

A democratic nuclear energy transition? Public participation in nuclear activities

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Abstract

Governments, local authorities and civil society organizations are becoming increasingly vocal regarding the domestic and transboundary risks that nuclear power represents to health and the environment. While participatory rights are gaining importance in the nuclear sector, nuclear-related activities have been at the centre of inconsistencies and uncertainties in the practice of public participation under the Aarhus and Espoo Conventions. Against this background, this article analyses the interactions between international environmental law and international nuclear law to understand how environmental democracy principles apply in the context of nuclear activities. It presents the relationship as mutually beneficial: despite inherent tensions due to the nature of nuclear activities, these interactions hold important promises to democratize the nuclear field on the one hand and strengthen environmental democracy on the other.

1 | INTRODUCTION

Should the construction of a new nuclear power plant, representing a very low probability of accidents, be considered a risk of significant harm so that it requires a transboundary public participation process? Under which circumstances would extending the lifetime of a nuclear power plant require a transboundary environmental impact assessment (EIA), hence triggering public participation duties? At what stage of the decision-making process pertaining to nuclear energy-related activities should public participation take place?

In recent years, such and other questions have gained significant attention among legal practitioners because they have been at the centre of inconsistencies and uncertainties in the implementation of public participation in the context of nuclear power activities. An increasing number of governments, local authorities and civil society organizations are becoming vocal regarding the domestic and transboundary risks that nuclear power represents to health and the environment. Activism, both domestic and transnational, is not a new

phenomenon in the nuclear sector,¹ but the consolidating status of public participation in international law offers new tools for enhanced engagement. National and regional governments have been asserting their right to be involved in transboundary procedures on nuclear power activities,² while also taking legal action to contest the legality of state support for nuclear energy.³ Subnational entities, including cities, have also gathered forces across multiple countries⁴ or with

¹See, e.g., A Kaijser and JH Meyer, 'Nuclear Installations at the Border. Transnational Connections and International Implications. An Introduction' (2018) 3 *Journal for the History of Environment and Society* 1.

²See, e.g., Environment Agency Austria, 'Expert Opinion on the EIA for the New Nuclear Power Plant in Dukovany' (2019) <https://www.umweltbundesamt.at/fileadmin/site/themen/energie/kernenergie/verfahren/tschechien/uvp_dukovany/gutachten/mzp_expert_report_selected_parts.pdf>. At the regional level, see, e.g., Land Brandenburg, 'Transboundary EIA with Poland' (2020) <<https://mluk.brandenburg.de/mluk/de/umwelt/fach%C3%BCbergreifendes-umweltrecht/umweltpr%C3%BCfung/umweltvertraeglichkeitspruefung/grenzueberschreitende-uvp/>>.

³See Case C-594/18, *Austria v Commission*, ECLI:EU:C:2020:742, supported by Luxembourg.

⁴See, e.g., the city of Aachen starting lawsuits against Belgium regarding the decision to restart Tihange 2 and Doel 3 and to prolong the running time of further plants, joined by Maastricht and several other municipalities from Germany, the Netherlands and the German-speaking part of Belgium. See Tribunal of First Instance of Brussels (5th Chamber), *StädteRegion Aachen and others v Belgium, Federal Agency for Nuclear Control and ENGIE*

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nongovernmental organizations⁵ to contest governmental decisions on nuclear power. However, the use of international procedural duties to challenge political decisions on nuclear power has revealed the existence of fundamental ambiguities in the international legal landscape relative to public participation.

Against this background, the article aims to understand how environmental democracy principles, and more specifically public participation, apply in the context of nuclear activities. We do not take a stand on the advantages and disadvantages of nuclear power as a source of energy as such. Instead, we analyse the interactions between international environmental law and international nuclear law to draw lessons from the consolidation of participatory rights in the context of nuclear energy-related activities. To do so, we reflect on recent developments regarding the applicability and interpretation of two United Nations Economic Commission for Europe (UNECE) conventions in the context of nuclear activities, the Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters (Aarhus Convention)⁶ and the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention).⁷ We rely in particular on the findings of their two compliance committees since a significant part of their workload has been dedicated to nuclear energy.

Clarifying the international law applicable to public participation is especially critical in the UNECE region given the importance of nuclear power as a source of energy in the area. Nuclear power produces around 10% of the global electricity supply⁸ and 20% in the UNECE region.⁹ More than half of the reactors—290 out of 452—operating worldwide are based in the UNECE region. Twenty UNECE Member States operate nuclear power plants (NPPs), and 15 are either constructing new reactors or planning to develop them.¹⁰ Moreover, seven UNECE States are currently developing nuclear power programmes for the first time.¹¹ In this context, creating avenues for public participation is essential because the use of nuclear power cannot be dissociated from concerns over the risks related to accidents and radioactive waste that it carries. In addition, understanding how public participation rights are protected is crucial in the context of the clean energy transformation: Indeed, States either rely on nuclear power as a decarbonized source of energy and involve the public in relation to decisions on plant construction, lifetime extension

of existing plants and nuclear waste management and storage or decide to phase it out and face the legal implications of decommissioning and permanent disposal of high-level waste.

In Section 2, we contextualize the role played by the Aarhus and Espoo Conventions in the participatory trend applying to nuclear activities. We explain how it is reflective of the environmentalization of international nuclear law but also how it is an example of the yet unconsolidated function of public participation in this context. Section 3 presents the applicable UNECE legal framework that protects public participation rights in the context of nuclear-related activities. Sections 4 to 6 then focus on the lessons that can be drawn from the application of the Aarhus and Espoo Conventions to nuclear-related activities about the interactions between environmental and nuclear law. In Section 4, we concentrate on the rationale underpinning public participation in the context of nuclear-related activities to stress the mutually beneficial relationship between environmental and nuclear law. In Section 5, we are interested in the tensions that have, however, arisen from applying environmental democracy principles to nuclear activities. We seek to understand how the specificity of nuclear-related activities has revealed inconsistencies in how public participation rights and duties are interpreted. Section 6 looks at the other side of the coin and considers how international environmental law can also benefit from interacting with the nuclear field.

2 | PUBLIC PARTICIPATION AT THE CROSSROAD BETWEEN NUCLEAR LAW AND ENVIRONMENTAL LAW

The growing participatory trend in the nuclear field is an example of how nuclear energy has opened up to environmental concerns. Public participation is not considered to be a principle of energy law as such¹² but rather an environmental principle that influences the field of nuclear law.¹³ When assessing the applicability of environmental democracy principles to nuclear activities, the question of how the fields of (international) environmental law and nuclear law intersect is raised.

Nuclear law is generally viewed as an autonomous field of law: Internationally, peaceful uses of nuclear energy are excluded from the application of general treaties and instead governed by ad hoc international legal frameworks—relative to, inter alia, nuclear safety,¹⁴ early notification of nuclear accidents,¹⁵ assistance¹⁶ and liability and compensation.¹⁷ However, international nuclear law and international

Electrabel (3 September 2020) AR 2017/134/A. See also A Neslen, 'Shut Old Nuclear Reactors, Says Unprecedented Alliance of EU Cities' (The Guardian, 17 March 2016).

⁵Rheinland-Pfalz, 'Council of Ministers Approves Taking Part to Greenpeace's Case against the Nuclear Reactor Tihange 1' (2018) <https://mkuem.rlp.de/de/pressemeldungen/detail/news/detail/News/ministerrat-fuer-beitritt-zur-greenpeace-klage-gegen-akw-tihange-1/?no_cache=1>.

⁶Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (adopted 25 June 1998, entered into force 30 October 2001) 2161 UNTS 447 (Aarhus Convention).

⁷Convention on Environmental Impact Assessment in a Transboundary Context (adopted 25 February 1991, entered into force 10 September 1997) 1989 UNTS 309 (Espoo Convention).

⁸International Energy Agency (IEA), 'Nuclear Power in a Clean Energy System' (2019) 3; International Atomic Energy Agency (IAEA), 'Nuclear Power Reactors in the World' (2019) Reference Data Series No 2, 5–6.

⁹UNECE, 'Technology Brief: Nuclear Power' (2021) <https://unece.org/sites/default/files/2021-08/Nuclear%20power%20brief_EN_0.pdf> 4.

¹⁰*ibid.* 4 and Annex I.

¹¹*ibid.*

¹²R Heffron et al, 'A Treatise for Energy Law' (2018) 11 *Journal of World Energy Law and Business* 34.

¹³P Reyners, 'Le droit nucléaire confronté au droit de l'environnement: autonomie ou complémentarité?' (2007) *Revue Québécoise de Droit International* 149.

¹⁴Convention on Nuclear Safety (adopted 20 September 1994, entered into force 24 October 1996) 1963 UNTS 293.

¹⁵Convention on Early Notification of a Nuclear Accident (adopted 26 September 1986, entered into force 27 October 1986) 1439 UNTS 275.

¹⁶Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (adopted 26 September 1986, entered into force 26 February 1987) 1457 UNTS 133.

¹⁷For example, Vienna Convention on Civil Liability for Nuclear Damage (adopted 21 May 1963, entered into force 12 November 1977) 1063 UNTS 265; Paris Convention on Third Party Liability in the Field of Nuclear Energy and its 1963 Brussels Supplementary

environmental law intersect, as the two fields share a common objective to mitigate risks and conduct activities that are safe for the public and the environment.¹⁸ International nuclear instruments include concerns for the environment,¹⁹ and, in turn, international environmental treaties bear obligations on nuclear activities.²⁰ According to Emmerechts, environmental law entered the nuclear field both ‘directly by making nuclear activities subject to international environmental law’ and ‘indirectly by introducing the concept of environmental protection in international nuclear law’.²¹

Thanks to a process of cross-fertilization described by Reyners, nuclear law and environmental law have borrowed principles from each other.²² Principles of environmental law are deemed applicable in the nuclear context, including duties of prevention, precaution and EIA.²³ However, questions remain regarding how to accommodate the ultra-hazardous nature of nuclear activities. While ultra-hazardous activities have received attention for their specificity with regards to risk prevention and liability,²⁴ the implications in terms of public participation have remained so far unclear. In addition, international energy law emphasizes the principles of sovereignty over natural resources and cooperation over energy affairs,²⁵ while public participation instruments are not generally seen to play a significant role in the global governance of energy.²⁶

Nevertheless, in practice, opportunities for participation in the context of nuclear activities have been expanding: The public is more regularly consulted in relation to decisions on the construction of new NPPs and also on the place of nuclear power in energy policies.²⁷ However, at times, the participation of the public can be ‘impeded

and even denied’,²⁸ and participatory rights need to be consolidated to cover not only the construction and operation of NPPs but also other activities that are growing in importance, such as decommissioning and permanent waste storage.

The close relationship between nuclear law and environmental law is sometimes seen as an opportunity to enhance public participation in the nuclear sector. Reyners notes that ‘an area where nuclear law still has some ways to go, whereas environmental law excels, is in promoting values of transparency and public participation in activities where the decisionmaking process has long been left to the “experts”’.²⁹ Similarly, Al Faruque argues that ‘concerns about transparency, enhanced access to information and public participation will shape social aspects of the nuclear energy in future’.³⁰ The Aarhus and Espoo Conventions are regularly mentioned as being applicable in the context of nuclear activities. However, they are to be generally taken for granted, without an examination of how the specific nature of these activities might challenge the existing legal framework.³¹ Our article delves deeper into the applicability of the two conventions, using in particular the recent work of their compliance committees. We start by introducing the applicable legal framework protecting participatory rights in the context of nuclear-related activities under the Aarhus and Espoo Conventions.

3 | THE UNECE LEGAL FRAMEWORK ON PARTICIPATORY RIGHTS IN NUCLEAR ACTIVITIES

The Aarhus Convention is designed to implement the three pillars of access to information, public participation in decision making and access to justice in environmental matters. Participatory rights in the context of nuclear activities, including the decommissioning of nuclear reactors and disposal of radioactive waste, are covered by Article 6, paragraph 1(a), and Annex I, paragraph 1. The specific requirements of public participation procedures are laid down in Article 6, paragraphs 2 to 10: Notably, paragraph 4 offers opportunities to participate early, when ‘all options are open and effective public participation can take place’.³²

Public participation in the field of nuclear power is not only relevant with respect to specific projects but also on a higher planning level. Falling under the category of plans and programmes ‘relating to the environment’, energy strategies or policies must be subject to public participation in line with Article 7.³³ While rights provided

Convention (adopted 29 July 1960, entered into force 1 April 1968) 956 UNTS 335; Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention (adopted 21 September 1988, entered into force 27 April 1992) IAEA – INFIRC/402; Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage (adopted 12 September 1997, entered into force 29 September 2003) 2241 UNTS 270.

¹⁸See the objectives of nuclear law described as ‘to provide a legal framework for conducting activities related to nuclear energy and ionizing radiation in a manner which adequately protects individuals, property and the environment’ in C Stoiber et al, *Handbook of Nuclear Law* (IAEA 2003) 5.

¹⁹See, for instance, the safety standards for protecting people and the environment of the IAEA: IAEA, ‘Governmental, Legal and Regulatory Framework for Safety General Safety Requirements’ (2016); IAEA, ‘Prospective Radiological Environmental Impact Assessment for Facilities and Activities’ (2018).

²⁰International environmental law textbooks usually include a chapter on nuclear law: See, e.g., A Boyle and C Redgwell, *Birnie, Boyle, and Redgwell’s International Law and the Environment* (4th edn, Oxford University Press 2021) 405–452.

²¹S Emmerechts, ‘Droit de l’environnement et droit nucléaire: une symbiose croissante’ (2008) 2 *Bulletin de Droit Nucléaire* 91, 92.

²²Reyners (n 13) 149.

²³See, e.g., V Nanda, ‘International Environmental Law Norms Applicable to Nuclear Activities, with Particular Focus on Decisions of International Tribunals and International Settlements’ (2008) 35 *Denver Journal of International Law and Policy* 47.

²⁴International Law Commission, ‘Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising out of Hazardous Activities’ UN Doc A/63/10 (2006).

²⁵R Dolzer, ‘International Co-operation in Energy Affairs’ in *Collected Courses of the Hague Academy of International Law, Volume 372* (Brill 2015).

²⁶See, for instance, the absence of references to public participation in A Fatouros, ‘An International Legal Framework for Energy’ in *Collected Courses of the Hague Academy of International Law, Volume 332* (Brill 2007).

²⁷See, e.g., D Ngar-yin Mah and P Hills, ‘Participatory Governance for Energy Policy-Making: A Case Study of the UK Nuclear Consultation in 2007’ (2014) 74 *Energy Policy* 340; H Saito, ‘The Developmental State and Public Participation: The Case of Energy Policy-Making in Post-Fukushima Japan’ (2020) 46 *Science, Technology and Human Values* 139; JB Chung ‘Public Deliberation on the National Nuclear Energy Policy in Korea – Small Successes but Bigger Challenges’ (2020) 145 *Energy Policy* 111724.

²⁸UNECE ‘Report of the Task Force on Public Participation in Decision-Making on Its Fourth Meeting’ UN Doc ECE/MP.PP/WG.1/2013/6 (18 June 2013) para 24.

²⁹Reyners (n 13) 149.

³⁰A Al Faruque, *Nuclear Energy Regulation, Risk and the Environment* (Routledge 2019).

³¹For example, the following articles referencing the treaties in passing only: R Heffron and K Talus, ‘The Development of Energy Law in the 21st century: a Paradigm Shift?’ (2016) 9 *Journal of World Energy Law and Business* 189, 194; Nanda (n 23) 52; A Kiss, ‘State Responsibility and Liability for Nuclear Damage’ (2006) 35 *Denver Journal of International Law and Policy* 67, 72–73.

³²Aarhus Convention (n 6) art 6(4).

³³See, e.g., Aarhus Convention Compliance Committee (ACCC), ‘Findings and Recommendations of the Compliance Committee with Regard to Communication ACCC/C/2010/51 Concerning Compliance by Romania’ UN Doc ECE/MP.PP/C.1/2014/12 (14 July

under Article 7 in conjunction with Article 2, paragraph 4 are granted to 'all natural or legal persons, and, in accordance with national legislation or practice, their associations, organizations or groups',³⁴ Article 6 refers to a narrower definition of the 'public concerned'.³⁵ To be entitled to participatory rights, members of the public must thus be 'affected or likely to be affected' or 'have an interest in' the environmental decision-making process.³⁶ Environmental organizations are always presumed to be concerned provided that they meet the necessary national legal requirements.

While the Aarhus Convention specifically aims to facilitate environmental democracy, the Espoo Convention also contributes, to a certain extent, to protecting participatory rights. The Espoo Convention creates a duty to assess the environmental impact of certain activities and establishes a duty for States to notify and consult each other in case of risk of significant transboundary harm. It grants the public of the affected party the right to make 'comments or objections' on the proposed activity,³⁷ and opportunities provided to the public of the affected party need to be 'equivalent' to those of the party of origin.³⁸ Nuclear power stations are covered under Appendix I, paragraph 2(b), and radioactive waste installations under paragraph 3 as activities likely to cause significant adverse transboundary impact requiring transboundary assessment procedures. In addition, State parties have specifically worked on the question of the application of the Convention to nuclear energy-related activities, that resulted in the publication of good practice recommendations on the application of the convention to nuclear activities³⁹ and on the lifetime extension of nuclear power plants.⁴⁰ Furthermore, the Protocol on Strategic Environmental Assessment (SEA) of the Espoo Convention⁴¹ ensures that parties integrate environmental assessment into their plans and programmes at the earliest stages and provides for extensive public participation in the process.

The applicability of the two conventions is not directly challenged by the advent of small and modular reactors (SMRs), reactors producing up to 300 MW of electricity, which represents around a third of the generating capacity of traditional reactors.⁴² While the Aarhus and the Espoo Conventions set threshold levels for certain forms of electricity production below which they would not be automatically

applicable,⁴³ this is not the case regarding nuclear activities. Irrespective of their size, nuclear reactors fall under both conventions. Despite their smaller size, SMRs still carry transboundary risks: They might be located in close proximity to international borders or necessitate cross-border transportation (via road or sea) given that they are designed to be manufactured and installed at different locations.⁴⁴ Simplified regulatory measures might be adequate to account for the reduced safety risks related to a single SMR.⁴⁵ However, the environmental risks stemming from the large number of SMRs necessary to meet the overall electricity output of a single conventional NPP might be even higher in comparison.⁴⁶ Active involvement of the public is therefore required to define how to proceed with this technological option.⁴⁷

Compliance committees play a central role in protecting participatory rights in the context of nuclear energy-related activities. The Aarhus Convention compliance committee (ACCC) is a 'non-confrontational, non-judicial and consultative' body⁴⁸ that can be triggered by different entities, including by the party itself (self-trigger), another party or the secretariat of the convention.⁴⁹ The most common type of trigger is, however, submissions made by members of the public. Communications from the public reached an impressive number of 190 to date.⁵⁰ Among these, nuclear power has been the subject of 20 communications.⁵¹ Compliance with both the Espoo Convention and the SEA Protocol is reviewed by the Espoo Implementation Committee (IC),⁵² either upon submission by parties or at its own initiative. So far, nine compliance procedures have been held as a result of State submissions,⁵³ and the committee has initiated eight procedures.⁵⁴ Four of these procedures have related to nuclear

⁴³For example, regarding thermal power stations, Aarhus Convention (n 6) Annex I, para 1 and Espoo Convention (n 7) Appendix I, para 2(b), or regarding hydroelectric dams, Aarhus Convention (n 6) Annex I, para 13.

⁴⁴IAEA, 'Considerations for Environmental Impact Assessment for Small Modular Reactors' (2020) 19.

⁴⁵IAEA, 'Benefits and Challenges of Small Modular Fast Reactors' (2021) <<https://www.iaea.org/publications/14928/benefits-and-challenges-of-small-modular-fast-reactors>> 12.

⁴⁶C Pistner et al., 'Sicherheitstechnische Analyse und Risikobewertung einer Anwendung von SMR-Konzepten (Small Modular Reactors)' (2021) <https://www.base.bund.de/SharedDocs/Downloads/BASE/DE/berichte/kt/gutachten-small-modular-reactors.pdf;jsessionid=7920BD32E996171455462FA0BBA9B957.2_cid365?__blob=publicationFile&v=6> 26.

⁴⁷See also IAEA (n 4) 9; IAEA (n 44) 4.

⁴⁸Aarhus Convention (n 6) art 15.

⁴⁹'Decision I/7, Review of Compliance' UN Doc ECE/MP.PP/2/Add.8 (2 April 2004) paras 15–24.

⁵⁰UNECE, 'Communications from the Public' <<https://unece.org/env/pp/cc/communications-from-the-public>>.

⁵¹ACCC/C/2004/1 (Kazakhstan) (18 February 2005); ACCC/C/2009/41 (Slovakia) (17 December 2010); ACCC/C2009/44 (Belarus) (28 June 2011); ACCC/C/2010/51 (Romania) (28 March 2014); ACCC/C/2012/71 (Czech Republic) (13 September 2016); ACCC/C/2012/77 (UK) (2 July 2014); ACCC/C/2013/89 (Slovakia) (19 June 2017); ACCC/C/2013/91 (UK) (19 June 2017); ACCC/C/2013/92 (Germany) (18 June 2017); ACCC/C/2014/102 (Belarus) (18 June 2017); ACCC/C/2014/104 (Netherlands) (4 October 2018); ACCC/C/2014/105 (Hungary) (26 July 2021); ACCC/C/2013/106 (Czech Republic) (1 November 2019); ACCC/C/2015/128 (European Union) (13 March 2021); ACCC/C/2016/143 (Czech Republic) (26 July 2021); ACCC/C/2017/145 (Belgium) (11 March 2017); ACCC/C/2017/152 (Spain) (27 January 2017); ACCC/C/2019/169 (Hungary) (14 November 2019); ACCC/C/2020/183 (Spain) (3 December 2020); ACCC/C/2021/187 (Netherlands) (5 September 2021). All communications can be found at <<https://unece.org/env/pp/cc/communications-from-the-public>>.

⁵²In line with Espoo Convention (n 7) art 11(2)(h). See 'Decision III/2, Review of Compliance' UN Doc ECE/MP.EIA/6 (13 September 2004) Annex.

⁵³UNECE, 'Submissions Overview' <<https://unece.org/submissions-overview>>.

⁵⁴UNECE, 'Committee Initiative Overview' <<https://unece.org/environment-policy/environmental-assessment/committee-initiative-overview>> (seven on Espoo Convention matters and one related to the SEA Protocol).

2014); ACCC, 'Findings and Recommendations with Regard to Communication ACCC/C/2014/105 Concerning Compliance by Hungary' UN Doc ECE/MP.PP/C.1/2021/16 (6 October 2021).

³⁴Aarhus Convention (n 6) art 2(4).

³⁵ibid art 6(3).

³⁶ibid art 2(5).

³⁷Espoo Convention (n 7) art 3(8).

³⁸ibid art 2(6).

³⁹UNECE 'Good Practice Recommendations on the Application of the Convention to Nuclear Energy-Related Activities' UN Doc ECE/MP.EIA/24 (2017) 19–21 (on public participation).

⁴⁰UNECE 'Guidance on the Applicability of the Convention to the Lifetime Extension of Nuclear Power Plants' UN Doc ECE/MP.EIA/31 (2021).

⁴¹Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (adopted 21 May 2003, entered into force 11 July 2010) 2685 UNTS 140. See also UNECE 'Good Practice Recommendations on Public Participation in Strategic Environmental Assessment' UN Doc ECE/MP.EIA/20/Add.2-ECE/MP.EIA/SEA/4/Add.2 (2016).

⁴²IAEA, 'What are Small Modular Reactors?' (4 November 2021) <<https://www.iaea.org/newscenter/news/what-are-small-modular-reactors-smrs>>.

power,⁵⁵ and the committee has been examining information regarding potential breaches in compliance pertaining to a multitude of cases related to nuclear energy, in particular in relation to the lifetime extension of NPPs.⁵⁶ Overall, the relatively important place of the nuclear energy topic in the workload of the two compliance committees illustrates the growing reliance of state and non-state actors on participatory rights to litigate against nuclear power. It, however, also hints at potential problems of compliance with the treaty obligations in the context of nuclear-related activities.

4 | PUBLIC PARTICIPATION IN THE CONTEXT OF NUCLEAR ACTIVITIES: THE RATIONALE

In the remainder of the article, we look at how environmental and nuclear law intersect in the context of the Aarhus and Espoo Conventions. Here, we concentrate on the rationale underpinning the application of environmental democracy principles to nuclear-related activities. We present the interactions as mutually beneficial by synthesizing the arguments put forward to explain how public participation can improve decision making in the nuclear sector.

Public participation is generally understood to carry different positive functions for environmental policymaking that can be extended to nuclear-related activities. A normative argument generally underpins public participation, considered to enhance the fairness and legitimacy of environmental decision-making processes.⁵⁷ Public participation empowers people to have some form of control over their environment and well-being by taking part in decisions affecting their lives. This function is especially central in the case of nuclear energy given that it is characterized by high levels of public concerns related to the potentially catastrophic nature of the risks involved. A normative justification of public participation concentrates not on the substance of the decision but favours the process through which it has been taken, which is deeply facilitated by the procedural duties found in the Aarhus and Espoo Conventions.

From an instrumental viewpoint, public participation helps build public trust, decrease conflict and foster acceptance.⁵⁸ This

function is fundamental in the context of a controversial source of energy such as nuclear power where understanding public perceptions of nuclear power and how it relates to public acceptance is essential to decision making.⁵⁹ Public participation can reduce risks of deadlock against public opposition to the construction of new power plants or siting of facilities to store and manage nuclear waste.⁶⁰ The Organisation for Economic Co-operation and Development (OECD) report on public attitudes towards nuclear power concluded on that basis that ‘an ongoing relationship between policy makers, the nuclear industry and society that develops knowledge building and public involvement will become increasingly important’ to continue expanding nuclear energy.⁶¹ While decision makers might focus on building trust domestically, they also need to acknowledge the concerns of the public beyond their borders to avoid or minimize disputes with neighbouring countries and their populations.⁶²

Finally, public participation plays an important function substantively because it enables mutual learning between multiple stakeholders with relevant knowledge. The high level of technicity related to nuclear energy, requiring a significant amount of technical, economic and environmental knowledge, can be used as a reason to limit the scope of public participation. Nevertheless, public involvement in decision making can improve the quality of decisions: It can highlight concerns that public authorities might otherwise overlook, contribute to better assess risks and help balance competing interests and priorities. Public participation almost never leads to decisions that negatively assess a project⁶³; rather, it enables a better identification and evaluation of environmental risks including their prevention, which eventually leads to better informed decisions. In practice, however, the quality of participation procedures depends upon who participates: The more participatory democracy becomes, the more it risks exacerbating existing inequalities because only those in higher socio-economic groups tend to become actively engaged in the process.⁶⁴

⁵⁵EIA/IC/S/3 (Azerbaijan, Armenia), EIA/IC/S/4 (Lithuania, Belarus), EIA/IC/CI/4 (Ukraine); EIA/IC/CI/5 (United Kingdom). Submissions can be found at <<https://unece.org/submissions-overview>> and committee initiatives at <<https://unece.org/environment-policy/environmental-assessment/committee-initiative-overview>>.

⁵⁶See Espoo IC, ‘Report of the Implementation Committee on Its Fifty-First Session’ UN Doc ECE/MP.EIA/IC/2021/6 (1 November 2021) paras 56–87, concerning EIA/IC/INFO/28 (Bulgaria), EIA/IC/INFO/18 (Belgium), EIA/IC/INFO/19 (the Czech Republic), EIA/IC/INFO/32 (France), EIA/IC/INFO/15 (the Netherlands), EIA/IC/INFO/34 (Spain), and EIA/IC/INFO/20 (Ukraine). The information provided to the committee from other sources regarding alleged situations of non-compliance can be found at <<https://unece.org/information-other-sources-0>>.

⁵⁷J Ebbesson, ‘The Notion of Public Participation in International Environmental Law’ (1997) 8 Yearbook of International Environmental Law 51, 62.

⁵⁸This is the position adopted in Intergovernmental Panel on Climate Change (IPCC), ‘Summary for Policy-Makers’ in V Masson-Delmotte et al (eds), *Global Warming of 1.5°C: Summary for Policy-Makers* (IPCC 2018) 22 (‘Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences’).

⁵⁹See, e.g., S Wang et al, ‘Public Perceptions and Acceptance of Nuclear Energy in China: The Role of Public Knowledge, Perceived Benefit, Perceived Risk and Public Engagement’ (2019) 126 Energy Policy 352; S Ho et al, ‘Exploring Public Perceptions of Benefits and Risks, Trust, and Acceptance of Nuclear Energy in Thailand and Vietnam: A Qualitative Approach’ (2019) 127 Energy Policy 259.

⁶⁰D Kelleher, ‘Public Participation in the Siting of Nuclear Waste Facilities: International Lessons and the Korean Experience’ (2017) 48 Korea Observer 277.

⁶¹OECD, ‘Public Attitudes to Nuclear Power’ (2010) 8.

⁶²R Grossi, ‘Nuclear Law: The Global Debate’ in IAEA (ed), *Nuclear Law: The Global Debate* (Springer 2022) 1, 19.

⁶³For example, according to a 2018 report on EIA implementation in Austria, only 3% of all projects requiring an EIA since 2000 did not receive permission; Austrian Federal Minister for Sustainability and Tourism, ‘7. UVP-Bericht an den Nationalrat’ (July 2018) <https://www.parlament.gv.at/PAKT/VHG/XXVI/III/III_00194/imfname_710716.pdf> 19.

⁶⁴A Kearns, ‘Active Citizenship and Local Governance: Political and Geographical Dimensions’ (1995) 14 Political Geography 165. In relation specifically to nuclear power, see F Hoti et al, ‘Who Is Willing to Participate? Examining Public Participation Intention Concerning Decommissioning of Nuclear Power Plants in Belgium’ (2021) 157 Energy Policy 112488; C Turcanu, T Perko and E Laes, ‘Public Participation Processes related to Nuclear Research Installations: What are the Driving Factors Behind Participation Intention?’ (2014) 23 Public Understanding of Science 331.

5 | WHEN ENVIRONMENTAL DEMOCRACY MEETS NUCLEAR POWER: UNDERSTANDING THE AMBIGUITIES OF THE INTERNATIONAL LEGAL FRAMEWORK

Despite the applicability of the Aarhus and Espoo Conventions in the context of nuclear-related activities, their implementation has been particularly testing, resulting in significant legal uncertainty. The work of the Meetings of the Parties of the two conventions to draw up specific guidance⁶⁵ and share best practices⁶⁶ on their application in the context of nuclear activities as well as the high number of nuclear-related cases brought to the two compliance committees⁶⁷ testify of critical, yet uneasy, synergies between the nuclear field and environmental democracy principles. In this section, we identify how the nature of nuclear power challenges the application of the Aarhus and Espoo Conventions to understand recent developments that have clarified some intersections. To do so, we focus on three characteristics of nuclear power projects: their confidential, ultra-hazardous and their long-term nature.

5.1 | Confidentiality

Energy policies have traditionally been designed away from the public eye and have consisted of investing in large-scale, centralized, energy systems, distanced from local decision making.⁶⁸ Decision making on energy matters, despite fundamentally affecting peoples' lives, has been considered as technical, national security or business questions and confined to those who have claimed expertise. As a result, public participation in the energy sector has traditionally been 'very weak'.⁶⁹

This lack of transparency is particularly visible in the context of nuclear power, perceived to be a highly technical matter and closely related to national security concerns over energy security, nuclear proliferation and terrorism. In the words of the Parliamentary Assembly of the Council of Europe, 'there has been no meaningful public consultation prior to the construction of the bulk of the European nuclear "fleet"' and as such, a 'key challenge from a political angle is to provide adequate information to the public without undermining security'.⁷⁰ In addition, information regarding nuclear-related risks is

generally restricted, in particular in relation to accidents⁷¹ and radioactive waste.⁷²

The secrecy surrounding nuclear power is reflected in domestic legislation that often declares nuclear-related environmental information confidential and prohibits its disclosure.⁷³ Hence, State parties have relied heavily on the exceptions provided by the Aarhus Convention to limit the flow of information, including on the basis of national law prohibiting the sharing of material which is in the course of completion,⁷⁴ confidentiality of proceedings,⁷⁵ commercial nature of the information⁷⁶ and its relation to public security.⁷⁷ However, the ACCC has made clear that these exemptions need to be understood restrictively, taking into account the 'public interest served by disclosure'.⁷⁸

Access to the relevant information is deemed central to enable effective public participation.⁷⁹ The ACCC found that information relevant at each stage of decision making available to public authorities must also be at the disposal of the public concerned.⁸⁰ The non-disclosure of documents can form a ground for legal review under Article 9 of the Aarhus Convention, which neither favours public acceptance of a project nor legal certainty for all involved parties. Overall, the increased attention for public involvement in nuclear activities, and critical clarifications brought under the Aarhus and Espoo Conventions, has led to important changes in State practice.⁸¹ Transparency has improved in relation to sharing nuclear-related environmental information⁸² and opportunities for participation in decision making in the nuclear sector are becoming the norm.⁸³

⁷¹K Shrader-Frechette, 'Rights to Know and the Fukushima, Chernobyl, and Three Mile Island Accidents' in A Morita, *The Ethics of Nuclear Energy: Risk, Justice, and Democracy in the Post-Fukushima Era* (Cambridge University Press 2015) 53.

⁷²See, e.g., OECD and Nuclear Energy Agency (NEA), 'Radioactive Waste Management and Decommissioning – The Forum on Stakeholder Confidence Report on Dialogue in the Long-Term Management of Radioactive Waste' (February 2020) <https://www.oecd-nea.org/upload/docs/application/pdf/2021-03/final_dialogue_reportnea_rwm_2020_1_approved.pdf> 15.

⁷³See, e.g., Romania, relying on exceptions in ACCC/C/2010/51 (n 33) para 33; and Slovakia in ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2013/89 Concerning Compliance by Slovakia' UN Doc ECE/MP.PP/C.1/2017/13 (19 June 2017) paras 20–22.

⁷⁴Aarhus Convention (n 6) art 4(3)(c).

⁷⁵*Ibid* art 4(4)(a).

⁷⁶*Ibid* art 4(4)(d).

⁷⁷*Ibid* art 4(4)(b).

⁷⁸ACCC/C/2013/89 (n 73) para 82.

⁷⁹ACCC/C/2014/105 (n 33) para 120.

⁸⁰ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2012/71 Concerning Compliance by the Czech Republic' UN Doc ECE/MP.PP/C.1/2017/3 (29 December 2016) para 94.

⁸¹This is not to say, however, that resistance has completely disappeared: For instance, Ukraine still remains in non-compliance regarding transboundary public consultations in relation to the NPP Rivne ('Decision VIII/4e, Compliance by Ukraine with Its Obligations under the Convention in Respect of Extension of the Lifetime of the Rivne Nuclear Power Plant' UN Doc ECE/MP.EIA/30/Add.2–ECE/MP.EIA/SEA/13/Add.2 (11 February 2021)) para 5), and the Czech Republic has taken no additional steps to provide opportunities for the public, including the affected public outside the Czech Republic, in different stages of nuclear permitting procedures (see ACCC 'Report of the ACCC on Compliance by Czechia' UN Doc ECE/MP.PP/2021/50 (20 August 2021)).

⁸²See, e.g., ACCC/C/2013/89 (n 73).

⁸³See, for instance, the UK Government's consultation regarding Sizewell C, following the declarations of non-compliance regarding Hinkley Point C: UK Government, 'Proposed Nationally Significant Infrastructure Projects in England and Wales, Sizewell C Nuclear Power Station – Press Release' (2020).

⁶⁵UNECE (n 39); and UNECE (n 40).

⁶⁶See, e.g., UNECE 'Report of the Ninth Meeting of the Task Force on Public Participation in Decision-Making under the Aarhus Convention' UN Doc ECE/MP.PP/WG.1/2021/4 (March 2021) 8.

⁶⁷See Section 3.

⁶⁸B Sovacool et al, 'New Frontiers and Conceptual Frameworks for Energy Justice' (2017) 105 *Energy Policy* 677; P Newell and D Mulvaney, 'The Political Economy of the 'Just Transition' (2013) 179 *The Geographical Journal* 132.

⁶⁹Newell and Mulvaney (n 68) 135.

⁷⁰Council of Europe, Committee on Social Affairs, Health and Sustainable Development, 'Nuclear Safety and Security in Europe' Doc 14622 (24 September 2018) <<https://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=25050&lang=en>> para 5.

5.2 | Ultra-hazardous nature

The ultra-hazardous nature of nuclear power carries two related implications for the Aarhus and Espoo legal frameworks: an acknowledgement of the wide geographical scope of participatory rights due to the transboundary nature of nuclear risks and a requirement to integrate public perceptions in risk assessments to account for the contested status of the energy source.

5.2.1 | A transboundary risk

The ultra-hazardous nature of nuclear power carries implications in terms of the territorial scope of participatory duties. Nuclear power is a transboundary problem *par excellence*: Compared to other sources of energy, such as wind or solar, the risks of which are territorially limited, nuclear power carries extraterritorial risks that ought to be governed internationally. The transboundary nature of the risks posed by nuclear power are evident in a dense area like the UNECE region where nuclear plants are often built close to international borders: For instance, the aging reactors Doel and Tihange in Belgium have been particularly controversial due their close proximity to Dutch, German and French borders.⁸⁴

The long-range nature of adverse environmental risks arising from nuclear power extends the scope of the 'public concerned' beyond the immediate neighbours of the party of origin. The ACCC found that 'the possible adverse effects in case of an accident can reach way beyond State borders and over vast areas and regions',⁸⁵ stressing the specificity of nuclear risks in comparison with other environmental risks: 'the construction and operation of a nuclear power plant may affect more people, within the country and in neighbouring countries, than the construction of, say, a plant for tanning or a slaughterhouse'.⁸⁶ Concerns may be related to both the routine operation of the nuclear power plant and risks of accidents.⁸⁷

Diagonal participatory rights, held by individuals against a State other than their own, were initially conceived as a legal innovation that remained ambiguous,⁸⁸ but their central relevance in the context of nuclear activities has consolidated State practice.⁸⁹ The

determination of their territorial scope, however, is left to be decided on a case-by-case basis by State authorities.⁹⁰ At the heart of a state decision to extend participatory rights beyond its territory is a complex assessment to evaluate the geographical scope of the potential environmental and health effects of a nuclear accident. For instance, the Belgium government launched its biggest public consultation survey ever realized in spring 2021, inviting citizens living within 1,000 km of the Doel 1 and 2 reactors, the lifetime of which is to be extended, to participate.⁹¹ This decision appears adequate in light of scientific evidence that estimates that in the event of a major reactor accident, around 50% of the radioactive caesium-137 particles would fall outside a radius of 1,000 km and around 25% would spread further than 2,000 km.⁹² While an objective evaluation of the risks carried by nuclear power is central to defining the territorial extent of participatory rights, a subjective element also enters into play: public concern.

5.2.2 | A socially contested source of energy

Public concern plays a central role in the governance of a socially contested source of energy such as nuclear power.⁹³ The ACCC linked the seriousness of public concern to the level of diligence that a State needs to display to identify the 'public concerned and select ... the means of notification'.⁹⁴ In particular, it held that decision makers should identify the 'public concerned' on the basis of the magnitude of the impacts of an accident, the probability of harm against the persons and their living environment and also 'the perceptions and worries of persons living within the possible range of the adverse effects'.⁹⁵ As a result, impact assessments do not only include risks to property and health but also 'less measurable aspects, like quality of life'.⁹⁶ In addition, the ACCC found that the concerns of the public towards nuclear power should be taken into account to discharge a State's obligation to ensure that officials facilitate the public's participation.⁹⁷ This duty is applicable not only in relation to new activities but also when reconsidering or updating the operating conditions of an activity, including when extending a power plant's operating period.⁹⁸

⁸⁴See, e.g., S Morgan, 'Belgium Pledges to Ditch Nuclear Power by 2025' (EurActiv, 3 April 2018).

⁸⁵ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2013/91 Concerning Compliance by the United Kingdom of Great Britain and Northern Ireland' UN Doc ECE/MP.PP/C.1/2017/14 (24 July 2017) para 75.

⁸⁶ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2010/50 Concerning Compliance by the Czech Republic' UN Doc ECE/MP.PP/C.1/2012/11 (2 October 2012) para 66.

⁸⁷ACCC/C/2012/71 (n 80) para 74.

⁸⁸See International Law Commission, Draft Articles on Prevention of Transboundary Harm from Hazardous Activities (with Commentaries) in *Yearbook of the International Law Commission, Volume II, Part 2* (2001) 148, commentary of art 13(3) describing the duty of States to 'provide the public likely to be affected, whether their own or that of other States, with information relating to the risk and harm that might result from an activity to ascertain their views thereon' as inspired by 'new trends in international law'.

⁸⁹The following ACCC cases pertain to the question of diagonal rights in a nuclear context: ACCC/C/2010/50 (n 86); ACCC/C/2012/71 (n 80); ACCC/C/2013/91 (n 85); ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2013/92 Concerning Compliance by Germany' UN Doc ECE/MP.PP/C.1/2017/15 (8 September 2017); ACCC 'Preliminary Determination of Admissibility of Communication to the Aarhus

Convention Compliance Committee Concerning Compliance by Spain in Relation to the Lifetime Extension of Almaraz Nuclear Power Plant (ACCC/C/2020/183)' (27 November 2020).

⁹⁰ACCC/C/2013/91 (n 85) para 77.

⁹¹B Padoan, 'Energie: de Göteborg à Milan en passant par Bruxelles, donnez votre avis sur Doel 1 et 2' (Le Soir, April 2021); Government of Belgium, 'Project de report de la désactivation des centrales nucléaires de Doel 1 et doel 2 - consultation du public sur le rapport des incidences sur l'environnement' (2021) <<https://economie.fgov.be/fr/themes/energie/securete-dapprovisionnement/projet-de-report-de-la>>.

⁹²J Lelieveld, D Kunkel and MG Lawrence, 'Global Risk of Radioactive Fallout after Major Nuclear Reactor Accidents' (2012) 12 *Atmospheric Chemistry and Physics* 4245.

⁹³See OECD and NEA, 'Risks and Benefits of Nuclear Energy' (2007) 52, 54, 59.

⁹⁴ACCC/C/2012/71 (n 80) para 74.

⁹⁵ACCC/C/2013/91 (n 85) paras 75 and 90(b).

⁹⁶*ibid* para 73.

⁹⁷Aarhus Convention (n 6) art 3(2); ACCC/C/2013/92 (n 89) para 89.

⁹⁸ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2009/41 Concerning Compliance by Slovakia' UN Doc ECE/MP.PP/2011/11/Add.3 (12 May 2011) paras 56-57; see also ACCC 'Report of the Compliance Committee ACCC/C/2014/104 Concerning Compliance by the Netherlands' UN Doc ECE/MP.PP/2021/54 (27 August

The ultra-hazardous nature of nuclear power makes it a divisive source of energy: As a result, risk assessments vary considerably between individuals as well as between States. Indeed, some States see nuclear power as a decarbonized source of energy enabling States to meet their commitments under the Paris Agreement⁹⁹ and Sustainable Development Goals,¹⁰⁰ while also offering security of supply and protection against volatile energy prices.¹⁰¹ Conversely, a number of countries, including Germany,¹⁰² Switzerland¹⁰³ and Belgium,¹⁰⁴ consider that the sustainability transition requires moving away from the environmental and human risks arising from the use of nuclear power, notably put in evidence by the Fukushima Daiichi accident of 2011. These varying perceptions of the risks carried by nuclear power have raised questions about the conditions under which nuclear activities give rise to a duty to notify potentially affected States under the Espoo Convention. The guidance on the applicability of the Espoo Convention to the lifetime extension of nuclear power plants acknowledges that 'risk perception may change over time and vary from Party to Party'.¹⁰⁵ The construction of a new NPP at Hinkley Point C in the United Kingdom (UK) offered an example of such a situation, demonstrating how risks can be perceived differently and how diverging perceptions can affect the duty to notify. In its decision on the matter, the Espoo IC noted that it expected the party of origin to be 'exceptionally prospective and inclusive, in order to ensure that all Parties potentially affected by an accident, however uncertain, are notified'.¹⁰⁶ Having found that the UK had been in non-compliance with its duty to notify and consult, it recommended that it asked neighbouring countries whether they would find it useful at that stage to be notified.¹⁰⁷ Responses to this call were divided between States that deemed it necessary and those that did not.¹⁰⁸ In particular, a fundamental disagreement related to whether the decision to perform a transboundary EIA should consider only environmental impacts within the usual operating conditions¹⁰⁹ or also accidents 'beyond design basis'.¹¹⁰ In the same way as the ACCC interpreted the convention to acknowledge variations in public evaluations of the risk

carried by nuclear power, the Meeting of the Parties to the Espoo Convention decided to adopt a wide scope to the duty to notification to better acknowledge different levels of concern.¹¹¹

5.3 | A long-term project

A nuclear activity is usually characterized by its long-term nature: It requires a legal framework applicable to the construction phase of a nuclear power plant but also to lifetime extension, decommissioning and nuclear waste repository, activities potentially carrying significant risks and thereby necessitating public involvement. This is important because while the prospects of nuclear power in the clean energy transition are uncertain,¹¹² any scenario poses the question of public participation. Indeed, States deciding to withdraw from nuclear power still need to protect participatory rights in the context of decommissioning¹¹³ and nuclear waste repositories,¹¹⁴ in the same way as States deciding to instal new NPPs (including SMRs) or to extend the lifetime of already operating ones have to fulfil procedural duties.

In particular, the lifetime extension of nuclear power plants has brought new legal challenges in recent years since many plants were built between 1970 and 1990 and are now nearing the end of their planned lifetimes. The ACCC found that operating a nuclear power plant beyond its designed lifetime represents new and enhanced environmental risks. In its words, it is 'inconceivable that the operation of a nuclear power plant could be extended from 40 years to 60 years without the potential for significant environmental effects'.¹¹⁵ As a result, 'any change to the permitted duration of an activity, be it a reduction or an extension, is a reconsideration or update of that activity's operating conditions'¹¹⁶ that requires the application of Article 6 of the Aarhus Convention. In addition, periodic safety reviews of NPPs, which are usually performed every 10 years, imply a change or update of the operating conditions of a nuclear power plant and thus require applying the public participation provisions *mutatis mutandis*.¹¹⁷

Critical legal questions have been raised regarding the applicability of participatory rights in the context of nuclear-related activities.

2021); and ACCC 'Report of the Compliance Committee ACCC/C/2016/143 Concerning Compliance by Czech Republic' UN Doc ECE/MP.PP/C.1/2021/28 (10 September 2021).

⁹⁹Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) 55 ILM 740.

¹⁰⁰UNGA 'Transforming Our World: The 2030 Agenda for Sustainable Development' UN Doc A/RES/70/1 (21 October 2015) Goals 7 and 13.

¹⁰¹IEA (n 8) 3; IAEA, 'Climate Change and Nuclear Power' (2020) 6.

¹⁰²German Parliament, 'Thirteenth Act Amending the Atomic Energy Act' (31 July 2011).

¹⁰³Swiss Confederation, 'Loi sur l'énergie modifiant la Loi du 21 mars 2003 sur l'énergie nucléaire' (30 September 2016) Annex, section 7, art 12(a).

¹⁰⁴Belgium Government, 'Stratégie énergétique fédérale' (30 March 2018) <https://news.belgium.be/sites/default/files/legacy/media/source6892/Strategie_energetique_federale.pdf> 11.

¹⁰⁵UNECE (n 40) para 78.

¹⁰⁶Espoo IC 'Findings and Recommendations of the Implementation Committee on Compliance by the United Kingdom of Great Britain and Northern Ireland with Its Obligations under the Convention in Respect of the Hinkley Point C Nuclear Power Plant' UN Doc ECE/MP.EIA/2019/14 (26 November 2018) para 95.

¹⁰⁷*ibid* para 18.

¹⁰⁸*ibid* paras 57–79.

¹⁰⁹See, e.g., the letter from the United Kingdom to the Espoo IC on the Hinkley case dated 19 June 2014: <https://unece.org/DAM/env/documents/2020/EIA/IC/IC_restored_files/UK/31/2/frUK_19.6.14.pdf>.

¹¹⁰See, e.g., Austrian response to the Espoo IC letter in the Hinkley case dated 28 October 2013: <https://unece.org/DAM/env/documents/2019/ece/IC_new_files/Committee_initiative/UK/29/2/fr_Austria_29_Oct_2013.pdf>.

¹¹¹Meeting of the Parties to the Convention on Environmental Impact Assessment in a Transboundary Context, 'Decision IS/1, General Issues of Compliance with the Convention' UN Doc ECE/MP.EIA/27/Add.1–ECE/MP.EIA/SEA/11/Add.1 (9 April 2019) para 4.

¹¹²PCC (n 58) 131.

¹¹³This question is expected to become more important in the years to come as around a quarter of existing nuclear capacity there is expected to be shut down by 2025; see IEA (n 8) 3. See also IEA (n 8) 10–13 (noting that more than 80 reactors have either already reached their original technical design lifetime or are less than 3 years away from that point).

¹¹⁴Transboundary participatory procedures in relation to waste repository are becoming more common: See, e.g., Gouvernement Luxembourgeois, 'Stockage géologique de déchets nucléaires en région transfrontalière luxembourgeoise: consultation publique de l'avant-projet d'arrêté royal belge et du rapport sur les incidences environnementales' <https://gouvernement.lu/fr/actualites/toutes_actualites/communiques/2020/05-mai/12-stockage-dechets-nucleaires.html>; Scottish Government, 'The Transboundary Radioactive Contamination (Scotland) Direction 2021' (2021) <<https://www.gov.scot/publications/the-transboundary-radioactive-contamination-scotland-direction-2021/>>.

¹¹⁵ACCC/C/2014/104 (n 98) para 71.

¹¹⁶*ibid* para 65.

¹¹⁷*ibid* para 70.

We have concentrated so far on how the specificity of nuclear power as an environmental activity has dictated fundamental clarifications pertaining to the Aarhus and Espoo frameworks. We now turn to assessing the relationship between international nuclear and environmental law from the perspective of international environmental law.

6 | SHAPING MORE DEMOCRATIC ENVIRONMENTAL TRANSITIONS: LESSONS BEYOND NUCLEAR ENERGY

In this section, we look at how international environmental law has benefited from its application to nuclear activities. We emphasize two important lessons, one for participatory rights in the context of the clean energy transition and another regarding the simultaneous application of the Aarhus and Espoo Conventions.

6.1 | Lessons for the clean energy transition

The lessons learnt about environmental democracy principles in the context of nuclear power are valuable for the clean energy transition as a whole. The redesign of the energy landscape to respond to the climate crisis offers opportunities for more popular participation and empowerment: It transforms the individual from a passive recipient of an energy policy adopted at the national level to an active participant in a local system. The work of the ACCC and IC complements the emphasis of climate litigation on substantial questions of emission reductions to focus instead on the importance of international procedural duties in the transformation of our energy systems.

One of the specific contributions emerging from State practice under the Aarhus and Espoo conventions relate to the temporal and material scope of public involvement. The disputes that have arisen in the context of nuclear power have emphasized the need to involve the public at an early stage of the planning procedure. Notably, the domestic energy policy question relating to the choice of energy sources cannot be answered at the assessment stage of a specific project. Conflicts might be avoided or at least reduced in advance if States consult the public already at the stage of plans or programmes defining the path for ad hoc projects activities. Involving the public at high planning levels is therefore central to democratizing the clean energy transition. The Espoo Good Practice Recommendations on the Application of the Convention to Nuclear Energy-related Activities (endorsed by the Meeting of the Parties) indeed note that an activity-based assessment of alternative scenarios might be more adequately addressed at the 'political and strategic level' if looking at alternative means of energy production.¹¹⁸ Such an approach is consistent with the tools offered by the Aarhus Convention to ensure that the public participates in decision making regarding plans and programmes.¹¹⁹

Energy strategies¹²⁰ and policies¹²¹ which may provide a basis for nuclear activities are therefore covered under the Convention, hence offering opportunities to involve the public in high-level decisions.

Nuclear activities have also illustrated that it is fundamental to protect participation rights when decisions are made in multiple stages.¹²² Indeed, nuclear activities often require a broad range of assessment procedures,¹²³ including an overall EIA as well as assessments relative to siting, nature protection, nuclear safety and the construction permit. While all these procedures can gain from public involvement, the multi-tiered process makes public participation more complex. Against this background, the ACCC considered that Aarhus duties cannot be deemed met if a multi-stage decision-making procedure provides for public participation on certain options at an early stage but leaves other options to be considered at a later stage without public participation.¹²⁴ This finding strengthens the approach taken by the Maastricht Recommendations on Promoting Effective Public Participation in Decision-making in Environmental Matters Prepared under the Aarhus Convention, drafted at the request of the Aarhus Meeting of the Parties to share good practices and assist policymakers and public authorities in their implementation of the Convention.¹²⁵ According to the recommendations, while authorities have flexibility regarding which options to present at each stage of decision making, it remains that '[i]rrespective of how the framework for decision-making is structured, the public should have a possibility to discuss the nature of and need for the proposed activity at all'.¹²⁶

The recommendations indicate that adequate timing is a central criterion for successful public involvement, and so is the material scope of discussions. Often, the public is not given access to enough information on possible alternatives,¹²⁷ even though transparency regarding alternatives could lead to a higher acceptance of the final outcome. The Espoo and Aarhus Conventions offer opportunities to ensure that the diversity of options in terms of energy sources can be fully assessed. Under the Espoo Convention, the EIA documentation should include a description of reasonable alternatives (including in terms of location and technology), presented in a 'comparable and transparent manner',¹²⁸ and should also consider a 'no-action alternative'.¹²⁹ In addition, the Aarhus Convention requires States to provide

¹²⁰ACCC/C/2010/51 (n 33) 7.

¹²¹See, e.g., ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2014/105 Concerning Compliance by Hungary' UN Doc ECE/MP,PP/C.1/2021/16 (26 July 2021) para 129.

¹²²For more on this question, see ÖKOBÜRO, 'International Case-Law in Nuclear Matters – Brief Overview on the International and European Case-law Regarding Access to Information and Public Participation Regarding Nuclear Power Plants' (2022) <https://www.oekobuero.at/files/416/br_6_6_international_nuclear_case-law_2022_fin.pdf> 10.

¹²³Some States may, however, provide for condensed EIA procedures.

¹²⁴ACCC 'Findings and Recommendations of the Compliance Committee with Regard to Communication ACCC/C/2009/44 Concerning Compliance by Belarus' UN Doc ECE/MP,PP/C.A/2011/6/Add.1 (19 September 2011) para 77.

¹²⁵UNECE 'Maastricht Recommendations on Promoting Effective Public Participation in Decision-making in Environmental Matters Prepared under the Aarhus Convention' UN Doc ECE/MP,PP/10-ECE/MP.EIA/SEA/5 (2015) (Maastricht Recommendations).

¹²⁶*ibid* para 18.

¹²⁷See, e.g., O Becker and G Mraz, 'Sizewell C Environmental Impact Assessment Expert Statement' (2020) <<https://www.umweltbundesamt.at/fileadmin/site/publikationen/rep0743.pdf>> 14.

¹²⁸UNECE (n 39) para 48.

¹²⁹Espoo Convention (n 7) art 5(a) and Appendix II(b).

¹¹⁸UNECE (n 39) para 40.

¹¹⁹Aarhus Convention (n 6) art 7.

the public with opportunities 'at one or other stage in the overall process' to participate in decisions to eliminate alternative options.¹³⁰ According to the ACCC, '[i]f the only opportunity for the public to provide input to decision-making on technological choices, which is subject to the public participation requirements of article 6, is at a stage when there is no realistic possibility for certain technological choices to be accepted, then this would not be compatible with the Convention'.¹³¹ As per the Maastricht Recommendations, public participation can result in amending the proposed decision, taking additional mitigating or monitoring measures but also selecting an alternative option on the basis of the public's input.¹³² These recent clarifications regarding the timing and scope of public participation can be expected to play a critical role in helping States define new energy policies that are more participatory in nature.

6.2 | Interactions between the Aarhus and Espoo Conventions

The uncertain application of participatory rights in the nuclear sector also contributed to clarifying potential synergetic and conflicting interactions between the Aarhus and Espoo Conventions. Indeed, as mentioned in Section 3, nuclear-related activities are covered by both Annex I of the Aarhus Convention and Appendix I to the Espoo Convention. As such, parties to both conventions¹³³ must provide the legislative basis for assessment procedures that meet the requirements of both frameworks.

Several disputes pertaining to NPPs have been brought concurrently to the compliance mechanisms of the Aarhus and Espoo Conventions, which put into light overlaps between the two legal frameworks.¹³⁴ The two conventions share similarities, for instance in terms of requiring early involvement¹³⁵ or recognizing the importance of risk perception.¹³⁶ They are, however, driven by two different rationales with noticeable implications. The Aarhus Convention was adopted as a tool of environmental democracy to increase environmental awareness and transparency and improve decision making. The Espoo Convention, by contrast, is an instrument that regulates

inter-State relations—between the party of origin and potentially affected States—with the view to protecting the territorial integrity of States. As a result, under the Aarhus Convention, duties towards the public on or outside its territory rest with the party of origin.¹³⁷ This raises questions already mentioned relative to the identification of the 'public concerned' or the means used to effectively notify the public concerned.¹³⁸ The Aarhus Convention also grants the public the right to request a transboundary assessment procedure from its own State.¹³⁹ Conversely, under the Espoo Convention, when a State notifies another party of a planned EIA procedure, the potentially affected State must declare whether it wishes to be involved in the process.¹⁴⁰ The public of the potentially affected State is thus dependent on the authority of its own State, without direct claims against the party of origin.

As a result of these divergences, apparent contradictions have emerged, notably in relation to whether some of the duties under the Aarhus Convention would only be applicable in case a government decided to engage in a transboundary procedure. This has led to disagreements between parties over how to reconcile on the one hand, a right under the Espoo Convention that is discretionary (to exercise the right to become involved in the transboundary procedure) and exercised by the concerned parties' governments and, on the other, a non-derogable right of the population to be involved in the decision-making process.

On this question, it was argued by Germany that if 'neither the Party of origin nor the potentially affected Party deem that a specific case requires the implementation of a transboundary environmental impact assessment, there are no grounds to apply the provisions of the Aarhus Convention to this inter-State process governed by the Espoo Convention'.¹⁴¹ However, the ACCC found that Article 6 duties are 'not dependent on obligations stemming from other international instruments',¹⁴² including the Espoo Convention. Rather, '[t]he same facts trigger different obligations under the different domestic or international legal instruments'.¹⁴³ Although the Espoo Convention envisages that 'a Party of origin and an affected Party share joint responsibility for ensuring public participation in the territory of the affected Party',¹⁴⁴ Article 6 of the Aarhus Convention can only be met by the party of origin.¹⁴⁵ Consequently, the rights of the public concerned are not conditional upon whether its government decides to exercise its rights under the Espoo Convention.¹⁴⁶ Yet, according to the ACCC, the affected State at least has the responsibility to express its wish to participate in the process if its public requests so. In case of a strong interest of members of the public, this means that a State needs to 'at least enquire' how to facilitate the

¹³⁰ACCC 'Compliance by Lithuania with Its Obligations under the Convention, Communication ACCC/C/2006/16' UN Doc ECE/MP.PP/2008/5/Add.6 (4 April 2008) para 74; ACCC 'Compliance by the European Community with Its Obligations under the Convention, Communication ACCC/C/2006/17' UN Doc ECE/MP.PP/2008/5/Add.10 (2 May 2008) para 54.

¹³¹*ibid.*

¹³²Maastricht Recommendations (n 125) para 128.

¹³³This concerns the vast majority of States: the only States that are only contracting parties to the Aarhus Convention are Georgia, Monaco and Tajikistan, and Turkmenistan (status as of 10 October 2021 <https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-13&chapter=27&clang=_en#1>), while Canada, the Russian Federation and the United States are solely parties to the Espoo Convention (status as of 10 October 2021 <https://treaties.un.org/pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-4&chapter=27&clang=_en>).

¹³⁴See also J Jendroška, 'Applying Aarhus and Espoo Conventions in Nuclear Decision-making – Application of the Espoo Convention to Nuclear Energy-related Activities' (2017) <https://www.unece.org/fileadmin/DAM/env/documents/2017/EIA/MOP7/Side_Events/JJ_Application_of_Aarhus_and_Espoo.pdf>.

¹³⁵Espoo Convention (n 7) preamble; UNECE (n 40) para 97; Aarhus Convention (n 6) art 6 (2).

¹³⁶See Section 5.2.2.

¹³⁷ACCC/C/2012/71 (n 80) paras 76–79.

¹³⁸See Section 5.2.

¹³⁹ACCC/C/2013/92 (n 89) para 57.

¹⁴⁰Espoo Convention (n 7) art 3(3).

¹⁴¹ACCC/C/2013/92 (n 89) para 57.

¹⁴²ACCC/C/2012/71 (n 80) para 67.

¹⁴³ACCC/C/2013/92 (n 89) para 85.

¹⁴⁴UNECE 'Guidance on Public Participation in Environmental Impact Assessment in a Transboundary Context' UN Doc ECE/MP.EIA/7 (2006) 19–20.

¹⁴⁵ACCC/C/2012/71 (n 80) paras 67–69.

¹⁴⁶*ibid* para 72.

participation of the public in the decision making,¹⁴⁷ but uncertainties remain regarding whether it needs to go as far as contacting the State of origin or collecting information.

Together with stressing the role of participatory rights in the energy transition, the application of the Aarhus and Espoo Conventions to nuclear activities has also uncovered important intersections between the two treaties. The participatory trend in nuclear activities can therefore be seen to have benefited international environmental law more generally.

7 | CONCLUSION

This article delved into how environmental democracy principles apply in the context of nuclear activities. The interactions between international environmental law and international nuclear law can be qualified as mutually beneficial. Concerns for more participatory nuclear-related decisions have strengthened the environmental objectives of international nuclear law. Yet the specificity of nuclear-related activities has revealed inconsistencies in interpretations of public participation rights, which has resulted in complex, often obscure, intersections between the two fields. But despite these difficulties, these interactions have also reinforced the principles of environmental democracy and strengthened the Aarhus and Espoo Conventions.

While our focus has been on participatory rights, important questions, especially regarding access to justice and remedies, remain to be analysed. Besides granting the public a say in environmental decision making, a critical aspect of environmental democracy is to provide the public with instruments to control the legality of decisions taken.¹⁴⁸ In addition, our focus has been on the Aarhus and Espoo Conventions that cover the UNECE region. Yet, given that nuclear power is growing in other parts of the world, including Asia and the Middle East,¹⁴⁹ important questions remain regarding opportunities for public participation internationally. While within the European Union, an additional legal framework aimed at enshrining the UNECE principles exists and protects participatory rights, the international legal framework, although constantly developing, is still significantly less mature than the Aarhus and Espoo frameworks. The practice arising from these conventions warns about the challenges of public participation in the nuclear sector, but past developments also offer examples of good practice to enhance public participation in nuclear activities and energy strategies.

DATA AVAILABILITY STATEMENT

Data sharing not applicable - no new data generated

¹⁴⁷ACCC/C/2013/92 (n 89) paras 90–94.

¹⁴⁸See nuclear-related cases in which the question of access to justice was addressed: ACCC/C/2010/50 (n 86); ACCC/C/2013/89 (n 73); ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2013/106 Concerning Compliance by Czechia' UN Doc ECE/MP.PP/C.1/2020/3 (23 December 2019); ACCC 'Findings and Recommendations with Regard to Communication ACCC/C/2015/128 Concerning Compliance by the European Union' UN Doc ECE/MP.PP/C.1/2021/21 (10 September 2021); ACCC/C/2016/143 (n 98).

¹⁴⁹IEA, 'Nuclear Power' (2020) <<https://www.iea.org/reports/nuclear-power>>.

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Priska Lueger works for ÖKOBÜRO, an alliance of environmental organizations that have been involved in procedures before the Aarhus Convention Compliance Committee. The content of this article, however, reflects her personal legal opinion. There are no direct links to previous casework.

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