

initial period. Article 2(e) of the Euratom Treaty gives the Community the task of making "certain by appropriate supervision, that nuclear materials are not diverted to purposes other than those for which they are intended".[15] Article 2(e) thus identifies safeguards as one of the principal tasks of the Community.

The latter article on safeguards was primarily introduced to enable the import of nuclear material from the United States, which was the world's largest supplier in the 1950s.[16] The United States stipulated that its exported nuclear material must be used exclusively for civilian purposes and remain traceable.[17] Furthermore, the creation of the Euratom safeguards system was also considered to be a tool to prevent Germany from developing nuclear weapons.[18]

B. Relationship to the legal framework of the European Union

In stating that "the provisions of the Treaty on European Union and of the Treaty of the Functioning of the European Union shall not derogate from the provisions of this Treaty", Article 106(a)(3) makes it clear that the provisions of EU law do not interfere with the regulatory framework of the Euratom Treaty. The Euratom Treaty therefore serves as a specialised legal framework (*lex specialis*) that overrides the EU Treaties (*lex generalis*). However, where the Euratom Treaty does not provide specific regulations, the provisions of the EU Treaties may be applicable.[19]

Regardless of its legally independent organisational structure, Euratom shares the same EU institutions[20] as the European Union: the European Parliament, the European Council, the European Commission, the Court of Justice of the European Union (CJEU), the Court of Auditors and the Council of Ministers.[21] In this context, it should be noted that despite the existence of common institutions, the division of powers between the institutions in the Euratom Treaty is different from that between the EEC institutions. In particular, the European Parliament has less control over Euratom, possessing only consultation powers.[22]

C. Safeguards in the Community

1. *Euratom as a supranational organisation*

The Euratom safeguards system operates as a supranational framework, where sovereign rights have been transferred from member states to the European Commission, which is

15. Ruling of the Court of 14 November 1978, Ruling delivered pursuant to the third paragraph of Article 103 of the EAEC Treaty – Draft Convention of the International Atomic Energy Agency on the Physical Protection of Nuclear Materials, Facilities and Transports, C 1/78, EU:C:1978:202 (Fissile Materials Ruling), para. 32. For the specific tasks of the Community, see Euratom Treaty, *supra* note 4, Article 2.
16. Södersten, A. (2014), "Euratom at the Crossroads", European University Institute, Fiesole, Italy, pp. 366-377.
17. *Ibid*.
18. *Ibid*.
19. Judgment of the Court (Grand Chamber) of 22 September 2020, Republic of Austria v. Commission of the European Union (Hinkley Point C), C-594/18 P, EU:C:2020:742; Rodi, M. (2018), "Artikel 106a", in Vedder, V. and H. Heinegg (eds.), *Europäisches Unionsrecht*, Nomos, Germany, paras. 1-6.
20. Article 106(a)(1) of the Euratom Treaty does not apply to the European Central Bank, which has its legal basis in Article 282 of the TFEU and is also part of the European Institutions. See TFEU, *supra* note 10.
21. This was a result of the Treaty establishing a Single Council and a Single Commission of the European Communities (1965), entered into force 1 July 1967 (Merger Treaty). See also EU (2018), "Treaty of Brussels (Merger Treaty)", https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=legissum:4301863 (accessed 14 Nov. 2025).
22. Södersten A. (2014), *supra* note 16, p. 57.

tasked with carrying out conformity and finality checks.[23] In the framework of the Euratom Treaty, the Community has external competence in matters of nuclear safeguards, including the power to participate in international agreements related to its responsibilities under Chapter VII of the Treaty.[24] For the member states, this means that safeguards no longer fall within the field of national sovereignty.[25] The European Commission, specifically the Directorate-General for Energy acting on behalf of Euratom, holds the responsibility for managing and implementing safeguards within the Community.[26]

The Euratom safeguards system, based on the Euratom Treaty and its secondary legislation, is an integral part of the European Union's approach to ensuring the peaceful use of nuclear energy. The implementation of safeguards regulations is further facilitated through the Guidelines for the application of Regulation No. 302/2005,[27] as well as the European Commission recommendation on the implementation of a nuclear material accountancy and control system,[28] which are both legally non-binding. The safeguards system's primary goal, to ensure that nuclear materials are only used for civilian purposes within the European Union, is set out in in Article 2(e) of the Euratom treaty, explicitly requiring the Community to "make certain, that nuclear materials[29] are not diverted to purposes other than those for which they are intended". The specific regulations concerning safeguards can be found in Chapter 7 of the Euratom Treaty, which implements the European Commission's right to exercise supervision to verify that EU member states comply with their obligations under the Euratom Treaty and international non-proliferation agreements.

2. *Euratom safeguards activities under Article 77 of the Treaty*

Article 77 serves as the foundation of the Euratom safeguards system, outlining two major duties of the Commission. Article 77 of the Treaty states:

> The Commission shall satisfy itself that, in the territories of Member States:
>
> (a) ores, source materials and special fissile materials are not diverted from their intended uses as declared by the users,
>
> (b) the provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third State or an international organisation are complied with.

23. Kobia, R. (2008), "The EU and Non-Proliferation: Need for a Quantum Leap?", *Nuclear Law Bulletin*, Vol. 81, OECD Publishing, Paris, p. 41. Note that following its exit from the EU, the United Kingdom withdrew from Euratom as of 31 January 2020, with rules and arrangements expiring at the end of 2020 following a "transition period". See Institute for Government (n.d.), "Euratom", www.instituteforgovernment.org.uk/article/explainer/euratom (accessed 20 Jan. 2026).
24. Materials are the property of the Community, and therefore any loss or misuse necessarily concerns the Community. See Fissile Materials Ruling, *supra* note 15, para. 14. Under Article 86 of the Euratom Treaty, the European Union nominally owns all fissile material that has been produced or imported to the European Union. Article 87 gives persons and enterprises the possession of and unlimited rights to use fissile material. Euratom Treaty, *supra* note 4; see also Bouquet, A. (2001), "How current are Euratom provisions on nuclear supply and ownership in view of the European Union's enlargement?", *Nuclear Law Bulletin*, No. 68, OECD Publishing, Paris, p. 29.
25. Fissile Materials Ruling, *supra* note 15, para. 32.
26. European Commission (EC) (2023), *Report from the Commission: Euratom Safeguards Report 2020-2021*, C(2023) 7844, European Commission, Brussels, p. 3.
27. Commission recommendation of 15 December 2005 on guidelines for the application of Regulation (Euratom) No. 302/2005 on the application of Euratom safeguards, OJ L 28 (1 Feb. 2006), p. 1.
28. Commission recommendation of 11 February 2009 on the implementation of a nuclear material accountancy and control system by operators of nuclear installations, OJ L 41 (12 Feb. 2009), pp. 17-23.
29. For the definition of nuclear material, see Euratom Treaty, *supra* note 4, Art. 197.

Article 77 of the Euratom Treaty contains two different provisions. Article 77(a) of the Treaty determines the Commission's obligations to examine that nuclear materials are not diverted to uses other than those declared by the users.[30] Meanwhile, under Article 77(b), the Commission is responsible for ensuring compliance with any specific safeguarding obligations arising from agreements with third countries or international organisations. In connection with Article 77(b), there are two types of agreements to consider:

- **bilateral agreements** – concluded between Euratom and third countries for co-operation in the peaceful use of nuclear energy, including commitments on non-proliferation, safeguards, physical protection and export controls for nuclear materials (nuclear co-operation agreements),[31] and;
- **multilateral safeguards** – agreements in implementation of the Treaty on the Non-Proliferation of Nuclear Weapons concluded between Euratom, the EU member states and the International Atomic Energy Agency (IAEA), as well as their respective additional protocols.

Article 77 of the Euratom Treaty serves as the basis for the Commission's inspection and verification activities in the member states giving trading partners an assurance that regulations are complied with.[32] Articles 78 through 85 define how to achieve the tasks set out in Article 77.

3. *The scope of the Euratom Treaty regarding nuclear-weapon states and non-nuclear-weapon states*

Unlike the IAEA safeguards system, the Euratom Treaty does not differentiate between nuclear-weapon states and non-nuclear-weapon states in its application. This follows from Article 84(1) of the Euratom Treaty, which contains a so-called "non-discrimination" clause, providing that "in the application of the safeguards, no discrimination shall be made on grounds of the use for which ores, source materials and special fissile materials are intended."

It follows that the Euratom Treaty, as such, does not serve as a classical non-proliferation instrument.[33] The regulations of Chapter 7 are applicable to any nuclear material and thus apply to non-nuclear-weapon states as well as to nuclear-weapon states. Conversely, the IAEA safeguards system is primarily obligatory only for non-nuclear-weapon states, as defined under the NPT.[34] Therefore, France, as the only nuclear-weapon state in the EU, is not obliged to apply IAEA safeguards but is subject to the European Commission's supervision, and inspections can be carried out.

However, the Euratom safeguards regulations provide for certain exemptions from its broad scope of application, for instance in the case of non-peaceful uses of nuclear material. Article 84(4) restricts the scope of safeguards, as it states: "safeguards may not extend to materials intended to meet defence requirements that are in the course of being specially processed for this purpose or which, after being so processed, are, in accordance with an operational plan, placed or stored in a miliary establishment".

30. Schleicher, H.W. (1980), "Nuclear Safeguards, in the European Community – A Regional Approach", *IAEA Bulletin*, Vol. 22, No. 3/4, IAEA, Vienna, p. 46.
31. EC (2023), *supra* note 26, p. 6. Currently, nuclear co-operation agreements are in force between the Euratom and Australia, Canada, Japan, Kazakhstan, South Africa, Ukraine, the United Kingdom, the United States and Uzbekistan. These agreements include commitments related to non-proliferation, safeguards, physical protection and export controls for nuclear materials.
32. Södersten, A. (2014), *supra* note 16, p. 362.
33. However, non-proliferation efforts cannot be negated in light of certain provisions of the treaty. See Kobia, R. (2008), *supra* note 23, and Södersten, A. (2014), *supra* note 16.
34. While not obligatory, IAEA safeguards can be applied voluntarily, as discussed in Section 3, below.

Consequently, nuclear material intended for military purposes in nuclear-weapon states – including, but not limited to, weapons use – is exempted from Euratom safeguards and falls under national authority, while all nuclear material in non-nuclear-weapon states remains subject to Euratom safeguards.[35] The distinction of the scope of application between peaceful and military uses fulfils the objective of ensuring the common objectives of the Euratom Treaty without disregarding the national security interests of the member states.[36]

4. *Obligations of the operators*

The Commission's responsibility to verify compliance with safeguards regulations is mainly directed at the operators. In this respect, the European Commission ensures compliance of operators with respect to Euratom safeguards provisions, monitors and evaluates the performance of the operators' nuclear material accountancy and control system, verifies the non-diversion of nuclear material and confirms the credibility of operators' declarations.[37] The obligations arising from the Euratom Treaty are set out in Articles 78, et seq. and further implemented by Regulation No. 974/2025.[38]

According to Article 78(1) of the Euratom Treaty "anyone setting up or operating an installation […] shall declare to the Commission the basic technical characteristics of the installation."[39] Article 78(2) outlines that the Commission must approve the techniques to be used for the chemical processing of irradiated material, to the extent necessary to attain the objectives set out in Article 77. In this regard, Regulation No. 302/2005 contains provisions referring to practical modalities for the declaration of basic technical characteristics, time limits, programme of installations and particular safeguards provisions.[40]

Article 78(2) thus emphasises the power of the Community in the verification and monitoring of nuclear material, enabling the Community to exercise authorisation power for nuclear operators, which is arguably limited only by the principle of proportionality. The Commission thus enjoys a range of competences that distinguishes it from the IAEA. Although the IAEA has a potentially global reach for verifying compliance with its safeguards, it is not endowed with authorisation powers concerning operators.

Article 79 of the Euratom Treaty incorporates an accountancy system, stating in Article 79(1):

> the Commission shall require that operating records be kept and produced in order to permit accounting for ores, source materials and special fissile materials used or produced. The same requirement shall apply in the case of transport of source materials and special fissile materials.

Notification obligations for operators follow from Article 79(2), which outlines that "those subject to such requirements shall notify the authorities of Member States concerned of any communications they make to the Commission pursuant to Article 78 and to the first paragraph of this Article."

35. See Judgment of the Court (Grand Chamber) of 12 April 2005, Commission of the European Communities v. United Kingdom and Northern Ireland, C-61/03, EU:C:2005:210; Judgment of the Court (First Chamber) of 9 March 2006, Commission vs. United Kingdom of Great Britan and Northern Ireland, C-65/04; EU:C:2006:16; see also Schaper, A. (1997), *A Treaty on the Cutoff of Fissile Material for Nuclear Weapons: What to Cover? How to Verify?*, Peace Research Institute, Frankfurt, pp. 59-63.
36. Grunwald J., (2016), "Peaceful Uses of Nuclear Energy under Euratom Law", in Black-Branch, J.L. and D. Fleck (eds.), *Nuclear Nonproliferation in International Law,* Vol. III, Springer Nature, New York, pp. 171-213.
37. EC (2023), *supra* note 26, p. 3.
38. Commission Regulation (Euratom) 2025/974 of 26 May 2025 on the application of Euratom safeguards, OJ L 2025/974 (16 June 2025).
39. Euratom Treaty, *supra* note 4, Article 78(1).
40. EC (2023), *supra* note 26, p. 3.

The nature and extent of these record-keeping and reporting obligations are laid down in a regulation issued by the European Commission, subject to approval by the Council, as outlined in Article 79, para. 3 of the Euratom Treaty. On 6 July 2025, Regulation No. 974/2025[41] entered into force, replacing Regulation No. 302./2005 and updating the rules for reporting nuclear material under the Euratom Safeguard System.[42] Building on the previous regulation, the new regulation expands safeguards obligations to a broader range of actors, including users of nuclear materials, operators of disposal and decommissioning facilities, and entities subject to nuclear co-operation agreements.[43] These actors must provide information on their installations and report on the flows and inventories of nuclear material, reflecting the updated scope and lifecycle coverage ("safeguards-by-design"[44]) introduced in the new regulation.[45] To reflect changes in the nuclear sector and digital technologies, the updated rules pursue a more graded approach to reporting, based on the strategic value of nuclear materials, and promote digital reporting tools.[46]

These reporting and record-keeping requirements established under Chapter 7 of the Euratom Treaty highlight the Community's primary goal of advancing the peaceful use of nuclear energy, albeit within a secure framework. This understanding is emphasised by the ruling of the CJEU in the Advanced Nuclear Fuels case.[47] There, the Court determined that any violation of the obligations can have serious repercussions for companies.[48]

Taken as a whole, the regulation system creates far-reaching responsibilities for nuclear power facilities and control systems based on data derived from measurements according to the latest international standards.[49] This system must be capable of accurately and promptly recording the location and quantity of nuclear material under its control and thus must recognise losses or apparent losses quickly and with a high degree of certainty.[50]

5. *Inspections under the Euratom safeguards system*

A cornerstone of the Euratom safeguards system is inspections. To ensure that the information provided by nuclear operators matches their actual operations and material stockpiles, Euratom conducts regular physical inspections of nuclear facilities in member states. In this regard, Article 81 of the Euratom Treaty provides that:

> (1) The Commission may send inspectors into the territories of Member States. Before sending an inspector on his first assignment in the territory of a Member State, the Commission shall consult the State concerned; such consultation shall suffice to cover all future assignments of this inspector.
>
> (2) On presentation of a document establishing their authority, inspectors shall at all times have access to all places and data and to all persons who, by reason of their occupation, deal with materials, equipment or installations subject to the safeguards provided for in this Chapter, to the extent necessary in order to apply such safeguards to ores, source materials and special fissile materials and to ensure compliance with the provisions of Article 77. Should the State concerned

41. Commission Regulation (Euratom) 2025/974, *supra* note 38.
42. EC (n.d.), "Euratom safeguards", https://energy.ec.europa.eu/topics/nuclear-energy/euratom-safeguards_en (accessed 22 Dec. 2025).
43. EC (2023), Explanatory Memorandum for the Proposal for a Council Decision approving a Commission Regulation (Euratom) on the application of Euratom safeguards, COM (2023) 793 Final.
44. EC Directorate-General for Energy, Press Release, "New Euratom Safeguards Regulation to apply from 6 July 2025" (6 July 2025).
45. EC (2023), *supra* note 43.
46. *Ibid*.
47. Judgment of the Court of 21 January 1993, Advanced Nuclear Fuels GmbH v. Commission of the European Communities, C-308/90, ECLI:EU:C:1992:450.
48. Södersten, A. (2014), *supra* note 16, pp. 365-368.
49. Kobia, R. (2008), *supra* note 23, p. 41.
50. *Ibid*.

so request, inspectors appointed by the Commission shall be accompanied by representatives of the Authorities of that State; however, the inspector shall not thereby be delayed or otherwise impeded in the performance of their duties.

(3) If the carrying out of an inspection is opposed, the Commission shall apply to the President of the Court of Justice of the European Union for an order to ensure that the inspection be carried out compulsorily. The President of the Court of Justice shall give a decision within three days.

There are only two obligations under Article 81 concerning the manner in which inspections are to be carried out: (1) the European Commission's obligations to consult the state before the first assignment of an inspector and (2) the inspector's obligation to present a document establishing their authority. It should be noted that inspections carried out jointly with the IAEA contain further regulations concerning the type and manner of inspections.[51]

As the Euratom Treaty is silent on any requirement of advanced notification, it follows that inspections under the Euratom Treaty can be conducted either with prior notice or without it. Planned inspections are communicated to operators in advance, enabling them to adjust their operational schedules accordingly.[52] Most Euratom inspections fall into this category, as diverting nuclear materials from their intended use is technically challenging in many nuclear installations, such as nuclear power reactors.[53] Unannounced and short notice inspections are performed either without previous notification to the concerned operator (unannounced inspections) or with short notice notification (48 hours or less).[54] When carrying out inspections, inspectors shall enjoy such "privileges and immunities as are necessary for the performance" of their tasks.[55] Unlike IAEA inspectors, Euratom inspectors only have the authority to conduct inspections within their own member states to ensure compliance with safeguards regulations.[56]

Based on the aforementioned regulations, a comprehensive verification system has been established. However, the primary objectives of such inspections are to identify inconsistencies in operators' accounts and the declared versus actual technical characteristics of a facility, as well as to detect diversions. Specific measures intended to identify undeclared activities, such as environmental radioactivity analyses, are not routinely implemented.[57]

6. *Infringement and sanction provisions under the Euratom Treaty*

An enforcement system is essential for compliance with safeguards regulations. In this regard the Euratom Treaty contains infringement and sanction provisions. If the carrying out of an inspection is opposed, the European Commission shall apply to the President of the CJEU for an order to ensure that the inspection be carried out compulsorily. The President of the CJEU shall give a decision within three days, as provided in Article 81(3).

51. These are explained in more detail in the chapters on INFCIRC/193 and Protocol of INFCIRC/193.
52. EC (2023), *supra* note 26, p. 6.
53. *Ibid*.
54. *Ibid*. According to the report from 2020 and 2021, there were respectively 82 and 62 inspections of these types. Some of the unannounced and short notice inspections were performed on request of and together with inspectors from the IAEA. Additionally, some unannounced inspections were performed alone by IAEA inspectors without prior notification also to the European Commission. For further information about Euratom inspectors' verification activities in general, see the Euratom Safeguards Reports (2022), accessible via EC (n.d.), "Euratom Safeguards", https://energy.ec.europa.eu/topics/nuclear-energy/euratom-safeguards_en#reporting-and-verification.
55. See Euratom Treaty, *supra* note 4, Article 191; Protocol No. 7 on the Privileges and Immunities of the European Union, OJ C 326 (26 Oct. 2012), pp. 266-272.
56. See also Södersten, A. (2014), *supra* note 16, p. 369.
57. Schaper, A. (1997), *supra note* 35, pp. 59-63.

The provisions under the Treaty distinguish between infringement actions against member states and direct sanctions against nuclear operators. According to Article 82, the Commission can take infringement actions against member states. Article 82(3) states that: "The Commission may issue a directive calling upon the Member State concerned to take, by a time limit set by the Commission, all measures necessary to bring such infringement to an end; it shall inform the Council thereof." Further, paragraph 4 of Article 82 states:

> If the Member State does not comply with the Commission directive by the time limit set, the Commission or any Member State concerned may, in derogation from Articles 258 and 259 of the Treaty on the Functioning of the European Union, refer the matter to the Court of Justice of the European Union direct.

The possibility of directly appealing to the CJEU is an exception to the typical system of infringement proceedings in the EU law system. In principle it is necessary for the member state concerned to be given the opportunity to respond to the allegations beforehand through a process known as preliminary proceedings.[58] Under the TFEU, these proceedings are a crucial prerequisite for initiating legal action. The possibility of directly issuing an infringement procedure shows the inevitability by which the Euratom Treaty founders viewed an urgency in this area.[59] Article 83 of the Treaty, on the other hand, addresses nuclear facility operators by providing that in the event of an infringement of safeguards obligations on the part of operators, the European Commission may impose sanctions. These sanctions shall be, in order of severity: a warning, the withdrawal of special benefits, the placing of the facility under administration and the withdrawal of materials.[60] The Treaty thus grants the European Commission wide authority to take effective action against both ongoing and past infringements.[61] This demonstrates the adaptability of the legal framework to address varying degrees of non-compliance, ensuring that sanctions are both proportionate and focused.[62]

The provisions laid down in Chapter 7 are endorsed further by member states' basic obligations, as detailed in Article 192 of the Euratom Treaty. According to that article, the states "shall take all appropriate measures, whether general or particular, to ensure fulfilment of the obligations arising out the Treaty or resulting from action taken by the institutions of the Community. They shall facilitate the achievement of the Community's

58. See TFEU, *supra* note 10, Article 258.
59. Södersten, A. (2014), *supra* note 16, p. 365.
60. Euratom Treaty, *supra* note 4, Article 83(1).
61. Judgment of the Court of 21 January 1993, *supra* note 47, paras. 20-21. Commission decisions to impose sanctions (including warnings) have been issued in eight cases:
    - 1990: ANF (Germany) – placement under administration, see Commission Decision of 1 August 1990 relating to a procedure in application of Article 83 of the Treaty, OJ L 209 (8 Aug. 1990), pp. 27-30.
    - 1992: UKAEA Dounreay (United Kingdom) – warning, see Commission Decision of 4 March 1992, relating to a procedure in application of Article 83 of the Treaty, OJ L 088 (3 Apr. 1992), pp. 54-58.
    - 1994: Escuela Tecnica Superior (Spain) – warning, see Commission Decision of 21 December 1994 relating to a procedure in application of Article 83 of the Treaty, OJ L 371 (31 Dec. 1994), pp. 16-17.
    - 1994: ATUE Cadarache (France) – warning (not published).
    - 1996: Jenson Tungsten (United Kingdom) – warning, see Commission Decision of 13 November 1996 relating to a procedure in application of Article 83 of the Treaty, OJ L 313 (3 Dec. 1996), pp. 20-24.
    - 1997: Enusa Juzbado (Spain) – warning, see Commission Decision of 12 December 1997 relating to a procedure in application of Article 83 of the Treaty, OJ L 354 (30 Dec. 1997), pp. 30-33.
    - 2005: UKAEA Harwell (United Kingdom) – warning (not published).
    - 2006: BNG Sellafield (United Kingdom) – warning, see Commission Decision of 15 February 2006 pursuant to Article 83 of the Treaty establishing the European Atomic Energy Community, OJ L 255 (19 Sept. 2006), pp. 5-6.
62. Södersten, A. (2014), *supra* note 16, p. 368.

tasks." Article 192 further states that "they shall abstain from any measure which could jeopardize the attainment of the objectives of this Treaty".

D. Findings

The safeguards system set out in Chapter 7 must be viewed in the context of the objectives of the Euratom Treaty, which is centred on the peaceful use of nuclear energy.[63] Against this background the provisions of the Euratom Treaty have economic rather than non-proliferation purposes. Nevertheless, the trade in nuclear material, and thus the promotion of nuclear energy, depends strongly on the security guarantees that the regulatory framework can offer to potential treaty partners. In this respect, the provisions of Chapter 7 also have a non-proliferation effect and play a role in the broader goal of nuclear security.[64] To this extent, the Euratom safeguards system can be seen as a multi-layered monitoring and verification system that ensures that operators of nuclear power plants in the member states accurately account for the quantity and use of nuclear material in their facilities.

To empower the European Commission to carry out this review, the Euratom Treaty and corresponding secondary legislation grant the Commission comprehensive supervisory rights by law, which are not subject to the discretion of the member states. It should be emphasised that the operators have a direct duty to inform the Commission without the member state concerned having any rights of intervention. Furthermore, the Euratom Treaty provides the inspectors with comprehensive rights. By employing them directly by Euratom, without the influence of a member state, the greatest possible independence of the inspections is guaranteed. The European Commission enjoys wide regulatory and enforcement powers that are unique at the international level.[65] By subjecting the Commission's powers to the CJEU, compliance with and application of the safeguards system is ensured.[66]

It can thus be summarised that Euratom is creating a regional system that, through comprehensive legal regulations, represents a reliable system for ensuring that nuclear material is used exclusively for peaceful purposes. Due to its regional composition, it has greatly enhanced mutual confidence and co-operation in the region and is respected by all member states.[67] These safeguards align with broader international efforts, particularly under the IAEA, to promote nuclear security and non-proliferation.

III. The IAEA safeguards system and its relationship with the Euratom system

A. The international framework

As outlined above, the Euratom safeguards system is a legal instrument intended to ensure that nuclear materials are only used for peaceful purposes in the territory of the European Union. However, the Euratom safeguards system also has an international dynamic. At the international level, the Euratom Community, pursuant to the provisions of Chapter 10 of the Euratom Treaty, has the authority to enter into international agreements or conventions with states, international organisations and nationals from third countries. This allows the Euratom Community and its member states to enter into multilateral safeguards agreements and their related additional protocols with the IAEA in implementation of the NPT.[68]

The following sections describe the IAEA safeguards system stemming from the IAEA Statute and the provisions laid down in the NPT. The different models of multilateral

63. For further discussion, see *ibid*, Chapter 6.
64. Ruling C-1/78, *supra* note 9; Kobia, R. (2008), *supra* note 23, p. 40.
65. Kobia, R. (2008), *supra* note 23, p. 41.
66. Szymanski, P. (n.d.), "The Euratom regional safeguards system", IAEA, www.iaea.org/sites/default/files/euratom211111.pdf.
67. Schaper, A. (1997), *supra* note 35, pp. 59-63.
68. For detailed information on safeguards agreements between Euratom, EU member states and the IAEA, see the Euratom Safeguard Reports, *supra* note 54.

agreements and their related additional protocols are explained, with special attention given to specific multilateral agreements between the IAEA, Euratom and their respective member states, illustrating how the two safeguards systems interact and influence each other.

1. *The IAEA Statute*

The IAEA safeguards system is enshrined in the provisions of the Agency's Statute[69] and is administered by the Agency, which is an independent intergovernmental organisation established in 1957 to promote the safe, secure and peaceful use of nuclear energy.[70] The IAEA safeguards system ensures that IAEA member states comply with their international obligations, especially their obligations under the NPT.[71]

Article III.A.5 of the IAEA Statute enables the Agency to establish and administer safeguards designed to ensure that projects in the field of nuclear energy carried out or fostered by the Agency are not used in such a way as to further any military purpose.[72] Furthermore, Article III.A.5 enables the IAEA to apply safeguards to any state, group of states[73] or agency at their request and to conclude agreements with individual states or groups of states for the application of safeguards.

2. *The Treaty on the Non-Proliferation of Nuclear Weapons*

The NPT was the first global treaty calling for IAEA safeguards.[74] Established in 1968, the NPT is an international agreement aimed at preventing the spread of nuclear weapons, promoting disarmament and encouraging the peaceful use of nuclear energy.[75] It has three main pillars: (1) non-proliferation, (2) disarmament and (3) the right to peacefully use nuclear technology. [76] The NPT is one of the most widely endorsed arms control agreements, with 191 member states, including the 5 recognised nuclear-weapon states.[77]

The Community's international activities have been decisively influenced by the introduction and entry into force of the NPT, as it required states to conclude agreements with the IAEA. The NPT distinguishes between non-nuclear-weapon states and nuclear weapon-states in its scope of application. According to Article 1 of the NPT: "Each nuclear-weapon State […] undertake[s] not to transfer to any recipient whatsoever nuclear weapons or other nuclear explosive devices […]." A nuclear-weapon state under the NPT is defined as "one which has manufactured and exploded a nuclear explosive devise prior to January 1, 1967".[78] The nuclear-weapon states, as defined by the NPT, are the People's Republic of China (China), France, the Russian Federation (Russia), the United Kingdom and the United States. All other states under the framework of the NPT are considered to be non-nuclear-weapon

69. Statute of the International Atomic Energy Agency (1956), 276 UNTS 3, entered into force 29 July 1957 (IAEA Statute); see also Rockwood, L. (2022), "The IAEA safeguards system", in NEA (ed.), *Principles and Practice of International Law*, OECD Publishing, Paris, p. 357.
70. IAEA (n.d.), "Overview", www.iaea.org/about/overview, (accessed 22 Dec. 2025).
71. Johnson, P. (2022), "The law of the International Atomic Energy Agency", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 26.
72. See also: Rockwood, L. *(2022)*, *supra* note 69, p. 357.
73. The possibility for groups of states to act together was introduced into the treaty text at the suggestion of Community member states, who sought to preserve their Euratom Treaty-based safeguards system, see Schleicher H.W. (n.d.), *supra* note 30.
74. NPT, *supra* note 3; *Rockwood*, L. (2022), *supra* note 69, p. 359.
75. IAEA (n.d.), "The IAEA and the Non-Proliferation Treaty", www.iaea.org/topics/non-proliferation-treaty (accessed 24 July 2025).
76. Rockwood, L. (2024), "The Nuclear Non-Proliferation Treaty", presented at the International School of Nuclear Law, NEA and University of Montpellier, Montpellier, France, 3 September 2024.
77. While Euratom is not a party to the NPT, it fulfils its requirements through safeguards agreements in accordance with the treaty's principles. The same applies regarding the IAEA. For a list of parties to the treaty, see UN (n.d.), "Treaty on the Non-Proliferation of Nuclear Weapons: Participants", https://treaties.unoda.org/t/npt/participants (accessed 14 Nov. 2025).
78. NPT, *supra* note 3, Article IX.3.

states. Per the NPT, those states undertake "not to receive the transfer from any transferer whatsoever of nuclear weapons or other nuclear explosive devices […]".[79]

For non-nuclear-weapon states, the NPT further sets out an obligation to implement a safeguards system with respect to any nuclear material. The obligation to establish a safeguards system follows from Article III.1, which states:

> each Non-nuclear-weapon State Party to the Treaty undertakes to accept safeguards, as set forth in an agreement to be negotiated and concluded with the International Atomic Energy Agency in accordance with the Statute of the International Atomic Energy Agency and the Agency's safeguards system, for the exclusive purpose of verification of the fulfilment of its obligations […] to preventing diversion of nuclear energy from peaceful uses to nuclear weapons or other nuclear explosive devices […]

Article III.1 of the NPT elaborates that safeguards shall be applied on all source or special fissionable material in all peaceful nuclear activities within the territory of such state under its jurisdiction or carried out under its control anywhere. While Euratom safeguards cover uranium ore, IAEA safeguards under the NPT apply only after such ore is processed into nuclear materials.[80] The obligation of non-nuclear-weapon states to accept safeguards is underpinned by Article III.4 of the NPT, which requires states party to the treaty to "conclude agreements with the IAEA to meet the requirements of this Article either individually or together with other Sates in accordance with the Statute of the International Atomic Energy Agency […]". The purpose of these provisions is to ensure that nuclear material is not diverted into nuclear weapons.[81]

3. *Safeguards agreements*

While the implementation of safeguards in the Community is implemented by law directly applicable in the member states, the IAEA safeguards system requires contracting parties to implement the system by negotiating and concluding agreements with the IAEA.[82] IAEA safeguards are implemented through legally binding agreements between the IAEA and individual states. These agreements are typically one of three types: comprehensive safeguards agreements (governed by INFCIRC/153 [Corr.]),[83] voluntary offer agreements or item-specific agreements (governed by INFCIRC/66/Rev.2).[84]

Additional protocols (APs), governed by INFCIRC/540 (Corr.),[85] may also be concluded for each of these types of safeguards agreements. States with minimal nuclear activities, but CSAs in place, can add small quantities protocols.[86]

▪ a. Comprehensive safeguards agreements

Comprehensive safeguards agreements (CSAs) are agreements between the IAEA and non-nuclear-weapon states under the NPT.[87] The primary document used to negotiate CSAs with non-nuclear-weapon states is "The Structure and Content of Agreements between

79. *Ibid.*, Article II.
80. Schaper, A. (1997), *supra* note 35, p. 60.
81. Södersten, A. (2014), *supra* note 16, p. 353.
82. See Schaper, A. (1997), *supra* note 35, p. 59. See also Rockwood, L. (2022), *supra* note 71, p. 374.
83. IAEA (1972), "The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", IAEA Doc. INFCIRC/153 (Corrected), IAEA, Vienna (INFCIRC/153).
84. IAEA (1968), "The Agency's Safeguards System (1965, as Provisionally Extended in 1966 and 1968)", IAEA Doc. INFCIRC/66/Rev.2, IAEA Vienna.
85. IAEA (1997), "Model Protocol Additional to the Agreements between the States and the International Atomic Energy Agency for the Application of Safeguards", IAEA Doc. INFCIRC/540, IAEA, Vienna (Model Additional Protocol).
86. Johnson, P. (2022), *supra* note 71, p. 26.
87. Stoiber, C. et al. (2003), *supra* note 1, p. 123.

the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons" (INFCIRC/1953), which was developed by the IAEA Safeguards Committee, published by the IAEA in 1971 and adopted by the IAEA Board of Governors in 1972.[88] INFCIRC/153 was designed to advise on the content of safeguards agreements and serves as a model for CSAs.[89] Most CSAs are concluded along the lines of INFCIRC/153, which allows the IAEA to monitor all nuclear materials and activities within a state to verify that they are used solely for peaceful purposes.[90]

- b. Voluntary offer agreements

While only non-nuclear-weapon states are bound by the NPT to implement safeguards and conclude agreements with the IAEA, nuclear-weapon states may also implement a safeguards system. This is possible through voluntary offer agreements.[91] Under voluntary offer agreements, nuclear-weapon states commit to place some of their nuclear activities under safeguards. These agreements usually differ in scope and content as it is up to the respective state to decide which areas are subject to the scope of the agreement.[92] However, the procedures are still based on the structure and content of INFCIRC/153.[93]

- c. Item-specific safeguards agreements

Under item-specific safeguards agreements (INFCIRC/66/Rev.2) only nuclear material, non-nuclear material, factories and other items explicitly outlined in the agreement are covered. States with item-specific agreements in force undertake to only use the covered items for peaceful purposes, prohibiting the manufacture of any nuclear weapon or the furthering of any non-peaceful purpose.[94] The IAEA implements safeguards pursuant to such agreements in three states that are not party of the NPT: India, Israel and Pakistan.[95]

- d. Model Additional Protocol[96]

The AP was approved by the IAEA Bord of Governors in 1997 and is of increasing importance for the application of safeguards.[97] The AP was designed to strengthen the effectiveness and improve the efficiency of the IAEA safeguards system.[98] In the framework of the AP, the IAEA is granted an enhanced authority to detect undeclared nuclear activities through expanded access to sites and more detailed information about a state's nuclear programme.[99] Additional Protocols improve the access to information available under a CSA.[100] More specifically, the IAEA is given greater access to a range of

88. INFCIRC/153, *supra* note 83; see also Rockwood, L. (2022), *supra* note 69, p. 363.
89. Rockwood, L. (2022), *supra* note 69, p. 363.
90. *Ibid*, p. 364; INFCIRC/153, *supra* note 83.
91. Stoiber, C. et al. (2003), *supra* note 1.
92. *Ibid,* p. 124.
93. See Johnson, P. (2022), *supra* note 71, p. 28. Following the United Kingdom's exit from the EU (Brexit), one voluntary offer agreement (VOA) remains in force between France, the EU, and the IAEA (INFCIRC/290). This agreement stipulates that, similarly to arrangements for non-nuclear-weapon states, reports are transmitted by the European Commission to the IAEA regarding all civilian nuclear materials in facilities designated by the Agency. Within Euratom member states, this means that while Euratom safeguards encompass all nuclear materials for peaceful purposes in France, IAEA inspections are limited to specific civil nuclear installations. Post-Brexit, France is the only Euratom member state possessing nuclear weapons. The last year Euratom safeguards applied to the United Kingdom was 2020, see EC (2023), *supra* note 43.
94. IAEA (n.d), "More on Safeguards agreements", www.iaea.org/topics/safeguards-legal-framework/more-on-safeguards-agreements (accessed 22 Dec. 2025).
95. Johnson, P. (2022), *supra* note 71, p. 26.
96. Model Additional Protocol, *supra* note 87.
97. Stoiber, C. et al. (2003), *supra* note 1, p. 124.
98. Rockwood, L. (2022), *supra* note 69, p. 365.
99. *Ibid*.
100. *Ibid*.

information, including plans, nuclear material, trade and nuclear programmes.[101] This enhances the ability of the IAEA to confirm the absence of undeclared nuclear material.[102] The regulations under the CSA and the AP are to be read as a single document, of which the provisions of the AP are prevailing in the case of conflict.[103]

- e. Small quantities protocols

The small quantities protocol (SQP) has been developed for states that have a CSA in place but little to no nuclear material and no nuclear material in a nuclear facility. The SQP holds in abeyance or suspends the application of many of the procedures in Part II of a CSA until the state meets the criteria specified in the SQP.[104]

4. Enforcement measures

- a. Measures related to verification of non-diversion

Under INFCIRC/193, it is both the Community and the state's responsibility to ensure compliance with the safeguards regulations agreed upon.[105] If the IAEA Board of Governors, upon report of the Director General, decides that an action by the Community or a state is essential and urgent to ensure verification that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices, the Board of Governors may call upon the Community or that state to take the required action.[106] If the Board of Governors, upon examining relevant information reported by the Director General, finds that the Agency cannot verify the absence of diversion of safeguarded nuclear material, it may make broad use of the reports specified in Article XII.C of the IAEA Statute.[107] This includes reporting non-compliance to all member states, as well as to the United Nations Security Council and General Assembly of the United Nations.[108]

In the event that "recipient States or States" fail "to take fully corrective action within a reasonable time", the Board of Governors is entitled to "direct curtailment or suspension of assistance being provided by the Agency or by a member, and call for the return of materials and equipment made available to the recipient member or group of members."[109] In accordance with Article XIX of the IAEA Statute, the Agency may also "suspend any non-complying member from the exercise of the privileges and rights of membership".[110]

- b. Settlement of disputes

The principles of international law apply to possible disputes between the IAEA and a state relating to the interpretation and application of safeguards agreements.[111] However, the IAEA, as an international organisation, is not subject to the jurisdiction of national courts, nor, under the Statute of the International Court of Justice (ICJ), is it eligible to be a party to an action before that tribunal.[112] There is therefore no court or established judicial

101. *Ibid*.
102. IAEA (n.d), "Safeguards legal framework", IAEA: Safeguards and verification, www.iaea.org/topics/safeguards-legal-framework (accessed 22 Dec. 2025).
103. *Ibid,* p. 366. See also, Model Additional Protocol, *supra* note 85.
104. Johnson, P. (2022), *supra* note 71, p. 28.
105. IAEA (1973), "The Text of the Agreement Between Belgium, Denmark, the Federal Republic of Germany, Ireland, Italy, Luxembourg, the Kingdom of the Netherlands, the European Atomic Energy Community and the Agency in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", INFCIRC/193, IAEA, Vienna (INFCIRC/193). See for the general scope of application in this context: Rockwood, L. (2022), *supra* note 69, p. 372.
106. INFCIRC/193, *supra* note 105, Article 18.
107. *Ibid*., Article 19.
108. IAEA Statute, *supra* note 71, Article XX C.
109. *Ibid*.
110. *Ibid*., Article XIX.
111. See INFCIRC/193, *supra* note 105, Article 17.
112. Rockwood, L. (2022), *supra* note 69 p. 372.

tribunal that has competence to resolve a dispute between the IAEA and a state.[113] For this reason, arbitration provisions are concluded in all the safeguards agreements that provide for the establishment of an arbitration panel.[114] While the wording of this provision may differ, they all require one member appointed by each party involved in the dispute, together with one or two additional members selected by those initially chosen.[115] These arbitration provisions are structured to ensure the panel always includes either three or five members, thereby preventing a tie vote.[116] To date, no case has been brought to such an arbitration panel.[117]

5. *Findings*

To summarise, the IAEA safeguards system provides a differentiated system with various safeguards agreements. The respective design may differ depending on the area of application. However, the basic technical aspects of the implementation of safeguards are applied universally to all states subject to safeguards. Thus, they are consistent in their main objective of ensuring that states parties fulfil their obligations not to use protected materials for prohibited purposes.[118] Comparing the two systems, the Euratom safeguards system is applicable earlier than the IAEA system and does not distinguish between nuclear- and non-nuclear-weapon states. A major weakness compared to the Euratom safeguards system is that, in the IAEA system, there is no court or established judicial body to deal with possible disputes over the interpretation and application of the safeguards agreement provisions between the IAEA and a state or, in the case of Euratom, the Community. Although possibly less intrusive, the IAEA safeguards system is less effective in this regard.[119]

B. Interaction of the safeguards systems

1. *Euratom agreements with the IAEA*

The following section examines how the Euratom and IAEA safeguards systems work together. In this regard the focus will be on the presentation of INFCIRC/193, followed by an explanation of how the New Partnership approach has been influenced by the implementation of the CSA. The implementation of the AP will then be presented and recent developments between the two systems, due to the state-level approach, will be assessed.

- a. INFCIRC/193

Article III.4 of the NPT [120] mandates that non-nuclear-weapon states must establish safeguards agreements with the IAEA, either on their own or in co-operation with other states. The legal basis for the Community to enter such an agreement is Article 101(1) of the Euratom Treaty.[121] Article 77(b) of the Euratom Treaty requires the Commission to ensure that states comply with their obligations under safeguards requirements. The safeguards agreement between the IAEA, EURATOM and EURATOM's non-nuclear-weapon member states, NFCIRC/193, [122] marks the first multilateral NPT safeguards agreement. [123] In its content it follows and resembles the structure of the Agency document INFCIRC/153. To

113. *Ibid*.
114. *Ibid*.
115. See INFCIRC/193, *supra* note 105, Article 22.
116. Rockwood, L. (2013), *supra* note 93.
117. *Ibid*.
118. *Ibid*.
119. See Schaper, A. (1997), *supra* note 35, p. 59.
120. NPT, *supra* note 3, Article III (4).
121. In case of mixed agreements, Article 102 of the Treaty contains additional regulations.
122. INFCIRC/193, *supra* note 105.
123. Szymanski, P. (n.d.), *supra* note 66.

reflect the particular situation of the existing Euratom safeguards system it also contains an additional protocol that takes the Euratom safeguards framework into account.[124]

INFCIRC/193 is divided into two parts. The first part addresses basic provisions and covers areas such as the applicability of safeguards, co-operation obligations, information obligations towards the Agency and the performance of Agency inspectors. According to Article 1, member states must undertake:

> to accept safeguards on all source or special fissionable material in all peaceful nuclear activities within their territories, under their jurisdiction or carried out under their control anywhere, for the exclusive purpose of verifying that such material is not diverted to nuclear weapons or other nuclear explosive devices.

In the context of applicability, Articles 2 and 3 of INFCIRC/193 outline both the Agency's and Euratom's role in the framework of this agreement. Under Article 2, it is the Agency's "right and the obligation" to apply safeguards in accordance with the terms of the Agreement.[125] Under Article 3(a), the Community undertakes to co-operate with the Agency "with a view to ascertaining that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices". Article 3(b) contains the Agency's verification obligation:

> The Agency's verification shall include, inter alia, independent measurements and observations conducted by the Agency in accordance with the procedures specified in this Agreement. The Agency, in its verification, shall take due account of the effectiveness of the Community's system of safeguards in accordance with the terms of this Agreement.

To facilitate the implementation of the safeguards provided for in INFCIRC/193 the Agency, under Article 4 the Community and the states shall co-operate closely and avoid "unnecessary duplication of safeguards activities". To ensure that the implementation of safeguards is effective, Article 8(a) requires the Community to inform the Agency "with information concerning nuclear material subject to such safeguards and the features of facilities relevant to safeguarding such material". However, this duty to inform contains a limitation insofar as Article 8(b)(i) outlines that "the Agency shall require only the minimum amount of information and data consistent with carrying out its responsibilities under this Agreements". Articles 9 and 10 concern Agency inspectors. According to Article 9(a)(i), "the Agency shall secure the consent of the Community and the States to the designation of Agency inspectors to the States". Like Euratom inspectors, IAEA inspectors enjoy immunity, which is secured by Article 10, stating, "each State shall apply to the Agency, including its property, funds and assets, and to its inspectors and other official, performing functions under this Agreement, the Energy Agency."[126] Articles 18 and 19 contain measures in relation to verification of non-diversion. The provisions set out in Articles 20 through 22 concern the application and interpretation of the agreement and dispute settlements.

Part II of the protocol is designed to specify the procedures applicable to the implementation of the safeguards provisions laid down in Part I. Articles 29 through 32 concern the implementation of the Community's system of accounting for and control of nuclear material. According to Article 32, the accounting "shall be based on a structure of material balance areas".[127] To permit the Agency to fulfil its responsibilities under the Agreement in an effective and efficient manner, Article 39 obliges the Community to make Subsidiary Arrangements with the Agency that specify in detail "how the procedures laid down in this agreement are to be applied".

Subsidiary Arrangements consist of a general part and an attachment. The general part is applicable to all peaceful nuclear activities in the states and specifies, among others, the communications to be made between the states, the Community and the Agency. Separate

124. Schleicher H.W. (n.d.), *supra* note 30, p. 46.
125. INFCIRC/193. *supra* note 105, Article II.
126. IAEA (1959), "The text of the Agreement on the Privileges and Immunities of the International Atomic Energy Agency", IAEA Doc. INFCIRC/9/Rev.2., IAEA, Vienna.
127. For the definition of "material balance area" see INFCIRC/193, *supra* note 105, Article 98.

attachments are made for facilities and each material balance area outside facilities in the states, detailing the frequency of routine inspections and the strategic points to which the IAEA has access during inspections.[128] The conclusion of subsidiary arrangements does not usually require review or approval by the Board of Governors. They do not modify or amend provisions of a CSA, which cannot be amended unilaterally by either party.[129] Of particular relevance for the co-operation between the Community and the Agency are the implementation rules concerning inspectors, an area that is often the subject of debates and technical discussions between the organisations. Article 70 of INFCIRC/193 enables the Agency to conduct inspections in non-nuclear-weapon states. The inspections to be carried out can be divided into ad hoc inspections, routine inspections and special inspections, with routine inspections being carried out in the vast majority of cases.

According to Article 71:

> the Agency may make ad hoc inspections in order to (a) verify the information contained in the initial report on the nuclear material [and to] identify and verify changes in the situation which have occurred between the date of the initial report and the date of the entry into force of Subsidiary Arrangements in respect of a given facility and (b) to identify, and if possible verify the quantity and composition of nuclear material subject to safeguards under this Agreements [...] before its transfer out of or upon ins transfer into the States except for transfers within Community.

The most common inspection, in practice, is the routine inspection, outlined in Article 72 of INFCIRC/193, which enables the Agency to: (a) verify that reports are consistent with records, (b) verify the location, identity, quantity and composition of all nuclear material, and (c) verify information on the possible causes of material unaccounted for, shipper receiver differences and uncertainties in the book inventory. In this regard it should be noted that the Agency's authority to conduct such routine inspections is restricted to specific areas within a nuclear facility or other sites containing nuclear material where the flow of nuclear material is anticipated (strategic points).[130] Of lesser importance in practical application are the special inspections under Article 73, according to which the Agency has the right of "access to information or locations in addition to the access [...] for ad hoc and routine inspections or both". The very broad scope of application for inspections resulting from Article 73 has led to vehement resistance from the member states in practice and has, therefore, rarely been applied, a fact that certainly contributed to the later identified weaknesses in the implementation of IAEA safeguards.[131]

Inspections conducted by the IAEA follow a predetermined schedule and are typically announced in advance, even if only on 24-hour notice.[132] The right of the Agency to conduct both short notice and inspections without any advance notification remains the subject of ongoing debate. The Agency is committed to minimising "any practical difficulties" for the Community, the state concerned and facility operators when carrying out unannounced inspections.[133] However, the practical implementation of both short

128. Rockwood, L. (2013), *supra* note 93.
129. Rockwood, L. (2022), *supra* note 69, p. 375.
130. INFCIRC/193, *supra* note 105, Article 76(c); IAEA (n.d.), "IAEA Safeguards Overview – Comprehensive Safeguard Agreements and Additional Protocols", www.iaea.org/publications/factsheets/iaea-safeguards-overview (accessed 22 Dec. 2025).
131. Katzenberg, B. (2012), "The impact of the Additional Protocol and Strengthened Safeguards: effects on the International Atomic Energy Agency and on states", *Nuclear Law Bulletin,* No. 90, OECD Publishing, Paris.
132. I*bid.*, Article 83.
133. *Ibid.*, Article 84.

notice inspections and unannounced inspections often leads to uncertainties in the practical implementation.[134]

With regard to possible co-operation obligations in the framework of inspections, these are arguably established for special inspections, as Article 77 of INFCIRC/193 provides that "the Community and the Agency shall consult forthwith". However, the Protocol of INFCIRC/193 provides closer co-operation obligations, as discussed below.

- b. Protocol of INFCIRC/193

When analysing the Euratom and IAEA safeguards systems, it should be noted that Euratom, as a regional player, already has a complete supranational safeguards system and, in this respect, differs from the usual scope of application of INFCIRC/153. To take this peculiarity into account, a protocol has been included, based on Article 26, that forms an "integral part" of INFCIRC/193.[135] Consequently, the term "Agreement" as used in INFCIRC/193 means the Agreement and the Protocol together.[136]

The co-operation between Euratom and the IAEA under the Agreement is characterised by the premise of avoiding "unnecessary duplication of the Community's safeguards activities".[137] To facilitate the application of the Agreement and its Protocol, a Liaison Committee has been established, as outlined in Article 25 of the Protocol to INFCIRC/193. This Committee consists of representatives from both the Community and the Agency. The Committee meets annually at a high level (High Level Liaison Committee, HLLC) and more frequently at a lower level (Lower Level Liaison Committee, LLLC). The LLLC is supported by technical working groups. The Liaison Committee serves as the primary mechanism for institutionalising co-operation between the Agency and the Community, as stipulated in INFCIRC/193.[138]

The Protocol to INFCIRC 193 essentially implies an information and verification system based on collected reports as well as special co-ordination obligations with regard to routine inspections. The first part of the Protocol contains provisions concerning the Community's obligation to provide information to the IAEA. The general obligation to provide information follows from Article 2, which states that "the Community shall collect the information on facilities and on nuclear material outside facilities to be provided to the Agency under the Agreement on the basis of the agreed indicative questionnaire, annexed to the Subsidiary Agreements." Article 3 of the Protocol then introduces a co-operation obligation between the Community and the Agency as to the examination of design information, which shall be carried out jointly. In the case of a verification of design information conducted in facilities as provided for in Article 46 of the Agreement, the verification shall be carried out by the Agency in co-operation with the Community.

Articles 6 through 9 of the Protocol to INFCIRC/193 implement a centralised accountant system based on reports, which must be made available to the Agency in various forms. According to Article 6, it is the Community's duty to collect reports from the operators and "keep centralised accounts on the basis of these reports and proceed with the technical and accounting control and analysis of the information received." Upon completion, the Community then shall, "on a monthly basis, produce and provide the Agency with the

134. This is particularly relevant for random interim inspections (RII), as well as for unannounced inspections. In the case of short-notice random inspections (SNRI), Euratom's participation is mandatory. However, with the IAEA providing notification only 24 to 48 hours in advance, it is challenging for Euratom to meet this requirement. To address this, Euratom operates a "stand-by" system to ensure readiness. The effective functioning of this system, however, depends on the additional information from the IAEA. For further information on random interim inspections, see IAEA (2016), *Guidance for States Implementing Comprehensive Safeguard Agreements and Additional Protocols*, No. SF-21, IAEA, Vienna.
135. INFCIRC/193, *supra* note 105, Protocol.
136. *Ibid.*, Article 26.
137. *Ibid.*, Protocol, Article 1.
138. Szymanski, P. (n.d.), *supra* note 66.

inventory change reports […]", as outlined in Article 7. Article 8 states further that "the Community shall transmit to the Agency the material balance reports and physical inventory listings". The regulations primarily result in broad accounting rights for the IAEA, access to which is made possible by the Community. The data made available are based on the information provided by operators and relate to declared nuclear material. There are no further obligations in the Protocol to provide information beyond declared nuclear material.

Among the provisions that fall under the Community's obligation to provide access to the IAEA, the most important provisions of the Protocol to INFCIRC/193 are those relating to routine inspections, outlined in Articles 10 through 23. When it comes to inspections, it cannot be forgotten that the Community itself already has a comprehensive inspectorate in place. To reflect this particularity, Article 10 states that routine inspection activities shall "be co-ordinated". Article 11 outlines that:

> subject to Articles 79 and 80 of the Agreement, in determining the actual number, intensity, duration, timing and mode of the Agency inspections in respect of each facility, account shall be taken of the inspection effort carried out by the Community in the framework of its multinational system of safeguards.

According to Article 14 (a):

> subject to the conditions of Article 13 of the Protocol, the Agency inspections shall be carried out simultaneously with the inspection activities of the Community. Agency inspectors shall be present during the performance of certain of the Community inspections.

Whenever the Agency can achieve the purposes of its routine inspections set out in in the Agreement, the Agency inspectors shall, pursuant to Article 14(b) implement the provisions of Articles 74 and 75 of the Agreement "through the observation of the inspection activities of the Community inspectors […]". Per Article 15, "[t]he general scheduling and planning of the Community inspections under the Agreement shall be established by the Community in co-operation with the Agency".

In comparison to the general part, which contains only consultation duties, closer co-operation between the Agency and the Community is required under the provisions of the Protocol. An analysis of the respective provisions of the Protocol shows that the IAEA has a right of presence and observation with regard to routine inspections, while the general control and scheduling remain with the Community.

This analysis is also reflected in the original implementation of the regulations. This was initially carried out by Observation and Joint Team arrangements.[139] The Observation arrangement was designed in a manner as to enable the IAEA, whenever possible, to achieve its objectives by observing the Euratom's inspections activities. The IAEA therefore used an equal number of inspectors to those used by Euratom, to effectively observe and follow the activities performed by Euratom inspectors.[140] While Observation arrangements were only applicable to facilities handling low enriched uranium (LEU), natural and depleted uranium, the Joint Team arrangement was created to rationalise the use of resources at facilities that required a higher inspection effort, namely enrichment facilities and facilities handling unirradiated direct-use material (plutonium and highly-enriched uranium).[141]

Implementation of safeguards under INFCIRC/193 focuses on declared nuclear material and activities. The Agreement does not provide for verification of the absence of undeclared nuclear material and activities. The main part of the work therefore consists of verifying whether the declarations received are correct and ensuring that the

139. *Ibid*.
140. Murakami, K. et al. (2007), "Beyond NPA and toward Integrated Safeguards in Countries of the European Union", IAEA-SM-367/11/07, IAEA, Vienna.
141. Szymanski, P. (n.d.), *supra* note 66.

declarations correspond accurately to the physical reality. This inevitably harbours the risk of abuse,[142] ultimately leading to the introduction of the additional protocol model with extended Agency competencies, further discussed below.

A comparison of the provisions contained in INFCIRC/193 and the Protocol shows that the IAEA has a more active role within the framework of the provisions of the Protocol to INFCIRC/193. While the inspection provisions set out in Article 71 of INFCIRC/193 provide the IAEA with extensive rights, generally the provisions of the Protocol provide for deeper co-operation between the organisations. The scope of IAEA safeguards inspections is designed for the basic case where no independent safeguards system is in place. Although the Community has comprehensive reporting obligations under the Protocol, it has a more active role *vis-à-vis* the IAEA with regard to the type and manner of routine inspections to be carried out.

2. *New Partnership Approach (NPA)*

While the idea of the Joint Team arrangement was to reduce the intrusiveness to the operator and to avoid unnecessary duplication of work by jointly performed inspections, this did not prove to be an effective approach in practice. Rather, it led to a systematic duplication of routine inspection activities and unnecessary costs.[143]

To counteract the result of increased work, Euratom and the Agency established a Working Group to explore ways to enhance co-operation and co-ordination between the two organisations. In March 1992, the Working Group recommended discontinuing the existing Observation and Joint Team arrangements and proposed the initiation of the New Partnership Approach. The NPA aimed to enable the Agency and Euratom to fulfil their respective responsibilities under INFCIRC/193 more effectively and efficiently. On 28 April 1992, the Agency' s Director General, Mr Hans Blix, and the Commissioner for Energy, Mr Cordoso e Cunha, endorsed these recommendations and formalised an agreement to launch the NPA.[144]

The NPA seeks to optimise the necessary practical arrangements and to use commonly agreed safeguards approaches and inspection planning, procedures, activities, instruments, methods and techniques.[145]

Key elements of the NPA include:

- avoiding unnecessary duplication of effort by performing inspection activities based on the principle "one-job-one-person", supplemented by quality control measures to enable both organisations to satisfy their respective obligations to reach independent conclusions and required assurances;
- sharing analytical capabilities;
- co-operating in research and development and in the training of inspectors; and
- increasing the common use of technologies to replace, to the extent possible, the physical presence of inspectors with appropriate equipment.[146]

142. In this regard, practical examples to be mentioned are the discovery of a clandestine weapons programme in Iraq in 1999, the discovery of inconsistencies in the Democratic People's Republic of Korea initial declarations and South Africa's decision to become Party to the NPT and dismantle of all of its nuclear weapons. See Carmona, M. and C. de Francia (2022), "Legal developments in the implementation of safeguards agreements and other IAEA verification activities", in NEA (ed.) *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, pp. 379-407.
143. Chitumbo, K. and S. Thorstensen (1995), "Safeguards in the European Union: The New Partnership Approach", *Nuclear Law Bulletin*, No. 1, OECD Publishing, Paris, p. 26.
144. *Ibid*.
145. *Ibid*.
146. Szymanski, P. (n.d.), *supra* note 68.

To ensure improvement and effectiveness, it was agreed that common activities performed by both organisations under INFCIRC/193 are separate from the activities of Euratom under the Euratom Treaty. In this vein, each organisation should have the right to determine the activities it must perform in order to fulfil its own safeguards obligations and to decide which inspection activities are to be performed to reach their own independent and required assurances.

The NPA led to several practical implementation arrangements concerning the inspections for most types of facilities. All the arrangements are implemented following the "one-job, one-person" principle.[147] Euratom and the IAEA have also implemented practical arrangements for safeguards support activities such as training, common procurement of hardware, and software and R&D. The practical implementation of these common inspection and support activities is agreed in different types of documents, the so-called Partnership-Approach Papers (PA). The PA documents are listed in Annex II to the General Part of the Subsidiary Arrangements and are regularly reviewed, updated and approved by the LLLC.[148]

It is evident that the development of the NPA has greatly enhanced the effective and efficient implementation of safeguards. The NPA remains a vital and evolving instrument of mutual co-operation. While ongoing improvements in safeguards implementation are beneficial for maximising the safe use of nuclear energy, legal questions persist regarding the legal framework. The NPA was originally designed to implement and strengthen the safeguards provisions set out in INFCIRC/193, which is primarily characterised by principles of co-operation and collaboration. Any further implementation under the NPA should therefore be carefully assessed for adherence to the existing legal framework, including the agreement and its subsidiary arrangement. In this context, efforts to fully apply the "one-job, one-person" principle without Euratom's involvement appear legally complex and should be approached with caution.[149]

3. *Additional Protocol*

While the introduction of the NPA was still within the scope of the Euratom Treaty and thus did not affect the legal competences between Euratom and the member states, the introduction of an Additional Protocol to INFCRIC/193 has changed this to a significant extent. After being ratified by all member states, the Additional Protocol INFCIRC/193/Add.8, relevant to INFCIRC/193 entered into force on 30 April 2004.[150] In its application, AP 193 covers areas that are not provided for in the Euratom Treaty and thus lie outside the competence of the Community. The scope of application of AP 193 and the resulting legal consequences will be described below.

147. These facilities include: light water reactors (LWRs) with and without mixed oxide fuel (MOX); low enriched fuel (LEU) fabrication plants; mixed oxide fuel fabrication plants; stores with unirradiated plutonium; research reactors; wet and dry stores containing irradiated fuel; dry stores containing unirradiated plutonium; others stores; and locations outside facilities (LOFs), see Chitumbo, K. and S. Thorstensen, (1995), *supra* note 143, p. 27.
148. While, to date there have been no known discrepancies between Facility Attachments and the PAs the Facility attachments should take precedence, as they were made based on the subsidiary arrangements and thus constitute legal documents, whereas the PAs are merely working documents approved at the level of HHLC.
149. See e.g. Murakami, K. et al. (2007), *supra* note 140, p. 4.
150. IAEA (2005), "Protocol Additional to the Agreement between the Republic of Austria, the Kingdom of Belgium, the Kingdom of Denmark, the Republic of Finland, the Federal Republic of Germany, the Hellenic Republic, Ireland, the Italian Republic, the Grand Duchy of Luxembourg, the Kingdom of The Netherlands, the Portuguese Republic, the Kingdom of Spain, the Kingdom of Sweden, the European Atomic Energy Community and the International Atomic Energy Agency in implementation of Article III, (1) and (4) of the Treaty on the Non-Proliferation of Nuclear Weapons", IAEA Doc. INFCIRC/193/Add.8, IAEA, Vienna (AP 193).

AP 193 contains additional obligations to send declarations to the Agency. These are mainly outlined in Article 2, which defines three addressee groups with different responsibilities. States are responsible for:[151]

- a general description of, and information specifying, the location of nuclear fuel cycle-related research and development activities not involving nuclear material;
- information about operational activities of safeguards relevance in all nuclear facilities;
- information about operational activities of safeguards relevance at LOFs where nuclear material is customarily used;
- a description of the scale of operations for each location engaged in these activities;[152]
- information, on request, about exports and imports of nuclear related items;[153] and
- general ten-year plans relevant to the development of the nuclear fuel cycle.

The Community is responsible for:[154]

- information concerning the location, operational status and estimated annual production of uranium mines, uranium concentration plants and thorium concentration plants;
- information regarding source material, present in, exported from or imported to a state that is not suitable for fuel fabrication or for being isotopically enriched; and
- information regarding the quantities and uses of nuclear material exempted from safeguards.

The Community and the State enjoy shared responsibility for:[155]

- a general description of all buildings on nuclear sites, including their use and contents, and a map of the site;
- information on the location and further processing of intermediate and high-level waste on which safeguards have been terminated; and
- providing to the IAEA amplification or clarification of any information provided.

Complementary access plays a key role in reaching conclusions of the absence of undeclared material and activities in a state,[156] as outlined in Article 4 and supplemented by the regulations set out in Article 5 of AP 193. Complementary access allows the Agency access to any place on a site, any location specified in Article 2 of AP 193, decommissioned facilities and/or locations outside facilities where nuclear material is customarily used.[157] Complementary access further allows the Agency to resolve inconsistencies relating to the correctness and completeness of the information provided under Article 2 of AP 193. Article 5(c) of AP 193 further enables the Agency to carry out location-specific environmental sampling at any location specified by the Agency.[158]

151. *Ibid*., Article 2(a)(i, ii, iv, ix and x).
152. *Ibid*., Annex I.
153. *Ibid*., Annex II.
154. *Ibid*., Article 2(a)(v-vii). Information is only required at locations where quantities exceed 10 metric tons of uranium or 20 metric tons of thorium or exceed one metric ton of either where the states as a whole exceed 10 metric tons of uranium or 20 metric tons of thorium in the aggregate.
155. *Ibid*., Article 2(a)(iii and viii).
156. IAEA (2013), "The Conceptualisation and Development of Safeguards Implementation at the State Level", IAEA Doc. GOV/2013/38, IAEA Vienna
157. AP 193, *supra* note 150, Article 5; see also Katzenberg, B. (2011), *supra* note 131.
158. *Ibid*.

Each type of access requested by the IAEA includes specific advance notice requirements, with some instances allowing for less than two hours' notice.[159] During complementary access, inspectors carry out activities as needed to fulfil the purpose of the access. The types of activities they may conduct during various access types are outlined in Articles 6 and 9 of the AP.[160]

4. *Integrated safeguards (IS)*

Once the Agency receives the relevant declarations for each individual non-nuclear-weapon state, it will assess this information using all available resources. If the inspection results, visits and evaluation of the declarations support a positive conclusion that no diversion of nuclear material was detected and no undeclared nuclear material or activities exist, integrated safeguards will then be applied to the respective state.[161] IS involve the "optimum combination of all safeguards measures available to the Agency under CSA and additional protocols to ensure maximum effectiveness and efficiency, aligning with the Agency's rights and obligations as outlined in paragraph 2 of INFCIRC/153".[162] The idea behind this is that the IAEA can reduce its inspections efforts in states with unquestioned nuclear non-proliferation credentials.[163]

5. *Comparative assessment*

Due to the provisions of AP 193 and the strengthening of its effectiveness through IS, the IAEA now has a wider scope of application to identify not only declared material but also undeclared material. Whereas it was initially reliant on information provided by operators, the Agency can now comprehensively inspect entire sites and pursue an approach that relies on the inspection of the state as a whole. The adoption of AP 193 has transitioned the Agency from an operator-facility-based system to a "state-level integrated approach".[164] In this regard, it now has a broader scope than the Euratom safeguards system, whose role remains basically unchanged only in the area of nuclear material verification.[165] With regard to the Euratom safeguards system, the question of power and responsibilities therefore arises in the relationship between the Agency, the Community and its member states.

Annex III to the Additional Protocol outlines the co-operation between the Community and the IAEA as to implementation of the measures related to declared nuclear material

159. IAEA (2016), *Guidance for States Implementing Comprehensive Safeguard Agreements and Additional Protocols*, No. SF-21, IAEA, Vienna.
160. *Ibid*.
161. Murakami, K. et al. (2007), *supra* note 140. In the case where a state has only a CSA in place, the conclusion will be drawn only about diversion of declared nuclear material. See also Rockwood, L. (2022), *supra* note 69, p. 377.
162. Murakami, K. et al. (2007), *supra* note 140.
163. Södersten, A. (2014), *supra* note 16. For background information on the initiative "Development Programme for a Strengthened and More Cost-effective Safeguards System, also known as Programme 93+2", see IAEA (1994), "Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System", IAEA Doc. GC (XXXVIII)/17, IAEA, Vienna. IS implementation under the IAEA's framework has significantly impacted the verification and inspection processes within Euratom. It can be stated that IS has reduced the frequency of routine inspections, such as quarterly interim inspections. However, the random inspections (SNRI, UI) brought new challenges to Euratom inspection planning. The content of the footnote is based on a conversation with a Euratom safeguard inspector.
164. Arms Control Association (n.d), "The IAEA's State-Level Concept and the Law of Unintended Consequences", www.armscontrol.org/act/2014-08/iaeas-state-level-concept-and-law-unintended-consequences; see also Katzenberg, B., (2012), *supra* note 131.
165. See Murakami, K. et al. (2007), *supra* note 142. In this context, the question arises as to whether the provisions of the Euratom Treaty could, also apply to the areas covered by the AP, such as undeclared nuclear material. Strong arguments can be made that such an application is supported by Article 81(2) and Article 2(e) of the Treaty. However, it is equally plausible to argue that Euratom was not originally designed as a classic non-proliferation instrument, which may limit its scope in this area.

and avoiding duplication of activities. Even if reference is made to the co-operation requirement enshrined in INFCIRC/193 and the NPT, the practical question arises as to its significance, since the scope of application of AP 193 relates predominantly to undeclared material. Strictly speaking, the Community acts as a mere information broker between the member states and the Agency in the area of application of AP 193, without itself being actively involved in the Agency's audit obligations.[166] This is also reflected in the findings set out in Annex III, stating that the Community must provide the IAEA with information on nuclear and non-nuclear material transfers between its member states, matching requirements specified in AP 193 (Articles 2(a)(vi)(b and c) and 2(a)(ix)). The obligation on the states themselves is also reflected in the fact that the provisions of Article 25 of the protocol to INFCIRC/193 have been amended to expand the Liaison Committee to include representatives from member states. Although some member states may have delegated the implementation of certain provisions of AP 193, specifically those dealing with non-nuclear material issues, to the Community through side-letters to the Commission,[167] this delegation does not change the fact that Euratom plays a relatively subordinate role within the AP 193 framework.[168]

The effective implementation of AP 193 is strengthened by the regulations of the Euratom safeguards system. This collaboration was evident during an inspection in a member state where IAEA inspectors, through complementary access, discovered undeclared nuclear material. Although the IAEA provided the information, it did not issue enforcement measures against this member state.[169] Eventually the Commission acted on the provided information by issuing a warning. This example demonstrates how both systems complement each other, leveraging different mechanisms to achieve optimal results.

Notwithstanding the legal uncertainties in its relationship to Euratom, the AP can hence be considered a milestone in enhancing the Agency's ability to derive safeguards conclusions regarding the absence of undeclared nuclear material and activities but also supports Euratom in providing the highest possible assurance.[170]

6. *State-level concept*

Another point of legal uncertainty in the co-operation between the Agency and the Community is the state-level concept (SLC).[171] The SLC is based on state-level approaches (SLAs) developed using safeguards objectives common to all states with CSAs and taking state-specific factors into account.

166. See *ibid*.
167. See AP 193, *supra* note 150, Annex III, para. 6.
168. See Murakami, K. et al. (2007), *supra* note 140.
169. The case should arguably not be considered a "diversion" case, as the material in question had previously been reported as used up, discarded to the environment, or transferred to waste. For this reason, it was no longer listed in the accountancy records. However, the material was later found inadequately stored on-site. The problem was therefore that the nuclear material accountancy and control (NMAC) system operated by the facility's operator was not reliable, as it did not provide accurate tracking and oversight of nuclear material. The details of this case are not published; however, the issued warning was published. See Commission Decision of 10 June 2021, pursuant to Article 83 of the Treaty establishing the European Atomic Energy Community, OJ L 326 (12 Oct. 2021), p. 1.
170. See also IAEA (2005), "Strengthening the Effectiveness and Improving the Efficiency of the Safeguards System and Application of the Model Additional Protocol", IAEA Doc. GC (49), RES/13, IAEA, Vienna.
171. The terms "state-level approach" and "state-level concept" are often confused. The SLA must be understood in the broader context of integrated safeguards, as outlined in the section "Integrated Safeguards" above. See also IAEA (2013), *supra* note 158. These two types of verification activities were balanced to maximise effectiveness and efficiency and were outlined in SLAs tailored to each individual state under the integrated safeguards system, *ibid*.

The SLC within the IAEA safeguards system is an approach designed to enhance the efficiency and effectiveness of nuclear verification in member states.[172] Even if the concept entails considerable practical changes, it is not a legal instrument in its own right but serves the practical implementation of the existing safeguards.[173] Unlike subsidiary arrangements, safeguards measures included in the SLC do not constitute legal documents, but rather internal documents.[174] They adapt IAEA safeguards to a comprehensive and state-specific assessment rather than focusing solely on individual facilities and materials. This evolution reflects the need for a flexible, tailored approach taking into account state-specific factors in planning, conducting and evaluating the Agency's verification activities.[175] While, at first, mainly implemented for states with integrated safeguards, SLAs have also been introduced for states where only CSAs are in force.[176] The safeguards measures included in these approaches are strictly those outlined in the relevant legal instruments. This ensures adherence to the principle of non-discrimination in the implementation of safeguards across states with the same types of safeguards agreements in place.[177] In the case of Euratom, however, the key question is whether applying this approach is suitable, given Euratom's structure as a supranational organisation. While Euratom has legal authority over EU member states to the extent outlined above, the SLC aims to apply its safeguards at the state level, in principle on a bilateral basis. In the specific case of the Euratom safeguards system, this raises questions about competencies between the Community and the member states. The interaction between subsidiary arrangements and facility attachments as part of the CSA, and the PA papers and SLAs as implementing tools, can be considered of particular relevance in this context.

Regarding the continuing evolvement of the implantation of safeguards, questions have been raised as to whether the NPA continues to apply under the SLC.[178] However, analysis of the two mechanisms shows that although they refer to different addressees (operator vs. state as a whole), they are not mutually exclusive. The NPA serves the effective implementation of the provisions of INFCIRC/193, which can hardly be guaranteed without the participation of the Community. The SLC on the other hand, scrutinises the state as a whole, which falls outside the competences of the Community. While the Agency's interest in using the SLC is understandable, the Commission must carefully verify that the concept produces varying, yet non-discriminatory, outcomes. The development and implementation of the SLC will require a reconsideration of certain agreements within the framework of the NPA;[179] however, if both mechanisms can be harmonised, this will arguably be highly advantageous to both systems.

IV. Conclusion

While the Euratom safeguards system arose from the desire to promote nuclear energy to prevent energy crises, the IAEA safeguards system is based on the principle of non-proliferation. Nevertheless, both systems share the same aim: to ensure that nuclear material is not used for purposes other than those declared. The Euratom safeguards system is the first comprehensive system of safeguards established by law for all EU nuclear material, excluding that reserved for military use. While Euratom represents a

172. Carmona, M. and C. Francia (2022), *supra* note 142, p. 387.
173. *Ibid,* p. 379.
174. *Ibid*, p. 388.
175. *Ibid*, p. 381.
176. IAEA (2013), *supra* note 156, para. 12.
177. The implementation of safeguards through the SLC has initially raised concerns among states, particularly regarding its legal basis and the possibility of discrimination. A detailed examination of the specific concerns raised by states is beyond the scope of this article. However, various authors present compelling arguments suggesting that implementing safeguards through the state-level approach fully aligns with the relevant legal frameworks, see e.g. Carmona, M. and C. de Francia (2022), *supra* note 142, p. 387.
178. See e.g. Murakami, K. et al. (2007), *supra* note 140.
179. *Ibid*.

regional monitoring system, the IAEA oversees implementation at the international level. Since the accession of all EU member states to the NPT and the conclusion of the IAEA/Euratom Agreement, these two systems have increasingly converged, though some differences remain. These differences can primarily be summarised as follows:

- Euratom safeguards are based on a legal obligation arising from a primary legal instrument, whereas the IAEA safeguards system is based on a contractual arrangement that does not require additional instruments for a full-scope system.
- Euratom has a broader scope of application. It does not differentiate between nuclear-weapon states and non-nuclear-weapon states and covers uranium ore, while the IAEA focuses on further-processed materials. However, the IAEA can verify not only declared nuclear materials and activities but also seek to discover undeclared nuclear materials and activities and verify non-nuclear materials and equipment.
- Euratom safeguards mainly address operators while the IAEA safeguards system increasingly focuses on states.
- The European Commission has broad enforcement powers and is fully subject to the jurisdiction of the CJEU.

The Community has years of experience in the field of safeguards, which is unique. The implementation of the CSA between Euratom, the EU's non-nuclear-weapon states and the IAEA has fostered close co-operation and collaboration between the two organisations, which is seen as mutually beneficial. The continuous development and implementation of this Agreement have led to an accumulation of experience on both sides and an increase in knowledge and material resources. It can be stated without reservation that the co-operation of both organisations has significantly contributed to the international security of nuclear energy use.

While the IAEA's system initially had weaknesses, as it was primarily focused on the verification of declared nuclear material, these were substantially addressed with the introduction of the AP. The AP provides for a broader range of controls to ensure that no undeclared material exists, either in nuclear or non-nuclear facilities suspected of being used for proliferation-sensitive activities. Despite the overall positive collaboration and functionality of both systems, room for improvement remains. Uncertainties primarily arise in the legal interpretation and application of certain co-operation arrangements. A notable example is the implementation of both short notice and unannounced inspections, the practical and legal applications of which continue to cause uncertainty. Additionally, the implementation of the SLC, due to the differing structures of the two systems and the supranational nature of Euratom, often leads to challenges in its practical execution.

The United Kingdom and the Treaty on the Prohibition of Nuclear Weapons in Latin America and the Caribbean: A case study in treaty implementation overseas

*by Hugh Chalmers**

I. Introduction

The system of nuclear law in the United Kingdom of Great Britain and Northern Ireland (United Kingdom or UK) has always been an international endeavour. The seed of this system – the Atomic Energy Act of 1946[1] – was planted in a political environment in which the full international control of nuclear energy was a real prospect.[2] While such control never arose, the United Kingdom has been an early influencer and adopter of the various treaties, conventions, agreements and best practices that constitute the international framework of nuclear law that shapes the peaceful uses of nuclear energy today.

The United Kingdom's system of nuclear law is also fundamentally international from a constitutional perspective. As its name suggests, the United Kingdom of Great Britain and Northern Ireland comprises four separate nations: England, Wales, Scotland, and Northern Ireland. While these nations are joined under a single Parliament in Westminster with the Monarch as Head of State, various aspects of nuclear law and regulation – including some administrative, executive and judicial aspects – have been devolved to each nation.[3]

The domain of the UK Monarch also extends beyond the 4 nations of the United Kingdom (Metropolitan United Kingdom) to encompass 3 Crown Dependencies and 14 Overseas Territories. The three Crown Dependencies of Guernsey, the Isle of Man and Jersey are offshore of Metropolitan United Kingdom with a total population of approximately 250 000 persons and a long historical relationship with the UK Crown dating back more than 800 years. The 14 Overseas Territories are the remnants of the former British Empire and consist mainly of small island territories spread across the globe.[4] Their

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1. Atomic Energy Act 1946 (9 & 10 Geo. 6, c. 80).
2. On its introduction to the United Kingdom's Parliament, the Prime Minister at the time argued that it signalled "the Government's determination that the United Kingdom shall be ready to play its part, its full part, in any international scheme" controlling atomic energy. UK Parliament (1946), House of Commons Debate 8 Oct. 1946, Hansard, 427, London.
3. For example, the enforcement of the Radioactive Substances Act 1993 is the responsibility of the different regulators in each nation, and powers for making certain exemptions are granted to different national government bodies. See Radioactive Substances Act 1993 (c. 12), sec. 8.
4. These are defined as Anguilla, Bermuda, British Antarctic Territory, British Indian Ocean Territory, Cayman Islands, Falkland Islands, Gibraltar, Montserrat, Pitcairn, Saint Helena, Ascension and Tristan da Cunha, South Georgia and the South Sandwich Islands, the Sovereign Base Areas of Akrotiri and Dhekelia, the Turks and Caicos Islands and the British Virgin Islands. See British Nationality Act 1981 (c. 61), Schedule 6.

collective population roughly matches that of the Crown Dependencies, albeit very unevenly spread.[5]

Here the United Kingdom's nuclear legal framework and the international commitments it has made in that regard begin to fade. The UK Crown Dependencies and Overseas Territories are distinct constitutional units that are separate from each other and from Metropolitan United Kingdom, with their own governments, legislatures, laws and judiciaries. However, they (like the four constituent nations of Metropolitan United Kingdom) are subjects of the UK Crown and must turn to the UK Government for international representation and defence. The UK Crown Dependencies and Overseas Territories cannot unilaterally conclude international treaties and must turn to the UK Government if they wish to be so bound. In turn, treaties ratified by the UK Government do not automatically extend to Crown Dependencies and Overseas Territories. For this to happen, the UK Government must first ensure any relevant territory is both willing and able (considering their distinct legislative and executive systems) to implement an international agreement before formally extending it. Once extended, the United Kingdom remains ultimately responsible for the implementation of the agreement by the relevant territory.[6]

As a result, the international framework of nuclear treaties and agreements – which is well integrated into the nuclear laws of Metropolitan United Kingdom – is very sparsely and unevenly integrated into the UK Crown Dependencies and Overseas Territories. A summary of some international nuclear instruments that have been ratified by the United Kingdom and extended to various Crown Dependencies or Overseas Territories is given in Table 1.[7]

5. The British Antarctic Territories have no permanent population. As of 2022, the Falkland Islands had a population of roughly 4 000 persons (roughly the size of a small UK town). The Cayman Islands had a population of roughly 69 000 and a gross domestic product equivalent to USD 6.75 billion. Loft, P. (2023), *The Overseas Territories: An introduction and relations with the UK*, Research Briefing Number 9706, House of Commons Library, London, pp. 7-10.
6. For a summary of the external relations of UK Overseas Territories and the status of these territories in international law, see Hendry, I. and S. Dickson (2018), *British Overseas Territories Law*, Hart Publishing, Oxford, Chapters 12 and 14.
7. This table is not exhaustive and includes only those instruments for which the author has been able to identify clear evidence of extension in available public sources. The obligations of other international nuclear instruments may have been extended to various Crown Dependencies or Overseas Territories.

Table 1: Extension of international nuclear legal instruments outside the United Kingdom

Title	Ratification	Extension to Crown Dependencies and Overseas Territories
The Convention on Nuclear Safety	Jan. 1996	Extended on ratification to Crown Dependencies.[8]
Treaty on the Non-proliferation of Nuclear Weapons	May 1970	Extended on ratification to "Territories under the territorial sovereignty of the United Kingdom".[9]
Convention on the Physical Protection of Nuclear Material	Sept. 1991	Extended as of October 1991 to Crown Dependencies.[10]
Amendment to the Convention on the Physical Protection of Nuclear Material	Apr. 2010	Extended on ratification to the Isle of Man.[11]
International Convention for the Suppression of Terrorist Bombings	Mar. 2001	Extended in June 2012 to the Isle of Man.[12] Extended in April 2013 to the Bailiwick of Jersey.[13]
International Convention for the Suppression of the Financing of Terrorism	Mar. 2001	Extended to Crown Dependencies, British Virgin Islands, Bermuda, Anguilla, Gibraltar and Cayman Islands between September 2008 and August 2021.[14]
Additional Protocol I to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (the Tlatelolco Treaty)	Dec. 1969	Extended on ratification to include Anguilla, British Virgin Islands, Cayman Islands, Falkland Islands, Montserrat, and the Turks and Caicos Islands.[15]
Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention)	Nov. 1997	Extended on ratification to Crown Dependencies and Gibraltar.[16]
Paris Convention on Nuclear Third Party Liability and its amending Protocols	Feb. 1966, Aug. 1985, Jan. 2022	The Convention as amended by its Protocols of 1966 and 1985 was extended after ratification to the Crown Dependencies.[17] The amending Protocol of 2004 has not been extended.[18]

8. UK Parliament (1999), *Convention on Nuclear Safety*, Treaty Series No. 49, Command Paper Cm 4422, London, p. 16
9. UK Parliament (1970), *Treaty on the Non-Proliferation of Nuclear Weapons*, Treaty Series No. 88, Command Paper Cm 4474, London, p. 79. This term was used historically where all territories – including Crown Dependencies and Overseas Territories – were to be covered. See Hendry, I. and S. Dickson (2018), *supra* note 6, p. 282.
10. IAEA (2024), "Convention on the Physical Protection of Nuclear Material: Latest Status", available at: www.iaea.org/sites/default/files/22/06/cppnm_status.pdf.
11. IAEA (2025), "Amendment to the Convention on the Physical Protection of Nuclear Material: Latest Status", available at: www.iaea.org/sites/default/files/22/06/cppnm_amend_status.pdf.
12. United Nations (UN) (n.d.), "International Convention for the Suppression of Terrorist Bombings", UN Treaty Collection: Status of Treaties, Chapter XVIII, http://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XVIII-9&chapter=18&clang=en (accessed 22 Dec. 2025).
13. *Ibid*.
14. UN (n.d.), "International Convention for the Suppression of the Financing of Terrorism", UN Treaty Collection: Status of Treaties, Chapter XVIII, https://treaties.un.org/pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XVIII-9&chapter=18&clang=_en (accessed 17 Nov. 2025).
15. Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (1967), 634 UNTS 9068, entered into force 25 Apr. 1969 (Tlatelolco Treaty), Additional Protocol I.
16. UK Parliament (1998), *Convention on Environmental Impact Assessent in a Transboundary Context*, Treaty Series No. 12, Command Paper Cm 3879, London.
17. UK Parliament (1992), *Protocol to Amend the Convention of 31 January 1963 Supplementary to the Paris Convention of 29 July 1960 on Third Party Liability in the Field of Nuclear Energy, as Amended by the Additional Protocol of 28 January 1964*, Treaty Series No. 17, Command Paper Cm 1832, London.
18. NEA (2025), "Paris Convention: Status of Reservations, Declarations and Notifications", www.oecd-nea.org/paris-convention-status (accessed 22 Dec. 2025).

To explore the dynamics underlying this patchwork of international nuclear legal obligations, this article considers the interplay between the practical realities of implementing international nuclear agreements overseas and the various drivers or dampeners for pursuing such implementation in the first place using a case study drawn from the Tlatelolco Treaty.[19] Additional Protocol I to the Tlatelolco Treaty requires its parties to, among other things, conclude a safeguards agreement with the International Atomic Energy Agency (IAEA) for the territories that fall within a certain zone.[20] The United Kingdom has ratified this agreement and extended that ratification to its Overseas Territories that are within the zone. However, the United Kingdom has yet to bring a safeguards agreement into force for these territories (as discussed below, not for lack of trying).

To fulfil its obligation under Additional Protocol I of the Tlatelolco Treaty, the United Kingdom must work with relevant Overseas Territories to explain why they should accept such a safeguards agreement and to ensure they are ready to implement one. This article seeks to explain these issues by:

- examining the United Kingdom's process for extending treaties overseas;
- discussing the obligations of the Tlatelolco Treaty and the safeguards agreements that aim to verify compliance with the Tlatelolco Treaty; and
- explaining how and why the United Kingdom and relevant Overseas Territories might implement a safeguards agreement, in particular through legislative provisions.

II. The United Kingdom process for extending international agreements to Overseas Territories

A decision to extend an international agreement is ultimately the preserve of the UK Government, which can in principle force extension on any Crown Dependency or Overseas Territory. However, under the United Kingdom's "dualist" legal system an international agreement does not automatically have legal force at the domestic level upon its ratification. As Lisa Tabassi has pointed out in relation to nuclear-weapon-free-zone treaties, "it is a general duty for each state to bring its national law into conformity with its obligations under international law."[21] In practice, therefore, the UK Government must work with its own legislatures and the legislature of any Crown Dependencies and Overseas Territories to properly implement any extended international agreement.[22]

While the United Kingdom can force an international agreement onto an Overseas Territory, it cannot easily force that territory to fully comply with the agreement (for which the United Kingdom is ultimately responsible). With this in mind, the UK Government has established a consultation process to govern the extension of international agreements to Overseas Territories "as a matter of good policy and administration".[23] If, during the negotiation of a particular agreement, the United Kingdom determines the agreement may be relevant to an Overseas Territory, it should consult with that territory to understand its

19. Tlatelolco Treaty, *supra* note 15.
20. *Ibid*., Additional Protocol I, Article 1.
21. Tabassi, L. (2009), "National Implementation and Enforcement of Nuclear-Weapon-Free Zone Treaties", *Nuclear Law Bulletin*, No. 83, OECD Publishing, Paris, p. 52.
22. The effective implementation of international nuclear agreements goes beyond legislation to include the enforcement of that legislation by a suitable regulatory authority, and any administrative or logistical arrangements to fulfil practical obligations such as reporting or the facilitation of inspections. These practical implementation arrangements are beyond the scope of this article, which focuses on legislative implementation.
23. UK Foreign, Commonwealth & Development Office (FCDO) (2022), "Guidance on the extension of treaties to Overseas Territories", www.gov.uk/government/publications/guidelines-on-extension-of-treaties-to-overseas-territories (accessed 22 Dec. 2025), p. 2.

willingness and readiness to be bound by that agreement. That consultation normally focuses on a consultation document that seeks to explain, among other things:[24]

- the United Kingdom's stance on the agreement, including why the United Kingdom supports its extension to the territories in question;
- the scope of the agreement, including its obligations and their relevance to the territory in question;
- the implementation of the agreement, including how the United Kingdom implements the agreement through UK legislation;
- the perceived benefit of the agreement for the territory in question; and
- the possible consequences if the agreement is not extended.

If the territory in question is willing to accept extension of the agreement, it must formally request such extension from the UK Government, expressing that sufficient laws and policies are in place to implement the obligations of the agreement.[25] If the UK Government is satisfied that the agreement can be extended, it would then draw up and submit a territorial declaration to the agreement's depository – either at the time of or following the United Kingdom's ratification of the agreement.[26]

The majority of the UK Government's work in concluding (and working with Overseas Territories in extending) treaties is confidential and the UK Parliament has a limited window into this process.[27] That window comes from its role in assenting to the ratification of any international agreement. Part 2 of the Constitutional Reform and Governance Act of 2010 requires the UK Government to lay any treaty it wishes to ratify before the UK Parliament for 21 sitting days, giving Parliament an opportunity to object to that ratification.[28] Any treaty laid in this manner must be accompanied by an Explanatory Memorandum.[29] UK guidance on these Explanatory Memorandums suggests that a summary of any consultations with Crown Dependencies or Overseas Territories (including any response) should be included.[30] However, Explanatory Memorandums were only mandated in 2010, leaving the rationales behind the extension of international nuclear instruments shrouded from view.[31]

The rationale behind certain extension decisions may not be immediately obvious. Article 7 of the Convention on Nuclear Safety requires its contracting parties to "establish and maintain a legislative and regulatory framework to govern the safety of nuclear installations".[32] It has been extended to the UK Crown Dependencies and the United Kingdom has extended the Nuclear Installations Act 1965 (which governs the safety of

24. *Ibid.*, p. 4.
25. *Ibid.*, p. 6.
26. *Ibid.*
27. Lang, A. (2021), *How Parliament treats treaties*, Briefing Paper Number 9247, House of Commons Library, London. p. 35.
28. Where Parliament does object to ratification in this period, the UK Government may try again for a second period of 21 sitting days. In exceptional cases the UK Government may ratify a treaty prior to laying it before Parliament, as long as it subsequently explains these exceptional circumstances to Parliament. See Constitutional Reform and Governance Act 2010 (c. 25), Schedules 20, 22.
29. *Ibid.*, sec. 24.
30. UK FCDO (2022), *supra* note 23, pp. 15-16.
31. The extensions of the International Convention for the Suppression of Terrorist Bombings and the International Convention for the Suppression of the Financing of Terrorism took place after 2010 but were disconnected from the United Kingdom's ratification of these instruments. As such, no Parliamentary oversight was required.
32. Nuclear installations are defined "any land-based civil nuclear power plant under its jurisdiction". Convention on Nuclear Safety (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 Oct. 1996 (CNS).

nuclear installations in the United Kingdom) to those territories.[33] However, there are no nuclear installations in the UK Crown Dependencies and no plans for the development of such facilities. The United Kingdom has also extended the Nuclear Material (Offences) Act 1983 to Crown Dependencies,[34] criminalising certain acts relating to the unauthorised possession or use of nuclear and radioactive material and the sabotage of nuclear facilities in those territories. However, it has not extended the International Convention for the Suppression of Acts of Nuclear Terrorism (ICSANT) – which requires the criminalisation of such acts – to these territories. It has, however, extended the amendment to the Convention on the Physical Protection of Nuclear Material (A/CPPNM) to one of these territories. [35] This Convention is similar to ICSANT in that it also requires the criminalisation of certain acts, but it differs by also obliging parties to *inter alia* "establish, implement and maintain an appropriate physical protection regime applicable to nuclear material and nuclear facilities" and to "establish and maintain a legislative and regulatory framework to govern physical protection". [36] These obligations are implemented in Metropolitan United Kingdom through the Nuclear Industries Security Regulations 2003[37] and by the Energy Act 2013 (TEA13).[38] Neither have been extended to the Isle of Man and there is no equivalent legislation enacted by the Isle of Man itself, which does not have any nuclear facilities that are relevant to the A/CPPNM.

The presence or absence of relevant implementing legislation does not necessarily explain any decision to extend or not extend these agreements. The implementation of international nuclear agreements does not depend entirely on such legislation, and a variety of practical arrangements or understandings may be in place between the United Kingdom and the territories in question that explain extension decisions. A territory without nuclear power may wish to be bound by obligations relating to nuclear safety to ensure any potential future use of nuclear power follows international standards and principles. A territory may also already deliver the requirements of a nuclear instrument in practice via administrative and practical arrangements with the United Kingdom (e.g. criminal extradition arrangements) such that the extension of that instrument may seem only symbolic. Nevertheless, this article seeks to explore the practical realities of treaty extension through the lens of relevant national implementing legislation and does not consider the administrative or logistical aspects of implementation.

III. Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (Tlatelolco Treaty)

The Tlatelolco Treaty prohibits the development, acquisition, testing and deployment of nuclear weapons in Latin America and the Caribbean. It was conceived in 1963 under the shadow of the Cuban Missile Crisis in the form of a joint declaration by five Latin American nations "desiring to preserve their countries from the tragic consequences that a nuclear

33. See Nuclear Installations (Jersey) Order 1980; Nuclear Installations (Guernsey) Order 1978; Nuclear Installations (Isle of Man) Order 1977.
34. See Nuclear Material (Offences) Act 1983 (Jersey) Order 1991; Nuclear Material (Offences) Act 1983 (Guernsey) Order 1991; Nuclear Material (Offences) Act 1983 (Isle of Man) Order 2009.
35. The amendment to the CPPNM has been extended to the Isle of Man only. IAEA (n.d.), "Amendment to the Convention on the Physical Protection of Nuclear Material: Latest Status", www.iaea.org/sites/default/files/22/06/cppnm_amend_status.pdf (accessed 22 Dec. 2025).
36. Amendment to the Convention on the Physical Protection of Nuclear Material (2005), IAEA Doc. INFCIRC/274/Rev.1/Mod.1, entered into force 8 May 2016 (A/CPPNM), Article 2A.
37. These regulations require that security arrangements for nuclear premises and carriers of nuclear material are approved by the ONR and subsequently implemented by responsible persons. See Nuclear Industries Security Regulations 2003 (as amended), SI 2003/403 (NISR), parts 2 and 3.
38. This Act requires the ONR to make adequate arrangements for the enforcement of NISR and equips ONR with powers to do so. Energy Act 2013 (c. 32) (TEA13), Part 3, Chapter 4.

war would bring".[39] Four years later the Tlatelolco Treaty opened for signature in Mexico City to all Latin American or Caribbean Republics within a zone defined by Article 4 of the Treaty (the "Zone of Application", illustrated in Figure 1 below), and any other states within the zone that may become sovereign.[40] The Treaty entered into force in a "staged" process, allowing contracting parties to declare its entry into force in their respect on deposit of their instrument of ratification.[41]

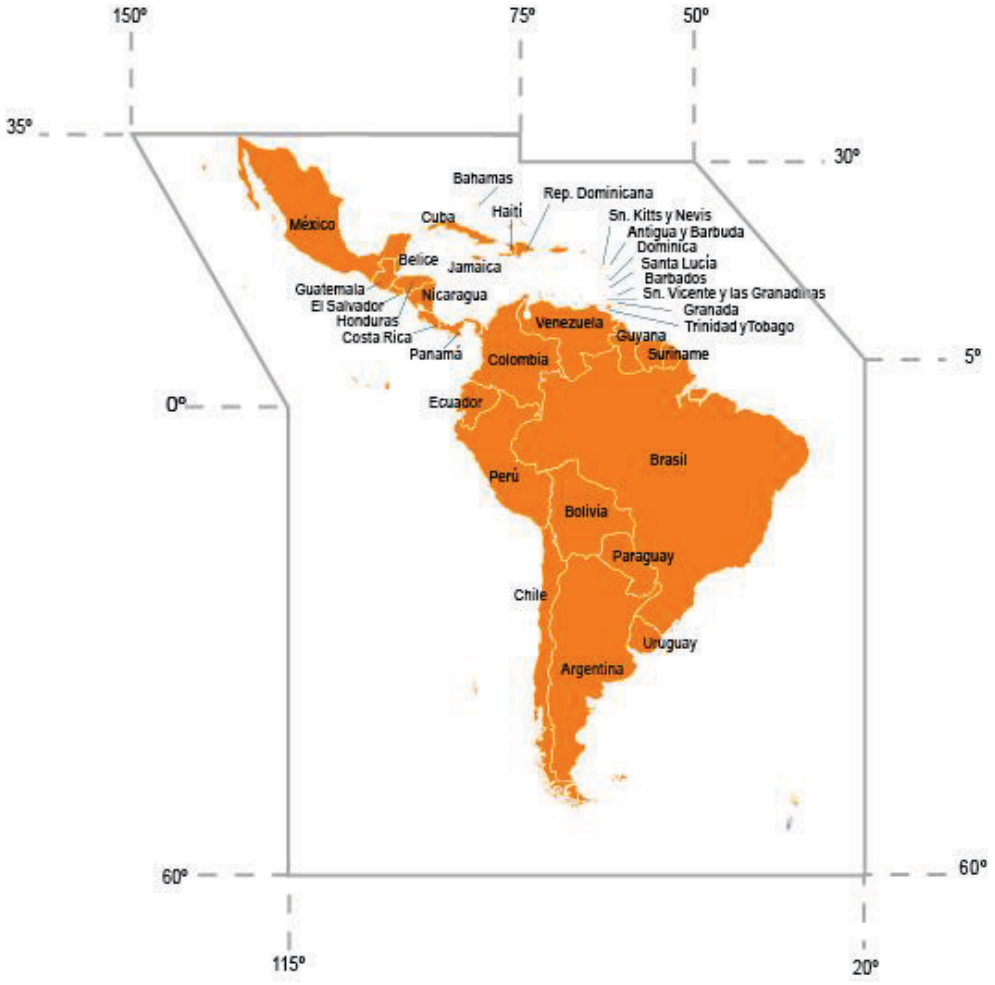

Figure 1: The Tlatelolco Treaty Zone of Application[42]

39. Agency for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (OPANAL) (n.d.), "The banning of nuclear weapons in Latin America: Summary of its main stages", www.opanal.org/en/la-proscripcion-de-las-armas-nucleares-en-la-america-latina (accessed 22 Dec. 2025).
40. For example, St. Kitts and Nevis falls inside the Zone of Application and was once a UK Overseas Territory. It gained independence after the Tlatelolco Treaty opened for signature and subsequently became a Contracting Party by ratification in April 1995. See OPANAL (n.d.) "Status of signatures and ratifications of the Treaty of Tlatelolco", https://opanal.org/en/estado-del-tratado-de-tlatelolco; Hendry, I. and S. Dickson (2018), *supra* note 6, Chapter 16.
41. Tabassi, L. (2009), *supra* note 21, pp. 37-38.
42. OPANAL (n.d.), "Zone of Application", https://opanal.org/zona-de-aplicacion (accessed 22 Dec. 2025).

Article 1 of the Tlatelolco Treaty requires that:

> 1. The Contracting Parties hereby undertake to use exclusively for peaceful purposes the nuclear material and facilities which are under their jurisdiction, and to prohibit and prevent in their respective territories:
>
>   a. The testing, use, manufacture, production or acquisition by any means whatsoever of any nuclear weapons, by the Parties themselves, directly or indirectly, on behalf of anyone else or in any other way, and
>
>   b. The receipt, storage, installation, deployment and any form of possession of any nuclear weapons, directly or indirectly, by the Parties themselves, by anyone on their behalf or in any other way.
>
> 2. The Contracting Parties also undertake to refrain from engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in the testing, use, manufacture, production, possession or control of any nuclear weapon.[43]

This primary obligation aligns with, but also goes beyond, those of the Treaty on the Non-Proliferation of Nuclear Weapons, which requires its non-nuclear weapon states (NNWS) (including all contracting parties to the Tlatelolco Treaty):

> not to receive … nuclear weapons or other nuclear explosive devices or of control over such weapons or explosive devices directly, or indirectly; not to manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices; and not to seek or receive any assistance in the manufacture of nuclear weapons or other nuclear explosive devices.[44]

This allows NNWS under the NPT to use nuclear material and facilities for non-peaceful purposes that are unrelated to nuclear weapons or nuclear explosive devices, whereas the Tlatelolco Treaty requires its contracting parties to use nuclear materials and facilities exclusively for peaceful purposes. The Tlatelolco Treaty also goes beyond the NPT by prohibiting its contracting parties from more tangential involvement in nuclear weapons, including encouraging the development and possession of nuclear weapons – either directly or indirectly.[45]

Article 13 of the Tlatelolco Treaty requires its contracting parties to "negotiate multilateral or bilateral agreements with the International Atomic Energy Agency [IAEA] for the application of its safeguards to its nuclear activities."[46] Reflecting the similar non-proliferation obligations of the Tlatelolco Treaty and the NPT, the requirement of Article 13 is fulfilled by the conclusion of safeguards agreements by NNWS with the IAEA pursuant to the NPT. These safeguards agreements follow a standard template defined by IAEA document INFCIRC/153 (Corr.): The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons.[47] Through these Comprehensive Safeguards Agreements (or CSAs) states undertake to accept safeguards on all nuclear materials in all peaceful nuclear

43. Tlatelolco Treaty (1967), *supra* note 15.
44. Treaty on the Non-Proliferation of Nuclear Weapons (1968), IAEA Doc. INFCIRC/140, 729 UNTS 169, entered into force 5 Mar. 1970 (NPT), Article II.
45. Treaty of Tlatelolco, *supra* note 15, Article 1.1. Similar prohibitions exist in other nuclear-weapon free zone treaties and the NPT. See South Pacific Nuclear Free Zone Treaty (1985), 1445 UNTS 177, entered into force 11 Dec. 1986 (Rarotonga Treaty), Article 3(c); African Nuclear-Weapon-Free Zone Treaty (1996), 35 ILM 698, entered into force 15 July 2009 (Pelindaba Treaty); Treaty on a Nuclear-Weapon-Free Zone in Central Asia (2006), No. 51633, entered into force 21 Mar. 2009 (Semipalatinsk Treaty); Treaty on the Prohibition of Nuclear Weapons (2017), No. 56487, entered into force 22 Jan. 2021, Article 1.1(e) (TPNW).
46. Treaty of Tlatelolco (1967), *supra* note 15.
47. IAEA (1972), "The Structure and Content of Agreements between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons", IAEA Doc. INFCIRC/153 (Corr.) (INFCIRC/153).

activities carried out on its territory or subject to its jurisdiction or control "for the exclusive purpose of verifying that such material is not used for nuclear weapons or any other nuclear explosive device."[48]

The Tlatelolco Treaty has two protocols that invite nuclear-weapon states (NWS) under the NPT and states who are *de facto* or *de jure* responsible for territories in the Zone of Application to contribute towards the Treaty's goal of the military denuclearisation of Latin America and the Caribbean. Additional Protocol I of the Treaty invites those states who are *de facto* or *de jure* responsible for territories in the Zone of Application to "apply the statute of denuclearisation in respect of warlike purposes as defined in Articles 1, 3, 5 and 13" of the Tlatelolco Treaty in respect of those territories.[49] It has been ratified by France,[50] the Netherlands,[51] the United Kingdom[52] and the United States.[53] The United Kingdom has extended its ratification to cover its Overseas Territories within the Treaty zone (hereafter referred to as UK Tlatelolco Territories). These territories are Anguilla, the Cayman Islands, the Falkland Islands, Montserrat, the Turks and Caicos Islands, and the British Virgin Islands. The Protocol entered into force for these states on the date of their deposit of their respective instruments of ratification. Applying the statute of denuclearisation in respect of warlike purposes is typically interpreted as committing to the purely peaceful use of nuclear materials and facilities in relevant territories (as required by Article 1.1 of the Tlatelolco Treaty) and concluding a safeguards agreement with the IAEA (as required by Article 13 of the Tlatelolco Treaty).[54]

Additional Protocol II of the Tlatelolco Treaty invites NWS under the NPT to respect "the statute of denuclearization" and to undertake "not to use or threaten to use nuclear weapons against the contracting parties [of the treaty]".[55] All five NWS – including the United Kingdom – have ratified Additional Protocol II. The United Kingdom declared on its ratification of Additional Protocol II that:

> The Government of the United Kingdom are prepared to regard their undertaking … not to use or threaten to use nuclear weapons against the contracting parties to the treaty as extending not only to those Parties but also to territories in respect of which the undertaking to apply the statute of denuclearisation, in accordance with Article I of Additional Protocol I, becomes effective.[56]

48. *Ibid*., para. 1
49. Tlatelolco Treaty, *supra* note 15, Additional Protocol I, Article 1.
50. French Guiana, Martinique, Guadeloupe, St Martin and St Barthélemy are in the Zone of Application and are all constituent lands of the French Republic with the same status as France's mainland regions.
51. The "constituent countries" of the Netherlands, including Aruba, Curacao and Sint Maarten, are in the Zone of Application, alongside the "public bodies" of Bonaire, Sint Eustatius and Saba.
52. Tabassi, L. (2009); *supra* note 22.
53. The Commonwealth of Puerto Rico, the Virgin Islands of the United States, Navassa Island, Serranilla Bank, Baja Nuevo Bank (Petrel Island) and the US Naval Station at Guantanamo Bay are in the Zone of Application.
54. Rockwood, L. (2022), "The IAEA safeguards system", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 360. It is not clear whether applying the statute of denuclearisation extends to refraining from "engaging in, encouraging or authorizing, directly or indirectly, or in any way participating in" nuclear weapon development as required by Article 1.2 of the Treaty.
55. Treaty of Tlatelolco, *supra* note 15, Additional Protocol II, Articles 1 and 3.,
56. United Nations Office for Disarmament Affairs (UNODA) (n.d.), "Additional Protocol II to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean: Declarations, statements, reservations and notes", https://treaties.unoda.org/t/tlateloco_p2/declarations (accessed 20 Nov. 2025)

This implies that the United Kingdom has committed not to use, or threaten to use, nuclear weapons in relation to its Overseas Territories within the Zone of Application.[57] France, the Russian Federation (Russia), the United Kingdom and the United States have made interpretative declarations on their ratification of Additional Protocol II. For example, the United Kingdom declared on ratification of Additional Protocol II that "in the event of any act of aggression by a Contracting Party to the treaty in which that Party was supported by a nuclear-weapon State, be free to reconsider the extent to which they could be regarded as committed by the provisions of Additional Protocol II".[58] The contracting parties consider such support as hypothetical and argue that the United Kingdom's declarations – and those of France, Russia and the United Sates – are, in practice, reservations attempting to modify Tlatelolco Treaty obligations or exclude declarers from Tlatelolco Treaty obligations entirely.[59] Article 27 of the Tlatelolco Treaty states that it "shall not be subject to reservations."[60] Contracting parties are pursuing negotiations with France, Russia, the United Kingdom and the United States towards modifying their declarations.[61]

IV. Safeguards under the Tlatelolco Treaty

A. Comprehensive Safeguards Agreements

The objective of a safeguards agreement concluded according to INFCIRC/153 is "the timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons … and deterrence of such diversion by the risk of early detection."[62] CSAs accomplish this by requiring states to establish a state system of accounting for and control of nuclear material (SSAC)[63] through which the contracting party has control and oversight of relevant nuclear activities. CSAs also require states to submit accounting reports to the IAEA (including an initial inventory report and regular inventory change and material balance reports) generated from that SSAC and to provide the IAEA with access so it can verify whether those reports are correct and complete. The state is also required to submit design information for every facility and location outside of facilities where nuclear material is customarily used.[64]

All contracting parties to the Tlatelolco Treaty have brought CSAs with the IAEA into force in accordance with Article 13 of that Treaty.[65] Three of the four parties to Additional

57. This is particularly relevant to its Falkland Islands territory, which is within the Zone of Application and is subject to a territorial dispute with Argentina (a contracting party to the Tlatelolco Treaty). United Nations General Assembly (UNGA) (1965), "Question of the Falkland Islands (Malvinas), UN Doc. A/RES/2065(XX), adopted on 16 Dec. 1965.
58. UNODA (n.d.), *supra* note 57.
59. OPANAL (2024), "Interpretive declarations equivalent to reservations made by States Parties to Additional Protocols I and II to the Treaty of Tlatelolco – Report of the Secretary-General", OPANAL Doc. CG/04/2023, OPANAL, Mexico City, p. 1.
60. Treaty of Tlatelolco (1967), *supra* note 7.
61. OPANAL (2024), *supra* note 59, p. 5.
62. INFCIRC/153, *supra* note 47, para. 28.
63. Nuclear material is defined in INFCIRC/153 as "source or any special fissionable material as defined in Article XX of the Statute" of the IAEA. *Ibid*., para. 112. In practice nuclear material includes thorium, uranium and plutonium.
64. A facility is defined in INFCIRC/153 as "(a)A reactor, a critical facility, a conversion plant, a fabrication plant, a reprocessing plant, an isotope separation plant or a separate storage installation; or (b) Any location where nuclear material in amounts greater than one effective kilogram is customarily used." *Ibid*., para. 106.
65. The safeguards concluded between the IAEA and Brazil and Argentina differ from other contracting parties in that they are governed by a quadripartite safeguards agreement between the three parties and the Brazil-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC).

Protocol I of the Tlatelolco Treaty (France,[66] the Netherlands[67] and the United States[68]) have brought CSAs with the IAEA into force in respect of their territories within the Zone of Application. The United Kingdom has not yet brought a CSA in relation to UK Tlatelolco Territories into force. According to the IAEA, a "safeguards agreement between the United Kingdom, EURATOM and the Agency pursuant to Additional Protocol I to the Treaty of Tlatelolco was signed but has not entered into force."[69] The United Kingdom left the Euratom Treaty at the end of 2020, so this signed trilateral agreement is no longer valid. The United Kingdom is in the process of concluding a new bilateral safeguards agreement with the IAEA in relation to UK Tlatelolco Territories.[70]

B. Small quantities protocols (SQPs)

Most contracting parties to the Tlatelolco Treaty have little or no nuclear material in their territories and are not pursuing a facility as defined by their CSA. These states may suspend most practical reporting aspects of the CSA by concluding an SQP to that agreement until such time they become ineligible for such a suspension, either by accumulating sufficient nuclear material or by pursuing a nuclear facility. The current model text of an SQP (which was updated in 2005) holds in abeyance the majority of a state's obligations regarding the provision of accounting reports and design information. Rather than providing monthly inventory change reports and regular material balance reports, states with an SQP must provide the IAEA instead with an initial inventory report and annual summaries of imports, exports and other changes to their inventory.[71] Rather than providing detailed facility information on a timely basis, states with an SQP must instead provide a summary of locations outside of facilities where nuclear material is used, to be updated on an annual basis when necessary.[72] At the end of 2024, 21 of the 33 contracting parties had concluded SQPs.[73] France, the Netherlands and the United States had concluded SQPs to their CSAs in relation to Additional Protocol I of the Tlatelolco Treaty.[74]

66. Agreement between the French Republic, the European Atomic Energy Community and the International Atomic Energy Agency for the Application of Safeguards in Connection with the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean (2007), IAEA Doc. INFCIRC/718, entered into force 26 Oct. 2007.
67. Agreement of 5 April 1973 Between the Kingdom of the Netherlands and the International Atomic Energy Agency for the application of safeguards with respect to the Netherlands Antilles in connection with the Treaty on the Non-Proliferation of Nuclear Weapons and Additional Protocol I to the Treaty for the Prohibition of Nuclear Weapons in Latin America (1973), IAEA Doc. INFCIRC/229, entered into force 5 June 1975.
68. Agreement of 17 February 1989 between the United States of America and the International Atomic Energy Agency for the application of safeguards in connection with the Treaty for the Prohibition of Nuclear Weapons in Latin America (1989), IAEA Doc. INFCIRC/366, entered into force 6 Apr. 1989.
69. IAEA (2025), *The Safeguards Implementation Report for* 2024, IAEA, Vienna, p. 24.
70. UN (2025), "Draft national report pursuant to actions 20 and 21 of the Final Document of the 2010 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons: Draft report submitted by the United Kingdom of Great Britain and Northern Ireland", NPT/CONF.2026/PC.III/INF/3, Preparatory Committee for the 2026 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, New York, available at: https://docs.un.org/en/NPT/CONF.2026/PC.III/3, para. 69.
71. INFCIRC/153, *supra* note 47, paras. 34, 62, 95 and 96. When imports above a certain quantity threshold are due to take place, the state must provide the IAEA with prior notification of that import.
72. *Ibid.*, para. 49.
73. IAEA (2025), *supra* note 69, tables 1 and 2.
74. *Ibid.*, pp. 20 and 23.

C. *Additional Protocols (APs)*

Many contracting parties have also voluntarily concluded APs to their CSAs. These follow the form and content of IAEA document INFCIRC/540. They enhance the IAEA's ability to derive safeguards conclusions regarding the absence of undeclared nuclear materials and activities by providing the IAEA with additional information regarding nuclear activities within the state and additional access rights. APs expand on a state's CSA responsibilities to include, *inter alia*:

- the provision of information and IAEA access to fuel cycle-related research and development activities, equipment manufacturing and equipment imports;[75]
- the provision of information and IAEA access to all buildings on a site where nuclear material is held;[76]
- the provision of information and IAEA access to nuclear material that would otherwise be of insufficient quality to be subject to a safeguards agreement (such as nuclear material emerging from mines or held as waste), or which has been exempted or terminated; and[77]
- the simplification of administrative arrangements regarding the designation of IAEA inspectors and the issuance of multiple entry/exit visas for those inspectors.[78]

By the end of 2024, 20 of the 33 contracting parties had concluded APs.[79] France, the Netherlands and the United States have not concluded APs to the CSAs concluded in relation to Additional Protocol I of the Tlatelolco Treaty.

D. *Safeguards conclusions drawn by the IAEA*

The IAEA publishes annual summaries of the conclusions that it has drawn for the previous year regarding the non-diversion of nuclear material subject to safeguards. The scope of these conclusions depends on the safeguards agreements concluded by the state in question and the ability of the IAEA to carry out its planned activities to its satisfaction. This annual summary explains that the IAEA may only conclude that all nuclear material has indeed remained within peaceful activities where the state in question has both a CSA and AP in force, and once it has completed all relevant evaluations for that state.[80] Until that time, they can only draw conclusions regarding the materials and activities that have been declared to them by the state and cannot conclude that all nuclear materials and activities have indeed been declared to them.

For 9 of the 20 contracting parties with both CSAs and APs in force in 2024, the IAEA was able to conclude that all nuclear material remained in peaceful activities. For the remaining 11 contracting parties with both agreements in force, the IAEA needed to carry out further evaluations before such a conclusion could be drawn.[81] For the 13 contracting parties with only a CSA in force, the IAEA was able to conclude in 2024 that declared nuclear materials remained in peaceful activities.[82] The IAEA was able to draw the same conclusions for France, the Netherlands and the United States in relation to their respective territories within the Tlatelolco Treaty zone.[83] The IAEA was unable to draw any conclusions regarding nuclear materials and nuclear activities in UK Tlatelolco Territories.

75. IAEA (1998), "Model Protocol Additional to the Agreement(s) Between State(s) and the International Atomic Energy Agency for the Application of Safeguards", IAEA Doc. INFCIRC/540 (Corr.) (INFCIRC/540), Articles 2(a)(i, iv and ix), 2(a)(ix), 2(b), and 5.
76. *Ibid.*, Articles 2(a)(iii) and 5.
77. *Ibid.*, Articles 2(a)(v-viii), and 5.
78. *Ibid.*, Articles 11 and 12.
79. IAEA (2025), *supra* note 69, tables 1 and 2.
80. *Ibid.*, p. 7.
81. *Ibid.*, p. 8.
82. *Ibid.*
83. *Ibid.*, pp. 10-11.

In summary, the Tlatelolco Treaty requires all its contracting parties (and parties to Additional Protocol I in relation to their territories within the Zone of Application) to use nuclear materials for exclusively peaceful purposes. In 2024, the IAEA was able to independently conclude that all nuclear materials remained in peaceful activities in 9 of the 33 contracting parties. This does not imply that the remaining 24 contracting parties (and the parties to Additional Protocol I) are diverting nuclear material to non-peaceful activities. Indeed, the Secretary General of the OPANAL told contracting parties in 2018 that "there are no and never have been nuclear weapons in our region. Furthermore, no country in our region contemplates support for nuclear weapons in its defense policy."[84] While the IAEA may only conclude for some contracting parties that nuclear materials that have been declared to the IAEA remain in peaceful uses, other contracting parties are satisfied that those declarations are indeed complete, without requiring confirmation from the IAEA.[85] However, this may not be the case in perpetuity.

Brazil is currently working with the IAEA to invoke special procedures provided in its safeguards agreement to use nuclear material under safeguards for military nuclear submarine propulsion.[86] Argentina and Brazil have agreed that military nuclear submarine propulsion is a "peaceful application" of nuclear energy and therefore consistent with the Tlatelolco Treaty.[87] The scope of Brazil's safeguards agreement also obliges it to accept IAEA safeguards on all nuclear material in all activities (rather than just explicitly peaceful activities). [88] Nevertheless, the special procedures provided for in Brazil's safeguards agreement can be read as allowing for the non-application of IAEA safeguards to nuclear material used in military submarine propulsion for the period of time in which it is so used.[89] The IAEA aims to provide credible and soundly-based conclusions that nuclear material used in this way would not be diverted to a nuclear weapons programme while such special procedures apply. The precise nature of these special procedures is not yet clear, nor is the impact they might have on the IAEA's ability to continue concluding that nuclear material declared by Brazil continues to remain in peaceful activities, however "peaceful" is defined.

Furthermore, as of the end of 2024, six contracting parties had SQPs in force that follow an outdated format.[90] The SQP concluded by the Netherlands in relation to its CSA under Additional Protocol I also follows this outdated format. This format suspends so many practical aspects of safeguards implementation that it significantly affects the IAEA's ability to draw credible safeguards conclusions. This old format is no longer made available

84. OPANAL (n.d), "XXVI Extraordinary Session of the General Conference", https://opanal.org/xxvie-conferencia-general (accessed 22 Dec. 2025).
85. OPANAL has not issued a resolution suggesting that contracting parties must conclude an Additional Protocol to their safeguards agreement to comply with Article 13 of the Tlatelolco Treaty.
86. Argentina and Brazil have concluded a quadripartite safeguards agreement among themselves, the Brazil-Argentine Agency for Accounting and Control of Nuclear Materials, and the IAEA. See Agreement of 13 December 1991 between The Republic of Argentina, The Federative Republic of Brail, The Brazil-Argentine Agency for Accounting and Control of Nuclear Materials and the International Atomic Energy for the application of safeguards (1991), IAEA Doc. INFCIRC/435, entered into force 4 Mar. 1994. Australia is also seeking to invoke similar procedures in its safeguards agreement in relation to the provision of nuclear-powered military submarines under the AUKUS programme.
87. Agreement between The Republic of Argentina and The Federative Republic of Brazil for the exclusively peaceful use of nuclear energy (1991), IAEA Doc. INFCIRC/395, entered into force 4 Mar. 1994, Article III.
88. Agreement of 13 December 1991 (1991), *supra* note 86, Article 1. The wording differs slightly from the scope expressed in INFCIRC/153, which does not explicitly apply safeguards to *all* nuclear material in all activities in the state, only to all nuclear material in all peaceful activities in the state.
89. The provision for special procedures very closely matches provisions in paragraph 14 of INFIRC/153 that allows for the non-application of safeguards on nuclear material used in non-proscribed military activities. See *ibid*., Article 13.
90. As of the end of 2024, these included Barbados, Dominica, Grenada, Guyana, St Vincent & Grenadines, and Trinidad & Tobago. IAEA (2025), *supra* note 69, tables 1 and 2.

to states, and the IAEA has requested that all states with such outdated protocols in place update them to the new format. Recognising the shortfalls of the outdated format, the IAEA no longer draws safeguards conclusions for states where it is in place, including for these six contracting parties and the Netherlands in relation to its territories in the Zone of Application.[91] Since the end of 2024, these states have joined the United Kingdom in having no independent confirmation from the IAEA that they are using nuclear material only for peaceful purposes. This may shine an uncomfortable spotlight on the United Kingdom, which, until it has concluded a safeguards agreement in respect of its Tlatelolco Territories, is the only state obliged to do so that has not yet done so.

V. How and why might the United Kingdom conclude a safeguards agreement for its Tlatelolco Territories?

The United Kingdom is currently concluding a new bilateral safeguards agreement with the IAEA for its Tlatelolco Territories.[92] The IAEA's publication *Legal Framework for IAEA Safeguards* explains how the IAEA Secretariat approaches the conclusion of safeguards agreements with states.[93] On a request from a state, they prepare draft agreement texts along with any relevant protocols and submit it to the state for discussion. Once agreement is reached between the state and the Secretariat, the draft agreement is presented to the IAEA Board of Governors for its approval.[94] The entry into force of the agreement will then depend on the state and its constitutional requirements and can come sometime after the agreement has been approved. In the case of the United Kingdom, this would likely be via a notification to the IAEA.

From the United Kingdom's perspective, its constitutional relationship with its Tlatelolco Territories makes this process more complicated. It must determine who will be the parties to a safeguards agreement. In theory, the United Kingdom may formally "entrust" its Tlatelolco Territories to conclude their own safeguards agreements with the IAEA.[95] However, this would leave the United Kingdom responsible for the compliance of its Tlatelolco Territories with Additional Protocol I while removing itself as a party to the safeguards agreements whose implementation delivers that compliance. It would also be impractical, potentially requiring the negotiation, ratification and implementation of six safeguards agreements: one for each territory.[96] Instead, the United Kingdom is pursuing the conclusion of a safeguards agreement on behalf of its Tlatelolco Territories, which it

91. *Ibid.*, para. 55.
92. UN (2025), *supra* note 70, para. 69.
93. Rockwood, L. (2013), *Legal Framework for IAEA Safeguards*, IAEA, Vienna, p. 27.
94. The agreements are not always presented in full to the Board of Governors. Instead, a description of the agreement and any deviations from the standard texts previously approved by the Board is often given, along with a recommendation that the Board authorises the Secretariat to conclude and subsequently implement the agreement. This recommendation is typically approved without any formal voting, even for contentious agreements such as that between the IAEA and the Palestinian Authority.
95. Such entrustments are rare and usually only granted where the agreement in question would not apply to Metropolitan United Kingdom, which would be the case for a safeguards agreement with respect to UK Tlatelolco Territories. See Hendry, I. and S. Dickson (2018), *supra* note 6, p. 283.
96. The United Kingdom may also pursue a safeguards agreement alongside its Tlatelolco Territories, with them as equal parties. For example, the Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland including the Cayman Islands and the Government of the United States of America for the Exchange of Information relating to Taxes was signed by both the British Ambassador to Washington and the Governor of the Cayman Islands. *Ibid.*, p. 284. The practical burden of negotiating a single agreement among such a large group (and clarifying the division of labour between the United Kingdom and its Tlatelolco Territories in implementing the agreement) would likely outweigh any benefit of such an approach.

will need to extend to apply to those territories.[97] As safeguards agreements are considered treaties under the Vienna Convention on Law of Treaties,[98] the United Kingdom is also consulting UK Tlatelolco Territories to "confirm the practical arrangements required to enable the successful implementation of these safeguards agreements."[99]

As discussed in Section II, such consultation normally focuses on a consultation document that seeks to explain, among other things:[100]

- the United Kingdom's stance on the agreement, including why it supports the agreement's extension to the territories in question;
- the scope of the agreement, including what the United Kingdom's obligations are and how they are relevant to the territory in question;
- the implementation of the agreement, including how the United Kingdom implements the agreement through UK legislation;
- the perceived benefit of the agreement for the territory in question; and
- the possible consequences if the agreement is not extended.

This section explores how and why the United Kingdom might conclude a safeguards agreement for its Tlatelolco Territories by attempting to explain these issues.

A. The United Kingdom's stance on the conclusion of a safeguards agreement

The United Kingdom is consistently supportive of the Tlatelolco Treaty. It declared on its ratification of Additional Protocol I of the Tlatelolco Territory in 1969 that "The Government of the United Kingdom have always believed that the establishment of a nuclear-free zone in Latin America would be a most useful step towards nonproliferation and the building up of international confidence."[101] The United Kingdom has made supportive statements regarding the Tlatelolco Treaty (and nuclear-weapon-free zones more broadly) at NPT Review Conferences in 2005, 2015 and 2022.[102] More recently, the United Kingdom told the second Preparatory Committee for the 2026 NPT Review Conference of the NPT in 2024 that it "supports Nuclear-Weapon-Free Zones and the contribution they can make to enhance regional and international security."[103] Support for the full implementation of Additional Protocol I of the Tlatelolco Treaty was also demonstrated by the United Kingdom signing the now-invalid CSA between the United

97. UN (2025), *supra* note 70, para. 69.
98. Rockwood, L. (2022), *supra* note 54, p. 374.
99. UN (2025), *supra* note 70, para. 69.
100. UK FCDO (2022), *supra* note 23, p. 4
101. UNODA (n.d.), "Additional Protocol I to the Treaty for the Prohibition of Nuclear Weapons in Latin America and the Caribbean". https://treaties.unoda.org/t/tlateloco_p1/declarations/GBR_mexico_city_SIG (accessed 21 Nov. 2025).
102. See UK Foreign & Commonwealth Office (FCO) (2005) "Statement by Ambassador John Freeman, Head of UK Delegation to the Seventh Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons, Main Committee II", p. 3, available at: https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2005/MCII/UK20.pdf; UK FCO (2015), "2015 Review Conference of the Treaty on Non-Proliferation of Nuclear Weapons – Main Committee II – Statement by the United on Kingdom", p. 3. available at: https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2015/statements/4May_UK_MCII.pdf; UK FCDO (2022), "Tenth Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons – Main Committee II – Statement by the United Kingdom", p. 4. https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/revcon2022/statements/8Aug_MCII_UK.pdf (accessed 1 Dec. 2024).
103. Statement of UK Ambassador and Permanent Representative to the Conference on Disarmament, Mr David Riley to the Second Preparatory Committee for the 2026 Review Conference of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), 26 July 2024, p. 2, available at: https://reachingcriticalwill.org/images/documents/Disarmament-fora/npt/prepcom24/statements/26July_UK.pdf.

Kingdom, Euratom and the IAEA in relation to the Protocol. That demonstration is now being remade by the United Kingdom's pursuit of a replacement CSA.

The United Kingdom's position on the conclusion of an AP to any safeguards agreement relating to the Tlatelolco Treaty is more uncertain. The United Kingdom did not sign an AP to its now-invalid safeguards agreement, and it is not intending to do so now. As discussed in Section IV, the conclusion and implementation of an AP would allow the IAEA to draw broader conclusions regarding the peaceful use of all nuclear material in the UK Tlatelolco Territories. In the absence of an AP, the IAEA would only be able to draw such conclusions regarding nuclear material that has been declared to them. The United Kingdom told the NPT Preparatory Committee in 2024 that they "encourage all states to sign and ratify the Additional Protocol, together with a Comprehensive Safeguards Agreement, as the universal verification standard under the NPT."[104] As a NWS under the NPT, the United Kingdom (and its Overseas Territories) is not obliged to meet the safeguards obligations under Article III.1 of the NPT.[105] However, the United Kingdom could make a virtue out of the necessity created by its ratification of Additional Protocol I and demonstrate its commitment to this universal verification standard by concluding an AP to any safeguards agreement for its Tlatelolco Territories. However, doing so would expand both the scope of that agreement and the burdens of implementing it.[106] None of the other parties to Additional Protocol I have concluded APs to their safeguards agreements and neither have 13 contracting parties to the treaty itself.[107] The costs of concluding and implementing an AP for the United Kingdom and its Tlatelolco Territories may outweigh any symbolic benefits it could bring through reiterating a standard that is not universally recognised by contracting parties to the Tlatelolco Treaty.

B. *The scope of the agreement*

The scope of a CSA (as defined by INFCIRC/153) requires a state to accept IAEA safeguards on all nuclear material "in all peaceful nuclear activities within its territory, under its jurisdiction or carried out under its control anywhere."[108] A safeguards agreement in relation to the UK Tlatelolco Territories must modify and constrain this scope, which would otherwise apply safeguards to all nuclear material under United Kingdom jurisdiction – including in Metropolitan United Kingdom, Crown Dependencies and other Overseas Territories. Nuclear material in Metropolitan United Kingdom is already subject to a separate safeguards agreement that requires the United Kingdom to accept IAEA safeguards on nuclear material only within facilities (as defined in INFCIRC/153), subject to exclusions for national security reasons only.[109] This excludes all nuclear material associated with the United Kingdom's nuclear weapon and nuclear submarine propulsion programmes as well as all nuclear material in locations outside facilities from the scope of IAEA safeguards. While this agreement could in theory be extended to UK Tlatelolco Territories, these exclusions would make it insufficient to fulfil the requirements of Additional Protocol 1 of the Tlatelolco Treaty.

104. While the UK Tlatelolco Territories are not NNWS parties to the NPT in their own right, the UK extended its ratification of the NPT to include these territories. *Ibid.,* p. 1
105. NPT, *supra* note 44, Article III.1.
106. While there is no publicly available evidence of relevant nuclear fuel cycle-related research and development activities, equipment manufacturing, or imports/exports of relevant equipment in the UK Tlatelolco Territories, confirming this would not be trivial. The provision of information regarding any sites where nuclear material is located in these territories would also be burdensome.
107. IAEA (2025), *supra* note 69.
108. INFCIRC/153, *supra* note 47, Article 1.
109. See Agreement between the United Kingdom of Great Britain and Northern Ireland and the International Atomic Energy Agency for the Application of Safeguards in the United Kingdom of Great Britain and Northern Ireland in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (2020), IAEA Doc. INFCIRC/951, entered into force 31 Dec. 2020, Article 1.

It is not clear how much nuclear material is present in the UK Tlatelolco Territories. There are no known facilities (as defined in INFCIRC/153) in these territories. However, nuclear material may exist in locations outside such facilities. Nuclear material is routinely used for radiation shielding in medical radiotherapy and industrial radiography, in dyes for electron microscopy, as calibration samples and for use as counterweights.[110] For example, nuclear material exists in US territories within the Tlatelolco Treaty zone in the form of depleted uranium used for medical and industrial radiography shielding and in small laboratory samples.[111] The IAEA has pointed out that "with the increased use of technology involving nuclear material (particularly depleted uranium) in medical facilities or industrial processes, all States are likely to have some nuclear material on their territory."[112] While there is little public information clearly demonstrating the use of nuclear material for these purposes in the UK Tlatelolco Territories,[113] this article assumes there are very small quantities of nuclear material in these territories, most likely in the form of depleted uranium.

In this case, the United Kingdom and its Tlatelolco Territories (like the other parties to Additional Protocol I) are eligible for an SQP.[114] As discussed in Section IV, above, this would not remove the obligation to establish an SSAC and facilitate IAEA inspections. However, it would significantly reduce the requirements for reporting to the IAEA. Furthermore, the SQP maintains provisions that allow states to exempt certain small quantities of nuclear material or nuclear material used in non-nuclear activities (such as a counterweight or as radiation shielding) from IAEA safeguards.[115] If nuclear materials exist in such quantities or uses in the UK Tlatelolco Territories once a new safeguards agreement has come into force, the United Kingdom may request the IAEA exempt it from safeguards under that agreement.[116] In this case, the initial burden of carrying out and reporting on an initial inventory of nuclear materials may diminish over time to an annual exercise confirming the absence of any changes.

If the United Kingdom were to conclude an AP to any safeguards agreement for its Tlatelolco Territories, this would increase the burden of providing information to the IAEA and making provision for possible IAEA inspections. There is no known manufacturing or importing of nuclear fuel cycle-related equipment in the UK Tlatelolco Territories and there is no known public information suggesting relevant research and development is taking place there. However, the presence of such activities cannot be conclusively ruled out and the United Kingdom would need to be in a position to do so, particularly for any research and development "specifically authorized or controlled by, or carried out on

110. IAEA (2016), *Safeguards Implementation Guide for States with Small Quantities Protocols*, IAEA Service Series 22, IAEA, Vienna, p 40.
111. Hanks, D.H. and H.M. Lane (2017), "Early Experience in Implementation of the Modified Small Quantities Protocol under the US-IAEA Caribbean Territories Safeguards Agreement", IAEA Doc No. INFCIRC/366, p. 169.
112. IAEA (2016), *supra* note 110, p. 9.
113. Industrial activity in the UK Tlatelolco Territories is extremely limited. The economies of those territories in the Caribbean are dominated by tourism and international finance. The economy of the Falkland Islands is dominated by the fishing industry. An open-source search of all hospitals within these Territories suggests that none have active radiotherapy units using radioactive sources that may require shielding in the form of nuclear material. The Royal Air Force Base at the Falkland Islands may contain depleted uranium in the form of munitions or shielding, but the United Kingdom's only depleted uranium-tipped munition is a tank round and there are no tanks stationed at that base.
114. In accordance with its current modified format.
115. INFCIRC/153, *supra* note 47, paras. 13, 36 and 37.
116. Such nuclear materials must first be declared in an initial inventory to the IAEA before they can be so exempted. This would remove the requirement for the IAEA to apply safeguards to that material but would not absolve the United Kingdom or its Tlatelolco Territories from the responsibility to control that material to monitor its use and location. If exempted nuclear material is transferred for a nuclear use or is stored alongside nuclear material that is still subject to IAEA safeguards, the state must notify the IAEA to re-apply safeguards to that material.

behalf of," the territories.[117] Furthermore, an AP would require the declaration of additional information for any site in Tlatelolco Territories in which nuclear material is used and would re-establish some declaration requirements that would have otherwise been lifted by any exemptions of nuclear material from safeguards, as described above.

C. *Legislative and regulatory requirements for implementing a safeguards agreement in relation to UK Tlatelolco Territories*

Irrespective of the quantities of nuclear material, or the presence and nature of any nuclear activities in UK Tlatelolco Territories, the United Kingdom and these territories would still need to establish a legislative framework translating the requirements of the safeguards agreement into domestic law. While not explicitly required by the text of INFCIRC/153 or INFCIRC/540, this is necessary to ensure that the requirements of these agreements can be reliably and sustainably met in accordance with the possible inventories and uses of nuclear material in UK Tlatelolco Territories. A state's legal framework for safeguards should include, *inter alia*:[118]

- the designation of an entity (or entities) responsible for implementing IAEA safeguards and exercising control over nuclear material and activities;
- the enactment of laws and regulations that control and oversee the use of nuclear material and activities;
- the enactment of laws and regulations providing access to relevant locations for IAEA inspections, including those relevant to an Additional Protocol if one has been concluded; and
- the enactment of laws and regulations that allow the collection and declaration of Additional Protocol information, if one has been concluded.

The legislative process for establishing nuclear laws is explained in the IAEA's *Handbook on Nuclear Law*.[119] The process for establishing a safeguards legislative framework for the UK Tlatelolco Territories should align with this good practice. It should include an assessment of nuclear programmes and plans in the territories to ensure legislative changes can accommodate any strategic decisions about how or whether the peaceful uses of nuclear energy might be applied. Some territories may be seeking to expand their use of nuclear material and nuclear energy for peaceful purposes.[120] Some may be actively opposed to such expansion and others may be undecided. It should also include an assessment of existing legislation to ascertain what changes are necessary and to ensure those changes do not conflict with existing laws or regulations. Some territories may already have domestic legislation in place governing the use of nuclear energy (such as radiological protection or export control measures) that should be recognised and reflected in dedicated safeguards legislation.[121] The process for establishing a safeguards legislative

117. INFCIRC/5460, *supra* note 75, Article 2(a)(i).
118. A non-exhaustive list of elements that should be included in a state's legal framework for safeguards can be found in IAEA (2016), *supra* note 110, p. 9. That list includes administrative and procedural arrangements for providing information and access to the IAEA. These arrangements are not typically enshrined in legislation and are not considered here.
119. Stoiber, C. et al. (2003), *Handbook on Nuclear Law*, IAEA, Vienna.
120. For example, Puerto Rico (an unincorporated territory of the United States in the Zone of Application) is exploring the use of small modular reactors (SMRs) in its territory and a feasibility study (funded by the United States) argued Puerto Rico is positioned "favourably" for the introduction of SMRs. World Nuclear News (2024), "SMRs economically feasible in Puerto Rico, study finds", www.world-nuclear-news.org/articles/small-reactors-feasible-in-puerto-rico,-study-conc (accessed 21 Nov. 2025).
121. For example, Anguilla passed the Radioactive Minerals Act 2000 that establishes a licensing regime for the mining and export of radioactive materials including "any mineral containing uranium or thorium". An AP would require declarations on the mining and export of such minerals.

framework should also include engagement with stakeholders, including those that would be governed by the new safeguards legislation and those that might enforce it.

The process for establishing safeguards legislation for the UK Tlatelolco Territories would vary from the norm in one notable way: the power to legislate for these territories resides both within the territories themselves and in the United Kingdom. The six UK Tlatelolco Territories may pass their own legislation and regulations, each designating their own responsible entity and defining their own system for providing information and access to the IAEA. The majority of laws and regulations on the statute books of the UK Overseas Territories were enacted by their own legislatures,[122] and doing so here would ensure their safeguards legislation is tailored to their individual circumstances. However, this approach would present the United Kingdom with six different legislative timelines to accommodate six different legislative frameworks to consider before extension and potentially six different extension notifications to make to the IAEA at different times. This could also present challenges to the IAEA, which may have to work with six different authorities in the implementation of one safeguards agreement and accommodate updates to the initial nuclear material inventory as each territory comes on board.

The United Kingdom may legislate for the implementation of a safeguards agreement on behalf of the UK Tlatelolco Territories, as the UK Parliament may legislate directly and expressly for all the UK Overseas Territories. However, this is done very rarely for significant topics requiring uniform treatment throughout UK territory, such as nationality. [123] Alternatively, the United Kingdom may extend existing safeguards legislation through an Order in Council where that power has been conferred by relevant primary legislation.[124] This approach is typically taken when implementing international obligations on the United Kingdom that extend to its Overseas Territories.[125] This is similar to the United States, where its Nuclear Regulatory Commission (NRC) amended safeguards regulations to extend them to its territories in the Tlatelolco Treaty zone via a "rule".[126] As the amendments related to a US foreign affairs function (the implementation of the Tlatelolco Treaty), normal requirements to publish a notice of the amendments in the Federal Register and to consult with affected persons did not apply.[127] In practice, a new safeguards agreement for the UK Tlatelolco Territories may be implemented by a legal framework that incorporates both territorial legislation and legislation extended from Metropolitan United Kingdom.

1. *The designation of an entity (or entities) responsible for implementing IAEA safeguards and exercising control over nuclear material and activities*

The Energy Act 2013 (or TEA13) is the core of the United Kingdom's legal framework for safeguards. It establishes the Office for Nuclear Regulation (ONR) as an independent public corporation and defines its "nuclear safeguards purposes". [128] These purposes include "ensuring compliance by the United Kingdom or, as the case may be, enabling or facilitating

122. Hendry, I. and S. Dickson (2018), *supra* note 6, p. 65.
123. *Ibid.*, p. 58.
124. An Order in Council is a type of legislation made in the name of the UK Monarch by and with the advice and consent of the Privy Council. The Privy Council is an advisory body whose members are appointed by the King on the advice of the Prime Minister.
125. For example, according to Hendry, I. and S. Dickson (2018), *supra* note 6, p. 58, "orders in Council are routinely made under the United Nations Act 1946 to implement in the overseas territories resolutions of the United Nations Security Council establishing sanctions regimes."
126. The amendments made to 10 Code of Federal Regulations (CFR) Part 75 introduced a new defined type of regulatory duty holder that encompassed holders of nuclear material in the Tlatelolco Treaty zone. The amendments extended certain nuclear material record-keeping and reporting duties already present in 10 CFR Part 75 to these new dutyholders. They also expanded existing rights for the IAEA to carry out certain inspections to include these dutyholders, linking these rights to the relevant safeguards agreement for the territories. See 10 CFR Part 75.
127. Modified Small Quantities Protocol, *83 Federal Register* (Fed. Reg.) 19603 (4 May 2018).
128. TEA13, *supra* note 38, Part 3, Chapter 2, sec. 72.

compliance by a Minister of the Crown, with a relevant international agreement".[129] These relevant international agreements are defined in secondary legislation and include both the United Kingdom's current safeguards agreement with the IAEA and the Additional Protocol to that agreement.[130] The United Kingdom may enlist ONR in the implementation of a new safeguards agreement under the Tlatelolco Treaty by amending this secondary legislation to include that agreement.[131]

This amendment alone would not be enough to ensure compliance with a new safeguards agreement. The extent to which ONR can take responsibility for compliance with that agreement depends on the extent to which it is integrated into any safeguards provisions for the oversight of nuclear materials and activities in the UK Tlatelolco Territories, and the provision of access for the IAEA in those territories.[132] For example, ONR relies on the UK Border Force and His Majesty's Revenue & Customs to accept IAEA inspectors and their equipment into the United Kingdom according to relevant legislation, which is outside ONR's remit. If the United Kingdom wishes ONR to take the lead in implementing a new safeguards agreement for UK Tlatelolco Territories, it will need to equip ONR with suitable legal powers and responsibilities. Otherwise, the United Kingdom will need to establish a common understanding with ONR as to how it should work with the United Kingdom and UK Tlatelolco Territories to "enable and facilitate" (rather than "ensure") compliance with that agreement.[133]

The United Kingdom may ultimately excuse ONR from any responsibility in its compliance with a new safeguards agreement for UK Tlatelolco Territories by not making it a relevant international agreement for ONR's safeguards purposes. In this case, the United Kingdom should clearly designate which government department would be responsible for ensuring compliance with that agreement and how it should work with other departments and the territories in question to fulfil that responsibility.

2. *The enactment of laws and regulations that control and oversee the use of nuclear material and activities*

TEA13 also provides the UK Government with the power to make safeguards regulations that control and oversee the use of peaceful nuclear material and activities. That power may be exercised for the purpose of:

a) ensuring that qualifying nuclear material, facilities or equipment are only available for use for civil activities (whether in the United Kingdom or elsewhere); or

b) giving effect to provisions of a relevant international agreement.[134]

This power was exercised to create the Nuclear Safeguards (EU Exit) Regulations 2019 (NSR19). These place accountancy and control requirements on holders of nuclear material in peaceful uses and constitute the core of the United Kingdom's SSAC. The requirements of NSR19 include arrangements for tracking and measuring inventories of nuclear

129. *Ibid*.
130. The Nuclear Safeguards (Fissionable Material and Relevant International Agreements) (EU Exit) Regulations 2019, Schedule 3 (NSR19).
131. The amendments made to US regulation 10 CFR Part 75 enlist the NRC in the implementation of the US safeguards agreement with the IAEA for US territories in the Tlatelolco Treaty zone through its enforcement of the requirements of that regulation.
132. Financial resources would also be required to support any expansion in ONR's safeguards purposes.
133. For example, ONR may be expected to leverage its existing reporting and correspondence arrangements with the IAEA to serve as a single point of contact between the UK, the IAEA and UK Tlatelolco Territories. This would not necessarily make ONR responsible for the accuracy of reports or the substance of any correspondence.
134. TEA13, *supra* note 38, sec. 76A.

materials,[135] the maintenance of accounting and operating records,[136] and the provision of accountancy and facility information to the ONR.[137] Importantly, they also prevent holders of nuclear material from withdrawing nuclear material from peaceful activities without the prior written consent of the ONR.[138] NSR19 also reiterates and expands on ONR's role in ensuring compliance with the United Kingdom's current safeguards agreement by requiring it to fulfil the reporting requirements to the IAEA in that agreement.[139]

TEA13 makes the enforcement of NSR19 another of ONR's nuclear safeguards purposes, ensuring that the provisions of NSR19 give effect to the United Kingdom's current safeguards agreement and that they support ONR in ensuring compliance with that agreement. TEA13 provides ONR with a foundation of generic inspection and enforcement powers to enforce NSR19 in the United Kingdom.[140] These are augmented by a range of safeguards-specific inspection powers in NSR19 itself.[141]

Neither TEA13 nor NSR19 extend beyond Metropolitan United Kingdom, and there are no provisions within NSR19 itself explicitly allowing for such extension via an Order in Council. However, "there is no reason in principle why Regulations made under an Act of Parliament should not extend to Overseas Territories, if the parent Act so permits."[142] The regulation-making power in TEA13 described above may permit this by being usable for the purposes of overseeing the use of nuclear material outside the United Kingdom and giving effect to a relevant international agreement (such as a safeguards agreement for UK Tlatelolco Territories). Furthermore, Part 3 of TEA13 (relating to the ONR and nuclear safeguards regulations) may support the extension of NSR19 by providing that the Crown:

> may by Order in Council provide that the provisions of this Part [including nuclear safeguards regulations] apply, so far as specified, in relation to persons, premises, activities, articles, substances or other matters, outside the United Kingdom as they apply within the United Kingdom or a specified part of the United Kingdom.[143]

If TEA13 permits the extension of NSR19 to UK Tlatelolco Territories, then that extension should recognise the significantly smaller scale of nuclear material inventories and activities in the UK Tlatelolco Territories. For example, an Order may modify NSR19 on extension to suspend or omit some of its more detailed and onerous provisions.[144] It may also introduce powers to exempt or terminate certain requirements in certain

135. NSR19, *supra* note 130, Regulations 6-9.
136. *Ibid.*, Regulations 10 and 11.
137. *Ibid.*, Regulations 3, 4, 12-24.
138. *Ibid.*, Regulation 33.
139. *Ibid.*, Regulation 42.
140. TEA13, *supra* note 38, Section 83 and Schedule 8.
141. NSR19, *supra* note 130, Regulation 39.
142. Hendry, I. and S. Dickson (2018), *supra* note 6, p. 63.
143. TEA13, *supra* note 38, Part 3.
144. If a safeguards agreement with the IAEA, in relation to the UK Tlatelolco Territories, is modified via an SQP, the requirements of Part 2 of NSR19 that apply to operators of facilities (as defined in INFCIRC/153) may not be necessary. Instead, the requirements of NSR19 Part 7 would be more pertinent. The requirements of that part apply to holders of nuclear material outside such facilities and provide for the exemption of those holders when they hold only nuclear material in non-nuclear activities that is in practice irrecoverable. Suspending aspects of NSR19 rather than omitting them altogether may allow the United Kingdom to reapply those aspects if any UK Tlatelolco Territories significantly expand their nuclear activities beyond eligibility for an SQP. See NSR19, *supra* note 130.

situations.[145] Such an Order must also remove the right given in NSR19 regulation 33 to remove nuclear material from peaceful activities when given prior permission.

The United Kingdom could otherwise make new safeguards regulations that are separate from NSR19 that control and oversee the use of nuclear material and activities exclusively in UK Tlatelolco Territories, in a manner tailored to the different nuclear activities, legislative provisions and institutions in those territories. Either way, the role of ONR in enforcing nuclear safeguards regulations (either an extended NSR19 or other nuclear safeguards regulations) in those territories would need to be clarified. If NSR19 is extended via an Order in Council, then that Order may modify NSR19 on extension to assign ONR's responsibilities in NSR19 to other suitable institutions in UK Tlatelolco Territories.[146] Otherwise ONR would need to be equipped with suitable enforcement powers in those territories. The extension of NSR19 itself could automatically extend the safeguards-specific inspection powers granted to ONR in those regulations. However, it is not clear whether the broader foundation of ONR's inspection powers in TEA13 can be similarly extended.[147] Amendments to TEA13, which is primary legislation, may be required to either extend ONR's established foundation of inspection and enforcement powers to the UK Tlatelolco Territories (in respect to nuclear safeguards regulations) or caveat ONR's purposes regarding the enforcement of those regulations in UK Tlatelolco Territories.

3. *The enactment of laws and regulations providing access to relevant locations for IAEA inspections, including those relevant to an Additional Protocol if one has been concluded*

The IAEA is granted the right under UK law to conduct inspections in the United Kingdom through the Nuclear Safeguards and Electricity (Finance) Act 1978 (for the United Kingdom safeguards agreement)[148] and the Nuclear Safeguards Act 2000 (for its AP).[149] Neither are nuclear safeguards regulations for the purpose of ONR's nuclear safeguards purposes. As such, ONR does not have to enforce them to fulfil its safeguards purposes under TEA13. Nevertheless, TEA13 requires ONR to make "adequate arrangements" for the enforcement of the Nuclear Safeguards Act 2000, including those provisions relating to IAEA access, and ONR relies on both Acts to underpin its engagement and collaboration with facilities and entities being inspected by the IAEA.

145. A safeguards agreement with the IAEA in relation to the UK Tlatelolco Territories will contain powers for the United Kingdom to request the exemption of limited quantities of nuclear material from safeguards. It will also allow safeguards to terminate on nuclear material once the IAEA has determined that it has been consumed or diluted to such an extent that it is no longer usable for any nuclear activity relevant to safeguards. See INFCIRC/153 *supra* note 47, paras. 11, 36 and 37. These exemptions and terminations are not reflected in NSR19 but could be introduced on the extension of NSR19 to a defined set of dutyholders within the UK Tlatelolco Territories. This would allow such dutyholders and the United Kingdom to request exemptions from the IAEA that, once granted, would suspend the requirement to report on exempted material and allow IAEA inspection of that material while it remains segregated from other nuclear material that has not been so exempted. The United States introduced clauses reflecting these exemption and termination rights into 10 CFR Part 75 on its extension to its territories in the Tlatelolco Treaty zone, but it is unclear if these powers have yet been exercised.
146. For example, those provisions of the Nuclear Safeguards Act 2000 that assign powers to ONR for requesting Additional Protocol information are modified on extension to Jersey to be assigned to the Jersey Policy and Resources Committee. See Nuclear Safeguards (Jersey) Order 2004, Schedule 2, sec. 2.
147. The powers granted to ONR inspectors in TEA13 are given in Schedule 8, which is separate from Part 3 for which the right of extension is given in Section 117. TEA13, *supra* note 38.
148. Nuclear Safeguards and Electricity (Finance) Act 1978, Schedule 2.
149. Nuclear Safeguards Act 2000, Schedule 5.

The Nuclear Safeguards Act 2000 provides that any of its provisions, or the provisions of the Nuclear Safeguards and Electricity (Finance) Act 1978, may be extended to any of the UK Crown Dependencies and Overseas Territories by an Order in Council.[150] This provision has been used to extend, with minor amendments, both Acts to all of the UK Crown Dependencies, giving the IAEA certain rights of access in those territories.[151] While both extended Acts are explicitly intended to implement aspects of the UK safeguards agreement and AP, neither have been extended to the Crown Dependencies; therefore no IAEA inspections will take place in Crown Dependencies. Should the United Kingdom decide to allow for such inspections in the future, the Orders in Council that amended the 1978 and 2000 Acts on extension could be used to re-assign the safeguards responsibilities of United Kingdom institutions in the Crown Dependencies to alternative institutions, such as the IAEA.[152]

The extension provision in the Nuclear Safeguards Act 2000 has not yet been used to extend these Acts to the UK Tlatelolco Territories. Instead, a number of UK Tlatelolco Territories have passed their own legislation relating to the provision of access to the IAEA for safeguards purposes. For example, the Falkland Islands passed the Nuclear Safeguards Ordinance 1993 allowing IAEA inspectors to carry out inspections and providing those inspectors with certain privileges and immunities.[153] Similar legislation has been passed by Anguilla and the Turks and Caicos.[154] The United Kingdom and its Tlatelolco Territories may prefer to rely on domestic legislation to provide the IAEA with inspector access as the primary institutions for providing that access (such as border control and customs) are entirely domesticated among Overseas Territories. In all cases found, such territorial legislation provides the IAEA with access only in relation to the historic safeguards agreement between the United Kingdom, Euratom and the IAEA, which never entered into force and is now invalid. This territorial legislation would need to be updated and rolled out uniformly across all relevant Overseas Territories to provide the IAEA with access under a new safeguards agreement.

4. *The enactment of laws and regulations that allow the collection and declaration of Additional Protocol information, if one has been concluded*

The Nuclear Safeguards Act 2000 and the Nuclear Safeguards (Notification) Regulations 2004 provide a legal framework for implementing the United Kingdom's AP by requiring persons with relevant information to regularly declare that information to the ONR.[155] As discussed in Section V, above, neither the Nuclear Safeguards Act, nor the Nuclear Safeguards Regulations, are nuclear safeguards regulations for the purpose of ONR's nuclear safeguards purposes under TEA13. However, TEA13 does require ONR to make "adequate arrangements" for the enforcement of the Nuclear Safeguards Act 2000.

If the United Kingdom and its Tlatelolco Territories decide to conclude an AP, the requirements of the Nuclear Safeguards Act 2000 may be extended by Order in Council (with relevant amendments) to UK Tlatelolco Territories. This would give ONR (or, more probably, a different territorial institution so empowered on extension) the right to serve notice on any persons holding AP-related information, requiring those holders to submit that information for declaration to the IAEA. If such information is sparse or non-existent in UK Tlatelolco Territories, the extension of this power may be sufficient, providing the empowered institution is able to identify the emergence of such information to serve notice requesting it.

150. *Ibid*., S(12)
151. See Nuclear Safeguards (Jersey) Order 2004; Nuclear Safeguards (Guernsey) Order 2004; Nuclear Safeguards (Isle of Man) Order 2004.
152. NSR19, *supra* note 130, Regulations 3, 4, 12-24.
153. Nuclear Safeguards Ordinance 1993, secs. 3 and 4.
154. Nuclear Safeguards Act, Revised Statutes of Anguilla, Chapter N20; Nuclear Safeguards Ordinance, Laws of Turks & Caicos Islands, Chapter 86. The status of these Acts is unknown and they may not have yet entered into force.
155. Nuclear Safeguards (Notification) Regulations 2004, Regulation 4.

Otherwise, the requirements in the 2004 Regulations (which expand the 2000 Act by placing an annual reporting requirement on any holders of AP information) present a more comprehensive approach to fulfilling the reporting requirements of an AP. However, there is no explicit provision in the 2000 Act for the extension of regulations made under that Act (including the 2004 Regulations) by Order in Council. The burden of making the amendments to the 2000 Act necessary to provide for such an extension may outweigh any benefits of extending this more comprehensive approach.[156]

5. *The perceived benefit of a safeguards agreement for UK Tlatelolco Territories*

With no international representation of their own, the UK Tlatelolco Territories have not openly expressed their opinions regarding Additional Protocol I of the Tlatelolco Treaty or the related conclusion of safeguards agreements. It is possible that the United Kingdom consulted with UK Tlatelolco Territories prior to its ratification and extension of Additional Protocol I to understand their willingness and ability to be bound by that Protocol, but there is no public evidence of that consultation. The passage of legislation in some Tlatelolco Territories during the late 1990s providing for IAEA inspection access (as discussed in Section V) suggests consultations were held at the time and that at least some territories were willing to put domestic legislation in place to implement a safeguards agreement. However, it is not clear how universal that willingness was then and is today.

Making legislative changes consumes both human resources and time. Any territorial institutions involved in fulfilling a safeguards agreement, be it directly through the implementation and enforcement of territorial legislation or indirectly by supporting ONR, will need to be resourced, trained and equipped to do so. A small state with a safeguards agreement modified by an SQP and an AP may need to support, train and equip at least one full-time equivalent person (and a number of other supporting staff) to fully and independently implement those agreements.[157] When faced with such demands, such states often ask: "What's in it for us?"[158] Depending on how the division of labour between the United Kingdom and its Tlatelolco Territories is made in the legal provisions described in Section V, the UK Tlatelolco Territories may find themselves asking the same question.

One answer to that question is that concluding a safeguards agreement with the IAEA would open the UK Tlatelolco Territories to the international trade in nuclear material, equipment and technology. While there is little indication that UK Tlatelolco Territories are seeking to expand their peaceful uses of nuclear energy, this may change in the future.[159] All UK Tlatelolco Territories currently rely on fossil fuels for electricity generation. While most are exploring whether renewable energy might meet their needs, any successful deployment of SMRs or floating nuclear power plants in the region may increase their collective interest in nuclear energy.

In this case, the absence of a safeguards agreement would significantly hamper their ambitions. The Nuclear Suppliers Group (NSG) have made political commitments to transfer certain nuclear items "only when they are satisfied that the transfers would not contribute to the proliferation of nuclear weapons or other nuclear explosive devices".[160] The conclusion of a safeguards agreement with the IAEA in the UK Tlatelolco Territories would go a long way towards providing such satisfaction to nuclear suppliers. For example,

156. The extension of the Nuclear Safeguards Act 2000 but not the 2004 Regulations to the United Kingdom's Crown Dependencies suggests the former may be considered sufficient in those territories and may be sufficient for the UK Tlatelolco Territories.
157. See State 4 in Table 1 of IAEA (2018), *Safeguards Implementation Practices Guide on Establishing and Maintaining State Safeguards Infrastructure*, IAEA Services Series 31, IAEA, Vienna.
158. Mayhew, N.C. et al. (2023), *Understanding States' Experiences in Safeguards: Challenges to and Opportunities for Entry into Force and Implementation*, Vienna Center for Disarmament and Non-Proliferation, Vienna, Austria, p. 3.
159. See the example given in *supra* note 121.
160. IAEA (2019), "Communication Received from Certain Member States Regarding Guidelines for the Export of Nuclear Material, Equipment or Technology", IAEA Doc. INFCIRC/254/Rev.14/Part 1, para. 10.

Australia (who is a member of the NSG) requires that any transfers of nuclear material, equipment or technology transferred to the United Kingdom be subject to "a system of safeguards applied by the Agency in accordance with the United Kingdom-Agency Safeguards Agreement".[161] If UK Tlatelolco Territories sought to acquire nuclear material, equipment or technology from NSG members such as Australia, it may need such a system of safeguards in place.

UK Tlatelolco Territories may also benefit indirectly from the legal and administrative structures that must be established to create an SSAC and implement a safeguards agreement. The oversight of nuclear materials and activities provided by this structure may be useful for more than just safeguards purposes. It could provide UK Tlatelolco Territories with a fresh perspective on how they are (or are not) taking advantage of the peaceful uses of nuclear energy. By interacting with the IAEA (even via the United Kingdom), UK Tlatelolco Territories may become more aware of the broader peaceful applications of nuclear energy and the IAEA's role in promoting its safe and secure usage. For example, the IAEA's Technical Cooperation Programme facilitates the transfer of technology and know-how for the peaceful uses of nuclear energy, such as the use of radioactive sources for cancer radiotherapy. There is no publicly available evidence of radiotherapy services being provided locally by hospitals within UK Tlatelolco Territories, and patients seeking such services must often have to travel abroad. For one NNWS under the NPT, the pursuit of IAEA assistance in radiotherapy provided the impetus for it to establish a legal and regulatory framework for the peaceful uses of nuclear energy and to bring its safeguards agreement into force.[162] Reflecting this, establishing a legal and regulatory framework for safeguards in UK Tlatelolco Territories may provide them with further motivation to explore the peaceful uses of nuclear energy such as radiotherapy.[163]

An SSAC could also help UK Tlatelolco Territories protect any nuclear materials and activities from security risks, police the import and export of such material, and protect their citizens from any radiological risks such material might present. The IAEA "3S" concept highlights the interrelationships between nuclear safeguards, nuclear safety and nuclear security, suggesting that measures taken to address nuclear safeguards can contribute to addressing other nuclear challenges too.[164] In this sense, a legal and regulatory framework for safeguards could support a broader effort to align UK Tlatelolco Territories with the standards, requirements and best practices of international nuclear law. As discussed in Section I, international nuclear law has been applied only in a sparse patchwork of UK Crown Dependencies and Overseas Territories. It would be disproportionate to apply the full array of international nuclear instruments to all these territories, but there may be merit in applying those instruments that focus on criminalising or controlling certain acts (such as threatening or supporting nuclear terrorism under the International Convention on the Suppression of Acts of Nuclear Terrorism) more broadly.[165]

Bringing a safeguards agreement into force in relation to the UK Tlatelolco Territories could also reinforce the Tlatelolco Treaty and the international nuclear non-proliferation system more broadly. The global nuclear non-proliferation regime could encounter two challenges emerging from the Tlatelolco Treaty zone. The IAEA estimates that states in Latin America and the Caribbean may quadruple the production of electricity through nuclear

161. Agreement between the Government of the United Kingdom of Great Britain and Northern Ireland and the Government of Australia on Cooperation in the Peaceful Uses of Nuclear Energy (2023), UK Command Paper, CP 924, London, Article VI.
162. Mayhew, N.C. et al. (2023), *supra* note 158, p. 15.
163. As UK Tlatelolco Territories have no external relationships of their own, the UK would need to engage with the IAEA regarding any Technical Cooperation assistance on behalf of these territories.
164. Drobysz, S. (2022), "Nuclear security: Physical protection, illicit trafficking and nuclear terrorism", in NEA (ed.), *Principles and Practice of International Nuclear Law*, OECD Publishing, Paris, p. 340.
165. As discussed in Section II, some implementing legislation relevant to ICSANT is already in place in Crown Dependencies.

generation by 2050.[166] This implies a greater demand on the IAEA's safeguarding activities, without necessarily an accompanying increase in the IAEA's powers (as expressed through the conclusion of APs and the updating of SQPs) or financial resources. Furthermore, as discussed in Section IV, the IAEA's safeguards conclusions for some contracting parties to the Tlatelolco Treaty (and the Netherlands under Additional Protocol I) may soon come under greater scrutiny. In this environment, UK Tlatelolco Territories can help the United Kingdom to reinforce the Tlatelolco Treaty and the role it plays in strengthening nuclear non-proliferation in the region by concluding a safeguards agreement.

D. What might the consequences be if the UK Tlatelolco Territories and the United Kingdom fail to implement a safeguards agreement?

If the UK Tlatelolco Territories refuse to co-operate in the implementation of a safeguards agreement, the United Kingdom would be faced with two choices: either force a safeguards agreement onto these territories or continue to leave those territories uncovered by IAEA safeguards.

The United Kingdom has the sovereign right to extend any international agreement it wishes to the UK Tlatelolco Territories, but doing so may have political costs, both at home and abroad. As discussed in Section II, any safeguards agreement for UK Tlatelolco Territories must be presented to the UK Parliament with an explanation as to how those territories were consulted. If a safeguards agreement were presented for ratification before UK Tlatelolco Territories were willing and able to implement it, the UK Parliament might then publicly object. If the UK Government ignored those objections, the IAEA may struggle to draw any reassuring conclusions regarding the peaceful uses of nuclear material and energy in territories unwilling and unable to implement safeguards. While it is highly unlikely that this would raise any questions of possible nuclear proliferation in UK Tlatelolco Territories, it may still be embarrassing for the United Kingdom, which would remain ultimately responsible for the implementation of the safeguards agreement and Additional Protocol I of the Tlatelolco Treaty.

Contracting parties to the Tlatelolco Treaty have not yet made any obvious complaints about the absence of a safeguards agreement between the United Kingdom and the IAEA in respect of Additional Protocol I of the treaty.[167] The United Kingdom may be more comfortable with the status quo than concluding a safeguards agreement that it is responsible for but cannot fully implement by itself. However, this status quo might not last forever.

VI. Conclusions

Through the case study of Additional Protocol I to the Tlatelolco Treaty, this article has explored the dynamics underlying the patchwork of international nuclear legal obligations that have or have not been extended to the United Kingdom's Crown Dependencies and Overseas Territories. The United Kingdom ratified Additional Protocol I to the Tlatelolco Treaty in 1969 and extended it at the time to its Overseas Territories within the Zone of Application. However, it has not yet fulfilled the core obligation of that Protocol: bringing into force a safeguards agreement with the IAEA in respect of those territories.

The United Kingdom is a strong supporter of the international framework of nuclear law and of the Tlatelolco Treaty in particular. It has previously attempted to conclude a safeguards agreement for UK Tlatelolco Territories but could not bring it into force before it was made invalid by the United Kingdom's exit from the Euratom Treaty. The United Kingdom is in the process of negotiating a new safeguards agreement with the IAEA.

166. IAEA (2024), *Energy, Electricity and Nuclear Power Estimates for the Period up to 2050*, IAEA-RDS-1/44, IAEA, Vienna, p. 42.
167. As discussed in Section III, their complaints have instead focused on the United Kingdom's interpretive declarations regarding Additional Protocol II of the Treaty.

Bringing a new safeguards agreement into force requires, among other things, the establishment of suitable legislative provisions to implement safeguards in UK Tlatelolco Territories. Establishing such a framework is a complex and time-consuming endeavour, and this is particularly the case for the United Kingdom with regards to its Overseas Territories. With legislative authorities in both the United Kingdom and each Overseas Territory, policymakers are faced with many different choices in how to legislate for safeguards overseas. Some aspects of the United Kingdom's legal framework for safeguards may be usefully applied in Overseas Territories (such as nuclear material accountancy provisions in NSR19) but allowing this would necessitate the adoption of further provisions. The extension of some other aspects of that framework is already provided for (such as those providing IAEA access) but may be more effectively implemented through territorial legislation. The role of ONR in enforcing these provisions and ensuring compliance with a new safeguards agreement must also be considered.

In the face of these knotty problems, the absence of any significant nuclear activities in UK Tlatelolco Territories and the lack of obvious complaints from contracting parties to the Tlatelolco Treaty, it is perhaps understandable how the conclusion of a safeguards agreement for UK Tlatelolco Territories has sat on the backburner. However, if the United Kingdom can tackle these questions and bring such an agreement (perhaps with an Additional Protocol) into force, it would provide a welcome boost to the Tlatelolco Treaty and the global non-proliferation regime more broadly. It may also help UK Tlatelolco Territories strengthen their policies and approaches to the peaceful uses of nuclear technology.

Sustainable nuclear energy in Italy

*By Federica Porcellana**

I. Nuclear power at the European and international levels

The recent European inflation and energy crises, exacerbated by the ongoing conflict in Ukraine, had a particularly strong effect on Italy, where approximately 59% of the electricity generated comes from natural gas and other fossil fuels, while only 41% comes from renewable sources (mainly hydropower) and energy imports from abroad (nuclear power from France, Slovakia and Switzerland).[1] Also contributing to Italy's energy issues is the absence of nuclear power, with Italy's four nuclear power plants shut down in 1988 following referendums held in 1987.[2]

As global attention to energy issues has grown, political leaders have recognised the environmental aspect of energy generation, leading to efforts to integrate energy policies with environmental policies.[3] This requires solutions that incorporate effective environmental protection into strategic objectives and actions taken to address growing energy needs.[4]

Solutions to energy issues cannot be considered independent of their environmental impacts.[5] Prior to the early 1990s, environmental policies had predominantly been territorial in nature and focused on the restoration of existing damage. Since then, a new perspective has emerged, focused on the prevention of ecological disasters and the reduction of environmental harm. During the United Nations Conference on Environment and Development, held in Rio de Janeiro in 1992, guiding principles for sustainable development took shape, presenting a new approach that sought to balance economic

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1. Terna (2025), "*Rapporto Mensile sul Sistema Elettrico, Marzo 2025* [Monthly Report on the Electricity System, March 2025]", https://download.terna.it/terna/Rapporto_mensile_marzo_25_8dd7dac18d550e4.pdf .
2. The referendums, held on 8-9 November 1987, abolished rewards for municipalities in which nuclear power plants were to be built and repealed statutes authorising the government to determine the locations for nuclear power plants and enter into international agreements to build and operate nuclear power plants internationally. Subsequently, Italy stopped its nuclear activity in 1988. The decision resulted in the shutdown of four operating nuclear power plants and cancelled the nuclear programme, which had planned to increase the amount of nuclear generation to the electricity system through the construction of two new nuclear power plants. See Hine, D. (1988), "The Italian referendums of 89 November 1987", *Electoral Studies*, Vol. 7(2), Elsevier, Amsterdam, pp. 163-167.
3. Strengthening environmental integration within Community energy policy, COM(1998)571 final, Communication from the Commission to the Council and the European Parliament, European Commission, 14 Oct. 1998.
4. EU external energy engagement in a changing world, JOIN(2022) 23 final, Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, 18 May 2022. Note that the energy package (Clean energy for all Europeans package (2019)) arose from an EC Green Paper. A European Strategy for Sustainable, Competitive and Secure Energy, Green Paper, COM(2006) 105 final, 8 Mar. 2006.
5. See Joint Communication, *supra* note 4.

development with environmental protection while recognising and mitigating social costs, recognising that the right to development must be "fulfilled in such a way as to equitably meet the developmental and environmental needs of present and future generations".[6] Human activities impact the environment and immediate and sustained collective action is required to implement effective mitigation measures.[7]

Activities harmful to the environment often have impacts that transcend national borders and cannot be managed or resolved by states with unilateral initiatives. In fact, according to international law, actions carried out by a state that tend to have repercussions on other states, or even in areas not subject to any sovereignty, without respect for the rights of other states, for the purpose of protecting the global environment, are not permitted.[8] This principle finds expression in the Latin maxim *sic utere tuo ut alienum non laedas* – use your own property in such a manner as not to injure that of another. Put simply, each state has an obligation not to act in a way that could cause harm to other states. In the foundational Trail Smelter Case, the arbitrator found that "no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequences and the injury is established by clear and convincing evidence."[9] States' liability for transnational environmental damage has also been acknowledged in international instruments. Principle 21 of the 1972 Stockholm Declaration affirms the right of every state to exploit its own resources but recognises the responsibility of states to ensure that activities carried out under their jurisdiction or control do not cause damage to the environment of another state or area beyond the limits of national jurisdiction.[10] Principle 2 of the 1992 Rio Declaration, itself a reworking of Principle 21, reaffirms the sovereignty of states over their natural resources in accordance with their own environmental and development policies.[11]

In the European Union (EU), environmental issues are at the centre of the debate on nuclear, with priorities such as sustainable development, the fight against climate change, protection of public health, the use of renewable energy sources, and safe and efficient waste management. During the launch of the EU's Sustainable Nuclear Energy Technology Platform in 2007, then European Commissioner for Science and Research Janez Potocnik said that nuclear energy could be considered "a very important part of the solution to security of supply and reduction of greenhouse gases", adding that, "it is clear that there is a need to achieve two important results – ensuring that nuclear energy is economically

6. United Nations (UN) (1992), "Rio Declaration on Environment and Development", *in Report of the United Nations Conference on Environment and Development: Rio Declaration on Environment and Development*, A/CONF.151/26 Vol. I, (Rio Declaration), Principle 3, Annex 1, p. 1.
7. See Ardoin, N.M. and A.W. Bowers (2025), "Collective action impacts on climate change mitigation", *Behavioural Sciences*, Vol. 63, Elsevier LTD, Berkley, California, pp. 2, 5.
8. See e.g. Pulp Mills case (Argentina v. Uruguay) Summary of the Judgment of 20 April 2010, *ICJ Reports 2010,* pp. 12-13 (confirming the obligation to notify and co-operate in the case of activities potentially harmful to the transboundary environment); Rio Declaration, *supra* note 6; UN (1972), "Declaration of United Nations Conference on the Human Environment", in *Report of the United Nations Conference on the Human Environment*, A/CONF.48/14/Rev.1., Principle 21, p. 5 (Stockholm Declaration).
9. Trail Smelter case (United States, Canada), 3 United Nations Reports of International Arbitral Awards 1905, p. 1938.
10. UN (1973), *Report of the United Nations Conference on the Human Environment*, Stockholm, 5-16 June 1972. A/CONF.48.14/Rev.1, UN, New York, p. 5.
11. This principle was also cited in the preamble to 1979's Convention on Long-Range Transboundary Air Pollution. For a more extensive discussion of the historical evolution of the principle, see Louka, E. (2006), *International Environmental Law*, Cambridge University Press, Cambridge, p. 30; and Birnie, P., A.E. Boyle, and C. Redgwell (2009), *International Law and the Environment*, Oxford University Press, Oxford, p. 137.

competitive and, more importantly, our duty to make it as neutral as possible both in environmental terms and in terms of the legacy we leave future generations."[12]

This dual aim of environmental protection and economically competitive energy generation can also be found in the EU Taxonomy Regulation,[13] which created a common classification system intended to clarify which economic activities are considered environmentally sustainable in the context of the European Green Deal.[14] "The EU Taxonomy was developed to prevent greenwashing[15] and to help investors identify economic activities in line with our environmental and climate objectives. Shifting towards renewable energy is essential for achieving climate neutrality. But it is also necessary to have stable sources to accelerate the transition towards net-zero greenhouse gas emissions."[16]

Under Article 10(2) of the EU Taxonomy, certain nuclear activities that meet a set of strict criteria are designated as "transition" activities that contribute to climate change mitigation.[17] In the Complementary Climate Delegated Act, which entered into force on 1 January 2023,[18] the EC recognised that, subject to strict screening criteria, research, development, demonstration and deployment of advanced Generation IV nuclear reactors are transition activities.[19] The EC also recognised the construction and operation of new nuclear power plants using best available technologies (Generation III+) as transition activities, provided that their construction permit is issued before 2045.[20] Finally, modifications of existing nuclear power plants for the purpose of extension of operation are also recognised as transition activities, provided the activities are authorised by a member state by 2040.[21]

12. See Community Research and Development Information Services (CORDIS) (2007), *CORDIS Focus Newsletter*, No. 283, EU Publications Office, Luxembourg, p. 8.
13. Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088, *Official Journal of the European Union* (OJ) L 198 (22 Jun. 2020) (EU Taxonomy).
14. The European Green Deal consists of a set of policy initiatives set out to transform Europe's economy, energy sector, transport sector, and industrial sector for a more sustainable, climate neutral future. See European Commission (EC) (n.d.), "The European Green Deal", European Commission: Strategy and Policy, https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.
15. Greenwashing is the practice of a company using misleading claims to make people believe it is doing more to protect the environment than it really is. Cambridge Dictionary (n.d.), "Greenwashing", https://dictionary.cambridge.org/dictionary/english/greenwashing (accessed 22 Dec. 2025).
16. EC, Press Release, "Questions and Answers on the EU Taxonomy Complementary Climate Delegated Act covering certain nuclear and gas activities", QANDA/22/712 (2 Feb. 2022), p. 1. "The Taxonomy Regulation lays out three types of activities: low-carbon (Article 10(1)), transitional (Article 10(2)) and enabling (Article 16)." *Ibid*.
17. EU Taxonomy, *supra* note 13, Article 10(2).
18. 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 disclosures for those economic activities, OJ L 188 (15 July 2022), pp. 1-45 (Complementary Climate Delegated Act).
19. These criteria are primarily related to safety, environmental protection and waste management. The technical screening criteria for nuclear energy go beyond requiring mere compliance with legislation regarding radioactive waste management and disposal. Notably, disposal facilities for low-level waste must be operational already, and member states should have in place a detailed plan to have in operation by 2050 a disposal facility for high-level radioactive waste. In addition, the technical screening criteria for nuclear energy prohibit the export of radioactive waste for disposal in third countries. *Ibid*.
20. *Ibid*.
21. *Ibid*.

The EC's recognition of these activities as transition activities was supported by the finding by the Technical Expert Group on Sustainable Finance that nuclear power is a low-carbon means of energy generation.[22] This finding aligned with those of international organisations like the Intergovernmental Panel on Climate Change, the Organisation for Economic Co-operation and Development, and the UN Economic Commission for Europe, which consider nuclear energy's CO_2 emissions comparable to, or even lower than, those of renewable energy.[23] Further, a technical assessment led by the EC's Joint Research Centre (JRC), with input from radiological protection and waste management experts, concluded that EU nuclear safety and nuclear waste management standards provide a high level of environmental and human protection.

Additionally, in 2022, the European Commission formally adopted the REPowerEU Plan, with the goal of a rapid reduction in EU dependence on Russian fossil fuels.[24] The plan recognises that nuclear power will have a role to play in ensuring the security of the EU energy supply.[25] Under the roadmap, the EU plans to:[26]

- stop all imports of Russian gas by the end of 2027;
- take action to address Russia's "shadow fleet" (vessels employed by Russia to evade sanctions) transporting oil; and
- restrict the import of uranium, enriched uranium and other nuclear materials deriving from Russia.

EU efforts continue to accelerate the energy transition to diversified energy supplies to minimise risks to the security of supply and market stability. EU countries have been preparing national plans, to be issued by the end of 2025, setting out how they can contribute to phasing out imports of Russian gas, nuclear energy and oil and, on 6 May 2025, the European Commission presented a new REPower EU roadmap that paves the way to ensure the EU's full energy independence from Russia while ensuring stable energy supplies and prices across the European Union.[27] By phasing out Russian energy, the REPowerEU Roadmap will reduce the security risks the Union is facing while contributing to the economic plan set out by the Competitiveness Compass,[28] the Clean Industrial Deal[29] and the Affordable Energy Action Plan, which all underline how a cleaner and independent energy system would help boost the economy while also making a significant contribution to Europe's decarbonisation ambitions.[30]

22. *Ibid*.
23. See Taxonomy: Final report of the Technical Expert Group on Sustainable Finance March 2020, https://finance.ec.europa.eu/system/files/2020-03/200309-sustainable-finance-teg-final-report-taxonomy_en.pdf.
24. According to the EC, the REPowerEU Plan seeks to help "the EU to: save energy, diversify energy supplies, [and] produce clean energy. Thanks to REPowerEU, we've safeguarded EU citizens and businesses from energy shortages, supported Ukraine by weakening Russia's war chest, accelerated the transition to clean energy and stabilised prices." EC (2025), "REPowerEU at a glance", EC: Energy, https://commission.europa.eu/topics/energy/repowereu_en (accessed 2 January 2026).
25. EC (2025), "RePower EU", European Commission: Energy, https://commission.europa.eu/topics/energy/repowereu_en.
26. *Ibid*.
27. EC (2025), "Roadmap to fully end EU dependency on Russian energy", European Commission: News, https://commission.europa.eu/news-and-media/news/roadmap-fully-end-eu-dependency-russian-energy-2025-05-06_en.
28. *Ibid*.
29. *Ibid*.
30. *Ibid*.

II. Italy's National Platform for a Sustainable Nuclear Power (PNNS)

In September 2023, the Minister of Environment and Energy Security, Gilberto Pichetto Fratin, launched the PNNS, established by the Ministerial Decree of 16 November 2023.[31] The PNNS is co-ordinated by Ministry of Environment and Energy Security (MASE) with the support of the National Agency for New Technologies (ENEA) and Ricerca sul Sistema Energetico (RSE) and is organised into thematic working groups.[32] These seven working groups are:[33]

- WG 1: Context, scenarios and perspectives;
- WG 2: Fission technologies;
- WG 3: Fusion technologies;
- WG 4: Safety and prevention, regulatory framework, certification;
- WG 5: Waste and decommissioning;
- WG 6: Training and education; and
- WG 7: Transversal aspects (environment, social acceptability, communication, other).

The first meeting of the PNNS, held in September 2023 at MASE headquarters, was chaired by the Minister and was attended by the main public research bodies, representatives from academia, scientific associations, public bodies operating in the field of nuclear safety and decommissioning, as well as companies engaged in the nuclear sector, in the production of components and implants, as well as in medical applications.[34] The goal was to prepare a comprehensive document within nine months that would provide the Ministry with a roadmap for the potential resumption of nuclear energy generation in Italy and provide opportunities for growth in the national industrial chain already operating in the nuclear sector.[35] In this regard, Minister Pichetto Fratin declared "it is not a question of proposing the use of large-scale third generation nuclear power plants in Italy but of evaluating innovative new technologies for nuclear power such as small modular reactors (SMR) and fourth-generation nuclear reactors (AMR)".[36]

31. Decree of 16 November 2023, *Definizione dei programmi, progetti e attività da attuare nell'ambito dell'iniziativa « Mission Innovation »* [Definition of the programmes, projects and initiatives to be implemented as part of the "Mission Innovaiton" initiative], *Gazetta Ufficiale della Repubblica Italiana* (25 Jan. 2024), p. 20.
32. Ministry of Environment and Energy Security (MASE), Press Release, "*Al MASE la prima riunione della Piattaforma Nazionale per un Nucleare Sostenibile* [The first meeting of the National Platform for Sustainable Power at MASE]" (21 Sept. 2023).
33. MASE (2025), "*Piattaforma Nazionale per un Nucleare Sostenibile – Pubblicazione rapporti conclusivi* [National Platform for Sustainable Nuclear Power – Publication of final reports]", MASE, available at: www.mase.gov.it/portale/-/piattaforma-nazionale-per-un-nucleare-sostenibile-pubblicazione-rapporti-conclusivi?p_l_back_url=%2Fportale%2Fricerca%3Fr%3Dpnns.
34. MASE, Press Release (21 Sept. 2023), *supra* note 32.
35. *Ibid.*
36. *Ibid.* In the original Italian: "*Non si tratta evidentemente di proporre il ricorso in Italia alle centrali nucleari di grande taglia della terza generazione, ma di valutare le nuove tecnologie sicure del nucleare innovativo quali gli Small Modular Reactor (SMR) e i reattori nucleari di quarta generazione (AMR).*"

In April 2025, the final report of the PNNS[37] was published and it represents, for the specific topics covered, an important compilation of technical-scientific information that can be used by MASE, without prejudice to its own independent evaluation, for future developments toward the use of nuclear energy in Italy.[38]

III. The 2025 Italian draft law on sustainable nuclear power

Italy's climate targets and the European discussions around the inclusion of nuclear energy in the EU Taxonomy Regulation triggered renewed debate about the possible re-entry of Italy into European nuclear activities. After preliminary approval by the Council of Ministers on 28 February 2025, and a favorable opinion from the Joint Conference in July 2025, the Council of Ministers gave final approval on 2 October 2025 to the text of a draft law on Delegation to the Government on sustainable nuclear energy.[39] The version submitted to the Council of Ministers contained few changes, essentially incorporating the recommendations of the Regions and the National Association of Municipalities (ANCI). Speaking on the bill's preliminary approval, Minister Pichetto Fratin stated: "With the latest generation nuclear power, together with renewables, we will be able to achieve the objectives of decarbonization, guaranteeing the full energy security of the country."[40] The bill empowers the Government to comprehensively regulate the introduction of sustainable nuclear power, within the framework of European decarbonisation policies by 2050 and energy security objectives. The mandate includes, among other things, the development of a National Program for Sustainable Nuclear Power, the establishment of an independent Nuclear Safety Authority, the strengthening of scientific and industrial research, the development of new skills and the implementation of information and awareness campaigns.

The objective of the measure is to reach, with the contribution of this innovative, green, programmable and continuous energy source, the targets of decarbonisation and energy security, as outlined by the National Integrated Energy and Climate Plan.[41] Any new nuclear programme will have to ensure sufficient energy at affordable prices, constrain energy costs and strengthen the competitiveness of the system. The draft law delegates the Government to define a clear and organic regulatory framework to produce energy from sustainable nuclear sources that is suitable, in compliance with stringent safety requirements, to attract private and public investments, as well as to promote the competitiveness and efficiency of the country.[42]

The implementing legislative decrees must be adopted within 12 months of the law's entry into force.[43] These decrees are intended to organically regulate the entire life cycle of the new, sustainable nuclear power plants, from the testing, siting, construction and operation of the new modules through to the manufacturing and reprocessing of fuel. The decommissioning and dismantling of existing plants, waste and spent fuel management,

37. MASE (2024), "*Piano nazionale integrato per l'energia e il clima* [National Integrated Plan for Energy and Climate]", available at: www.mase.gov.it/portale/documents/d/guest/pniec_2024_revfin_01072024-pdf.
38. The PNNS operated as a study and co-ordination group of the main Italian stakeholders in the nuclear sector (research institutes, universities, companies, trade associations) divided into seven working groups co-ordinated by the President of ENEA and the CEO of RSE. The final reports can be accessed on the website for MASE: www.mase.gov.it/portale/-/piattaforma-nazionale-per-un-nucleare-sostenibile-pubblicazione-rapporti-conclusivi?p_l_back_url=%2Fportale%2Fricerca%3Fr%3Dpnns.
39. Draft law on Delegation to the Government on sustainable nuclear energy, No. 2669, approved by the Counsil of Ministers and assigned to Chamber of Deputies on 2 Oct. 2025, available at: www.qualenergia.it/wp-content/uploads/2025/10/DDL_NUCLEARE_SOSTENIBILE_26_9_25.pdf.
40. Power Technology (2025), "Italy adopts plan to re-introduce nuclear power", Power Technology: News, www.power-technology.com/news/italy-re-introduce-nuclear-power.
41. See MASE (2024), *supra* note 37.
42. *Ibid.*
43. Draft law on Delegation to the Government on sustainable nuclear energy, *supra* note 39.

research, development and use of fusion energy, reorganisation of skills and functions, including the establishment of an independent authority for safety, supervision and control, will also be addressed. The bill will also serve to provide training and information tools, train new technicians and professionals in the sector, and identify benefits for the territories involved.

The draft law includes the following four articles:[44]

Article 1: provides that the government must exercise the delegation within 12 months of the entry into force of the law, adopting one or more legislative decrees to regulate the production of nuclear energy in Italy, including fusion and the production of hydrogen from nuclear power. The legislative decrees are adopted upon proposal of the Minister of the Environment, with the agreement of other ministers to be defined, with the agreement of the Unified Conference and with the opinion of the Council of State. The drafts of the legislative decrees are transmitted to Parliament for the expression of opinions. On the basis of these opinions, the government will modify and re-transmit the texts of the decrees for the final opinion. Within 12 months of the entry into force of each decree, the government can adopt one or more pieces of supplementary or corrective legislation.

Article 2: contains the subject of the delegation. The legislative decrees that the government will have to adopt will provide for: the approval of the national programme for sustainable nuclear energy; the regulations for the construction and location, testing, dismantling of nuclear power plants and facilities for processing nuclear fuel and storing spent fuel; research and development in nuclear fission and fusion, including through incentives; the regulations on safety, supervision and control, with the creation of an independent authority for nuclear energy; the methods of training professional figures; the provision of information and training tools on nuclear energy; the adaptation of national legislation with European and international provisions and co-ordination with other regulations in the electricity market; the regulations of a system of guarantees for the management and decommissioning of plants; and measures to promote the territories involved.

Article 3: details the contents of the delegation. The national programme must be co-ordinated with the environmental objectives of the country, the criteria for siting must respect the landscape, and the integrated enabling procedures will replace any other act of consent "with the exception of the environmental assessment provisions referred to in Title II of Part Three of Legislative Decree 152/2006".

Article 4: the implementation of the measures envisaged by the delegation will be carried out using the resources allocated to the ministry in the amount of EUR 20 million for each of the years 2027, 2028 and 2029.

IV. Conclusion

The vision for 2050 should focus on achieving carbon neutrality and replacing Italy's natural gas use with nuclear energy production, which would benefit Italy in terms of energy independence, land use and landscape preservation. This is especially true considering the smaller footprint of SMRs compared to the space required for solar or wind power installations. Awareness of the environmental benefits of nuclear energy is widely accepted on the international stage and is growing in Italy.

After years of excluding nuclear energy from national political discussions, Italy became an observer in the Alliance for Nuclear Energy in Europe. Similarly, in 2023, Italy took part in COP28, the 2023 United Nations Climate Change Conference, to closely follow institutional discussions on the evolution of nuclear technology, which has been classified

44. *Ibid*.

as green by the EU Taxonomy Regulation. These actions highlight the growing role that nuclear energy is set to play as a crucial resource in the transition away from fossil fuels.

Sustainable nuclear energy technologies available today represent one of the safest and cleanest energy sources and are far removed from the 60-year-old nuclear technology that was renounced in the 1987 referendum. Given the dramatic changes in technology, and considering constitutional jurisprudence, the previous referendums should not constitute a regulatory obstacle to the intervention by the legislature. A limit deriving from the previous referendum repeals could be relevant only if, over time, there had been "no change, subsequent to the repeal, in the political framework, nor in the factual circumstances".[45]

The draft law, pursuing objectives of environmental, social and economic sustainability in energy production, is based on fundamental guiding principles. The first is to ensure a clear break with the nuclear plants of the past, which, in the proposal, are expressly destined for decommissioning, without prejudice to the possible conversion of the related sites.[46] The use of the best available technologies, including modular and advanced technologies, represents a complete break with previous nuclear experiences, with the former nuclear plants in Italy (all of the so-called "first" or "second generation") belonging to an outdated technological past. Current and under-development technologies offer very high levels of intrinsic safety and, for example, in the case of SMRs, offer reduced construction times and greater flexibility in energy production. Moreover, every nuclear project must now adhere to the highest safety standards set by international agencies and the safety authorities of individual countries. The delegation law also, in execution of specific obligations deriving from directives from the European Union,[47] advocates for the establishment of an independent authority, competent for nuclear safety, with the task of regulating, supervising and controlling nuclear infrastructures.

The second fundamental principle is the preparation of a holistic regulatory plan covering the entire life cycle of nuclear energy, beginning as early as the experimentation and design phase and continuing through the authorisation of the plant, its operation, the management, storage and disposal of radioactive waste, and, ultimately, the decommissioning of the plant. Each phase will be regulated in compliance with the standards of quality and safety guaranteed and validated by international and supranational bodies, to minimise the social and environmental impact of the entire life cycle of nuclear energy.

The third fundamental principle is to ensure that co-ordination and dialogue be carried out with the electricity network operators to ensure stability and balancing of the energy system. The opportunity to develop a new nuclear policy cannot be adequately appreciated if its impact on the overall structure of the national electricity system, including the impact on the electricity market, is not also considered.

Through adherence to these principles, it will be possible to produce safe and sustainable energy from nuclear sources, support private economic initiatives, effectively mitigate social and environmental impacts, and seamlessly incorporate the expanded nuclear capacity into the national electricity system.

45. Italian Constitutional Court, sentence 199/2012.
46. Draft law on Delegation to the Government on sustainable nuclear energy, *supra* note 39.
47. See Council Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of nuclear installations, OJ L 172 (2 July 2009), p. 18, and Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste, OJ L 199 (2 Aug. 2011), p. 48.

Nuclear cyberthreats and the EU legal framework: How EU cybersecurity laws apply to and impact nuclear power plants

*By Outi Slant**

I. Introduction

Cyberthreats are something that every sector is currently facing. The nuclear sector is no exception.

In 2003, a computer worm called Slammer spread around the world at an astounding pace.[1] Slammer searched for vulnerable Microsoft SQL server interfaces and repurposed every server it found to aid in its search.[2] After only ten minutes, the worm had scanned the entire internet and infected 90% of vulnerable devices,[3] including the networks of the Davis-Besse nuclear power plant in the United States.[4] It infected several layers of Davis Besse's networks, each of which was built to protect the system under it.[5] The most isolated portions of the network, not even visible to the public internet, were nevertheless infected,[6] including critical systems such as Safety Parameter Display Systems (SPDS). These systems were disabled for several hours.[7] Luckily, the reactor had been offline for nearly a year before the infection, so the consequences were limited.[8]

In 2010, one of the most notorious malware attacks in history specifically targeted a nuclear facility, Iran's Natanz uranium enrichment facility.[9] The Stuxnet worm is believed to have been introduced to Natanz's network via an infected USB memory stick.[10] After it was inserted into a computer on the network, it started copying itself to network shares.[11] Stuxnet hid in the computer systems and looked to see if any devices on the network included a specific type of factory system.[12] If the system was found, the worm modified the commands sent from the computer to the factory programmable logic controller (PLC)

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1. Moore, D. et al. (2003), "Inside the Slammer Worm", *IEEE Security and Privacy*, IEEE Publication Services and Reliability Society, New York, p. 33.
2. *Ibid*.
3. *Ibid*.
4. Kesler, B. (2011), "The Vulnerability of Nuclear Facilities on Cyber Attacks", *Strategic Insights*, Vol. 10, No. 1, Center on Contemporary Conflict, Monterey, California, p. 20.
5. *Ibid*.
6. Hyppönen, M. (2022), *If it's smart, it's vulnerable*, John Wiley & Sons, Inc., Hoboken, New Jersey, p. 128.
7. Kesler, B. (2011), *supra* note 4, p. 20.
8. *Ibid*.
9. *Ibid*., pp. 21-22.
10. Hyppönen, M (2022), *supra* note 6, p. 217.
11. *Ibid*.
12. *Ibid*.

systems.[13] Once in that system, it scanned for a specific type of factory environment, specifically the presence of certain variable frequency drives made by certain vendors and operating at very high speeds, the type of drive used for gas centrifuges.[14] If the environment was not found, the malware did nothing.[15] If the environment was found, the malware was designed to modulate the speed of the drives to the point that the centrifuges connected to the drive would be destroyed, while simultaneously sending false data to the operators of the centrifuges indicating no issue.[16] Stuxnet was very advanced in its methodology and, according to cybersecurity experts, was most likely created by a state actor to specifically target the Iranian nuclear facilities and ultimately resulted in the destruction of almost one fifth of Iran's nuclear centrifuges.[17]

Even where not malicious, issues with computer networks can and have resulted in problems for nuclear power plants. For instance, in 2006, a network failure disrupted critical reactor components at the Browns Ferry Nuclear Power Plant, including the reactor cooling systems, forcing a shutdown of the reactor to avoid melting the reactor core.[18] This was due to the vulnerability of the variable frequency drives and PLC systems to high-traffic environments.[19] The network carried more traffic than the systems could handle and caused a malfunction of the control systems.[20]

In a presentation at the International Conference on Nuclear Security in 2024, International Atomic Energy Agency (IAEA) Director General Rafael Mariano Grossi stated:

> The international nuclear security threat landscape keeps evolving. Today, anyone can type a few words into a computer and generative AI can create images of nuclear Armageddon, meaning it is now possible to spread panic about radiation fallout without a nuclear device. […] The risk of cyber-attacks requires the implementation of computer security programmes by those who use nuclear power and those who don't. Risks come from outsiders and from those within the fold who are disgruntled or have been corrupted.[21]

It is clear that cybersecurity is a pertinent issue in the nuclear energy field, but how does the European Union (EU) legal framework answer these challenges? This study analyses the most recent and most relevant legal acts within the EU legal framework for cybersecurity, looking at their applicability to and their impacts on the design and operation of nuclear power plants.

II. Brief introduction to cybersecurity

The EU's Cybersecurity Act (CSA) defines cybersecurity as "the activities necessary to protect network and information systems, the users of such systems and other persons affected by cyber threats".[22] The United States (US) Cyber Defense Agency defines cybersecurity perhaps in a more traditional way: "Cybersecurity is the art of protecting

13. *Ibid*, p. 218.
14. *Ibid*, p. 218.
15. *Ibid,* p. 217.
16. Kesler, B. (2011), *supra* note 4, p. 22.
17. *Ibid*., pp. 22-23.
18. *Ibid*., p. 20.
19. *Ibid*., p. 21.
20. *Ibid*.
21. Grossi, R. (2024), "Statement by IAEA Director General Rafael Mariano Grossi on the occasion of the International Conference on Nuclear Security 2024", IAEA News Center, www.iaea.org/newscenter/statements/statement-by-iaea-director-general-rafael-mariano-grossi-on-the-occasion-of-the-international-conference-on-nuclear-security-2024 (accessed 22 Dec. 2025).
22. Regulation (EU) 2019/881 of the European Parliament and of the Council of 17 April 2019 on ENISA (the European Union Agency for Cybersecurity) and on information and communications technology cybersecurity certification and repealing Regulation (EU) No. 526/2013, *Official Journal of the European Union* (OJ) L 151 (7 June 2019), Article 2(1).

networks, devices, and data from unauthorized access or criminal use and the practice of ensuring confidentiality, integrity, and availability of information."[23] Perhaps the main difference between the definitions is that the CSA approaches the topic more from the viewpoint of impacts whereas the traditional definition relies more on data protection and avoiding unauthorised access to computer systems. This study analyses the issue primarily using the CSA, but some elements of the US Cyber Defense Agency definition are taken into account.

Different cyber threat actors have different motivations when performing their malicious actions online. Cybercriminals are most often motivated by profit, whereas hackers are most often motivated by the thrill of the act or the challenge a well-secured system presents.[24] Hacktivists are more driven by the ideology behind their attacks, whereas terrorist groups may use cyberattacks as one aspect of a large terror campaign.[25] Nation-states are also known to be cyber threat actors, their motivations being geopolitical.[26] Insider threats could be linked to any of the above but also might have simple discontentment as their motivation.[27] In short, attacks can come from a number of different players with a wide-array of motivations, making guarding against cyberthreats all the more challenging.

Cyberattacks can vary from sophisticated spyware to malware exploiting a vulnerability in a computer system to phishing emails sent to an employee of a company or distributed denial of service attacks (DDoS).[28] The impacts of these activities can be very different. Whereas a DDoS attack may crash a company website for some time, a malware infection may be able to limit or prevent its use entirely or damage critical procedures such as operational technology (OT) processes.[29] Phishing emails are often used to gain initial access to the company systems that allow the attackers to dive deeper into more critical systems.[30] In many cases, these different forms of attack are combined to achieve a specific goal.

It is also important to note that cybersecurity is not merely a combination of preventative measures but also the preparation of a response for the scenario where an attack is successful. Such preparation may include backing up critical data to isolated systems, creating plans for alternative methods of communication and alternate ways to perform certain functions if a critical system fails.[31]

III. Cybersecurity laws in the EU

A. Directive on measures for high common level of cybersecurity across the Union

Directive (EU) 2022/2555 of the European Parliament and of the Council on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148 (Network and Information Security Directive 2 [NIS2 Directive]) lays down measures that aim to

23. US Cyber Defense Agency (2021), "What is Cybersecurity", www.cisa.gov/news-events/news/what-cybersecurity (accessed 14 Nov. 2025).
24. Canadian Centre for Cyber Security (2022), *An Introduction to the Cyber Threat Environment*, Communications Security Establishment, Ottawa, p. 2.
25. *Ibid.*
26. *Ibid.*
27. *Ibid.*
28. See e.g. Jonker, A., G. Lindemulder and M. Kosinski (2025), "What is cybersecurity?", IBM, www.ibm.com/think/topics/cybersecurity (accessed 22 Dec. 2025).
29. See e.g. Canadian Center for Cyber Security (2021), *Cyber Threat Bulletin: The Cyber Threat to Operational Technology,* Communications Security Establishment, Ottawa.
30. See e.g. Kosinski, M (2025), "What is Phishing?", IBM, www.ibm.com/think/topics/phishing (accessed 22 Dec. 2025).
31. See e.g. Hyppönen, M. (2022) *supra* note 6, pp. 67-71.

achieve a high common level of cybersecurity across the EU with a view to improve the function of the internal EU market.[32]

The NIS2 Directive, an update to the NIS1 Directive[33] that was adopted in 2016, introduced a more comprehensive set of requirements compared to its predecessor and differed in scope.[34] In general, both directives apply to the electricity sector but, whereas the NIS1 Directive only applied to electricity supply,[35] the NIS2 Directive expands the scope to electricity producers,[36] and thereby to nuclear power plants that produce electricity.[37] Note that the NIS2 Directive does not apply to other types of nuclear facilities, such as final disposal facilities for radioactive waste.

According to Article 4 of the NIS2 Directive, its requirements apply to the activities within its scope unless there are sector-specific EU legal acts that are at least equivalent in effect to the obligations laid down in the Directive. Relevant provisions shall apply if all requirements are not addressed in an equivalent manner. At present, there are no sector-specific EU level cybersecurity requirements for nuclear power plants. Recital 10 of the NIS2 Directive specifically addresses nuclear power plants, stating:

> Although this Directive applies to entities carrying out activities in the production of electricity from nuclear power plants, some of those activities may be linked to national security. Where that is the case, a Member State should be able to exercise its responsibility for safeguarding national security with respect to those activities, including activities within the nuclear value chain, in accordance with the Treaties.[38]

The NIS2 Directive recognises that nuclear security has not, generally, been regulated by harmonised legislation, but rather has been considered a matter of national security. Therefore, nuclear activities linked to national security are not under the jurisdiction of EU according to Article 4(2) of the Treaty on European Union (2016/C 202/01).

32. Directive (EU) 2022/2555 of the European Parliament and of the Council of 14 December 2022 on measures for a high common level of cybersecurity across the Union, amending Regulation (EU) No. 910/2014 and Directive (EU) 2018/1972, and repealing Directive (EU) 2016/1148, OJ L 333 (27 December 2022) (NIS2 Directive), Article 1(1).
33. Directive (EU) 2016/1148 of the European Parliament and of the Council of 6 July 2016 concerning measures for a high common level of security of network and information systems across the Union, OJ L 194 (19 July 2016) (NIS1 Directive).
34. Similarly, in 2025 the United Kingdom (UK) government is planning to introduce the Cyber Security and Resilience Bill, which aims to safeguard the United Kingdom's critical national infrastructure including energy sector. However, the scope of the regulation and the applicability to the nuclear sector are yet to be determined. The Government of the United Kingdom (2025), "Cyber Security and Resilience Policy Statement", www.gov.uk/government/publications/cyber-security-and-resilience-bill-policy-statement/cyber-security-and-resilience-bill-policy-statement (accessed 22 Dec. 2025).
35. Annex II the NIS1 directive, *supra* note 33, references Article 2 of Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC, for the definition of electric undertaking: "any natural or legal person carrying out at least one of the following functions: generation, transmission, distribution, supply, or purchase of electricity, which is responsible for the commercial, technical or maintenance tasks related to those functions, but does not include final customers."
36. Annex I of the NIS2 Directive, *supra* note 32, references Article 2 of Directive (EU) 2019/944 of the European Parliament and of the Council, for the definition of producers, defining them as "a natural or legal person who generates electricity".
37. The NIS2 Directive also applies to operators of district heating and cooling as defined in Article 2 of Council Directive 2009/119/EC imposing an obligation on member states to maintain minimum stocks of crude oil and/or petroleum products. Under Article 2, district heating is defined as the distribution of thermal energy in the form of steam, hot water or chilled liquids, from central or decentralised sources of production through a network to multiple buildings or sites, for the use of space or process heating or cooling.
38. NIS2 Directive, *supra* note 32, Recital 10.

The NIS2 Directive has two key elements in it that are relevant for the nuclear sector. First, it sets general level requirements for cybersecurity risk management measures, and second, it includes requirements for reporting significant cybersecurity incidents to authorities.[39] In general, the NIS2 Directive has a risk-based approach to cybersecurity risk management. Article 21(1) states that essential entities (including nuclear power plant operators) shall:

> take appropriate and proportional technical, operational and organisational measures to manage the risks posed to the security of network and information systems which those entities use for their operations or for the provision of their services, and to prevent or minimise the impact of incidents on recipients of their services and on other services.

Looking at nuclear safety and security, the viewpoint of the NIS2 Directive is more about securing the energy supply, rather than ensuring the safety of the facility. This makes sense since the NIS2 Directive is a horizontal directive for critical infrastructure and supply (including electricity production) and is not intended to account for the specifics of the various impacted sectors. For this reason, it leaves space for sector-specific cybersecurity requirements to supplement or supplant the directive where necessary. The approach differs from the traditional way of regulating nuclear safety and security, which focuses on minimising the risks of radiological hazards.[40] However, the methods for regulating cybersecurity created to protect critical infrastructure and supply would not necessarily be any different than had they been created to address nuclear safety or security. Many cybersecurity measures are universally applicable. Further, nuclear safety and security are still relevant when evaluating the risk management measures according to the NIS2 Directive, which states:

> [w]hen assessing the proportionality of those measures, due account shall be taken of the degree of the entity's exposure to risks, the entity's size and the likelihood of occurrence of incidents and their severity, including their societal and economic impact.[41]

It is therefore relatively safe to say that the possible impacts to nuclear safety and security are something that should be considered when assessing the risks and determining what appropriate, proportional cybersecurity measures should be taken.

The NIS2 Directive also sets out requirements for cybersecurity risk management.[42] The technical, operational and organisational measures for risk management "shall be based on an all-hazards approach that aims to protect network and information systems and the physical environment of those systems from incidents."[43] Article 21(2) contains the following measures that shall be, at a minimum, included:

(a) policies on risk analysis and information system security;

(b) incident handling;

(c) business continuity, such as backup management and disaster recovery, and crisis management;

(d) supply chain security, including security-related aspects concerning the relationships between each entity and its direct suppliers or service providers;

(e) security in network and information systems acquisition, development and maintenance, including vulnerability handling and disclosure;

39. The directive has several other aspects to it, for example regarding responsibilities for authorities, which are not relevant here given the scope of the study.
40. See e.g. Council Directive 2009/71/Euratom on establishing a Community framework for the nuclear safety of installations, OJ L 172/18 (25 June 2009), Article 1(b).
41. NIS2 Directive, *supra* note 32, Article 21(1).
42. *Ibid.*, Article 21(2).
43. *Ibid.*

(f) policies and procedures to assess the effectiveness of cybersecurity risk-management measures;

(g) basic cyber hygiene practices and cybersecurity training;

(h) policies and procedures regarding the use of cryptography and, where appropriate, encryption;

(i) human resources security, access control policies and asset management; and

(j) the use of multi-factor authentication or continuous authentication solutions, secured voice, video and text communications and secured emergency communication systems within the entity, where appropriate.[44]

The topics that are to be considered part of the risk assessment measures for cybersecurity, for the most part, look quite similar to the legal framework and soft law for nuclear safety and security.[45] It can be argued that cybersecurity measures are merely an extension to those safety and security measures developed incrementally since the 1960s. Regardless of whether viewed in a silo or as an extension of the safety and security measures addressed in other instruments, the NIS2 Directive creates a solid basis for cybersecurity risk management for all sectors, including the nuclear sector.

Another set of obligations for nuclear power plant operators rise from Article 23 of the NIS2 Directive regarding reporting obligations to national Computer Security Incident Response Teams (CSIRTs), or to a competent authority, for significant incidents without undue delay.[46] The incident shall be considered significant if:

(a) it has caused or is capable of causing severe operational disruption of the services or financial loss for the entity concerned;

(b) it has affected or is capable of affecting other natural or legal persons by causing considerable material or non-material damage.[47]

Looking at these criteria and comparing them to the nuclear safety and security framework, part (b) covers the traditional nuclear safety aspects concerning radiological hazards that could cause considerable material or non-material damage. However, the bar seems to be set quite high for reporting and, practically, part (a) would set the bar lower for nuclear power plant operators since disruptions of service are more likely to occur than radiological hazards.

44. *Ibid*.
45. See e.g. Convention on Nuclear Safety (1994), IAEA Doc. INFCIRC/449, 1963 UNTS 293, entered into force 24 Oct. 1996 (CNS), Articles 11 and 16; Amendment to the Convention on the Physical Protection of Nuclear Material (2005), IAEA Doc. INFCIRC/274/Rev.1/Mod.1, entered into force 8 May 2016 (ACPPNM), Article 2A.
46. NIS2 Directive, *supra* note 32, Article 23. Paragraph 4 of Article 23 sets specific timeframes for reporting obligations. Early warning should be reported without undue delay and in any event within 24 hours of becoming aware of the significant incident. After 72 hours an incident notification should be released with some more detailed description of the incident. A final report should be submitted within one month of the incident, at the latest. Intermediate reports can be submitted in between in case the CSIRT or competent authority requests them.
47. *Ibid*., Article 23(3).

The NIS2 Directive also establishes guidelines for corrective measures, including substantial administrative fines in the case of non-compliance.[48] Nationally, this is an additional element to corrective measures related to supervision of nuclear power plants.[49] It is worth noting that the competent authority defined in the NIS2 Directive is not necessarily the same as the national nuclear regulatory authority, since it is left for the national implementation of the Directive to determine the appropriate authority. Where the competent authority is not the regulator, there may be a need for some collaboration between national authorities to set up the oversight for cross-sectional issues.

The NIS2 Directive is an important addition for all critical infrastructure in the EU, the nuclear sector included. It brings specific requirements for cybersecurity risk management that are risk-based and widely applicable. While it is not self-evident that there are no conflicting interests with nuclear safety and security, on a practical level, given the different perspectives of the regulatory frameworks, the measures that need to be taken are still quite universally applicable.

B. EU network code on cybersecurity for electricity sector (NCCS)

The Commission Delegated Regulation (EU) 2024/1366 supplementing Regulation (EU) 2019/943 of the European Parliament and of the Council by establishing a network code on sector specific rules for cybersecurity aspects of cross-border electricity flows (NCCS)[50] was adopted in March 2024 and complements both the regulation on the internal market for electricity[51] and the NIS2 Directive. The NCCS can be understood as the type of sector-specific cybersecurity regulations referenced in Article 4 of the NIS2 Directive whenever cross-border electricity flows are concerned. The NCCS establishes sector-specific rules for cybersecurity aspects of cross-border electricity flows, including rules for common minimum requirements, planning, monitoring, reporting and crisis management.[52] It applies to entities defined as high-impact or critical,[53] as identified by the competent authority according to the electricity cybersecurity impact index (ECII) and high-impact and critical-impact thresholds included in the EU-wide cybersecurity risk assessment report.[54] There is a high likelihood nuclear power plants are within the scope of the regulation, as they are significant sources of cross-border electricity flows in the EU. However, determinations are ultimately up to the competent national authorities.

Under the NCCS, transmission service operators (TSOs) propose terms and conditions, or methodologies or plans subjected to the competent authorities' approval. These would, for example, contain minimum and advanced cybersecurity controls, or cybersecurity procurement recommendations.[55] In a way, the NCCS creates a framework for more practical

48. Infringements to Articles 21 or 23 can be fined up to EUR 10 000 000 or 2% of the total worldwide annual turnover in the preceding financial year, whichever is higher. NIS2 Directive, *supra* note 32, Article 34(4).
49. Cybersecurity had already been part of national regulatory requirements for nuclear power plants, at least in some countries. For example, Sellafield Ltd in the United Kingdom was recently fined GBP 332 500 for cybersecurity shortfalls that were brought to prosecution by the Office for Nuclear Regulation (ONR). See ONR (2024), "Sellafield Ltd fined £332,500 for cyber security shortfalls", www.onr.org.uk/news/all-news/2024/10/sellafield-ltd-fined-332-500-for-cyber-security-shortfalls (accessed 22 Dec. 2025).
50. Commission Delegated Regulation (EU) 2024/1366 supplementing Regulation (EU) 2019/943 of the European Parliament and of the Council by establishing a network code on sector specific rules for cybersecurity aspects of cross-border electricity flows C/2024/1383, OJ C 2024/1383 (24 May 2024) (NCCS Supplement).
51. Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity, OJ L 158 (14 June 2019) (NCCS).
52. NCCS Supplement, *supra* note 50., Article 1.
53. *Ibid.*, Article 24 (referencing Article 2(57) of Directive (EU) 2019/944).
54. Defined as "an index or classification scale that ranks possible consequences of cyber-attacks to business processes involved in cross-border electricity flows". *Ibid.*, Article 3(21).
55. *Ibid.*, Article 6.

cybersecurity requirements compared to the NIS2 Directive, but these requirements and recommendations are further delegated to procedures defined by the Regulation.[56]

The NCCS defines cybersecurity risk management at the entity level. It is essentially a more practical extension to NIS2 risk management requirements. All entities within the scope of the regulations perform cybersecurity risk management for all assets in its high impact or critical-impact perimeters.[57] Risk management is performed containing the following phases: context establishment, cybersecurity risk assessment at the entity level, cybersecurity risk treatment and cybersecurity risk acceptance.[58] These are done in accordance with the more specified criteria set up according to Article 26 and EU-wide risk assessment. The risk identification in risk assessment should, for example, account for vulnerabilities of legacy systems, as well as possible cyberattacks affecting the operational security of the electricity system and disrupting cross-border electricity flows.[59]

The entities need to regularly report to the competent authority, providing information on a list of controls selected for entity-level risk mitigation along with the implementation status of each control. They also need to report an estimation of the risk of a compromise of confidentiality, integrity and the availability of information and relevant assets, and provide a list of critical information and communication technology (ICT) service providers for their critical-impacts processes.[60]

The NCCS sets up requirements for a cybersecurity management system that needs to be reviewed every three years.[61] These management system requirements have similar elements to nuclear safety, such as determining the scope of the management systems considering interfaces and dependencies with other entities, ensuring availability of resources, determining responsibilities for relevant roles, and evaluating the performance and effectiveness of the cybersecurity management system.[62]

The NCCS also sets out a process to define minimum and advanced controls in the supply chain that would at least include recommendations for procurement of ICT products, services and processes. Article 33 defines the minimum coverage that would include, for example:

- background verification checks;
- the processes for secure and controlled design, development and production;
- the access of the supplier to the assets of the entity;
- the traceability of the application of the cybersecurity specification; and
- a right to audit cybersecurity in the design, development and production processes of those in the supply chain.

Chapter IV of the NCCS contains regulations concerning procurement recommendations and, using the European certification scheme, procurement processes that are non-binding in nature.

The NCCS sets requirements for monitoring that would collect information on cyberattacks and enable detection of anomalies, including detecting intrusions and assessing vulnerabilities of network and information systems.[63] It also has strict reporting requirements for relevant information to national CSIRTs and to the competent authority

56. There are different transition periods for different areas of the Regulation that are defined in the text of the Regulation but are not in force as of this writing.
57. NCCS Supplement, *supra* note 50, Article 26(1).
58. *Ibid.*, Article 26(2).
59. *Ibid.*, Article 26(3).
60. *Ibid.*, Article 27.
61. *Ibid.*, Article 32.
62. See e.g. IAEA (2016), *General Safety Requirements: Leadership and Management for Safety*, IAEA Safety Standards Series No. GSR Part 2, Vienna.
63. NCCS Supplement, *supra* note 50, Article 38.

without undue delay and no later than four hours after becoming aware of an incident that meets the criteria of a certain level of criticality in cases of possible cross-border effects of the cyberattack.[64] In the context of the NCCS, this would most likely mean impacts to electricity flows, not, for example, for possible radiological consequences. Article 39 has requirements for entities for the detection of cyberattacks and, where an attack is detected, requirements to share such information among other relevant entities. Articles 43 and 44 of NCCS have requirements for cybersecurity exercises for entities at the entity, member state, regional and cross-regional levels.

In summary, compared to NIS2, the NCCS provides extensive, specific cybersecurity requirements for entities under the scope of the regulation.[65] The applicability of the NCCS to nuclear power plants is essentially up to national competent authorities and it is possible that the applicability can vary from one country to another, but as significant electricity producers for electricity export in each country, nuclear power plants are likely to fall under the scope of the NCCS. Most of the details of practical level requirements are further delegated through other processes defined in the NCCS and their impact is yet to be determined. Like the NIS2 Directive, the NCCS is focused on electricity production and securing cross-border energy-flows, whereas traditional nuclear regulation tends to focus on the prevention of radiological consequences.

C. *Cyber Resilience Act*

Another piece of recent legislation adopted by the EU is Regulation (EU) 2024/2847 of the European Parliament and of the Council on horizontal cybersecurity requirements for products with digital elements and amending regulation (EU) 2019/1020 (Cyber Resilience Act or CRA).[66] Compared to the NIS2 Directive and the NCCS, the CRA approaches the topic of cybersecurity from a different angle. Whereas the NIS2 Directive and NCCS regulate operators, CRA regulates product safety. The CRA lays down rules for products with digital elements and seeks to ensure the cybersecurity of such products.[67] It also sets out essential cybersecurity requirements for the design, development and production of these products as well as obligations for economic operators.[68] Other key elements of the CRA are the requirements for vulnerability handling and rules on market surveillance.[69] The CRA is the first regulation in the EU to set cybersecurity requirements for products and is therefore likely to have a great impact on new products, which will need to be developed to meet the criteria of the regulations.[70] This may apply to the nuclear sector as well.

Regarding the scope of the CRA, with some exceptions, it is a horizontal regulation that applies to all products with digital elements but may be limited or excluded if other EU rules lay down requirements that address all or some of the risk covered by the CRA

64. This level is to be defined according to Article 37(8) by TSOs with assistance of the ENTSO for Electricity and in co-operation with the EU DSO entity. *Ibid*., Article 37(8).
65. For example, Article 26 of the NCCS gives more specific risk management requirements compared to Article 21 of the NIS2 Directive.
66. Regulation (EU) 2024/2847 of the European Parliament and of the Council of 23 October 2024 on horizontal cybersecurity requirements for products with digital elements and amending Regulations (EU) No 168/2013 and (EU) 2019/1020 and Directive (EU) 2020/1828 (Cyber Resilience Act or CRA), OJ L 2024/2847 (20 November 2024).
67. *Ibid*., Article 1.
68. *Ibid*., Article 13 and Annex I.
69. *Ibid*., Chapter V.
70. *Ibid*., Recital 4.

essential cybersecurity requirements.[71] This would be possible if the limitation or exclusion is consistent with the overall regulatory framework or if sectoral rules achieve the same or higher level of protection.[72] In this regard, nuclear-related products with digital elements fall under the scope of the CRA whether they are mass produced products or individually custom made for a particular purpose.[73]

But what is a product with digital elements? According to Article 3(1) of the CRA, a product with digital elements "means a software or hardware product and its remote data processing solutions, including software or hardware components being placed on the market separately".[74] This would mean that, for example, operational technology systems such as supervisory control and data acquisition systems (SCADA) or PLCs would be covered as well as IT-systems.

The CRA sets out essential cybersecurity requirements for products with digital elements. First, the products need to be designed, developed and produced to ensure an appropriate level of cybersecurity based on the risks related to that specific product. Based on the risk assessment, and where applicable, the products shall:

- be made available without known exploitable vulnerabilities;
- be made available with secure default configurations, unless otherwise agreed in business-to-business cases;
- ensure vulnerability handling via automatic security updates where possible;

71. According to Article 2 of the CRA, the regulation does not apply to products under Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices, amending Directive 2001/83/EC, Regulation (EC) No. 178/2002 and Regulation (EC) No. 1223/2009 and repealing Council Directives 90/385/EEC and 93/42/EEC, OJ L 117 (5 May 2017); Regulation (EU) 2017/746 of the European Parliament and of the Council of 5 April 2017 on in vitro diagnostic medical devices and repealing Directive 98/79/EC and Commission Decision 2010/227/EU, OJ L 117, (5 May 2017); Regulation (EU) 2019/2144 of the European Parliament and of the Council of 27 November 2019 on type-approval requirements for motor vehicles and their trailers, and systems, components and separate technical units intended for such vehicles, as regards their general safety and the protection of vehicle occupants and vulnerable road users, amending Regulation (EU) 2018/858 of the European Parliament and of the Council and repealing Regulations (EC) No. 78/2009, (EC) No. 79/2009 and (EC) No. 661/2009 of the European Parliament and of the Council and Commission Regulations (EC) No. 631/2009, (EU) No. 406/2010, (EU) No. 672/2010, (EU) No. 1003/2010, (EU) No. 1005/2010, (EU) No. 1008/2010, (EU) No. 1009/2010, (EU) No. 19/2011, (EU) No. 109/2011, (EU) No. 458/2011, (EU) No. 65/2012, (EU) No. 130/2012, (EU) No. 347/2012, (EU) No. 351/2012, (EU) No. 1230/2012 and (EU) 2015/166, OJ L 325 (16 Dec. 2019); as well as products certified in accordance with Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No. 2111/2005, (EC) No. 1008/2008, (EU) No. 996/2010, (EU) No. 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No. 552/2004 and (EC) No. 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No. 3922/91, OJ L 212 (22 Aug. 2018). Furthermore, the regulation does not apply to equipment within the scope of Directive 2014/90/EU of the European Parliament and of the Council of 23 July 2014 on marine equipment and repealing Council Directive 96/98/EC, OJ L 257 (28 Aug. 2014). The CRA also excludes products that have been developed or modified exclusively for national security or defence or products specifically designed to process classified information.
72. CRA, *supra* note 66, Article 2(5).
73. The CRA states that "[t]hose essential cybersecurity requirements, including vulnerability management handling requirements, apply to each individual product with digital elements when placed on the market, irrespective of whether the product with digital elements is manufactured as an individual unit or in series." *Ibid.*, Recital 38.
74. *Ibid.*, Article 3(1).

- use appropriate control mechanisms to ensure protection from unauthorised access;
- protect the confidentiality of stored, transmitted or processed data;
- minimise processed data;
- protect availability of essential and basic functions after cybersecurity incidents;
- minimise the negative impact by the product themselves or connected devices on the availability of services provided by other devices or networks;
- be designed, developed and produced to reduce the impact of a cybersecurity incident using appropriate exploitation mitigation mechanisms and techniques;
- provide security-related information by monitoring relevant internal activity; and
- provide the possibility for users to securely, easily and permanently remove or transfer all data settings.[75]

Manufacturers are also required to have vulnerability handling procedures in place in accordance with Annex I, part II. These procedures must identify and document vulnerabilities and components contained by the product, address and remediate vulnerabilities without delay (including security updates), apply regular tests and reviews on product security, and share and publicly disclose information about fixed vulnerabilities.[76]

The CRA separates products into different categories. These categories are defined in Article 32, which also contains the requirements for conformity assessment procedures that the manufacturers must perform. In most cases, with products that are not listed in the Annexes III or IV, this would at the very least be an internal control procedure, but other procedures defined by the regulation would be possible to use. Annex III defines two categories of "important" products that would require EU-type examination, using harmonised standards, conformity assessment based on full quality assurance or, where available, certification of the product. The required conformity assessment procedure varies depending on the product category. It is not possible to assess conformity by only applying harmonised standards for products in Category II.[77] Additionally, there are "critical" products that have mandatory certification requirements listed in Annex IV.

Products listed in the annexes that have at least some relevance to the nuclear sector may include virtual private networks (VPN), password managers, security information and event management systems or operating systems. Interestingly, as a change from the original proposal by the European Commission, this list does not include OT-systems.[78] This means, in practice, that these products have the lowest level of quality assurance procedure requirements, per Article 32.

As a generally applicable product safety regulation, the CRA does not specifically target nuclear energy-related products, but it does create a solid basis of cybersecurity requirements for all products with digital elements, such as OT-systems. Even though the final responsibility and liability for the safety of a nuclear power plant lies within the licence holder,[79] the CRA creates obligations on manufacturers to have appropriate cybersecurity measures in place as a default, and it provides a basis for a due diligence assessment when procuring products or software.

75. *Ibid*. Annex I, part I.
76. *Ibid*. Annex I, part II.
77. Procedures for each conformity assessment procedure are defined in detail in Annex VIII and applied according to Article 32.
78. Commission proposal (COM/2022/454 final) Annex III contained products such as industrial automation and control systems, PLCs, distributed control systems, computerised numeric controllers for machine tools and SCADA systems.
79. CNS, *supra* note 45, Article 9.

D. Cyber Solidarity Act

In March 2024, a compromise was reached on a regulation laying down measures to strengthen solidarity and capacities in the EU to detect, prepare for and respond to cybersecurity threats and incidents, the Cyber Solidarity Act.[80] The Cyber Solidarity Act has three main goals:

(a) to establish a European Cybersecurity Alert System to build and enhance co-ordinated detection and common situational awareness capabilities;

(b) to create a Cybersecurity Emergency Mechanism to support member states and other users in preparing for, responding to and mitigating the impacts of, and initiating recovery from, significant and large-scale cybersecurity incidents; and

(c) to establish a Cybersecurity Incident Review Mechanism to review and assess significant or large-scale cybersecurity incidents.[81]

The European Cybersecurity Alert System is a voluntary measure that consists of national and cross-border co-operation to provide situational awareness to authorities and relevant entities, enabling them to respond to detected threats.[82] It does not have a sector specific focus, but if a member state participates in such co-operation it will be generally beneficial to the nuclear sector since there would be more up-to-date information for the operators. The Cybersecurity Emergency Mechanism, on the other hand, is more directly relevant to nuclear installations. It covers three types of measures:

(a) co-ordinated voluntary preparedness testing and preparedness actions in sectors of high criticality,[83]

(b) support in response and recovery measures from large-scale incidents; and

(c) mutual assistance.[84]

The sectors for co-ordinated preparedness testing and actions are determined by the European Commission, the NIS Cooperation group, the European Cyber Crisis Liaison Organisation Network (EU-CyCLONe)[85] and the European Union Agency for Cybersecurity (ENISA). If funding for these measures is targeted for the nuclear sector, the likely result would be improved preparedness of nuclear power plants, but the significance of the instrument is solely dependent on the funding allotted to various sectors.

Support for response and recovery measures in the Cyber Solidarity Act is established in the form of a common cybersecurity reserve, which is a pool of selected incident response service providers that can provide services quickly.[86] These services would be available upon request of member states, and the users of the services would be national CSIRTs established by the NIS2 directive, CERT-EU and, under some conditions, third-party countries. In practice, this would be available for nuclear power plant operators if they seek assistance from the relevant national CSIRT for a large-scale cybersecurity incident.[87] The CSIRT could then make a request to the Cybersecurity Reserve.[88] The Cyber Solidarity Act

80. Regulation (EU) 2025/38 of the European Parliament and of the Council of 19 December 2024 laying down measures to strengthen solidarity and capacities in the Union to detect, prepare for and respond to cyber threats and incidents and amending Regulation (EU) 2021/694, OJ L 2025/38 (15 Jan. 2025) (Cyber Solidarity Act).
81. *Ibid*. Article 1(1).
82. *Ibid*. Article 3.
83. Sectors of High Criticality are defined to be those listed in Annex I of NIS2 directive that also covers electricity producers. NIS2 Directive, *supra* note 32, Annex 1.
84. Cyber Solidarity Act, *supra* note 80, Article 11.
85. See NIS2 Directive, *supra* note 32, Article 16.
86. Cyber Solidarity Act, *supra* note 80, Articles 14-18.
87. *Ibid*.
88. *Ibid*.

sets out specific criteria determining how such requests are to be handled. The Act also provides mechanisms for the funding of mutual assistance between member states.[89]

The purpose of the Cybersecurity Incident Review Mechanism is to review and assess threats, known exploitable vulnerabilities and potential mitigation actions.[90] Review would be done by ENISA at the request of the European Commission or EU-CyCLONe[91] In order to mitigate future incidents, the report would be distributed, alongside lessons learnt, to EU-CyCLONe, the CSIRT-network, concerned member states and the European Commission.[92]

These types of reviews can be beneficial in general and to the nuclear energy sector specifically. It is common practice for the nuclear energy sector to share lessons learnt from nuclear safety incidents to avoid similar occurrences at other facilities[93]. While this may not be common for security-related issues, sharing information on vulnerabilities and cyberthreats, as well as cybersecurity incidents, would be of significant benefit. After all, history has taught that a safety or security incident occurring at one facility can have a major impact on the industry as a whole.

In summary, the Cyber Solidarity Act provides the nuclear energy sector with useful tools for cyber preparedness, incident response and *ex post* evaluations, but the impact for the industry is highly dependent on how the funding for these tools is directed. If the funding is directed to other sectors, the impact of the regulation is very low in practice. Also, participation is voluntary and therefore dependent on the willingness of member states to participate and use the tools available.

IV. Conclusion

National and international nuclear regulatory frameworks constantly evolve in response to events occurring both within and outside the nuclear industry. As cyberattacks become more prevalent, cybersecurity concerns are increasingly drawing attention and driving regulation. While existing, legally binding international nuclear regulatory instruments do not directly address the issue of cybersecurity, the European Union has developed a series of cybersecurity regulations, including the NIS2 Directive, the NCCS, the CRA and the Cyber Resilience Act, that, while not specific to nuclear, are broadly applicable to the nuclear sector.

Together, these regulations seek to advance protections against cyberthreats by ensuring effective cyber risk management, threat detection, incident response, post-incident information sharing and evaluation, and by obliging manufacturers to have appropriate cybersecurity measures in place when developing and producing products with digital elements. In all, it can be said that the recent regulatory changes in the EU in the cybersecurity field are beneficial both generally and to the nuclear energy sector specifically.

89. *Ibid*.
90. *Ibid*., Article 21.
91. *Ibid*.
92. *Ibid*.
93. For example, the IAEA publishes regularly Operating Experiences with Nuclear Power Stations in member states. See IAEA (2024), *Operating Experiences with Nuclear Power Stations in Member States 2024 Edition*, IAEA/OPEX/2024, IAEA, Vienna.

CASE LAW

Czech Republic (Czechia)

The two new nuclear units at the Dukovany Nuclear Power Plant before the administrative courts

The Czech Republic (Czechia) currently gets about one-third of its electricity from two nuclear power plants, one operated in Dukovany in southern Moravia and the other in Temelín in south Bohemia. The four reactors at the Dukovany Nuclear Power Plant began operating between 1985 and 1987, and the two reactors at the Temelín Nuclear Power Plant came into operation in 2000 and 2002.

In 2019, the Czech government gave preliminary approval for at least one new nuclear reactor at the Dukovany Nuclear Power Plant, to be completed by 2035 and expected to replace, at least in part, the four existing reactors, which were expected to shut down between 2035 and 2037. In March 2021, the regulatory authority issued a location permit for two new nuclear reactors at the site of the Dukovany Nuclear Power Plant

In October 2023, three bidders – Westinghouse, Électricité de France (EDF) and Korea Hydro & Nuclear Power (KHNP) – submitted binding bids for the construction of the new nuclear reactors. In February 2024, in the aftermath of the receipt of the bids, the Czech government announced that a change in the tender would be made removing Westinghouse's bid because it "did not meet the necessary conditions."

On 17 July 2024, the Czech government announced that the KHNP bid was selected over the EDF bid, and KHNP will build the two new nuclear reactors at the Dukovany Nuclear Power Plant. Construction of the first reactor is expected to start in 2029, and the reactor should go into trial operation in 2036. The construction is to be based on a contract between the KHNP and the semi-state-owned energy company Dukovany II (EDU II).

Both EDF and Westinghouse appealed to Czechia's competition authority about the selection process. Westinghouse ultimately withdrew its appeal, and the appeal submitted by EDF was rejected by the competition authority. On 2 May 2025, EDF submitted a motion against the decision of the competition authority to the Regional Court in Brno, which is the competent administrative court. At the same time, EDF applied to the court for a preliminary injunction, which would block the signing of the contract between EDU II and KHNP.

On 6 May 2025, the day before EDU II planned to sign the contract with KHNP, the Regional Court in Brno granted the injunction, to last until EDF's case was heard in full. The court stated it granted the injunction because of the "serious harm that the plaintiff (EDF) is threatened with [because] if the contract were concluded the French bidder would irretrievably lose the opportunity to obtain the public contract, even if the court ruled in its favour in the lawsuit."[1] Due to the injunction, it was legally impossible for EDU II and KHNP to enter into the contract. In a statement on its website, the Regional Court explained its resolution: "it is a significant public contract [...] the court is aware that the decision will bring negative consequences that threaten to arise in the event of a delay in the construction of the new nuclear units in Dukovany. However, these do not outweigh the interest in compliance with the law and in ensuring effective judicial review."[2]

1. Resolution of the Regional Court in Brno of 6 May 2025, No. 30 Af 15/2025-76.
2. I*bid*.

As a party participating in the proceeding before the Regional Court in Brno, EDU II submitted a cassation appeal against the resolution, which the court issued on 6 May 2025. This appeal was submitted to the Supreme Administrative Court, which is the supreme authority of judicial review in Czechia. With its decision of 4 June 2025, the Supreme Administrative Court cancelled the preliminary injunction granted by the resolution of the Regional Court in Brno.[3] The Supreme Administrative Court argued that the Regional Court in Brno "incorrectly assessed and measured the public interest in performing the contract and did not take into account other relevant interests".[4] This decision of the Supreme Administrative Court allowed EDU II and KHNP to sign the construction contract, which was done on the very same day in Prague.

On 25 June 2025, the Regional Court in Brno finally rejected the motion submitted by EDF against the decision of Czechia's competition authority. EDF had the right to submit a cassation appeal to the Supreme Administrative Court. However, EDF announced that it will not pursue any further legal claims against the EDU II and KHNP contract.

United States

Spent fuel storage litigation

On 18 June 2025, the United States (US) Supreme Court issued a much-anticipated decision concerning the US Nuclear Regulatory Commission's (NRC) issuance of a licence authorising the construction and operation of a commercial spent nuclear fuel storage facility in the state of Texas.[5] The Supreme Court reversed a prior decision of the US Court of Appeals for the Fifth Circuit, which had granted a petition for review filed by Texas and two local organisations (collectively referred to as "Fasken") challenging the issuance of an NRC licence issued to Interim Storage Partners, LLC (ISP). In that prior decision, the Fifth Circuit vacated the ISP licence after concluding that federal law did not authorise the NRC to issue a licence to store spent nuclear fuel at a privately owned facility located away from where the spent fuel was generated.[6] The Supreme Court reversed that decision and remanded the case back to the Fifth Circuit with instructions to deny or dismiss the petition for review, effectively restoring the ISP licence.

The Supreme Court's decision to reverse the Fifth Circuit was on procedural grounds. The Court held that neither Texas nor Fasken was entitled to obtain judicial review of the NRC's final licensing decision, and thus the Fifth Circuit's vacatur of the licence was in error. The Supreme Court interpreted the federal law governing judicial review of NRC licensing decisions (referred to as the "Hobbs Act"), which expressly limits such review to a "party aggrieved" by the NRC's final order issuing the licence.[7] The Atomic Energy Act of 1954, as amended, governs how interested persons may become a "party" to an NRC licensing proceeding. The Atomic Energy Act states that the NRC "shall grant a hearing upon the request of any person whose interest may be affected by the [licensing] proceeding," and that the NRC "shall admit any such person as a party" to that proceeding.[8] NRC procedural regulations further prescribe the timing and the required contents of any request for hearing or petition for leave to intervene in an NRC licensing proceeding.[9] Thus, the Supreme Court stated,"[t]o qualify as a party to a licensing proceeding, the Atomic

3. Decision of the Supreme Administrative Court of 4 June 2025, No. 10 As 95/2025-325.
4. I*bid.*
5. NRC v. Texas, 605 U.S. __ (2025), slip op., available at www.supremecourt.gov/opinions/24pdf/23-1300_b97c.pdf.
6. Texas v. NRC, 78 F.4th 827 (5th Cir. 2023). A full summary of this decision may be found in NEA (2023), "Spent fuel storage litigation", *Nuclear Law Bulletin*, No. 111, OECD Publishing, Paris, pp. 76-77.
7. 28 United States Code (USC) 2344 ("Any party aggrieved by the final order may, within 60 days after its entry, file a petition to review the order in the court of appeals wherein venue lies.").
8. 42 USC 2239(a)(1)(A).
9. Code of Federal Regulations (CFR) 2.309.

Energy Act requires that one either be a license applicant or have successfully intervened in the licensing proceeding."[10]

The Court agreed with the NRC's argument that neither Texas nor Fasken was a "party aggrieved" by the issuance of the licence because neither had successfully intervened as a "party" in the licensing proceeding while it was pending before the Commission. Both the State of Texas and Fasken argued that they should be considered "parties" to the licensing proceeding because each had submitted comments on the NRC's draft environmental impact statement while the application was under review, which the Supreme Court determined was inadequate to qualify as a "party" under the Hobbs Act.[11] Fasken also asserted that it should be considered a "party aggrieved" because it had attempted to intervene as a "party" in the ISP licensing proceeding, and the NRC (wrongfully, in its view) had denied its petition for intervention. However, Fasken had properly sought judicial review of that NRC decision denying its petition to intervene elsewhere, before the Court of Appeals for the District of Columbia Circuit, which upheld the NRC's denial decision.[12] Thus, the Supreme Court stated that Fasken could not use this separate challenge before the Fifth Circuit to relitigate that denial, which Fasken had not appealed to the Supreme Court.[13] Lastly, the Supreme Court rejected the argument that, despite not having formally intervened as "parties", Texas and Fasken should be permitted to challenge the NRC's decision to issue the licence, under an "*ultra vires*" cause of action, which translates to "beyond the powers" and refers to a lawsuit in which the plaintiff alleges a government agency has performed an action beyond the scope of its legal authority. The Supreme Court stated its strong disfavour of review of "*ultra vires*" claims, especially in situations where a statutory scheme (in this case, the Hobbs Act) already provides aggrieved persons with a meaningful and adequate opportunity to raise such arguments before the agency.[14] It therefore rejected the argument.[15]

Because the Supreme Court decided the case solely on procedural grounds, it did not decide the underlying legal question of whether the Commission possesses the statutory authority to issue a licence for the storage of spent fuel at a private, off-site facility. However, three members of the Court joined a dissenting opinion written by Justice Gorsuch, in which he concluded that the NRC cannot lawfully issue such a licence.[16] In response to that dissenting opinion, the majority of the Supreme Court devoted a section of its opinion to express its view that "history and precedent offer significant support for the Commission's longstanding interpretation" that the Atomic Energy Act authorises the issuance of licences to store spent nuclear fuel at private off-site facilities.[17] Thus, while still unresolved as a legal matter, the opinion in *NRC v. Texas* strongly signals that a current majority of the Supreme Court is of the view that the NRC does possess the authority to issue such licences.[18]

On 30 June 2025, the Supreme Court also issued a summary disposition order concerning the Fifth Circuit's separate, but related, decision to vacate the NRC's issuance of a licence to Holtec for a spent nuclear storage facility in New Mexico.[19] The Court vacated that decision and remanded the case back to the Fifth Circuit for further consideration in light of the decision in *NRC v. Texas*. The Fifth Circuit had previously acknowledged that the case involving the New Mexico facility was "materially identical" to the Texas case, and the outcome of the Texas case would dictate the outcome of the challenge to the New Mexico facility.[20]

10. NRC v. Texas, *supra* note 5, p. 2.
11. *Ibid.* pp. 8-11.
12. Don't Waste Michigan v. NRC, 2023 WL 395030 (25 Jan. 2023).
13. NRC v. Texas, *supra* note 5, pp. 11-13.
14. *Ibid.*, pp. 12-15.
15. *Ibid.*
16. *Ibid.*, dissenting opinion of Gorsuch, J., slip op., pp. 9-16.
17. *Ibid.*, pp. 17-21.
18. "The dissent's description of an agency that is flagrantly violating its governing statutes seems to be in substantial tension with about 50 years of consistent congressional action, agency practice, and judicial interpretation." *Ibid.*, p. 21.
19. Holtec International v. NRC, 2025 WL 1787686 (30 June 2025).
20. Fasken Land and Minerals, Ltd. v. NRC, 2024 WL 3175460 (27 Mar. 2024).

NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

Czechia

General legislation, regulations and instruments

Act No. 83/2025 Coll., amending the Act No. 263/2016 Coll.

On 26 February 2025, the Parliament of the Czech Republic (Czechia) adopted an amendment to Act No. 263/2023 Coll. (Atomic Act) to address the deployment of small modular reactors (SMRs). On 10 March 2025, the President of Czechia signed the amendment, which was subsequently published in the Collection of Laws.[1]

The main principles of the Amendment can be summarised as follows:

a) adaptions to prepare for new nuclear technologies, in the form of simplification of licensing processes and more appropriate gradation of requirements for nuclear facilities, which allow general exceptions to the law and generalisations;

b) revisions to reflect practical findings, especially in the use of ionising radiation, e.g. by adjusting some requirements for testing sources of ionising radiation and revising the patient protection regime in the event of radiological events;

c) implementation of international recommendations, e.g. recommendations regarding nuclear research facilities, management of nuclear facility obsolescence and ensuring security (especially in connection with the results of international assessment missions regarding cybersecurity and security culture, project requirements for ensuring the non-proliferation of nuclear weapons and transport of radioactive and fissile materials);

d) more precise transposition of the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention);[2]

e) reflections of some new requirements of other Czech regulations (particularly in the field of digitalisation); and

f) corrections of shortcomings in the wording of the Nuclear Energy Act 263/2023 Coll. that were revealed during its practical application.

1. Act No. 83/2025 Coll.
2. Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (1998), 2161 UNTS 450, entered into force 30 Oct. 2001 (Aarhus Convention).

The Czech Government justified the adoption of the Amendment as necessary to fulfil the principles mentioned above, but especially to prepare the nuclear legislation for the arrival of new nuclear technologies.[3] The original version of the Atomic Act was designed to reflect the realities arising from conventional nuclear power plants. As the explanatory note to the Amendment explains, "under the current state of the Atomic Act (and its implementing regulations), it cannot be ruled out that the process of deploying new nuclear technologies will be delayed or even interrupted due to certain outdated or overly casuistic requirements. This could endanger the energy security of the Czech Republic and prevent the achievement of climate goals."

To reflect the challenges arising from the prospective deployment of SMRs, the Amendment has introduced two new tools into the wording of the Atomic Act. First, the Amendment creates a new section of the Atomic Act, Section 228a, on "preliminary information" on SMRs as the relatively dynamic process of their deployment implies several professional and technological uncertainties. Several factual steps must be taken in advance before sufficient information is available that would allow the regulatory authority to assess in full whether it is possible to safely site, construct and operate a given installation. This includes, for example, the procurement of components entailing a long production timeline, requiring manufacturing to begin many years before the start of *in situ* construction. For this reason, it is necessary to conduct consultations before carrying out the relevant procedures to clarify whether the information and documents for the applicable procedures, or even the technology, equipment or location captured in the information, may be sufficient and technically satisfactory to such a degree as would be necessary to issue a licence.

Section 228a permits licence applicants to request "preliminary information" from Czechia's State Office for Nuclear Safety (SÚJB) on what aspects of a project the SÚJB will consider when assessing a request for a decision or under what conditions the request can be granted. "Preliminary information" can then be used to determine whether a decision is needed to implement a specific project. At the same time, "preliminary information" may also serve to obtain information on requirements, which the regulatory authority will assess when issuing the decision.

The purpose of the "preliminary information" is not to issue the decision itself, but to provide an opportunity for explanation or consultation. However, it will have the nature of an official output, meaning it will be binding on the SÚJB. Therefore, the regulatory authority should not deviate from the information provided unless the conditions change considerably. "Preliminary information" provides both parties with the opportunity to clarify, in an official way, what should be implemented in the permitting processes. Compared to a purely informal statement, the "preliminary information" is a more formal and official reply. The applicant obtains an official output that can be used in subsequent procedures; at the same time, the regulatory authority officially determines the inputs and limits for the upcoming procedure and is bound by these outputs.

The Amendment also introduces a tool to address the prospective deployment of SMRs in a new section of the Nuclear Energy Act 263/2023 Coll., Section 228b, on the approval of an exemption to general legal requirements. The newly adopted section reflects the fact that SMRs will imply several technological innovations that the current legislation cannot take into account and, due to rapid development, it is not possible to adjust legislative requirements as quickly as the need arises. It is also not possible to adequately prepare these requirements in advance, since the technology does not yet exist. The Amendment therefore

3. It should be noted that in 2023 the Czech Government issued a strategic document, entitled "Restart of the Czech Republic: Becoming a major crossroads of Europe within ten years" that also addressed the issue of SMRs. In this document, the Government outlined its vision that Czechia not only become a country where SMRs will be in operation in the 2030s, but also a place for the manufacture and export of these technologies to other European countries and beyond. In furtherance of this goal in 2024, the semi-state-owned energy group *České Energetické Závody* (ČEZ Group) entered into a partnership with the British company Rolls-Royce to deploy modular reactors in the Czech Republic.

introduces the possibility for SÚJB or the Radioactive Waste Repository Authority to authorise exemptions from legal requirements relating to ensuring nuclear safety, radiological protection, technical safety, radiation monitoring, management of a radiological emergency, security and non-proliferation of nuclear weapons. The Amendment provides rigorous prerequisites for the application of such an exemption, which exclude its abuse or circumvention of the law. In addition to the usual legal constraints for such exemptions, the applicant must first provide evidence that the exemption will ensure safety and respect good practice, which is considered to include, among others, the requirements of the International Atomic Energy Agency.

The amended provisions of the Nuclear Energy Act 263/2023 Coll. entered into force on 1 July 2025.

France

Organisation and structure

Decree No. 2024-1241 of 30 December 2024 regarding the performance of remunerated activities by the Nuclear Safety and Radioprotection Authority services and the certification procedure for regulatory decisions of a technical nature taken by said Authority[4]

Law No. 2024-250 of 21 May 2024 established the Nuclear Safety and Radioprotection Authority (Autorité de sûreté nucléaire et de Radioprotection, ASNR) as of 1 January 2025. The ASNR is an independent administrative authority (IAA) that resulted from the merger of the Nuclear Safety Authority (Autorité de sûreté nucléaire) and the Institute for Radioprotection and Nuclear Safety (Institut de radioprotection et de sûreté nucléaire). Decree No. 2024-1241 sets out the conditions to be observed by the ASNR, as an IAA vested with decision-making and surveillance powers, when performing remunerated activities. The Decree provides that:

- to be remunerated, said activities or services (training sessions, issuance of certificates, clearances, qualifications, accreditations or certifications, compliance assessments, provision of technical and research means, and radiological protection operational assistance) must meet at least one of the following criteria:
  - the service helps to preserve technical skills necessary for the performance of the ASNR's mission;
  - the ASNR is uniquely placed to provide service of a higher quality level than market competitors; or
  - the service derives from a mission that was expressly assigned to the ASNR by provision of law or regulation;
- as regards activities resulting from an individual decision or control relating to basic nuclear installations (INB), transport of radioactive substances or nuclear pressure equipment (ESPN), the ASNR can only answer a request for remunerated services when no offer exists on the market; and
- as regards its research activities, the ASNR can only be remunerated in certain determined instances and only up to the value of the research programmes' outcomes.

4. Decree No. 2024-1241 of 30 December 2024 regarding the performance of remunerated activities by the Nuclear Safety and Radioprotection Authority services and the certification procedure for regulatory decision of a technical nature taken by said Authority, *Journal officiel de la République française* [Official Journal of the French Republic] (JORF) No. 309, 31 December 2024, text No. 39.

The Decree also sets out certification procedures for technical regulatory decisions made by the ASNR in relation to INB, ESPN and the transport of radioactive substances.

Decision No. 2025-DC-005 of 2 January 2025 adopting the Rules of procedure of the Nuclear Safety and Radioprotection Authority[5]

On 2 January 2024, the ASNR adopted its Rules of Procedure of the Nuclear Safety and Radioprotection Authority (Rules), which sets out the operational and ethics rules applicable to its Commission and Services when performing their respective missions. The Rules begin by defining the roles of the Commission, as well as its organisational and operational regulations. The Rules also define the organisation and operation of ASNR services, making a clear distinction between the inquiry and expertise missions and the decision-making role. In this regard, the Rules provide that, on the one hand, the main purpose of an inquiry is to allow for a decision or opinion to be issued by the ASNR and, on the other hand, ASNR's mission to provide expertise comprises a number of activities carried out to provide assessments on matters of nuclear safety and radiological protection that are as objectively grounded as possible, based on available knowledge and demonstrations, along with professional judgement. In this context, the Rules define operational regulations aimed at ensuring, for a given case, a distinction between staff in charge of an inquiry, staff in charge of carrying out expertise and staff responsible for decision-making.

Moreover, the Rules contain:

- provisions relating to standing expert groups the ASNR can rely on, as appropriate, when preparing its decisions and opinions;
- provisions relating to the scientific committee consulted by the ASNR, including those concerning its scientific strategy and research programmes; and
- two Annexes in the form of charters, one pertaining to staff and Commissioners' ethics (Annex 1) and one to external expertise carried out at the ASNR's request (Annex 2).

Radiological protection

Decree No. 2024-1238 of 30 December 2024 relating to the protection of workers against risks stemming from ionising radiation[6]

Decree No. 2024-1238 of 30 December 2024 updates a number of provisions relating to the ASNR's mission, taking into account its status as an IAA and the integration of its roles as regulator and provider of expertise and remunerated services into a single entity. The Decree also amends the provisions relating to radiation exposure prevention for workers, including a number of provisions pertaining to:

- demarcation and signage in the context of workplace arrangements made by the employer;
- inspection of the workplace and vehicles in the context of transport of radioactive substances;
- inspection of work equipment and sources of ionising radiation;
- handling of industrial radiology equipment;
- surveillance of individual worker exposure;

5. Decision No. 2025-DC-005 of 21 January 2025 adopting the rules of procedure of the Nuclear Safety and Radioprotection Authority (JORF No. 29, 4 Feb. 2025) Text No. 41.
6. Decree No. 2024-1238 of 30 December 2024 relating to the protection of workers against risks stemming from ionising radiation (JORF No. 39, 31 Dec. 2024, Text No. 36).

- exceptional exposure situations subject to authorisation;
- intervention in situations of radiological emergency; and
- organisation of radiological protection, including the designation of Radioprotection Advisors.

Slovak Republic

General legislation, regulations and instruments

Act No. 171/1993 Coll. (Police Force Act)

The Police Force Act amends Article IV of Act No. 541/2004 Coll. (Atomic Act)[7] to:

- reflect increased risks of threats to nuclear installations due to the necessity of constantly increasing the level of nuclear safety; and
- address the integrity and entry of persons into nuclear installations due to the armed conflict in Ukraine as well as the escalated tensions in the Middle East.

A second amendment, approved by the National Council of the Slovak Republic (Slovak Parliament) as Act No. 299/2024 Coll. regarding nuclear security, in effect as of 12 December 2024, enhances co-operation between the police and General Prosecutor regarding the criminal register and, more particularly, on the Report on Integrity.

Act No. 25/2025 Coll. (New Building Act)

The New Building Act, which went into effect on 17 April 2025, repeals Act No. 50/1976 Coll. on Spatial Planning and Building Regulations (Building Act) and Act No. 201/2022 Coll. on Construction as amended by the Act No. 77/2025 Coll. In addition to repealing those acts, the New Building Act contains transitional provisions both for existing nuclear installations and for new nuclear installations for which siting decisions were issued by 31 March 2025, in which procedures shall continue to be carried out according to the current regulations even after 1 April 2025.

Act No. 26/2025 Coll.

Act No. 26/2025 Coll. on amendment and supplement to some Acts in connection with changes introduced by the Building Act amends certain legislation to reflect changes introduced by the New Building Act above and went into effect on 19 February 2025.

Act No. 366/2024 Coll.

Act No. 366/2024 Coll. amending and supplementing Act No. 69/2018 Coll. on cybersecurity went into force on 28 November 2024 and amends Article V of the Atomic Act:[8]

- establishing the competence of the Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR) in cybersecurity;
- adding a document as part of the inspection process due to the analysis of the current state of cybersecurity of computers; and

7. An unofficial English translation of the current version of the Atomic Act, as amended is available at: www.ujd.gov.sk/wp-content/uploads/2025/03/Atomic-act-26_2025_24.3.2025.pdf.
8. An English translation of the text of Act No. 366 can be found at: www.ujd.gov.sk/wp-content/uploads/2025/01/366-2024-na-web-cl.-V.pdf.

- determining systems important primarily in terms of nuclear safety, physical protection, emergency preparedness and registration and control of nuclear materials.

Act No. 367/2024 Coll.

Act No. 367/2024 Coll. on critical infrastructure and on amendment and supplement to some Acts went into force on 1 January 2025 and elaborated on key topics, including:

- regulating procedures for identifying a "critical entity" and a "critical entity of particular European importance";
- detailing the obligations of a "critical entity" to ensure the resilience of critical infrastructure and the continuity of the provision of so called "essential services"; and
- establishing liability for breach of obligations laid down in the Act.

Other legislation

The legislative process is ongoing on a draft decree amending and supplementing the Decree of the ÚJD SR No. 431/2011 Coll. on the quality management system, as amended, based on the enabling provision of Section 25(6) of Act No. 541/2004 Coll. on the peaceful use of nuclear energy and on amendments to certain acts, as amended.

International co-operation

Bilateral Meeting between ÚJD SR and the Czechia's State Office for Nuclear Safety (SÚJB)

A bilateral meeting between ÚJD SR and SÚJB was held in Prague, Czechia on 23-24 February 2025. During two days of discussion, the partners informed each other about their current regulatory activities, legislative developments, the operation of nuclear facilities, radiological protection and current developments in international co-operation.

Bilateral Meeting between ÚJD SR and the Polish National Atomic Agency (PAA)

A bilateral meeting between ÚJD SR and PAA took place in Otrebusy, Poland on 23-24 April 2025. During the year's consultations, special attention was paid to the current challenges related to the building and strengthening of human resources in the field of nuclear regulation.

Quadrilateral+ meeting

A Quadrilateral+ meeting was held in Portorož, Slovenia on 13-14 May 2025 between Czechia, Hungary, Finland, Poland, the Slovak Republic and Slovenia. During the two days of discussion, the partners informed each other about current developments in their regulatory activities and current issues related to nuclear safety and radiological protection. The discussions focused on current and upcoming challenges, particularly those related to the long-term operation of nuclear power plants, maintenance of nuclear facilities, competence development, licensing of new nuclear installations (including SMRs) and international co-operation.

Bilateral meeting between Austria and the Slovak Republic

A bilateral meeting between Austria and the Slovak Republic took place in Vienna, Austria on 20-21 May 2025. There, the partners informed each other about current developments in the field of nuclear safety and radiological protection, activities of their respective regulatory authorities and other relevant institutions, commissioning and operation of nuclear installations, amendments in legislation, and developments in the field of radiation monitoring. The topics discussed also included emergency preparedness, decommissioning of nuclear installations and the new nuclear power plant in the Slovak Republic.

INTERGOVERNMENTAL ORGANISATION ACTIVITY

International Atomic Energy Agency

Nuclear safety

Code of Conduct on the Safety and Security of Radioactive Sources

The International Atomic Energy Agency (IAEA or Agency) convened an Open-ended Meeting of Technical and Legal Experts on States' Implementation of the Guidance on the Management of Disused Radioactive Sources (the Guidance) on 9-13 June 2025. The event enabled IAEA member states to exchange experiences in relation to the safe and secure management of disused sealed radioactive sources, as recommended by the Code of Conduct on the Safety and Security of Radioactive Sources (Code of Conduct) and by the Guidance, and to discuss challenges in this area. This exchange of experiences aimed to:

(a) assist states in their national implementation of the Code of Conduct and the Guidance by enabling them to learn from the experiences of others and evaluate their own progress on implementation of the Code of Conduct and Guidance;

(b) increase the knowledge of states concerning the capability of other states to manage disused radioactive sources in a manner consistent with the Code of Conduct and the Guidance;

(c) increase awareness of the Secretariat about the implementation of the Code of Conduct and the Guidance to assist in the planning of assistance activities; and

(d) invite and encourage more states to implement (and politically commit to) the Code of Conduct and the Guidance.

Convention on Nuclear Safety (CNS)

In March 2025, several activities took place in preparation for the 10th Review Meeting of the Convention on Nuclear Safety. A CNS Officers' Turnover Meeting was held on 4 March 2025, followed by a two-day Officers' Training conducted on 5-6 March 2025. The meetings aimed at ensuring the effective rotation and training of CNS officers, while also providing an opportunity to reflect on lessons learnt from the previous review cycle.

Denials and delays of shipment of radioactive material

The Agency held the Fourth Meeting of the Denial of Shipment (DoS) Working Group in Vienna in February 2025 to report on the progress of the Group and its related sub-working groups.

The DoS Working Group noted the outcomes of the Open-Ended Meeting of Legal and Technical Experts on the Draft Code of Conduct on the Facilitation of the Safe and Secure Transport of Radioactive Material (hereinafter "the Draft Code of Conduct") held on 15-18 July 2024. The purpose of that meeting was to discuss the proposed draft Code of Conduct submitted by the DoS Working Group, pursuant to IAEA General Conference resolution GC(67)/RES/7, and to provide a report that summarises the discussions and conclusions reached and formulates clear recommendations for a path forward. While member state participants could not reach consensus on the Draft Code of Conduct, they recommended that interested member states should continue consultations on the DoS. In addition, the

DoS Working Group also noted that France and Italy drafted a Joint Statement on the Facilitation of Safe and Secure Transport of Radioactive Material to raise awareness and gain support at the state level. The DoS Working Group encouraged interested member states to contribute to its development.

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention)

The Eighth Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (Joint Convention) took place at the IAEA Headquarters in Vienna, Austria, on 17-28 March 2025 and was attended by 77 of the 90 Contracting Parties. During the Review Meeting, Contracting Parties reported good progress and significant accomplishments in implementing their national programmes and enhancing the level of safety in the management of radioactive waste and spent fuel. Fourteen overarching issues were identified during the meeting. The Contracting Parties were encouraged to report on the following issues at the next Review Meeting:

- emergency preparedness: response to natural and human-made events;
- financial resources, human resources and knowledge management for sustainable radioactive waste and spent fuel management;
- safe management of waste streams from new technologies;
- public engagement in the safe management of radioactive waste, disused sealed sources and spent fuel; and
- monitoring the condition of spent fuel, radioactive waste and disused sealed sources in long-term storage.

It was suggested that the use of artificial intelligence for the safety of radioactive waste and spent fuel management and multi-lateral co-operation be considered for the topical session at the Ninth Review Meeting.

In addition, a half-day topical session was held on knowledge management related to long-term management of disused sealed sources, radioactive waste and spent fuel. During the Eighth Review Meeting, the Contracting Parties amended the Joint Convention Guidelines regarding the Review Process (INFCIRC/603/Rev.10) and established a Working Group to discuss proposals to reduce the burden on officers and enhance the efficiency of the Joint Convention peer review process.

Outreach on the CNS

On 16-20 June 2025, the Agency hosted educational workshops on the CNS for the new CNS Contracting Parties that recently joined the instrument, as well as Contracting Parties experiencing challenges in fulfilling their obligations under the CNS. The workshop provided an opportunity for exchange of information and experience regarding the CNS peer review process.

Nuclear security

Outreach on the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment (A/CPPNM)

The Agency continued to promote further adherence to and full implementation of the Convention on the Physical Protection of Nuclear Material (CPPNM) and its Amendment (A/CPPNM) through two regional workshops: for states in Latin America and the Caribbean, held in Cuba in April 2025, and for States in Africa, held in Tanzania in June 2025. In addition, awareness-raising meetings were held with parliamentarians and decision makers from Gambia in February 2025 and from Zambia in May 2025.

Nuclear liability

The 25th regular meeting of the International Expert Group on Nuclear Liability (INLEX or the Group) took place at IAEA Headquarters on 17-19 June 2025. At the meeting, the Group discussed, *inter alia*, recent developments in the field of nuclear liability, the geographical scope of the 2004 Paris Convention, the 1963 and 1997 Vienna Conventions, and the 1997 Convention on Supplementary Compensation for Nuclear Damage, as well as the current liability limits of the parties to the 1963 Vienna Convention. The group also discussed the understanding of the term "for use" provided in the 2014 IAEA Board of Governors resolution (GOV/2014/63, derestricted 9 June 2017) and the related 2016 OECD/NEA Steering Committee for Nuclear Energy decision on the exclusion of small quantities of nuclear material from the scope of the nuclear liability conventions. The Group once again considered liability issues related to small modular reactors (SMRs) and nuclear-powered civil merchant ships. In addition, the Group discussed possible updates to the IAEA's Explanatory Texts on the 1997 Vienna Convention on Civil Liability for Nuclear Damage and the 1997 Convention on Supplemental Compensation (CSC) and Explanatory Text on the 1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention.

On 16 June 2025, a Workshop on Civil Liability for Nuclear Damage for diplomats from member states was held at IAEA headquarters in Vienna with the assistance of INLEX members. The purpose of the workshop was to provide the diplomats with an opportunity to gain further knowledge about the international legal framework on nuclear liability. The workshop addressed the relevance of the global nuclear liability regime as consistently called for by the IAEA's General Conference, in the light of the needs of nuclear power plant operating countries, newcomer countries and neighbouring countries, as well as coastal states.

The Fifth Meeting of the Contracting Parties and Signatories to the CSC was held at IAEA Headquarters in Vienna, Austria, on 23-26 June 2025. More than 100 representatives from 17 CSC parties and signatories joined the meeting in person and online. They were joined by delegates from 18 invited observer countries, as well as invited observers from the nuclear industry, insurers, lenders, the European Union and the NEA. During the Fifth Meeting, representatives from countries in the process of or considering joining the CSC shared their views on the Convention, their reasons for considering it and any issues arising during the process. Industry participants highlighted the need to establish a global nuclear liability regime based on the CSC, which would provide legal certainty to all stakeholders in the nuclear industry worldwide, including operators, insurers, suppliers and investors. The meeting also provided a forum for further practical discussions related to the operation of the CSC. A specialist panel also discussed the importance of the CSC with reference to the impact of nuclear liability on the cost of nuclear projects. The last part of the Fifth Meeting was devoted to the continued discussion among the CSC Parties of the issue of a possible amendment to the CSC, to eliminate the obligation for states with no nuclear reactors to make contributions to the Convention's supplementary international fund, as a step to encouraging more countries to join it.

Legislative assistance

The Agency continued to provide legislative assistance to member states to support the establishment of an adequate and comprehensive national nuclear legal framework and to promote adherence to the relevant international legal instruments. In particular, bilateral legislative assistance was provided to several member states through written comments and advice on the preparation of their respective national nuclear legislation. The Agency also held national workshops on nuclear law in Algeria, Bulgaria, China and Saudi Arabia.

Building on the IAEA's 2021-2022 Webinar Series on Nuclear Law, and in light of the growing demand for legislative assistance, particularly from embarking countries, the Agency launched a third webinar series on nuclear law. Held in April 2025, the first webinar of this series focused on the safety and security interface in nuclear law. The second webinar, hosted in June 2025, focused on the pursuit of the global nuclear liability regime.

In January 2025, the Agency held a subregional workshop on nuclear law for member states in the Middle East in Vienna, Austria.

The Agency also continues to implement the pilot University Partnership Programme on Nuclear Law, launched by the IAEA Director General during the First International Conference on Nuclear Law: The Global Debate in April 2022. Through this Programme, the Agency is supporting the establishment of postgraduate courses in nuclear law at the six participating academic institutions in Argentina (University of Buenos Aires), Brazil (Nuclear Engineering Institute of the National Nuclear Energy Commission), Egypt (Alexandria University), Jamaica (University of the West Indies), South Africa (University of the Witwatersrand), and the UAE (Khalifa University of Science and Technology). In July 2025, the University of Buenos Aires completed the first run of its postgraduate course on nuclear law, which was launched in May 2024. The other five institutions are expected to launch their courses later in 2025.

OECD Nuclear Energy Agency

Nuclear Law related meetings

Meeting of the NEA Nuclear Law Committee (NLC)

On 14-15 May 2025, the NLC met in person and online with 62 participants from 24 NEA member countries, 2 non-NEA member countries, representatives from the nuclear insurance industry, the European Union (EU) and the International Atomic Energy Agency (IAEA). The meeting included, *inter alia*, an address by NEA Director-General William D. Magwood IV, along with updates from the IAEA and the EU, presentations on national developments in Canada, Czechia, Poland, the United Kingdom and the United States, and a *tour de table* to discuss national developments in the area of advanced reactors and small modular reactors. In addition, the Japanese delegation to the NLC reported on the status of lawsuits involving nuclear damage attributed to the 2011 Fukushima Daiichi Nuclear Power Plant accident.

Meeting of the Working Party on Legal Aspects of Nuclear Safety (WPLANS)

The WPLANS met in person and online on 13 May 2025 to discuss the legal aspects of nuclear safety. The meeting was attended by 31 participants representing 16 NEA member countries and 2 non-NEA member countries. WPLANS members heard presentations on legal challenges to licensing decisions in Canada and the United States and on national developments in the legal aspects of nuclear safety in Czechia, Spain and the United Kingdom, among other topics addressed.

Meeting of the Working Party on Nuclear Liability and Transport (WPNLT)

The WPNLT met in person and online on 16 May 2025 to discuss the application of the nuclear liability regimes to deep geological repositories and other radioactive waste disposal facilities. The meeting was attended by 37 participants representing 15 NEA member countries, 2 non-member countries, the IAEA, the International Nuclear Law Association (INLA), the World Nuclear Association (WNA) and the World Nuclear Transport Institute (WNTI).

The meeting included a session on key considerations related to insuring the transport of nuclear material, featuring presentations by representatives from nuclear insurance pools, mutuals, and protection and indemnity clubs. Those in attendance also received updates from the Secretariat, the IAE, INLA, WNI, and WNTI. Finally, the Working Party considered the potential overlap of operators' nuclear liability in case of international transport of nuclear materials in the absence of treaty relations between the installation states of the sending and receiving operators. A draft case on the issues was developed to identify all relevant aspects to be taken into consideration.

Meeting of the Contracting Parties to the Paris Convention on Third Party Liability in the Field of Nuclear Energy (CPPC)

The CPPCs met in person and online on 13 May 2025, with 13 participants from 6 countries in attendance. The attendees updated on their respective national legislative and administrative processes, financial securities and other actions relation to the implementation of the Paris Convention (PC) and Brussels Supplementary Convention. In addition, the CPPCs discussed several nuclear liability-related matters, including the application of the Paris Convention to nuclear incidents occurring, or damage suffered, on the high seas or in international airspace, as well as applicable reciprocity conditions under Article 2(a)(iv) of the PC and the Table on Status of the Decisions, Recommendations and Interpretations Concerning the Paris Convention Adopted by the Steering Committee for Nuclear Energy in Contracting Parties to the Paris Convention.

The CPPCs also received updates on the activities of the CPPC-related working groups, including the Working Group on the Conditions to Call upon the Supplementary Funds Pursuant to the Brussels Supplementary Convention, the Working Group on Fusion and the Possibility of its Inclusion within the Scope of the Paris Convention and the Expert Group on Nuclear Installations for the Decay Storage of Certain Types of Low-level Short Lived Radioactive Waste.

NEA initiatives

Meeting of the NEA Global Forum on Nuclear Education, Science, Technology and Policy (Global Forum) Working Group on Re-Establishing Nuclear Law Education Programmes

On 7 February 2025, The NEA Working Group on Re-Establishing Nuclear Law Education Programmes held it 5th meeting, where members shared updates about nuclear law education, both at their respective universities and elsewhere, and discussed the recently published Survey on Nuclear Law Workforce Planning, planning for the analysis of the data and reporting of the survey results. The group also considered how to contribute to the 2025 Global Forum Symposium, to be held at the University of Michigan from 30 September to 2 October 2025, and discussed potential avenues for early collaboration projects aimed at increasing co-operation among members throughout the year.

Women in Nuclear Law Initiative

The first general meeting of the Women in Nuclear Law Initiative (WiNLI) was held on 25 February 2025. Formed under the framework of a partnership between the NEA and Women in Nuclear (WiN) Global, WiNLI aims to promote and strengthen the involvement of women in nuclear law by attracting, retaining and promoting current and future talents in the field. Led by a 16-member leadership team made up of nuclear law experts, WiNLI has established 5 working groups focused on: mentoring; training and webinars; networking and events; membership, recruitment and outreach; and website and social media. Since its launch, over 100 people have joined the group, which held its first webinar, Nuclear Law 101, on 27 March 2025.[1]

Nuclear Education

2025 International Nuclear Law Essentials (INLE)

The 12th edition of the INLE course was held in Paris, France on 3-7 March 2025 with 79 professionals from 26 countries in attendance. Renowned specialists in nuclear law from

1. The presentations and recording for the webinar are available at: NEA (2025), "Women in Nuclear Law Initiative (WiNLI) Webinar: Nuclear Law 101", www.oecd-nea.org/jcms/pl_101605/women-in-nuclear-law-initiative-winli-webinar-nuclear-law-101.

international organisations, governments, academia and private industry delivered the INLE's intensive programme, which consisted of a series of lectures, case studies and panel discussions. Designed for participants of different backgrounds and career levels, the programme touched on all aspects of nuclear law, including nuclear safety, management of spent fuel and radioactive waste, environmental protection, transport, nuclear security, non-proliferation, safeguards, nuclear liability, and international trade.

NEA publications of interest

Fourth International Workshop on the Indemnification of Damage in the Event of a Nuclear Accident: Workshop Proceedings, Lisbon, Portugal, 8-10 October 2019.

Organised in collaboration with the Instituto Superior Técnico and the Faculty of Law of the University of Lisbon, the workshop was attended by more than 150 participants from 29 countries, including 42 subject matter experts. The report, published in December 2024, summarises the proceedings and conclusions from the Workshop's six sessions on: loss of life or personal injury; loss or damage to property; economic loss; costs of measures of reinstatement of impaired environment; costs of preventive measures; and transboundary claims handling.

Characteristics of a Trusted Nuclear Regulator

Published in March 2025, this report serves a practical guide explaining the attributes and organisational characteristics that can help a nuclear regulator develop trust with stakeholders and members of the public. Drawing from a range of research publications and sources, including outcomes from the first and second NEA workshops on stakeholder involvement in nuclear decision making, *Characteristics of a Trusted Nuclear Regulator* offers examples of actions and activities that can be taken to demonstrate trustworthy characteristics in practice.

Third NEA Stakeholder Involvement Workshop on Optimisation in Decision Making: Summary Report

The Third NEA Stakeholder Involvement Workshop on Optimisation in Decision Making, held on 5-7 September 2023, was designed to improve the common, practical understanding of what optimisation in decision making means for policy makers, regulators and other stakeholders across civil society and the nuclear sector. This Report, published in April 2025, summarises the discussions and presentations from the workshop and analyses, finding and proposals towards a generic, flexible and multidimensional framework for decision optimisation through stakeholder involvement.

Legal Frameworks for Nuclear Activities

The NEA's Division of Nuclear Law maintains a compilation *of Legal Frameworks for Nuclear Activities,* commonly known as the "Grand Orange",[2] that includes comprehensive reports on national legal frameworks from OECD and NEA countries, as well as select partner countries. Since publication of *Nuclear Law Bulletin* No. 113, reports have been published from Japan, the Slovak Republic, Slovenia, Switzerland and Türkiye.

2. The reports are available at: www.oecd-nea.org/legal-frameworks.

News Briefs

2025 International School of Nuclear Law (ISNL)

The next session of the ISNL will take place in Montpellier, France, from 25 August to 5 September 2025. Organised by the NEA and the University of Montpellier, the ISNL is an esteemed educational programme that provides a practical and comprehensive curriculum focused on areas such as nuclear safety, security, safeguards, environmental protection and nuclear third-party liability. Renowned specialists in nuclear law from international organisations, governments, academia and private industry will deliver the ISNL's rigorous programme, which consists of a series of lectures, case studies, group workshops and panel discussions. Participants who attend the programme, successfully complete a multiple-choice test and submit a dissertation can apply for a University Diploma in International Nuclear Law from the University of Montpellier.

Bridging Law and Technology: International Workshop for the Deployment of Small Modular Reactors

On 8-10 December 2025, the NEA and the Government of Sweden are co-hosting a workshop to discuss the legal frameworks needed for the adoption of small modular reactors (SMRs) and their applications. Moderated by Mr Paul Bowden, Honorary Professor of Law at the Nottingham Law School, the workshop will feature one opening, high-level session and fiver thematic half-day sessions led by Chairs representing the various NEA Standing Technical Committees. These sessions will cover:

- authorising small modular reactor (SMR) designs;
- SMR pre-licensing and licensing challenges, including siting, environmental reviews and public participation;
- factory manufacturing, mobile reactors and transportation;
- marine applications (propulsion, off-shore and on-shore power); and
- fuel cycle, waste management and decommissioning.

Each session will include cross-cutting panels featuring legal, technical, policy or other subject matter experts, panel discussions and opportunities for audience Q&A, and collaborative discussion sessions between the audience and panellists.

In advance of the workshop, Working Groups are being convened for each thematic session to provide participants opportunities for early engagement, collect background information on legal frameworks in different jurisdictions, identify targeted questions and topics for the workshop and document and review pre-workshop discussion papers summarising legal and technical background information, current legal and technical frameworks, and challenges in the topical areas. Access to the Working Groups, the information they collect and the papers are limited to workshop participants in advance of the workshop, and Working Group products will only be made publicly available after the workshop proceedings are published in 2026.

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NEA PUBLICATIONS AND INFORMATION

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An NEA monthly electronic bulletin is distributed free of charge to subscribers, providing updates of new results, events and publications. Sign up at www.oecd-nea.org/tools/mailinglist/register.

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The following articles and studies are featured in this issue: "The United Kingdom and the Treaty on the Prohibition of Nuclear Weapons in Latin America and the Caribbean: A case study in treaty implementation overseas" by Hugh Chalmers, "The Euratom nuclear safeguards system and how it works with the IAEA safeguards system" by Anne-Friederike Mildenstein, "Sustainable nuclear energy in Italy" by Federica Porcellana and "Nuclear cyberthreats and the EU legal framework – How EU cybersecurity laws apply to and impact nuclear power plants" by Outi Slant.

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