

PEACEFUL USE OF NUCLEAR ENERGY IN INTERNATIONAL LAW

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Abstract: the peaceful use of nuclear energy occupies a unique position in the framework of public international law: it embodies both a right of States and a subject for rigorous normative control. This article analyses the legal foundations of that right, the institutional regime supporting peaceful nuclear cooperation, and the balancing of non-proliferation obligations with the development of civil nuclear technologies. It argues that while the right to peaceful nuclear energy is firmly embedded in the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and related instruments, operationalising it in a globally consistent and equitable manner remains a challenge. Key themes include the meaning of “peaceful purpose”, the legal obligations of States parties, and how international law may evolve to better support safety, security and development goals.

Keywords: Peaceful nuclear energy, international law, non-proliferation, nuclear safety, IAEA safeguards.

Introduction

The harnessing of atomic energy for peaceful purposes has been a hallmark of modern international cooperation since the mid-20th century. From the dawn of the nuclear era it was clear that the same technologies that enable power generation and medical applications could also serve destructive ends. The legal regime surrounding nuclear energy thus has a dual character: it promotes beneficial

civilian uses, and simultaneously contains robust safeguards to prevent misuse. This dual nature gives rise to tensions in international law: between the right of States to utilise nuclear energy for peaceful purposes and their obligations to restrict proliferation, guarantee safety, and ensure security.

Normative Legal Basis

Article IV of the NPT provides that 'Nothing in this Treaty shall be interpreted as affecting the inalienable right of all the Parties to the Treaty to develop research, production and use of nuclear energy for peaceful purposes...'¹ This provision recognises a right of States to pursue peaceful nuclear technology under safeguards and non-proliferation regimes. However, this right is conditioned by the obligation to comply with other treaty provisions. Interpretation of 'peaceful purpose' remains central to understanding the scope of this right.

The International Atomic Energy Agency (IAEA) plays a central role in overseeing the peaceful use of nuclear energy through its safeguards system.² The NPT, regional treaties, and bilateral cooperation agreements form a network of legal instruments regulating nuclear activities. Export controls and technology-transfer arrangements also shape how States access and share nuclear materials.

International law must strike a balance between three interrelated objectives: (1) the right to develop nuclear energy for peaceful purposes; (2) the need to ensure nuclear safety and security; and (3) the imperative to prevent

¹ Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature 1 July 1968, 729 UNTS 161 (entered into force 5 March 1970).

² ElBaradei, M., 'International Law and Nuclear Energy: Overview of the Legal Framework' (1995) International Atomic Energy Agency Bulletin 37(2).

nuclear weapons proliferation. These goals can at times conflict, especially when States with limited technological capacity seek access to advanced nuclear technologies. The law must evolve to promote equitable access while maintaining strict safeguards.³

Modern challenges include the emergence of new reactor technologies, questions of equitable access to nuclear materials, and the sustainability dimension of nuclear energy. Strengthening international cooperation, improving national legal frameworks, and enhancing IAEA verification capacities are essential steps.⁴

Conclusion

The peaceful use of nuclear energy represents not only a fundamental right but also a profound responsibility under contemporary international law. Rooted in the principles of the Nuclear Non-Proliferation Treaty (NPT) and the Statute of the International Atomic Energy Agency (IAEA), this dual character underscores both the entitlement of States to access nuclear technology for civilian purposes and their obligation to prevent its misuse. As nuclear science continues to advance and new geopolitical realities emerge, these legal foundations must evolve to address issues of safety, transparency, and equitable access to technology. Strengthening the existing framework requires continuous cooperation among States, international institutions, and scientific communities. Future international legal instruments should therefore integrate the principles of security, safety, equity, and sustainable development, ensuring that the use of nuclear energy

³ Joyner, D.H., 'The Right to Peaceful Nuclear Energy' (2015) 20 Journal of Conflict & Security Law 423.

⁴ Jonas, D.S., 'What's Intent Got to Do with It? Interpreting "Peaceful Purpose" in International Nuclear Law' (2018) 32 Emory International Law Review 255.

remains genuinely peaceful and contributes to global progress rather than new risks or divisions.

REFERENCES

¹ Treaty on the Non-Proliferation of Nuclear Weapons, opened for signature 1 July 1968, 729 UNTS 161 (entered into force 5 March 1970).

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